

## Chi-Huey Wong

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### Education:

B.S. (1966-1970) and M.S. (1975-1977) in Biochemical Sciences, National Taiwan University

Ph.D. in Chemistry (1979-1982), Department of Chemistry, MIT

Postdoctoral Fellow (1982-1983), Department of Chemistry, Harvard University

### Academic Appointments:

1983-1989: Assistant Professor (1983–1986), Associate Professor (1986–1987), and Professor (1987–1989) of Chemistry, Texas A&M University.

1989-2006: Professor and Ernest W. Hahn Chair in Chemistry, The Scripps Research Institute.

1991-1999: Head, Frontier Research Program on Glycotechnology, RIKEN, Japan.

1996-2006: Member, the Skaggs Institute for Chemical Biology, The Scripps Research Institute.

2003-2006: Director, Genomics Research Center, Academia Sinica, Taipei, Taiwan.

2006-2016: President and Distinguished Research Fellow, Academia Sinica, Taipei, Taiwan.

2016-2019: Distinguished Research Fellow, Genomics Research Center, Academia Sinica, Taipei, Taiwan (with joint appointment as Professor of Chemistry, The Scripps Research Institute)

2019-Present: Scripps Family Chair Professor of Chemistry, The Scripps Research Institute (with joint appointment as Distinguished Research Fellow, Genomics Research Center, Academia Sinica, Taiwan).

### Awards:

- Searle Scholar Award in Biomedical Sciences, USA (1985–1988).
- Presidential Young Investigator Award in Chemistry, USA (1986–1991).
- American Chemical Society Arthur C. Cope Scholar Award (1993).
- The Roy Whistler Award of International Carbohydrate Organization (1994).
- The ACS Division of Carbohydrate Chemistry Melville L. Wolfrom Award (1995).
- The Taiwanese American Foundation Prize in Science and Engineering (1997).
- The American Chemical Society Harrison Howe Award in Chemistry (1998).
- The American Chemical Society Claude S. Hudson Award in Carbohydrate Chemistry (1999).
- The International Enzyme Engineering Award (1999).
- The American Chemical Society San Diego Section Outstanding Scientist Award (1999).
- The Presidential Green Chemistry Challenge Award, USA (2000).

- NIH Merit Award, USA (2001).
- The American Chemical Society Award for Creative Work in Synthetic Organic Chemistry (2005).
- The Georges Smets Chair Award for Organic Chemistry, Louvain-la-Neuve, Belgium (2006).
- Humboldt Research Award for Senior Scientists, Germany (2006).
- The F. A. Cotton Medal for Excellence in Chemical Research, USA (2008).
- National Science Council Science Professional Gold Medal, Taiwan (2009).
- The American Chemical Society Arthur C. Cope Award (2012).
- The Nikkei Asia Prize for Science, Technology and Innovation, Japan (2012).
- The Wolf Prize in Chemistry (2014).
- The Royal Society of Chemistry Robert Robinson Award, UK (2015).
- The Robert A. Welch Award in Chemistry (2021).
- Chemical Pioneer Award, American Institute of Chemists (2022).
- Tetrahedron Prize for Creativity in Organic Synthesis (2022).
- Barry Cohen International Award, Israel Chemical Society (2023).
- FACS Foundation Lectureship, The Federation of Asian Chemical Societies (2023).

#### **Elected Members:**

- Elected Member of Academia Sinica, Taiwan (1994).
- Elected Member of The American Academy of Arts and Sciences (1996).
- Elected Member of the US National Academy of Sciences (2002).
- Elected Fellow of the American Association for the Advancement of Science (2005).
- Elected Member of the World Academy of Sciences (2007).
- Elected Associate Member of the European Molecular Biology Organization (EMBO) (2010).
- Elected Fellow of the U.S. National Academy of Inventors (2014).
- Elected Laureate of ITRI (Industrial Technology Research Institute, Taiwan) (2020)

#### **Other Professional Honors and Activities:**

- Member, NIH Biomedical Sciences Study Section (1993–1995), NIH Bioorganic and Natural Products Chemistry Study Section, USA (1995–1999).
- The Chinese American Chemical Society Distinguished Research Achievement Award (1994).
- Visiting Professor, Chemical Center, University of Lund, Sweden (1995–1998).
- Distinguished Visiting Scholar, Institute of Chemistry (1999–2002) and Corresponding Research Fellow, Institute of Biological Chemistry, Academia Sinica, Taipei (1996–2002).

- Honorary Professor, Shanghai Institute of Organic Chemistry, Chinese Academy of Sciences, (1999).
- Selected by ISI as one of the 100 most cited chemists in the world for the period (1981–1999).
- Doctor, Scientiarum Honoris Causa, Technion – Israel Institute of Technology, Israel (2007).
- Honorary Doctorate, National Yang-Ming University, Taipei, Taiwan (2007).
- Honorary Fellow, the Chemical Research Society of India (CRSI), India (2007).
- Honorary Doctorate, National Sun Yat-sen University, Taiwan (2008).
- Honorary Doctorate, City University of Hong Kong, Hong Kong (2009).
- Honorary Doctorate, National Chung Hsing University, Taiwan (2010).
- Honorary Doctorate, Kaohsiung Medical University, Taiwan (2011).
- Honorary Doctorate, National Chiao Tung University, Taiwan (2011).
- Honorary Doctorate, National Tsing-Hua University, Taiwan (2011).
- Distinguished Fellow, University of Malaya (2012).
- President, Institute for Biotechnology and Medicine Industry (IBMI), Taiwan (2019-).
- One of the top 100 chemists in the world (2023). 2023 - Research.com Chemistry in United States Leader Award. 2022 - Research.com Best Scientist Award. 2023 - Research.com Biology and Biochemistry in United States Leader Award. The Low-Sugar Vaccination Technology was selected by IUPAC in 2023 as one of top ten emerging technologies in chemistry. Current H-Index: 157.
- Member of NIH Special Emphasis Panel on “Research and Development of Vaccines and Monoclonal Antibodies for Pandemic Preparedness (ReVAMPP) (2023).

#### **Advisory Activity:**

- Advisory Board Member: Journal of Organic Chemistry (1993–1997); Journal of Chemical Society, Perkin Transaction 1 (1993–2002); ChemBioChem (2005-2015); The Journal of the American Chemical Society (2005–2011); Chemistry–An Asian Journal (2006–2017); Angewandte Chemie (2010–2017), Advanced Synthesis and Catalysis (2011-2013).
- Editorial Board Member: Drug Discovery Today (1996–1999); Current Opinion in Chemical Biology (1998–present); Advanced Synthesis and Catalysis (2000–2010).
- Founder, Combichem, Inc., San Diego, CA (1994); Founder, Board Member, and Chairman of the Scientific Advisory Board, Optimer Pharmaceuticals, Inc., San Diego (1999–2006).
- Consultant for Dow Chemical (1983–1988), W.R. Grace (1984–1987), Amgen (1991–1993), Dow Corning (1992–1994), Abbott Laboratories (1991–1994), Lilly Research Laboratories (1991–1993), Mitsubishi Chemical Group Science and Technology Research Center, Japan (2005–2006).
- Scientific Advisor for: Amylin (1989–1993), Oncogene Science (1993–1998), Cytel (1991–1997), Affymax (1992–1995), ArQule (1994–1995), Kosan Biosciences (1997–2002), Pharmanex (1997–2006), Advanced Medicine (now Theravance) (1997–2000), Combichem (1994–1998), Momenta (2001–2003), Diversa (2001–2006), Institute of Chemistry (1992–2000; Chairman of the Board, 1994–2000) and Institute of Biological Chemistry (1994–2002), Academia Sinica, Taipei; Institute of Molecular and Cell Biology, National University of Singapore (1994–1997), Industrial

Technology Research Institute (ITRI), Taiwan (2004–2006), Development Center for Biotechnology (DCB), Taiwan (2004–2006 & 2009–present); BioTaiwan Committee, Executive Yuan, Taiwan (2005–); OBI Pharma, Taiwan (2017–present); CHO Pharma, Taiwan (2016–2021); Delos Capital (2021–); Rock BioMedical, Inc. Taiwan (2022–).

- Member, Scripps/Novartis Joint Scientific Council (1993–2006).
- Editor-in-Chief, Bioorganic & Medicinal Chemistry (1993–2010).
- Member of Executive Board of Editors for the Tetrahedron Publications (1993–2010), Chairman of the Board (2006–2008).
- Scientific Advisor for Max-Planck Institute at Dortmund, Germany (2000–2008).
- Member of National Research Council on Chemical Sciences & Technology, USA (2000–2004).
- Member, 8<sup>th</sup> and 9<sup>th</sup> RIKEN Advisory Council (RAC) (2011 & 2014).
- Chief Science Advisor to Executive Yuan, Taiwan (2006–2011), Member, Board of Science and Technology (2012–2016, 2023–), Executive Yuan, Taiwan.
- Member, Steering Committee of the NIH/Lilly TB Drug Discovery Initiative (2009 – 2017).
- Member, Board of Scientific Governors, The Scripps Research Institute (2009 – 2016).
- Member, Committee on Assessing the Importance of Glycoscience and Glycomics, National Research Council USA (2011–12). A report published in 2012 on “Transforming Glycoscience: A Roadmap for the Future.”
- Member, High Impact Research (HIR) Advisory Council, University of Malaya (2012–2015).

#### **Plenary and Named Lectures:**

1984: 188th ACS National Meeting.

1985: NATO Advanced Research Workshop.

1986: US/Japan Biotechnology Conference, Japan. International Symposium on “Biocatalysis in Organic Media,” Wageningen, the Netherlands; 5<sup>th</sup> International Symposium on Life Science: Prospects for Enzyme Technology, Kyoto.

1987: The Pittsburg–Cleveland Catalysis Society Meeting: Frontiers in Catalysis. Gordon Research Conference on Organic Reactions and Processes; The 18<sup>th</sup> Annual NSF Workshop on Organic Synthesis and Natural Products Chemistry; The 87<sup>th</sup> American Society of Microbiology Meeting, Atlanta. 194<sup>th</sup> ACS National Meeting, New Orleans. Biotechnica ‘87, Hannover.

1988: Symposium on Biotransformation, The Society of General Microbiology, University of Southampton, UK (2/2); Symposium on Bioorganic Synthesis, Swedish Academy of Sciences (2/3). ACS Regional Meeting, 22<sup>nd</sup> MARM Symposium on Organic Synthesis (5/24); ACS central regional meeting, Symposium on New Synthetic Strategy, West Virginia (6/2); Gordon Research Conference on Stereochemistry, New Port (7/4); Conference on Biocatalytic Synthesis of Organic Compounds, New York (8/8); Symposium on Molecular Recognition Phenomena, Royal Society of Chemistry and Swiss Chemical Society (9/11).

- 1989: French American Chemical Society 1st Meeting, Paris (6/5–6/8).
- 1990: University of Illinois, Frontier in Enzyme Chemistry (3/17); Texas A&M IUCCP Program (3/19); ACS National Meeting, Boston, Division of Carbohydrate Chemistry (4/25); Gordon Conference on Natural Products (7/22); IUMS Congress, Osaka (9/16); Society for Complex Carbohydrates, La Jolla (10/12).
- 1991: US–Japan Conference on Biotechnology, Hawaii (1/6); The 13<sup>th</sup> Annual Conference on Clinical Laboratory Molecular Analysis (2/14); Frontiers in Biomedical Research, Annenberg Center, Palm Springs (2/18); Merck lecturer, University of Alberta, Chemistry (3/18); US–Japan Conference on Selectivity in Synthetic and Bioorganic Chemistry, Tokyo (6/3); ASM Biotechnology Conference, New York (6/27); ACS National Meeting/Fourth North American Congress (8/28); European Peptide Society, Enzymes in Peptide Synthesis, IEC-Bogensee, Germany (9/2); Enzyme Engineering, Hawaii (9/25); International Biotechnology Conference, San Francisco (10/27); Rhone-Poulenc's 14<sup>th</sup> Scientific Sessions, Frontiers in Chemistry and Biology, Paris (11/19); International Symposium on Bioorganic Chemistry, University of Chicago (11/22).
- 1992: Symposium on Enzymes in organic synthesis, IUPAC meeting in New Delhi, India (1/6); NATO Meeting on Microbial Reagents in Organic Synthesis (3/23); Symposium on Enzymes in organic chemistry: Synthetic and mechanistic aspects, The Organic Chemistry Division, The Royal Netherlands Chemical Society (4/9); Monsanto lecturer, Purdue University (5/4); International Workshop on New Aspects of Biocatalysis, Kyoto University (6/12); 4<sup>th</sup> International SCBA Symposium, Singapore (6/14); IUPAC International Carbohydrate Symposium, Paris (7/5–7/10); Syntex lecturer, Colorado State University (11/19–11/20); Symposium on the Preparation of Enantiomerically Pure Compounds, Societe Royale de Chimie, Belgium (10/22–10/23); International Symposium on Gangliosides, Tokyo (11/5).
- 1993: Merck-Frosst lecturer, University of Victoria (1/21); International Symposium on Bioorganic Chemistry, Interlaken, Switzerland (3/31–4/2); the 28<sup>th</sup> ESF/EUCHEM Conference on Stereochemistry-Burgenstock (5/2–5/8); Harvard University Mini-Symposium in Organic Chemistry (5/17); Complex Carbohydrate for Drug Research, Denmark (6/6–6/10); Carbohydrate Gordon Research Conference (7/5–7/8); Chiron lecturer, UC-Berkeley (9/7).
- 1994: Bristol-Myers Squibb Distinguished Lecturer, Syracuse University, New York (4/5); Sino-American Symposium on Asymmetric Synthesis, Taiwan (4/8); New Perspective in drug design, Thurnberry, Scotland (4/11); CHI's Glycotechnology Conference, San Diego (5/16); Organizer and Plenary Lecturer, Table Ronde on Biomolecular Recognition and Catalysis, Paris (7/8–7/9); International Carbohydrate Award lecturer, International Carbohydrate Symposium, Ottawa (7/18); IASOC Conference, Ischia, Italy (9/25); W. S. Johnson Symposium in Organic Chemistry, Stanford University (10/7); 6<sup>th</sup> Annual Glaxo-UNC Frontiers in Chemistry and Medicine Symposium (11/7).
- 1995: International Symposium on Protein Structure and Function, U. Exeter, UK (4/19); Contemporary Challenges in Carbohydrate Chemistry, 1995 UM/PD Symposium, Ann Arbor (4/28); Merck lecturer, University of Cambridge, England (5/10); Tetrahedron Symposium, Kyoto (5/26); The 10<sup>th</sup> Nozaki Conference, Nagoya (6/15); International Heterocycle Chemistry, Taipei (8/7); Nobel Symposium on Catalytic Asymmetric Synthesis, Stockholm (9/3); The 7<sup>th</sup> International Symposium on Chiral Discrimination (ISCD), Jerusalem (11/12).

- 1996: Swiss Chemical Society (5/23); IUPAC Conference on Organic Synthesis, Amsterdam (6/30); The 4<sup>th</sup> International Symposium for Chinese Organic Chemists, Hong Kong (4/5); Wyeth-Ayerst lecturer, Columbia University (4/19); The Royal Society of Chemistry Annual Meeting, Perthshire, Scotland (9/12); ACS Princeton Organic Chemistry Symposium (9/27).
- 1997: Israel Chemical Society (2/3); Distinguished Visiting Professor, Department of Chemistry, University of Florida (2/12); the Royal Society of Chemistry Carbohydrate Division (3/24); ACS William Johnson Symposium (4/14); Keynote lecturer, 2<sup>nd</sup> Carbohydrate Bioengineering, La Rochelle, France (4/15); C. H. Li Memorial lecturer, Academia Sinica, Taipei (5/2); 9<sup>th</sup> European Carbohydrate Symposium (6/11); 35<sup>th</sup> ACS National Organic Chemistry Symposium (6/22); Sponsored lecturer, 6<sup>th</sup> International Symposium on the synthesis and application of isotopes and isotopically labeled compounds, Philadelphia (9/14); Frontier in Chemical Research Program, Texas A&M University (10/13).
- 1998: Allelix lecturer, Department of Chemistry, University of Toronto, (5/7); 26<sup>th</sup> National Medicinal Chemistry Symposium, Richmond, Virginia, (6/15); 20<sup>th</sup> Japanese Carbohydrate Symposium (7/15); ACS Symposium on Asymmetric synthesis of Fluoroorganic Compounds, Boston (8/23); Tetrahedron Prize Symposium, Boston (8/26); The 17<sup>th</sup> International Symposium on the Life Sciences, Kyoto (11/4).
- 1999: Paul Gassman lecturer, Department of Chemistry, University of Minnesota, Minneapolis (6/1); The 37<sup>th</sup> IUPAC Congress, Berlin (8/14); The 1999 Naff Symposium on Carbohydrates and Cell Recognition (4/16); Enzyme Engineering XV (10/10). Frontiers in Bioorganic Chemistry 2000, Taipei (10/29).
- 2000: The Knud Lind Larsen Symposium on Chirality, Danish Academy of Technical Sciences (1/27); The Eighth International Kyoto Conference on New Aspects of Organic Chemistry (IKCOC-8), Kyoto (7/11); the Gordon Conference on Green Chemistry, Connecticut (7/18); International Carbohydrate Conference, Hamburg (8/22); The Novartis lecturer, Budapest (10/22); International Chemical Congress of Pacific Basin Societies, Honolulu (12/18).
- 2001: the Royal Society of Chemistry Carbohydrate Group, Dublin, Ireland (4/4); the International Conference on Green Chemistry, Wales Swansea, UK (4/6); Gordon Research Conference on Bioorganic Chemistry, New Hampshire (6/17); Enzyme Engineering XVI Conference, Potsdam, Germany (10/7); Robert A. Welch Foundation Conference on Chemistry for the 21<sup>st</sup> Century, Houston (10/29); Merck lecturer, Wayne State University (11/4).
- 2002: International Conference on Industrial Applications of Biocatalysis, San Diego (3/21); Health Care Ventures Scientific Advisory Board Retreat, Palm Beach (4/10); First ICI Conference on Contemporary Asymmetric Catalysis (9/12); The Merck lecturer, University of Cambridge, UK (9/22). IUPAC Conference on Natural Products, Florence, Italy (7/29).
- 2003: Treat B. Johnson Lecture, Yale University (2/19); International Bioinspiring Conference, Haifa, Israel (12/8); International Enzyme Engineering Conference, Santa Fe, New Mexico (11/9).
- 2004: 3<sup>rd</sup> International Proteomics Conference, Taipei (5/17); Ralph and Helen Oesper Symposium, University of Cincinnati (10/15); The 4<sup>th</sup> Tateshima Conference in Organic Chemistry, Tokyo, Japan (11/12); Yousei University lectureship, Seoul, Korea (11/16); International Symposium on Current Therapeutics Development for Infectious Diseases, Taipei, Taiwan (12/16).

- 2005: 3<sup>rd</sup> Annual Conference on Glycomics—Carbohydrates in Drug Development, San Diego (3/21); American Society for Biochemistry and Molecular Biology (ASBMS), San Diego (4/2); Wyeth Ayerst lecturer, University of Pennsylvania (4/12); Arnold O. Beckman lecturer, California Institute of Technology (5/18); Commissariat a L'energie Atomique u Centre de Sacly, Paris, France (6/27); Tetrahedron Symposium, Bordeaux, France (6/28); Tetrahedron Prize Symposium, 2005 American Chemical Society Meeting, Washington D.C. (8/29); Royal Society of Chemistry-Fluorine Group, Oxford, UK (9/1–9/2); Harry Day lecturer, Indiana University (9/14).
- 2006: Smets Chair Award, Louvain-la-Neuve, Belgium (3/13–3/14); Keynote speaker, CHI's 4<sup>th</sup> Annual Glycomics and Carbohydrates in Drug Development, San Diego (3/23–3/24); Keynote lecturer, CACS 25<sup>th</sup> Anniversary Symposium, Atlanta (3/27); Trends in Organic Chemistry: Enzymatic Synthesis, Stockholm (9/4); Keynote speaker, Joint third AOHUPO and Fourth International Structural Biology and Functional Genomics Conference, Singapore (12/4–12/7).
- 2007: Novartis Lecturer, Columbia University (1/29); Claude S. Hudson Award Symposium, 233<sup>th</sup> ACS National Meeting, Chicago (3/25); Organic Chemistry—Present & Future, International Symposium Organized in Honor of Prof. Léon Ghosez, Louvain-la-Neuve, Belgium (4/10–4/13); 24<sup>th</sup> Herbert C. Brown Lecture, Purdue University (4/19); Gordon Research Conferences—Carbohydrates, Tilton School, New Hampshire (6/17); Tetrahedron Symposium, Berlin (6/28); International Symposium on Molecular Immunology of Complex Carbohydrates, Academia Sinica, Taipei (7/9); Eli Lilly Lecture, Yale University (9/19); The 4<sup>th</sup> Takeda Science Foundation Symposium on Pharma Sciences, Tokyo (12/3).
- 2008 The 10th CRSI (Chemical Research Society of India) National Symposium—Honorary Fellow Award & Lecture, Bangalore, India (2/1~2/3); Monte Jade Annual Conference—Dinner Keynote Speech, Santa Clara Convention Center, CA (3/8); The 4<sup>th</sup> Symposium: Innovation COE Program for Future Drug Discovery and Medical Care, Hokkaido University, Japan (3/14); Cotton Medal Symposium, Texas A & M University (3/24~3/26); Joint 7<sup>th</sup> Human Genome Organization-Pacific Meeting and the 8<sup>th</sup> Asia Pacific Conference on Human Genetics, Cebu, the Philippines (4/2~4/5); ASBMB Meeting, San Diego (4/5~4/9); International Congress on Bioactive Molecules and the 3<sup>rd</sup> International Symposium on Medicinal and Aromatic Plants, Oujda, Morocco (5/28~5/29); IUPAC ICOS-17, the 17<sup>th</sup> IUPAC International Conference on Organic Synthesis, Daejeon, Korea (6/24~6/26); Tetrahedron Symposium, Berkeley, California (7/22~7/26); Howard Lectures, University of Sydney, Sydney, Australia (8/6~8/8); Tetrahedron Prize Symposium and the 236<sup>th</sup> ACS Meeting, Philadelphia (8/17~8/22); NRC-NSC Eminent Researchers Program (9/2~9/6); EMBL Conference on Chemical Biology 2008, Heidelberg, Germany (10/8~10/11); 50<sup>th</sup> Anniversary of Microbial Chemistry Research Foundation, Tokyo (10/30); ISOR-2008, International Symposium on Organic Reactions, Taiwan (11/23).
- 2009 Harvard Business School Asia Business Conference, Boston (2/14~2/15); Scripps Scientific Governors Inaugural Symposium, Florida (2/26~2/27); 237<sup>th</sup> ACS Meeting Claude Hudson Award in Carbohydrate Chemistry Symposium, Salt Lake City (3/22~3/26); SAPA-Monte Jade Annual Conference, New England and 11th SAPA-NE (Sino-American Pharmaceutical Professionals Association) Annual Conference, Philadelphia, (5/16); TAITA 2009 Annual Conference, San Francisco (5/23); Merck KGaA, Darmstadt, Germany (5/26~5/27); Final Symposium of SFB 470: From Glycobiology to Glycochemistry, University of Hamburg (5/28~5/29); The 238<sup>th</sup> ACS Meeting, Washington D.C. (8/16~8/20); 11th Conference on Chitin and Chitosan, Taiwan (9/7); The 1st Hokkaido University-Academia Sinica Joint Symposium and The 7th Symposium for

- Future Drug Discovery and Medical Care, Hokkaido, Japan (10/7~10/8); 3<sup>rd</sup> International Symposium on Bio-Inspired Engineering, Taiwan (10/21~10/23), Peiking University (10/22~10/26); City University of Hong Kong and Chinese University of Hong Kong (11/9~11/11).
- 2010 7th International Symposium for Chinese Medicinal Chemists (ISCMC-2010), Kaohsiung, Taiwan (2/1~2/5); XII International Symposium on Respiratory Viral Infections, Taipei (3/11~3/14); Conference of Presidents of Academies and Scholarly Societies: in celebration of the 50<sup>th</sup> anniversary of The Israel Academy of Sciences and Humanities, Israel (3/14~3/20); EMBL Conference, Hamburg (5/5~5/7); The 21st Banyu Life Science International Sendai Symposium, Sendai, Japan (6/5); Konstanz Symposium Chemical Biology, Konstanz, Germany (6/16~6/18); Humboldt University, Germany (6/24); The Inaugural (1st) International Conference on Molecular and Functional Catalysis, Singapore (7/11~7/15); 25th International Carbohydrate Symposium (ICS 2010), Tokyo, Japan (8/1~8/6); the 240th ACS National Meeting, Boston (8/22~8/26); Taiwan Swiss Biomedical Symposium, Taiwan (8/31~9/2); Univ. of Notre Dame Reilly Lectureship (9/13~9/15); UCSD/Taiwan Symposium on Frontiers in Biosciences, San Diego (9/16~9/17); 11th Int'l Symposium for Chinese Organic Chemists, Taiwan (10/24~10/26); RIKEN Chemical Biology Symposium (10/26~10/28); UC Berkeley Green Chemistry Seminar (12/6).
- 2011 76th Israel Chemical Society Meeting, Israel (2/9~2/10); Frontiers in Biomedical Research Symposium, Palm Spring (2/20~2/23); Infectious Disease Research Institute, Seattle (3/1); 2011 R. Bryan Miller Symposium, UC-Davis (3/3~3/4); The 241<sup>st</sup> ACS Meeting and the Claude S. Hudson Award Symposium, Anaheim (3/27~3/31); University of Namur, Belgium (4/8); European Young Investigator Workshop on Carbohydrate Chemistry: From Synthesis to Applications, Lyon, France (4/11~4/15); 9th Carbohydrate Bioengineering Meeting (CBM9), Lisbon, Portugal (5/15~5/18); 2011 Keystone Symposium on Pathogenesis of Influenza: Virus-Host Interactions, Hong Kong (5/23~5/28); 21st International Symposium on Glycoconjugates, Vienna, Austria (8/21-8/26); 31st Naito Conference on Glycan Expression and Regulation, Sapporo, Japan (9/13~9/16); International Symposium on Cancer Translational Research, Taipei (11/19~11/20); 8th AFMC International Medicinal Chemistry Symposium, Tokyo, Japan (11/29~12/2).
- 2012 The 243<sup>rd</sup> ACS Meeting, San Diego (3/25~3/29); The 244<sup>th</sup> ACS Meeting, Philadelphia (8/19~8/23); Taiwan-UK Conference on Life Sciences, Oxford, England (9/1~9/2); Sialoglyco 2012 International Symposium, Taipei (9/9); 13th FAOBMB Congress, Bangkok (11/25~11/26).
- 2013 7th Glycan Forum, Berlin, Germany (3/20~3/22); 2013 Boston Taiwanese Biotechnology Symposium, Boston, USA (6/15); 17th European Carbohydrate Symposium (EuroCarb 17), Tel Aviv, Israel (7/7~7/11); The Solvay Conference, Brussels, Belgium (10/16~10/19); 4th Asian-Oceanian Conference on Green and Sustainable Chemistry (AOC-4 GSC), Taipei, (11/4); From Molecules to Medicine, the first Israel – Taiwan Life Science Conference, Taipei, (12/9~12/11).
- 2014 27th International Carbohydrate Symposium, Bangalore, India (1/12~1/17); 7th General Assembly and International Conference of Asian Pacific Organization for Cancer Prevention, Taipei (3/21); Sialoglyco 2014 Meeting, Australia (9/7~9/10); 15th IUBMB-24th FAOBMB-TSBMB International Conference, Taipei (10/21~10/26); 2014 Joint Meeting of Society for Glycobiology and Japanese Society of Carbohydrate Research, Honolulu, Hawaii (11/16~11/19)
- 2015 The 249<sup>th</sup> ACS Meeting, Denver, Colorado, USA (3/22~3/26); SCBA Symposium, Taipei, Taiwan (6/26~6/29); The 250<sup>th</sup> ACS Meeting, Boston, USA (8/16~8/20); Glyco23 Congress, Croatia



(9/15~9/20); 2nd Shanghai Tech-SIAIS Bioforum, Shanghai (11/10~11/12); ASCB (American Society for Cell Biology) Annual Meeting, San Diego (12/12).

- 2016 The Einstein Lecturer, Israel Academy of Sciences (3/14); The 251<sup>st</sup> ACS Meeting, San Diego (3/16~3/17); The 251<sup>st</sup> ACS Meeting, San Diego, USA (3/16~3/17); AAI (American Association of Immunologists) Satellite Meeting, Seattle (5/14); ASCO Annual Meeting, Chicago, USA (6/3~6/7); 23rd Pacific Science Congress, Taipei, Taiwan (6/13~6/17). ACBC (4th Asian Chemical Biology Conference), Kaohsiung, Taiwan (11/28). Special IUBMB Meeting: Frontiers in Glycoscience: Host-Pathogen Interactions (12/12).
- 2017 Academia Sinica-Osaka Bilateral Symposium, Taipei, (10/12). EMBO Event, Taipei, (11/20); IUBMB Special Meeting on “Frontiers in Glycoscience: Oncology”, Taipei, Taiwan (12/4).
- 2018 2018 Bowei Science Conference (BSC): From Chemistry to Material Design, Hsin-Chu, Taiwan (1/5~1/7). Israel-Taiwan Life Science Conference, Taipei, Taiwan (11/14~11/15). 10th ACGG Conference, Tainan, Taiwan (11/18~11/21).
- 2019 2019 Gordon Research Conference (GRC) on Carbohydrates (6/23~6/28), Hong Kong; The 8<sup>th</sup> Asian Chemical Conference, Taipei (Dec 8-12).
- 2020 The 14<sup>th</sup> Meeting of the Asia-Pacific Federation of Pharmacologists (APFP) (5/3~5/6) (Canceled); PacifiChem, Hawaii (Dec 15-20) (Canceled).
- 2021 The 14<sup>th</sup> Meeting of the Asia-Pacific Federation of Pharmacologists (APFP), Taipei (11/26-11/29); Andrew University (Sept 23); Stanford University, Chemistry (Oct 6); Welch Chemical Conference, Houston, Texas (Oct 26).
- 2022 ACS National Meeting, San Diego (3/22); 30<sup>th</sup> International Carbohydrate Symposium, Brazil (July 12).
- 2023 ACS National Meeting, Indianapolis, USA (March 28); Tetrahedron Symposium, Gothenburg, Sweden (June 27-30); Federation of Asian Chemical Societies (FACS) Foundation Lecture Award, Istanbul, Turkey (July 9-14); Israel Chemistry Society Barry Cohen International Medicinal Chemistry Award (July 20); ACS National Meeting and Tetrahedron Prize Award Symposium, San Francisco (August 13-17); International Glycoconjugate Conference, Taipei (August 27).

### **Principal areas of research interest:**

Chemical Biology and Synthetic Chemistry: development of new tools and methods for understanding the role of glycosylation in biology and disease progression; chemo-enzymatic synthesis of complex carbohydrates and glycoproteins; design of small-molecule probes for the study of carbohydrate-mediated biological recognition; programmable one-pot oligosaccharide synthesis and glycan microarray development; vaccine design and drug discovery against infectious diseases and cancers.

## Published Papers:

1. N.-Y. Chen, C.-W. Lin, T.-Y. Lai, C.-Y. Wu, P.-C. Liao, T.-L. Hsu, C.-H. Wong, "Increased Expression of SSEA-4 on TKI-resistant Non-small Cell Lung Cancer with EGFR-T790M Mutation", *Proc. Natl. Acad. Sci. U.S.A.* *121*, e2313397121 (2024).
2. K.-S. Liao, C.-C. Kung, L.-C. Cheng, C. Chung, C.-H. Wong, "Synthesis and Quantitative Analysis of Glycans Conjugated to Gold Nanoparticles" *Helv. Chem. Acta* (2024). doi.org/10.1002/hlca.202300209
3. C.-Y. Fan, S.-W. Wang, C. Chung, C.-Y. Chen, C.-Y. Chang, Y.-C. Chen, T.-L. Hsu, T.-J. R. Cheng, C.-H. Wong, "Synthesis of Dendritic Cell-Targeted Polymeric Nanoparticles for Selective Delivery of mRNA Vaccines to Elicit Enhanced Immune Responses", *BioRxiv* (2023). doi: <https://doi.org/10.1101/2023.11.13.566827>.
4. H.-W. Huang, V. S. Shivatare, T.-H. Tseng, C.-H. Wong, "Cell-based production of Fc-GlcNAc and Fc-alpha-2,6 sialyl glycan enriched antibody with improved effector functions through glycosylation pathway engineering" *BioRxiv* (2023), doi.org/10.1101/2023.12.18.572280
5. C.-Y. Fan, S.-W. Wang, J.-Y. Chen, and C.-H. Wong, "Synthesis and Assembly of mRNA-Bifunctional Lipid Nanoparticle (BLNP) for Selective Delivery of mRNA Vaccines to Dendritic Cells" *BioRxiv* (2023). doi: <https://doi.org/10.1101/2023.12.26.572282>.
6. H.-W. Huang, C.-C. Chen, K.-I. Lin, T.-L. Hsu, C.-H. Wong, "Single Site N-Glycosylation of B Cell Maturation Antigen Inhibits  $\gamma$ -Secretase-mediated Shedding and Improves Surface Retention and Cell Survival", *ACS Chem. Biol.* (2023). <https://doi.org/10.1021/acscchembio.3c00592>.
7. C.-W. Cheng, C.-Y. Wu, S.-W. Wang, J.-Y. Chen, C.-C. Kung, K.-S. Liao, C.-H. Wong, "Low-Sugar Universal mRNA Vaccine against Coronavirus Variants with Deletion of Glycosites in the S2 or Stem of SARS-CoV-2 Spike mRNA" *Proc Natl Acad. Sci. U.S.A.* *120*, e2314392120 (2023). PMID: 38011546 DOI: 10.1073/pnas.2314392120
8. C.-C. Chen, H.-W. Huang, B.-R. Chen, C.-H. Wong, "Quantitative Mass Spectrometric Analysis of Hepatocellular Carcinoma Biomarker Alpha-Fetoprotein", *RSC Chem. Biol.* (2023), DOI: 10.1039/d3cb00069a.
9. Y. Zhou, K.-S. Liao, T.-Y. Chen, Y. SY Hsieh, C.-H. Wong, "Effective organotin-mediated regioselective functionalization of unprotected carbohydrates", *J. Org. Chem.*, *88*, 7141-7151, (2023), PMID: 37167441; <https://doi.org/10.1021/acs.joc.3c00397>.
10. Z.-R. Li, R. Li, L. Pasternack, P. Chen, C.-H. Wong, "Chemical synthesis of a keto sugar nucleotide" *J. Org. Chem.* *88*, 7580-7585 (2023), PMID: 37126664; <https://doi.org/10.1021/acs.joc.3c00553>.
11. S.-W. Wang, Y.-A. Ko, C.-Y. Chen, K.-S. Liao, Y.-H. Chang, H.-Y. Lee, Y.-H. Yu, Y.-H. Lih, Y.-Y. Cheng, H.-H. Lin, T.-L. Hsu, C.-Y. Wu, K.-I. Lin, C.-H. Wong, "Mechanism of antigen presentation and specificity of antibody cross-reactivity elicited by an oligosaccharide-conjugate cancer vaccine" *J. Am. Chem. Soc.* *145*, 9840-9849 (2023). PMID: 37089019; <https://doi.org/10.1021/jacs.3c02003>.
12. V. S Shivatare, H.-W. Huang, T.-H. Tseng, P.-K. Chuang, Y.-F. Zeng, C.-H. Wong, "Probing the internalization and efficacy of antibody-drug conjugate via site-specific Fc-glycan labelling of a homogeneous antibody targeting SSEA-4 bearing tumors", *Israel J. Chem.*, (2023). <https://doi.org/10.1002/ijch.202300042>.

13. V. S. Shivatare, P.-K Chuang, T.-H. Tseng, Y.-F. Zeng, H.-W. Huang, G. Veeranjanyulu, H.-C. Wu, C.-H. Wong, "Study on antibody Fc-glycosylation for optimal effector functions" ChemComm., 59, 5555-5558 (2023). PMID: 37071468; <https://doi.org/10.1039/D3CC00672G>.
14. O. Chou, Y.-P. Juang, T.-L. Chao, S.-F. Tsai, P.-F. Chiu, C.-T. Chiou, K.-C. Tsai, S.-Y. Chang, P.-H. Liang, C.-H. Wong, "Isolation of anti-SARS-CoV-2 natural products extracted from *Mentha canadensis* and the semi-synthesis of antiviral derivatives", J. Nat. Prod., 86, 1428-1436 (2023). PMID: 37267066; <https://doi: 10.1021/acs.jnatprod.3c00104>.
15. C.-Y. Chen, Y.-W. Lin, S.-W. Wang, Y.-C. Lin, Y.-Y. Cheng, C.-T. Ren, C.-H. Wong, and C.-Y. Wu, "Synthesis of Azido-Globo H Analogs for Immunogenicity Evaluation", ACS Cent. Sci., 8, 77-85 (2022). doi: 10.1021/acscentsci.1c01277. PMID: 35106375.
16. C.-Y. Wu, C.-W. Cheng, C.-C. Kung, K.-S. Liao, J.-T. Jan, C. Ma, C.-H. Wong, "Glycosite-deleted mRNA of SARS-CoV-2 Spike Protein as Broad-Spectrum Vaccine", Proc. Natl. Acad. Sci. U.S.A., 119, e2119995119 (2022). <https://www.ncbi.nlm.nih.gov/pubmed/35149556>; PMID: 35149556.
17. H.-Y. Huang, H.-Y. Liao, X. Chen, C.-W. Cheng, S.-W. Wang, M. Shahed-Al-Mahmud, T.-H. Chen, J. M. Lo, Y.-M. Liu, H.-H. Ma, Y.-H. Chang, C.-Y. Tsai, P.-Y. Huang, S.-Y. Chang, T.-L. Chao, H.-C. Kao, Y.-M. Tsai, Y.-H. Chen, C.-Y. Chen, K.-C. Lee, C.-Y. Wu, J.-T. Jan, K.-I. Lin, T.-J. R. Cheng, C. Ma, and C.-H. Wong, "Vaccination with SARS-CoV-2 spike protein lacking glycan shields elicits enhanced protective responses in animal models", Sci. Transl. Med. 14, eabm0899 (2022). <https://www.ncbi.nlm.nih.gov/pubmed/35230146>; PMID: 35230146.
18. K. Uchimura, K. Nishitsuji, L.-T. Chiu, T. Ohgita, H. Saito, F. Allain, V. Gannedi, C.-H. Wong, S.-C. Hung, "Design and Synthesis of 6-O-Phosphorylated Heparan Sulfate Oligosaccharides to Inhibit Amyloid  $\beta$  Aggregation", ChemBiochem, 23, e202200191 (2022). doi: 10.1002/cbic.202200191. PMID: 35585797.
19. S. S. Shivatare, V. S. Shivatare and C.-H. Wong, "Glycoconjugates: synthesis, functional studies and therapeutic developments," Chem. Rev., 122, 15603-15671 (2022). doi: 10.1021/acs.chemrev.1c01032. PMID: 36174107.
20. Y.-Y. Tseng, J.-M. Liou, W.-C. Cheng, J.-T. Hsu, T.-L. Hsu, M.-S. Wu, C.-H. Wong, "Eradication of multidrug-resistant *Helicobacter Pylori* with moenomycin A in combination with clarithromycin or metronidazole", Frontiers in Chemistry, 10, 897578 (2022). doi: 10.3389/fchem.2022.897578. PMID: 36339034.
21. J.-T. Jan, T.-J. R. Cheng, Y.-P. Juang, H.-H. Ma, Y.-T. Wu, W.-B. Yang, C.-W. Cheng, X. Chen, J.-J. Shie, W.-C. Cheng, R.-J. Chein, S.-S. Mao, P.-H. Liang, C. Ma, S.-C. Hung and C.-H. Wong, "Identification of existing pharmaceuticals and herbal medicines as inhibitors of SARS-CoV-2 infection", Proc. Natl. Acad. Sci. U.S.A., 118, No 5, e2021579118 (2021). doi: 10.1073/pnas.2021579118. PMID: 33452205.
22. V. Gannedi, B. K. Villuri, S. N. Reddy, C.-C. Ku, C.-H. Wong, S.-C. Hung, "Practical remdesivir synthesis through one-pot organo-catalyzed asymmetric (s)-p-phosphoramidation", J. Org. Chem. 86, 4977-85 (2021). doi: 10.1021/acs.joc.0c02888. PMID: 33634692.
23. C.-W. Chang, M.-H. Lin, C.-K. Chan, K.-Y. Su, C.-H. Wu, W.-C. Lo, S. Lam, Y.-T. Cheng, P.-H. Liao, C.-H. Wong, C.-C. Wang, "Automated quantification of hydroxyl reactivities: prediction of glycosylation reactions", Angew. Chem. Int. Ed. 60, 12413-12423 (2021). doi:

10.1002/anie.202013909. PMID: 33634934.

24. H.-Y. Huang, H.-Y. Liao, X. Chen, S.-W. Wang, C.-W. Cheng, M. Shahed-Al-Mahmud, T.-H. Chen, J. M. Lo, Y.-M. Liu, Y.-M. Wu, H.-H. Ma, Y.-H. Chang, H.-Y. Tsai, Y.-C. Chou, Y.-P. Hsueh, C.-Y. Tsai, P.-Y. Huang, S.-Y. Chang, T.-L. Chao, H.-C. Kao, Y.-M. Tsai, Y.-H. Chen, C.-Y. Wu, J.-T. Jan, T.-J. R Cheng, K.-I Lin, C. Ma, C.-H. Wong, “Impact of glycosylation on SARS-CoV-2 infection and broadly protective vaccine design” *bioRxiv* May 25 (2021). doi.org/10.1101/2021.05.25.445523.
25. S. S. Shivatare, T.-J. Chen, Y.-Y. Cheng, V. S. Shivatare, T.-I. Tsai, H.-Y. Chaung, C.-Y. Wu and C.-H. Wong, “Immunogenicity evaluation of N-glycans recognized by HIV broadly neutralizing antibodies” *ACS Chem. Biol.* 16, 2016-2015 (2021). <https://doi.org/10.1021/acscchembio.1c00375>; PMID: 34649433.
26. R.-H. Lee, Y.-J. Wang, T.-Y. La, T.-L. Hsu, P.-K. Chuang, C.-H. Wong, “Combined effect of anti-SSEA4 and anti-Globo H antibodies on breast cancer cells” *ACS Chem. Biol.* 16, 1526–1537 (2021). <https://doi.org/10.1021/acscchembio.1c00396>; PMID: 34369155.
27. Y.-A. Ko, Y.-H. Yu, Y.-F. Wu, Y.-C. Tseng, C.-L. Chen, K.-S. Goh, H.-Y. Liao, T.-H. Chen, T.-J. R. Cheng, A.-S. Yang, C.-H. Wong, C. Ma, K.-I. Lin, “A non-neutralizing antibody broadly protects against influenza virus infection by engaging effector cells”, *PLoS Pathog.* 17, e1009724 (2021). PMID: 34352041 PMCID: PMC8341508 DOI: 10.1371/journal.ppat.1009724
28. C.-W. Lin, Y.-J. Wang, T.-Y. Lai, T.-L. Hsu, S.-Y. Han, H.-C. Wu, C.-N. Shen, V. Dang, M.-W. Chen, L.-B. Chen and C.-H. Wong, “Homogeneous antibody and CAR-T cell targeting glycan on pancreatic cancer”, *Proc. Natl. Acad. Sci. U.S.A.* 118, e2114774118 (2021). <https://doi.org/10.1073/pnas.2114774118>; PMID: 34876527.
29. C.-Y. Lin, H.-Y. Wu, P.-S. Wu, Y.-L. Hsu, T.-J. Cheng, J.-H. Liu, R.-J. Huang, T. H. Hsiao, C.-J. Wang, P.-F. Hung, A. Lan, Y.-J. Chen, S.-H. Pan, R.-J. Chein, C.-H. Wong, P.-C. Yang, “Suppression of drug-resistant non-small-cell lung cancer with inhibitors targeting minichromosomal maintenance protein”, *J. Med. Chem.* 63, 3172-3187 (2020). doi: 10.1021/acs.jmedchem.9b01783. PMID: 32125853.
30. C.-W. Cheng, C.-Y. Wu, W.-L. Hsu, C.-H. Wong, “Programmable One-pot Synthesis of Oligosaccharides”, *Biochemistry*, 59, 3078-3088 (2020). PMID 31454239 DOI: 10.1021/acs.biochem.9b00613.
31. L.-T. Chiu, N. Sabbavarapu, W.-C. Lin, C.-Y. Fang, C.-C. Wu, T.-J. Cheng, C.-H. Wong, S.-C. Hung, “Trisaccharide sulfate and its sulfonamide as an effective substrate and inhibitor of human endo-O-sulfatase-1”, *J. Am. Chem. Soc.*, 142, 5282-5292 (2020). doi: 10.1021/jacs.0c00005. PMID: 32083852.
32. J. Woodring, S.-H. Lu, L. Krasnova, S.-C. Wang, J.-B. Chen, C.-C. Chou, Y.-C. Huang, T.-J. Cheng, Y.-T. Wu, Y.-H. Chen, J.-M. Fang, M.-D. Tsai, C.-H. Wong, “Disrupting the conserved salt bridge in the trimerization of influenza a nucleoprotein”, *J. Med. Chem.*, 63, 205-215 (2020). doi: 10.1021/acs.jmedchem.9b01244. PMID: 31769665.
33. C.-F. Huang, W.-H. Chang, T.-K. Lee, Y. Joti, Y. Nishino, T. Kimura, A. Suzuki, Y. Bessho, T.-T. Lee, M.-C. Chen, S.-M. Yang, Y. Hwu, S.-H. Huang, P.-N. Lee, P. Chen, Y.-C. Tseng, C. Ma, T.-L. Hsu, C.-H. Wong, K. Tono, T. Ishikawa, and K. Liang, “XFEL coherent diffraction imaging for weakly scattering particles using heterodyne interference”, *AIP Advances*, 10, 055219 (2020). doi: 10.1063/1.5129406.

34. W.-F. Wang, M.-Y. Jade Lu, T.-J. R. Cheng, Y.-C. Tang, Y.-C. Teng, T.-Y. Hwa, Y.-H. Chen, M.-Y. Li, M.-H. Wu, P.-C. Chuang, R. Jou, C.-H. Wong, and W.-H. Li, “Genomic analysis of mycobacterium tuberculosis isolates and construction of a beijing lineage reference genome” Genome Biol. Evol., 12, 3890–3905 (2020). doi: 10.1093/gbe/evaa009. PMID: 31971587.
35. E. A. Wang, W.-Y. Chen, C.-H. Wong, “Multiple Growth Factor Targeting by Engineered Insulin-like Growth Factor Binding Protein-3 Augments EGF Receptor Tyrosine Kinase Inhibitor Efficacy”, Sci. Rep., 10, 2735 (2020). doi: 10.1038/s41598-020-59466-6. PMID: 32066763.
36. S. Dey, H.-J. Lo, C.-H. Wong, “Programmable One-Pot Synthesis of Heparin Pentasaccharide Fondaparinux”, Org. Lett., 22, 4638–4642 (2020). doi: 10.1021/acs.orglett.0c01386. PMID: 32496799.
37. Y.-H. Chang, J.-C. Wu, H.-M. Yu, H.-T. Hsu, Y.-T. Wu, A. L.-T. Yu, C.-D. T. Yu and C.-H. Wong, “Design and synthesis of glyco-peptides as anticancer agents targeting thrombin-protease activated receptor-1 interaction”, Chem. Comm. 56, 5827-5830 (2020). doi: 10.1039/d0cc01240h. PMID: 32329494.
38. H.-Y. Liao, S.-C. Wang, Y.-A. Koa, K.-I. Lin, C. Ma, T.-J. R. Cheng, and C.-H. Wong, “Chimeric hemagglutinin vaccine elicits broadly protective CD4 and CD8 T cell responses against multiple influenza strains and subtypes”, Proc. Natl. Acad. Sci. U.S.A., 117, 17757-17763 (2020). doi: 10.1073/pnas.2004783117. PMID: 32669430.
39. Y.-M. Liu, M. Shahed-Al-Mahmud, X. Chen, T.-H. Chen, K.-S. Liao, J. M. Lo, Y.-M. Wu., M.-C. Ho, C.-Y. Wu, C.-H. Wong, J.-T. Jan, C. Ma, “A carbohydrate-binding protein from the edible Lablab beans effectively blocks the infections of influenza viruses and SARS-CoV-2”, Cell Reports, 32,108016 (2020). DOI: 10.1016/j.celrep.2020.108016. PMID: 32755598.
40. S. Pawar, L. Hsu, T. N. Reddy, M. Ravinder, C.-T. Ren, Y.-W. Lin, Y.-Y. Cheng, T.-W. Lin, T.-L. Hsu, S.-K. Wang, C.-H. Wong, C.-Y. Wu, “Synthesis of asymmetric N-glycans as common core substrates for structural diversification through selective enzymatic glycosylation” ACS Chem. Biol., 15, 2382–2394 (2020). doi: 10.1021/acscchembio.0c00359. PMID: 32830946.
41. C.-Y. Wu, H.-Y. Chuang, C.-H. Wong, “Influenza virus neuraminidase regulates host CD8<sup>+</sup> T-cell response”, Comm. Biol., 3, 748 (2020). Doi.org/10.1038/s42003-020-01486-z. PMID: 33293641.
42. S. Shivatare, C.-H. Wong, “Synthetic carbohydrate chemistry and translational medicine”, (Invited Perspective), J. Org. Chem., 85, 15780-15800 (2020). doi: 10.1021/acs.joc.0c01834. PMID: 33125238.
43. C.-H. Wong and L. Krasnova, “Highlights in chemical glycobiology”, Israel Journal of Chemistry, 59, 18-22 (2019). <https://doi.org/10.1002/ijch.201800139>.
44. L. Krasnova and C.-H. Wong, “Oligosaccharide synthesis and translational innovation”, J. Am. Chem. Soc., 141 (9), 3735-3754 (2019).
45. S.-C. Wang, H.-Y. Liao, J.-Y. Zhang, T.-J. R. Cheng, C.-H. Wong, “Development of a universal influenza vaccine using hemagglutinin stem protein produced from *Pichia pastoris*”, Virology, 526 (2), 125-137 (2019). doi: 10.1016/j.virol.2018.10.005. PMID: 30388628.
46. P.-K. Chuang, M. Hsiao, T.-L. Hsu, C.-F. Chang, C.-Y. Wu, B.-R. Chen, H.-W. Huang, K.-S. Liao, C.-C. Chen, C.-L. Chen, S.-M. Yang, C. W. Kuo, P. Chen, P.-T. Chiu, I.-J. Chen, J.-S. Lai, C.-D. T.

- Yu, and C.-H. Wong, “Signaling pathway of globo-series glycosphingolipids and  $\beta$ 1,3-galactosyltransferase V ( $\beta$ 3GalT5) in breast cancer”, Proc. Nat. Acad. Sci. U.S.A., 116 (9), 3518-3523 (2019). doi: 10.1016/j.virol.2018.10.005. PMID: 30388628.
47. Y.-C. Tseng, C.-Y. Wu, M.-L. Liu, T.-H. Chen, W.-L. Chiang, Y.-H. Yu, J.-T. Jan, K.-I. Lin, C.-H. Wong and C. Ma, “Egg-based influenza split virus vaccine with monoglycosylation induces cross-strain protection against influenza virus infections”, Proc. Nat. Acad. Sci. U.S.A., 116 (10), 4200-4205 (2019). doi: 10.1073/pnas.1819197116. PMID: 30782805.
  48. H.-J. Lo, L. Krasnova, S. Dey, T. Cheng, H. Liu, T.-I. Tsai, K. B. Wu, C.-Y. Wu, and C.-H. Wong, “Synthesis of sialidase-resistant oligosaccharide and antibody glycoform containing  $\alpha$ 2,6-linked 3F<sup>ax</sup>-Neu5Ac”, J. Am. Chem. Soc., 141 (16), 6484-6488 (2019). doi: 10.1021/jacs.9b01991. PMID: 30969765.
  49. X. Chen, C.-H. Wong, C. Ma, “Targeting the bacterial transglycosylase: antibiotic development from a structural perspective”, ACS Infectious Diseases, 5, 1493-1504 (2019). doi: 10.1021/acsinfecdis.9b00118. PMID: 31283163.
  50. S. Dey, H.-J. Lo, C.-H. Wong, “An efficient modular one-pot synthesis of heparin-based anticoagulant Idraparinux”, J. Am. Chem. Soc., 141, 10309-10314 (2019). doi: 10.1021/jacs.9b03266. PMID: 31244187.
  51. C.-W. Cheng, Y. Zhou, W.-H. Pan, S. Dey, C.-Y. Wu, W.-L. Hsu, and C.-H. Wong, “Hierarchical and programmable one-pot oligosaccharide synthesis”, J. Vis. Exp. 151, e59987 (2019). Doi: 10.3791/59987. PMID: 31545316.
  52. M.-S. Lin, T.-M. Hong, T.-H. Chou, S.-C. Yang, M.-C. Chung, C.-W. Weng, M.-L. Tsai, T.-R. Cheng, J.-J.-W., T.-C. Lee, C.-H. Wong, R.-J. Chein, P.-C. Yang, “4(1H)-quinolone derivatives overcome acquired resistance to anti-microtubule agents by targeting the colchicine site of  $\beta$ -tubulin”, Eur. J. Med. Chem. 181, 111584 (2019). doi: 10.1016/j.ejmech.2019.111584. PMID: 31419740.
  53. M.-R. Huang, Y.-L. Hsu, T.-C. Lin, T.-J. Cheng, L.-W. Li, W.-W. Tseng, Y.-S. Chou, J.-H. Liu, S.-H. Pan, J.-M. Fang, C.-H. Wong, “Structure-guided development of purine amide, hydroxamate, and amidoxime for the inhibition of non-small cell lung cancer”, Eur. J. Med. Chem., 181, 111551 (2019). doi: 10.1016/j.ejmech.2019.07.054. PMID: 31376567.
  54. H.-W. Cheng, R.-J. Chein, T.-J. Cheng, P.-S. Wu, H.-Y. Wu, P.-F. Hung, C.-J. Wang, Y.-L. Hsu, J.-M. Wong, A. Yuan, C.-H. Wong, P.-C. Yang, S.-H. Pan, “2-anilino-4-amino-5-arylthiazole-type compound AS7128 inhibits lung cancer growth through decreased iASPP and p53 interaction”, Cancer Science, 109 (3), 832-842, (2018). doi: 10.1111/cas.13489. PMID: 29285847.
  55. C.-P. Liu, T.-I. Tsai, T. Cheng, V. S. Shivatare, C.-Y. Wu, C.-Y. Wu, C.-H. Wong, “Glycoengineering of antibody (Herceptin) through yeast expression and in vitro enzymatic glycosylation”, Proc. Nat. Acad. Sci. U.S.A., 115 (4), 720-725, (2018). doi: 10.1073/pnas.1718172115. PMID: 29311294.
  56. S. S. Shivatare, V. S. Shivatare, C.-Y. Wu, C.-H. Wong, “Chemo-enzymatic synthesis of N-glycans for array development and HIV antibodies profiling”, J. Vis. Exp., 132, (2018). doi: 10.3791/55855. PMID: 29443078.
  57. W.-S. Wu, W.-C. Cheng, T.-R. Cheng, C.-H. Wong, “Affinity-based screen for inhibitors of bacterial transglycosylase”, J. Am. Chem. Soc., 140 (8), 2752-2755, (2018). doi: 10.1021/jacs.7b13205. PMID: 29411975.

58. C.-F. Huang, K. S. Liang, T.-L. Hsu, T.-T. Lee, Y.-Y. Chen, S.-M. Yang, H.-H. Chen, S.-H. Huang, W.-H. Chang, T.-K. Lee, P. Chen, K.-E. Peng, C.-C. Chen, C.-Z. Shi, Y.-F. Hu, G. Margaritondo, T. Ishikawa, C.-H. Wong and Y. Hwu, "Free-electron-laser coherent diffraction images individual drug-carrying liposome particles in solution", *Nanoscale*, 10 (6), 2820-2824, (2018). doi: 10.1039/c7nr09395k. PMID: 29362758.
59. V. S. Shivatare, S. S. Shivatare, C.-C. Lee, C.-H. Liang, K.-S. Liao, Y.-Y. Cheng, G. Saidachary, C.-Y. Wu, N.-H. Lin, P. D. Kwong, D. Burton, C.-Y. Wu, C.-H. Wong, "Unprecedented role of hybrid N-glycans as ligands for HIV-1 broadly neutralizing antibodies", *J. Am. Chem. Soc.*, 140 (15), 5202-5210, (2018). doi: 10.1021/jacs.8b00896. PMID: 29578688.
60. T. Zhou, A. Zheng, U. Baxa, G.-Y. Chuang, I. S. Georgiev, R. Kong, S. O'Dell, S. Shahzad-ul-Hussan, C.-H. Shen, Y. Tsybovsky, R. T. Bailer, S. K. Gift, M. K. Louder, K. McKee, R. Rawi, C. H. Stevenson, G. B. E. Stewart-Jones, J. D. Taft, E. Waltari, Y. Yang, B. Zhang, S. S. Shivatare, V. S. Shivatare, C.-C. D. Lee, C.-Y. Wu, NISC Comparative Sequencing Program, J. C. Mullikin, C. A. Bewley, D. R. Burton, V. R. Polonis, L. Shapiro, C.-H. Wong, J. R. Mascola, P. D. Kwong, and X. Wu, "A neutralizing antibody recognizing primarily N-linked glycan targets the silent face of the hiv envelope", *Immunity*, 48 (3), 500-513, (2018). doi: 10.1016/j.immuni.2018.02.013. PMID: 29548671.
61. X. Wang, L. Krasnova, K. B. Wu, W.-S. Wu, T.-J. Cheng, C.-H. Wong, "Towards new antibiotics targeting bacterial transglycosylase: synthesis of a lipid II analog as stable transition-state mimic inhibitor", *Bioorg. Med. Chem. Lett.* 28 (16), 2708-2712, (2018). doi: 10.1016/j.bmcl.2018.03.035. PMID: 29602680.
62. P.-W. Lo, J.-J. Shie, C.-H. Chen, C.-Y. Wu, T.-L. Hsu, C.-H. Wong, "O-GlcNAcylation regulates the stability and enzymatic activity of the histone methyltransferase EZH2", *Proc. Nat. Acad. Sci. U.S.A.*, 115 (28), 7302-7307, (2018). doi: 10.1073/pnas.1801850115. PMID: 29941599.
63. S. S. Shivatare, L.-Y. Huang, Y.-F. Zeng, J.-Y. Liao, T.-H. You, S.-Y. Wang, T. Cheng, C.-W. Chiu, P. Chao, L.-T. Chen, T.-I. Tsai, C.-C. Huang, C.-Y. Wu, N.-H. Lin, and C.-H. Wong, "Development of Endo-S2 mutants for the synthesis of homogeneous antibody glycoforms to elucidate effector functions", *Chem. Comm.*, 54 (48), 6161-6164, (2018). doi: 10.1039/c8cc03384f. PMID: 29809215.
64. S. Dey and C.-H. Wong, "Programmable one-pot synthesis of heparin pentasaccharides enabling access to regiodefined sulfate derivatives", *Chemical Science*, 9 (32), 6685-6691, (2018). doi: 10.1039/c8sc01743c PMID: 30310602 PMCID: PMC6115620
65. S. Dey, S. O. Bajaj, T.-I. Tsai, H.-J. Lo, K. Wu, and C.-H. Wong, "Synthesis of modular building blocks using glycosyl phosphate donors for the construction of asymmetric N-Glycans", *Tetrahedron*, 74 (41), 6003-6011 (2018). doi: 10.1016/j.tet.2018.08.039. PMID: 30983640.
66. C.-W. Cheng, Y. Zhou, W.-H. Pan, S. Dey, C.-Y. Wu, W.-L. Hsu, and C.-H. Wong, "Hierarchical and programmable one-pot synthesis of oligosaccharides", *Nature Communications*, 9 (1), 5202 (2018). doi: 10.1038/s41467-018-07618-8. PMID: 30523255.
67. C.-Y. Wu, C.-W. Lin, T.-L. Tsai, C.-C. D. Lee, H.-Y. Chuang, J.-B. Chen, M.-H. Tsai, B.-R. Chen, P.-W. Lo, C.-P. Liu, V. S. Shivatare and C.-H. Wong, "Influenza A surface glycosylation and vaccine design", *Proc. Nat. Acad. Sci. U.S.A.*, 114 (2), 280-285, (2017). doi: 10.1073/pnas.1617174114. PMID: 28028222.
68. T.-I. Tsai, S.-T. Li, C.-P. Liu, K. Chen, S. S. Shivatare, C.-W. Lin, S.-F. Liao, C.-W. Lin, T.-L. Hsu, Y.-T. Wu, M.-H. Tsai, M.-Y. Lai, N.-H. Lin, C.-Y. Wu, C.-H. Wong, "An effective bacterial

- fucosidase for glycoprotein remodeling”, *ACS Chem. Biol.*, 12 (1), 63-72, (2017). doi: 10.1021/acscchembio.6b00821. PMID: 28103685.
69. J.-J. Shie, Y.-C. Liu, J.-C. Hsiao, J.-M. Fang, C.-H. Wong, “A Cell-Permeable and Triazole-forming fluorescence probe for glycoconjugate imaging in live cells”, *Chem. Commun.*, 53 (9), 1490-1493, (2017). doi: 10.1039/c6cc08805h. PMID: 28084480.
  70. W. Yang, D. Punyadarsaniya, R. Lambertz, D. Lee, C.-H. Liang, D. Höper, S. Leist, A. Hernandez-Caceres, J. Stech, M. Beer, C.-Y. Wu, C.-H. Wong, K. Schughart, F. Meng, and G. Herrler, “Mutations during the adaptation of H9N2 avian influenza virus to the respiratory epithelium of pigs enhance the sialic acid binding activity and the virulence in mice”, *J. Virol.*, 91 (8), pii: e02125-16, (2017). doi: 10.1128/JVI.02125-16. PMID: 28148793.
  71. C.-L. Chen, J.-C. Hsu, C.-W. Lin, C.-H. Wang, M.-H. Tsai, C.-Y. Wu, C.-H. Wong, C. Ma, “Crystal structure of a homogeneous IgG-Fc glycoform with the N-glycan designed to maximize the antibody dependent cellular cytotoxicity”, *ACS Chem. Biol.*, 12 (5), 1335-1345, (2017). doi: 10.1021/acscchembio.7b00140. PMID: 28318221.
  72. A. M. Stax, J. Tuengel, E. Girardi, N. Kitano, L. L. Allan, J. I. Alvarez, V. Li, D. Zheng, W. J. Panenka, C.-H. Wong, S. van Calenbergh, D. M. Zajonc, P. van den Elzen, “Autoreactivity to sulfatide by human invariant NKT cells”, *J. Immunol.*, 199 (1), 97-106, (2017). doi: 10.4049/jimmunol.1601976. PMID: 28526683.
  73. T. H. Tseng, T.-W. Lin, C.-Y. Chen, C.-H. Chen, J.-L. Lin, T.-L. Hsu, C.-H. Wong, “Substrate preference and interplay of fucosyltransferase 8 and N-acetylglucosaminyltransferases”, *J. Am. Chem. Soc.*, 139 (28), 9431-9434, (2017). doi: 10.1021/jacs.7b03729. PMID: 28678517.
  74. Y.-W. Huang, H.-I. Yang, Y.-T. Wu, T.-L. Hsu, T.-W. Lin, J. Kelly, C.-H. Wong, “Residues comprising the enhanced aromatic sequon influence protein N-glycosylation efficiency”, *J. Am. Chem. Soc.*, 139 (37), 12947-12955, (2017). doi: 10.1021/jacs.7b03868. PMID: 28820257.
  75. C.-Y. Ting, Y.-W. Lin, C.-Y. Wu, C.-H. Wong, “Design of disaccharide modules for the programmable one-pot synthesis of building blocks with LacNAc repeats for asymmetric N-glycans”, *Asian J. Org. Chem.*, 6 (12), 1800–1807, (2017). doi.org/10.1002/ajoc.201700393.
  76. L.-Y. Huang, S.-C. Wang, T.-J. R. Cheng, C.-H. Wong “Undecaprenyl phosphate phosphatase activity of undecaprenol kinase regulates the lipid pool in Gram-positive bacteria”, *Biochemistry*, 56 (40), 5417-5427, (2017). doi: 10.1021/acs.biochem.7b00603. PMID: 28872301.
  77. Y. Kizuka, M. Nakano, Y. Yamaguchi, K. Nakajima, R. Oka, K. Sato, C.-T. Ren, T.-L. Hsu, C.-H. Wong, N. Taniguchi, “An alkynyl-fucose halts hepatoma cell migration and invasion by inhibiting GDP-fucose-synthesizing enzyme FX, TSTA3”, *Cell Chem Biol.*, 24 (12), 1467-1478, (2017). doi: 10.1016/j.chembiol.2017.08.023. PMID: 29033318.
  78. R. Andrabi, C.-Y. Su, C.-H. Liang, S.-S. Shivatare, B. Briney, J. E. Voss, S. K. Nawazi, C.-Y. Wu, C.-H. Wong, D. R. Burton, “Glycans function as anchors for antibodies and help drive HIV broadly neutralizing antibody development”, *Immunity*, 47 (3), 524-537, (2017). doi: 10.1016/j.immuni.2017.08.006. PMID: 28916265.
  79. S. K. C. Cheung, P.-K. Chuang, H.-W. Huang, W. W. Hwang-Verslues, C. H.-H. Cho, W.-B. Yang, C.-N. Shen, M. Hsiao, T.-L. Hsu, C.-F. Chang, C.-H. Wong, “Stage-specific embryonic antigen-3 (SSEA-3) and  $\beta$ 3GalT5 are cancer specific and significant markers for breast cancer stem cells”, *Proc. Nat. Acad. Sci. U.S.A.*, 113 (4), 960-965, (2016). doi: 10.1073/pnas.1522602113. PMID: 26677875.



80. S. S. Shivatare, S.-H. Chang, T.-I. Tsai, S. Y. Tseng, Y.-S. Lin, Y.-Y. Cheng, C.-T. Ren, S. Pawar, C.-S. Tsai, H.-W. Shi, Y.-F. Zeng, C.-H. Liang, P. D. Kwong, D. R. Burton, C.-Y. Wu and C.-H. Wong, "Modular synthesis of N-glycans and arrays for the hetero-ligand binding analysis of HIV antibodies", Nature Chemistry, 8 (4), 338-346, (2016). doi: 10.1038/nchem.2463. PMID: 27001729.
81. G. B. E. Stewart-Jones, C. Soto, T. Lemmin, G.-Y. Chuang, A. Druz, R. Kong, P. V. Thomas, K. Wagh, T. Zhou, A.-J. Behrens, T. Bylund, C. W. Choi, J. R. Davison, I. S. Georgiev, M. G. Joyce, Y. D. Kwon, M. Pancera, J. Taft, Y. Yang, B. Zhang, S. S. Shivatare, V. S. Shivatare, C.-C. D. Lee, C.-Y. Wu, C. A. Bewley, D. R. Burton, W. C. Koff, M. Connors, M. Crispin, B. T. Korber, C.-H. Wong, J. R. Mascola and P. D. Kwong, "Trimeric HIV-1-Env structures define glycan shields from clades A, B, and G", Cell, 165, 813-826, (2016). doi: 10.1016/j.cell.2016.04.010. PMID: 27114034.
82. P.-C. Wang, J.-M. Fang, K.-C. Tsai, S.-Y. Wang, W.-I. Huang, Y.-S. Cheng, R. C., C.-H. Wong, "Peramivir phosphonate derivatives as influenza neuraminidase inhibitors", J. Med. Chem., 59 (11), 5297-5310, (2016). doi: 10.1021/acs.jmedchem.6b00029. PMID: 27167096.
83. L. Krasnova and C.-H. Wong, "Understanding the chemistry and biology of glycosylation with glycan synthesis", Annual Review of Biochemistry, 85, 599-630, (2016). doi: 10.1146/annurev-biochem-060614-034420. PMID: 27145845.
84. L. Krasnova and C.-H. Wong, "Exploring human glycosylation for better therapies", Molecular Aspects of Medicine, S0098-2997 (16), 30013-30019, (2016). doi: 10.1016/j.mam.2016.05.003. PMID: 27178988.
85. S.-C. Yeh, P.-Y. Wang, Y.-W. Lou, K.-H. Khoo, M. Hsiao, T.-L. Hsu, C.-H. Wong, "Glycolipid GD3 and GD3 synthase are key drivers for glioblastoma stem cells and tumorigenicity", Proc. Nat. Acad. Sci. U.S.A., 113 (20), 5592-5597, (2016). doi: 10.1073/pnas.1604721113. PMID: 27143722.
86. T.-C. Kuo, L.-W. Li, S.-H. Pan, J.-M. Fang, J.-H. Liu, T.-R. Cheng, C.-J. Wang, P.-F. Hung, H.-Y. Chen, T.-M. Hong, Y.-L. Hsu, C.-H. Wong, P.-C. Yang, "Purine-type compounds induce microtubule fragmentation and lung cancer cell death through interaction with katanin", J. Med. Chem., 59 (18), 8521-8534, (2016). doi: 10.1021/acs.jmedchem.6b00797. PMID: 27536893.
87. C.-H. Hsu, S. Park, D. E. Mortenson, B. L. Foley, X. Wang, R. J. Woods, D. A. Case, E. T. Powers, C.-H. Wong, H. J. Dyson, J. W. Kelly, "The dependence of carbohydrate-aromatic interaction strengths on the structure of the carbohydrate", J. Am. Chem. Soc., 138 (24), 7636-7648, (2016). doi: 10.1021/jacs.6b02879. PMID: 27249581.
88. D. Sok, M. Pauthner, B. Briney, J.-H. Lee, K. L. Saye-Francisco, J. Hsueh, A. Ramos, K.-M. Le, M. Jones, J. G. Jardine, R. Bastidas, A. Sarkar, C.-H. Liang, S. S. Shivatare, C.-Y. Wu, W. R. Schief, C.-H. Wong, I. A. Wilson, A. B. Ward, J. Zhu, P. Pognard, D. R. Burton, "A prominent site of antibody vulnerability on HIV envelope incorporates a motif associated with CCR5 binding and its camouflaging glycans", Immunity, 45 (1), 31-45, (2016). doi: 10.1016/j.immuni.2016.06.026. PMID: 27438765.
89. D. T. MacLeod, N. M. Choi, B. Briney, F. Garces, L. S. Ver, E. Landais, B. Murrell, T. Wrin, W. Kilembe, C.-H. Liang, A. Ramos, C.-B. Bian, L. Wickramasinghe, L. Kong, K. Eren, C.-Y. Wu, C.-H. Wong, S. L. Kosakovsky Pond, I. A. Wilson, D. R. Burton, P. Pognard, "Early antibody lineage diversification and independent limb maturation lead to broad HIV-1 neutralization targeting the env high-mannose patch", Immunity, 44 (5), 1215-1226, (2016). doi: 10.1016/j.immuni.2016.04.016. PMID: 27192579.
90. S. Y. Tseng, W.-H. Cho, J. Su, S.-H. Chang, D. Chiang, C.-Y. Wu, C.-N. Hsiao, C.-H. Wong,

- “Preparation of aluminum oxide-coated glass slides for glycan microarray”, *ACS Omega*, 1 (5), 773–783, (2016). doi: 10.1021/acsomega.6b00143. PMID: 30023491.
91. T.-N. Wu, K.-H. Lin, Y.-T. Wu, J.-R. Huang, J.-T. Hung, J.-C. Wu, C.-Y. Chen, K.-C. Chu, N.-H. Lin, A. L. Yu, C.-H. Wong, “Phenyl glycolipids with different glycosyl groups exhibit marked differences in murine and human iNKT cell activation”, *ACS Chem. Biol.*, 11 (12), 3431-3441, (2016). doi: 10.1021/acscchembio.6b00650. PMID: 27782396.
  92. Y.-L. Lo, G.-G. Liou, C.-H. Lu, M. Hsiao, T.-L. Hsu, C.-H. Wong, “Dengue virus infection is through a cooperative interaction between a mannose receptor and CLEC5A on macrophage as a multivalent hetero-complex”, *PLOS ONE*, 11 (11), e0166474, (2016). doi: 10.1371/journal.pone.0166474. PMID: 27832191.
  93. Y. Kizuka, S. Funayama, H. Shogomori, M. Nakano, K. Nakajima, R. Oka, S. Kitazume, Y. Yamaguchi, M. Sano, H. Korekane, T.-L. Hsu, H.-Y. Lee, C.-H. Wong and N. Taniguchi, “High-sensitivity and low-toxicity fucose probe for glycan imaging and biomarker discovery”, *Cell Chem. Biol.*, 23 (7), 782-792, (2016). doi: 10.1016/j.chembiol.2016.06.010. PMID: 27447047.
  94. S. Danishefsky, Y.-K. Shue, M. Chang, C.-H. Wong, “Development of Globo-H cancer vaccine”, *Acc. Chem. Res.*, 48 (3), 643-652, (2015). doi: 10.1021/ar5004187. PMID: 25665650.
  95. C.-C. Tsai, C.-R. Lin, H.-Y. Tsai, C.-J. Chen, W.-T. Li, H.-M. Yu, Y.-Y. Ke, W.-Y. Hsieh, C.-Y. Chang, Y.-T. Wu, S.-T. Chen, C.-H. Wong, “The immunologically active oligosaccharides isolated from wheatgrass modulate monocytes via toll-like receptor-2 signaling”, *J. Biol. Chem.*, 290 (19), 11935, (2015). doi: 10.1074/jbc.M112.448381. PMID: 23629653.
  96. H.-Y. Yen, Y.-C. Liu, N.-Y. Chen, C.-F. Tsai, Y.-T. Wang, Y.-J. Chen, T.-L. Hsu, P.-C. Yang, C.-H. Wong, “Effect of sialylation on EGFR phosphorylation and resistance to tyrosine kinase inhibition”, *Proc. Nat. Acad. Sci. U.S.A.*, 12 (22), 6955-6960, (2015). doi: 10.1073/pnas.1507329112. PMID: 25971727.
  97. C.-H. Wong, “Chemistry in Taiwan and Academia Sinica”, *Angew. Chem. Int. Ed.*, 54 (46), 13472-13473, (2015). doi: 10.1002/anie.201504062. PMID: 26174003.
  98. Y.-L. Huang, F.-S. Pai, Y.-T. Tsou, H.-C. Mon, T.-L. Hsu, C.-Y. Wu, T.-Y. Chou, W.-B. Yang, C.-H. Chen, C.-H. Wong, S.-L. Hsieh, “Human CLEC18 gene cluster contains C-type lectins with differential glycan-binding specificity”, *J. Biol. Chem.*, 290 (35), 21252-21263, (2015). doi: 10.1074/jbc.M115.649814. PMID: 26170455.
  99. T.-W. Lin, H.-T. Chang, C.-H. Chen, C.-H. Chen, S.-W. Lin, T.-L. Hsu, C.-H. Wong, “Galectin-3 binding protein and galectin-1 interaction in breast cancer cell aggregation and metastasis”, *J. Am. Chem. Soc.*, 137 (30), 9685-9693, (2015). doi: 10.1021/jacs.5b04744. PMID: 26168351.
  100. X. Li, A. Kawamura, C. Andrews, J. Miller, D. Wu, T. Tsao, M. Zhang, D. Oren, N. N. Padte, S. A. Porcelli, C.-H. Wong, S. H. I. Kappe, D. D. Ho, M. Tsuji, “Colocalization of a CD1d-binding glycolipid with a radiation attenuated sporozoite vaccine in LN-resident DCs for a robust adjuvant effect”, *Journal of Immunology*, 195 (6), 2710-2721, (2015). doi: 10.4049/jimmunol.1403017. PMID: 26254338.
  101. C.-W. Lin, M.-H. Tsai, S.-T. Li, T.-I. Tsai, K.-C. Chu, Y.-C. Liu, M.-Y. Lai, C.-Y. Wu, Y.-C. Tseng, S. S. Shivatare, C.-H. Wang, P. Chao, S.-Y. Wang, H.-W. Shih, Y.-F. Zeng, T.-H. You, J.-Y. Liao, Y.-C. Tu, Y.-S. Lin, H.-Y. Chuang, C.-L. Chen, C.-S. Tsai, C.-C. Huang, N.-H. Lin, C. Ma, C.-Y. Wu, and C.-H. Wong, “A common glycan structure on immunoglobulin G for enhancement of effector functions”, *Proc. Nat. Acad. Sci. U.S.A.*, 112 (34), 10611-10616, (2015). doi:

- 10.1073/pnas.1513456112. PMID: 26253764.
102. J.-T. Chen, K.-L. Ku, C.-H. Chen, M. Hsiao, C.-P. Chiang, T.-L. Hsu, M.-H. Chen, and C.-H. Wong, "Glycoprotein B7-H3 as a marker for oral cancer: overexpression and aberrant glycosylation in tumor growth and immune response", Proc. Nat. Acad. Sci. U.S.A., 112 (42), 13057-13062, (2015). doi: 10.1073/pnas.1516991112. PMID: 26438868.
  103. Y.-Y. Ke, C.-H. Tsai, H.-M. Yu, Y.-C. Jao, J.-M. Fang, C.-H. Wong, "Latifolicinin A from a fermented soymilk product and the structure-activity relationship of synthetic analogues as inhibitors of breast cancer cell growth", J Agric Food Chem., 63 (44), 9715-9721, (2015). doi: 10.1021/acs.jafc.5b04028. PMID: 26499209.
  104. J.-M. Fang, Y.-S. Chen, H.-M. Yu, J.-J. Shie, T.-J. R. Cheng, C.-Y. Wu, C.-H. Wong, "Chemical constituents of *Plectranthus amboinicus* and the synthetic analogs possessing anti-inflammatory activity", Bioorg. Med. Chem., 22 (5), 1766-1772, (2014). doi: 10.1016/j.bmc.2014.01.009. PMID: 24491635.
  105. C.-S. Chu, P.-W. Lo, Y.-H. Yeh, P.-H. Hsu, S.-H. Peng, Y.-C. Teng, M.-L. Kang, C.-H. Wong, L.-J. Juan, "O-GlcNAcylation regulates EZH2 protein stability and function", Proc. Nat. Acad. Sci. U.S.A., 111 (4), 1355-1360, (2014). doi: 10.1073/pnas.1323226111. PMID: 24474760.
  106. J.-R. Chen, Y.-H. Yu, Y.-C. Tseng, W.-L. Chiang, M.-F. Chiang, Y.-A. Ko, Y.-K. Chiu, S.-H. Ma, C.-Y. Wu, J.-T. Jan, K.-I. Lin, C. Ma and C.-H. Wong, "Vaccination of monoglycosylated hemagglutinin induces cross-strain protection against influenza virus infections", Proc. Nat. Acad. Sci. U.S.A., 111 (7), 2476-2481, (2014). doi: 10.1073/pnas.1323954111. PMID: 24469815.
  107. Y.-W. Lou, P.-Y. Wang, S.-C. Yeh, P.-K. Chuang, S.-T. Li, C.-Y. Wu, K.-H. Khoo, M. Hsiao, T.-L. Hsu, C.-H. Wong, "Stage-specific embryonic antigen-4 as a potential therapeutic target in glioblastoma multiforme and other cancers", Proc. Nat. Acad. Sci. U.S.A., 111 (7), 2482-2487, (2014). doi: 10.1073/pnas.1400283111. PMID: 24550271.
  108. J.-R. Huang, Y.-C. Tsai, Y.-J. Chang, J.-C. Wu, J.-T. Hung, K.-H. Lin, C.-H. Wong and Alice L. Yu, " $\alpha$ -GalCer but not phenyl-glycolipids induced NKT cell anergy and IL-33 mediated MDSC accumulation via upregulation of *egr2/3*", Journal of Immunology, 192 (4), 1972-1981, (2014). doi: 10.4049/jimmunol.1302623. PMID: 24465013.
  109. A.-K. Sauer, C.-H. Liang, J. Stech, B. Peeters, P. Quéré, C. Schwegmann-Wessels, C.-Y. Wu, C.-H. Wong, G. Herrler, "Characterization of the sialic acid binding activity of influenza A viruses using soluble variants of the H7 and H9 hemagglutinin subtypes as lectins", PLOS ONE, 9 (2), e89529, (2014). doi: 10.1371/journal.pone.0089529. PMID: 24586849.
  110. J. Lin, Y.-J. Chang, W.-B. Yang, A. L. Yu, and C.-H. Wong, "The multifaceted effects of *Dendrobium huoshanense* on immune functions with the induction of Interleukin-1 receptor antagonist (IL-1ra) in monocytes", PLOS ONE, 9 (4), e94040, (2014). doi: 10.1371/journal.pone.0094040. PMID: 24705413.
  111. S.-C. Lin, W.-C. Liu, J.-T. Jan, C.-H. Wong, S.-C. Wu, "Glycan Masking of hemagglutinin for adenovirus vector and recombinant protein immunizations elicits broadly neutralizing antibodies against H5N1 avian influenza viruses", PLOS ONE, 9 (3), e92822, (2014). doi: 10.1371/journal.pone.0092822. PMID: 24671139.
  112. J.-J. Shie, Y.-C. Liu, Y.-M. Lee, C. Lim, J.-M. Fang, C.-H. Wong, "An azido-BODIPY probe for glycosylation: initiation of strong fluorescence upon triazole formation", J. Am. Chem. Soc., 136 (28), 9953-9961, (2014). doi: 10.1021/ja5010174. PMID: 24955871.

113. P.-C. Chen, P.-K. Chuang, C.-H. Chen, J.-R. Chen, S.-W. Lin, C. Ma, T.-L. Hsu, C.-H. Wong, "Role of N-linked glycans in the interactions of the HCV envelope glycoproteins with cellular receptors", *ACS Chemical Biology*, 9 (7), 1437-1443, (2014). doi: 10.1021/cb500121c. PMID: 24766301.
114. E. Falkowska, A. Ramos, K. J. Doores, J. H. Lee, C. Blattner, A. Ramirez, R. Derking, M. J. van Gils, C.-H. Liang, R. McBride, S. S. Shivatare, C.-Y. Wu, P.-Y. Chan-Hui, Y. Liu, T. Feizi, M. B. Zwick, W. C. Koff, M. S. Seaman, K. Swiderek, J. P. Moore, J. C. Paulson, C.-H. Wong, A. B. Ward, I. A. Wilson, R. W. Sanders, P. Poignard, and D. R. Burton, "Broadly neutralizing HIV antibodies define a novel glycan-dependent epitope on the pre-fusion conformation of gp41 on cleaved Envelope trimmers", *Immunity*, 40 (5), 657-668, (2014). doi: 10.1016/j.immuni.2014.04.009. PMID: 24768347.
115. Y.-Y. Tseng, J.-M. Liou, T.-L. Hsu, W.-C. Cheng, M.-S. Wu, C.-H. Wong, "Development of bacterial transglycosylase inhibitors as new antibiotics: moenomycin A treatment for drug-resistant *Helicobacter pylori*", *Bioorg. Med. Chem. Lett.*, 24 (11), 2412-2414, (2014). doi: 10.1016/j.bmcl.2014.04.041. PMID: 24775303.
116. C.-L. Chen, T.-C. Lin, S.-Y. Wang, J.-J. Shie, K.-C. Tsai, Y.-S. E. Cheng, J.-T. Jan, C.-J. Lin, J.-M. Fang, and C.-H. Wong, "Tamiphosphor monoesters as effective anti-influenza agents", *Eur. J. Med. Chem.*, 81, 106-118, (2014). doi: 10.1016/j.ejmech.2014.04.082. PMID: 24836064.
117. L.-Y. Huang, S.-H. Huang, Y.-C. Chang, W.-C. Cheng, T.-J. R. Cheng, and C.-H. Wong, "Enzymatic synthesis of Lipid II and analogues", *Angew. Chem. Int. Ed.*, 53 (31), 8060-8065, (2014). doi: 10.1002/anie.201402313. PMID: 24990652.
118. C.-Y. Wang, C.-Y. Wu, T.-J. Hung, C.-H. Wong, C.-H. Chen, "Sequence-constructive SELEX: A new strategy for screening DNA aptamer binding to Globo H", *Biochem. Biophys. Res. Commun.*, 452 (3), 484-489, (2014). doi: 10.1016/j.bbrc.2014.08.086. PMID: 25159850.
119. C.-H. Hsu, M. Schelwies, S. Enck, L.-Y. Huang, S.-H. Huang, Y.-F. Chang, T.-J. Cheng, W.-C. Cheng, C.-H. Wong, "Iminosugar C-glycoside analogues of alpha-D-GlcNAc-1-phosphate: synthesis and bacterial transglycosylase inhibition", *J. Org. Chem.*, 79 (18), 8629-8637, (2014). doi: 10.1021/jo501340s. PMID: 25137529.
120. J.-T. Hung, Y.-C. Tsai, W.-D. Lin, J.-T. Jan, K.-H. Lin, J.-R. Huang, J.-Y. Cheng, M.-W. Chen, C.-H. Wong, and A. L. Yu, "Potent adjuvant effects of novel NKT stimulatory glycolipids on hemagglutinin-based DNA vaccine for H5N1 influenza virus", *Antiviral Res.*, 107, 110-118, (2014). doi: 10.1016/j.antiviral.2014.04.007. PMID: 24786174.
121. B.-T. Hong, C.-L. Chen, J.-M. Fang, S.-Y. Wang, W.-I. Huang, Y.-S. E. Cheng, and Chi-Huey Wong, "Oseltamivir hydroxamate and acyl sulfonamide derivatives as influenza neuraminidase inhibitors", *Bioorg. Med. Chem.*, 22 (23), 6647-6654, (2014). doi: 10.1016/j.bmc.2014.10.005. PMID: 25456388.
122. H.-Y. Lee, C.-Y. Chen, T.-I. Tsai, S.-T. Li, K.-H. Lin, Y.-Y. Cheng, C.-T. Ren, T.-J. Cheng, C.-Y. Wu, C.-H. Wong, "Immunogenicity study of Globo H derivatives with modification at the reducing or non-reducing end of the tumor antigen", *J. Am. Chem. Soc.*, 136 (48), 16844-16853, (2014). doi: 10.1021/ja508040d. PMID: 25371992.
123. T.-J. R. Cheng, S.-Y. Wang, W.-H. Wen, C.-Y. Su, M. Lin, W.-I. Huang, M.-T. Liu, H.-S. Wu, N.-S. Wang, C.-K. Cheng, C.-L. Chen, C.-T. Ren, C.-Y. Wu, J.-M. Fang, Y.-S. E. Cheng, C.-H. Wong, "Chemical probes for drug resistance assessment by binding competition (RABC) oseltamivir

- susceptibility evaluation”, Angew. Chem. Int. Ed., 52, 366-370, (2013). doi: 10.1002/anie.201204062. PMID: 23150231.
124. E. Al-Shareffi, J.-L. Chaubard, C. Leonhard-Melief, C.-H. Wong, and R. S. Haltiwanger, “6-alkynyl fucose is a bioorthogonal analogue for O-fucosylation of epidermal growth factor-like repeats and thrombospondin type-1 repeats by protein O-fucosyltransferases 1 and 2”, Glycobiology, 23 (2), 188-198, (2013). doi: 10.1093/glycob/cws140. PMID: 23045360.
125. K.-T. Chen, Y.-C. Kuan, W.-C. Fu, P.-H. Liang, T.-J. R. Cheng, C.-H. Wong, and W.-C. Cheng, “Rapid preparation of mycobacterium N-glycolyl lipid I and lipid II derivatives: a biocatalytic approach”, Chemistry -A European Journal, 19 (3), 834-838, (2013). doi: 10.1002/chem.201203251. PMID: 23229320.
126. K. J. Doores, M. Huber, K. M. Le, S.-K. Wang, C. Doyle-Cooper, A. Cooper, R. Pantophlet, C.-H. Wong, D. Nemazee, D. R. Burton, “2G12-expressing B cell lines inform HIV carbohydrate vaccine design strategies”, Journal of Virology, 87 (4), 2234-2241, (2013). doi: 10.1128/JVI.02820-12. PMID: 23221565.
127. C.-Y. Chen, Y.-H. Jan, Y.-H. Juan, C.-J. Yang, M.-S. Huang, C.-J. Yu, P.-C. Yang, M. Hsiao, T.-L. Hsu, C.-H. Wong, “Fucosyltransferase 8 as a functional regulator of non-small cell lung cancer”, Proc. Nat. Acad. Sci. U.S.A., 110 (2), 630-635, (2013). doi: 10.1073/pnas.1220425110. PMID: 23267084.
128. Y.-L. Huang, J.-T. Hung, S. K.-C. Cheung, H.-Y. Lee, K.-C. Chu, S.-T. Li, Y.-C. Lin, C.-T. Ren, T.-J. R. Cheng, T.-L. Hsu, A. L. Yu, C.-Y. Wu, C.-H. Wong “Carbohydrate-based vaccines with a glycolipid adjuvant for breast cancer”, Proc. Natl. Acad. Sci. U.S.A., 110, 2517-2522, (2013). doi: 10.1073/pnas.1222649110. PMID: 23355685.
129. C.-S. Tsai, H.-Y. Yen, M.-I. Lin, T.-I. Tsai, S.-Y. Wang, W.-I. Huang, T.-L. Hsu, Y.-S. E. Cheng, J.-M. Fang, C.-H. Wong, “Cell permeable probe for identification and imaging of sialidases”, Proc. Nat. Acad. Sci. U.S.A., 110, 2466-2471, (2013). doi: 10.1073/pnas.1222183110. PMID: 23359711.
130. T.-C. Hung, C.-W. Lin, T.-L. Hsu, C.-Y. Wu, C.-H. Wong, “Investigation of SSEA-4 binding protein in breast cancer cells”, J. Am. Chem. Soc., 135 (16), 5934-5937, (2013). doi: 10.1021/ja312210c. PMID: 23574147.
131. C.-C. Tsai, C.-R. Lin, H.-Y. Tsai, C.-J. Chen, W.-T. Li, H.-M. Yu, Y.-Y. Ke, W.-Y. Hsieh, C.-Y. Chang, C.-Y. Wu, S.-T. Chen, C.-H. Wong, “The immunologically active oligosaccharides isolated from wheatgrass modulate monocytes via toll-like receptor-2 signaling”, J. Biol. Chem., 288 (24), 17689-17697, (2013). doi: 10.1074/jbc.M112.448381. PMID: 23629653.
132. C.-Y. Yang, J.-B. Chen, T.-F. Tsai, Y.-C. Tsai, C.-Y. Tsai, P.-H. Liang, T.-L. Hsu, C.-Y. Wu, M. G. Netea, C.-H. Wong, S.-L. Hsieh, “CLEC4F is an inducible C-type lectin in F4/80-positive cells and is involved in alpha-galactosylceramide presentation in liver”, PLOS ONE, 8 (6), e65070, (2013). doi: 10.1371/journal.pone.0065070. PMID: 23762286.
133. S.-C. Lin, J.-T. Jan, B. Dionne, M. Butler, M.-H. Huang, C.-Y. Wu, C.-H. Wong, S.-C. Wu, “Different immunity elicited by recombinant H5N1 hemagglutinin proteins containing paucimannose, high-mannose, or complex type N-glycans”, PLOS ONE, 8 (6), e66719, (2013) doi: 10.1371/journal.pone.0066719. PMID: 23799128.
134. H.-W. Huang, C.-H. Chen, C.-H. Lin, C.-H. Wong, K.-I. Lin, “B-cell maturation antigen is modified by a single N-glycan chain that modulates ligand binding and surface retention”, Proc. Nat. Acad. Sci. U.S.A., 110 (27), 10928-10933, (2013). doi: 10.1073/pnas.1309417110. PMID: 23776238.

135. K. Ohara, C.-C. Lin, P.-J. Yang, W.-T. Hung, W.-B. Yang, T.-J. Cheng, J.-M. Fang, C.-H. Wong, "Synthesis and bioactivity of  $\beta$ -(1 $\rightarrow$ 4)-linked oligomannoses and partially acetylated derivatives", J. Org. Chem., 78 (13), 6390-6411, (2013). doi: 10.1021/jo4005266. PMID: 23745711.
136. W. Chen, S. Enck, J. Price, D. Powers, E. Powers, C.-H. Wong, H. J. Dyson, J. Kelly, "Structural and energetic basis of carbohydrate-aromatic packing interactions in proteins", J. Am. Chem. Soc., 135 (26), 9877-9884, (2013). doi: 10.1021/ja4040472. PMID: 23742246.
137. C.-H. Wang, S.-T. Li, T.-L. Lin, Y.-Y. Cheng, T.-H. Sun, J.-T. Wang, T.-J. Cheng, K.-K. Mong, C.-H. Wong, C.-Y. Wu, "Synthesis of Neisseria meningitidis serogroup W135 capsular oligosaccharides for immunogenicity comparison and vaccine development", Angew. Chem. Int. Ed., 52 (35), 9157-9161, (2013). doi: 10.1002/anie.201302540. PMID: 23843313.
138. H.-Y. Chuang, C.-T. Ren, C.-A. Chao, C.-Y. Wu, S. Shivatare, T.-J. R. Cheng, C.-Y. Wu, C.-H. Wong, "Synthesis and vaccine evaluation of the tumor associated carbohydrate antigen RM2 from prostate cancer", J. Am. Chem. Soc., 135 (30), 11140-11150, (2013). doi: 10.1021/ja403609x. PMID: 23819648.
139. S.-F. Liao, C.-H. Liang, M.-Y. Ho, T.-L. Hsu, T.-I. Tsai, Y. S.-Y. Hsieh, S.-T. Li, Y.-Y. Cheng, S.-M. Tsao, T.-Y. Lin, Z.-Y. Lin, W.-B. Yang, C.-T. Ren, K.-I. Lin, K.-K. Khoo, C.-H. Lin, H.-Y. Hsu, C.-Y. Wu, C.-H. Wong, "Immunization of fucose-containing polysaccharides from Reishi mushroom induces antibodies against tumor-associated Globo H-series epitopes", Proc. Nat. Acad. Sci. U.S.A., 110 (34), 13809-13814, (2013). doi: 10.1073/pnas.1312457110. PMID: 23908400.
140. S. Shivatare, S.-H. Chang, T.-I. Tsai, C.-T. Ren, H.-Y. Chuang, L. Hsu, C.-W. Lin, S.-T. Li, C.-Y. Wu, C.-H. Wong, "Efficient convergent synthesis of bi-, tri-, and tetraantennary complex type N-glycans and their HIV-1 antigenicity", J. Am. Chem. Soc., 135 (41), 15382-15391, (2013). doi: 10.1021/ja409097c. PMID: 24032650.
141. T.-I. Tsai, H.-Y. Lee, S.-H. Chang, C.-H. Wang, Y.-C. Tu, Y.-C. Lin, D.-R. Hwang, C.-Y. Wu, C.-H. Wong, "Effective sugar nucleotide regeneration for the large-scale enzymatic synthesis of Globo H and SSEA4", J. Am. Chem. Soc., 135 (39), 14831-14839, (2013). doi: 10.1021/ja4075584. PMID: 24044869.
142. N. Padte, M. B. Carrera, C. A. McManus, B. Grasperge, A. Gettie, J. Coelho-dos-Reis, X. Li, N. Levenkova, D. Wu, J. T. Bruder, M. Sedegah, N. Petterson, T. Richie, C.-H. Wong, D. D. Ho, S. Vasan, M. Tsuji, "A glycolipid adjuvant, 7DW8-5, enhances CD8+ T cell responses induced by an adenovirus-vectored malaria vaccine in non-human primates", PLOS ONE, 8 (10), e78407, (2013). doi: 10.1371/journal.pone.0078407. PMID: 24205224.
143. S.-H. Huang, W.-S. Wu, L.-Y., Huang, W.-F., Huang, W.-C., Fu, S.-T. Yang, P.-T. Chen, J.-M. Fang, W.-C. Cheng, T.-J. Cheng, C.-H. Wong, "New continuous fluorometric assay for bacterial transglycosylase using Förster resonance energy transfer", J. Am. Chem. Soc., 135 (45), 17078-17089, (2013). doi: 10.1021/ja407985m. PMID: 24131464.
144. R. Bryk, N. Arango, C. Maksymiuk, A. Balakrishnan, Y.-T. Wu, C.-H. Wong, T. Masquelin, P. Hipskind, C. D. Lima, and C. Nathan, "Lipoamide channel-binding sulfonamides selectively inhibit mycobacterial lipoamide dehydrogenase", Biochemistry, 52 (51), 9375-9384, (2013). doi: 10.1021/bi401077f. PMID: 24251446.
145. T.-L. Hsu, G. Lin, A. Koizumi, K. Brehm, N. Hada, P.-K. Chuang, C.-H. Wong, S.-L. Hsieh, A. Diaz, "The surface carbohydrates of the Echinococcus granulosus larva interact selectively with the rodent Kupffer cell receptor", Molecular & Biochemical Parasitology, 192 (1-2), 55-59, (2013). doi:

10.1016/j.molbiopara.2013.12.001. PMID: 24361107.

146. S.-H. Chen, D.-R. Hwang, G.-H. Chen, N.-S. Hsu, Y.-T. Wu, T.-L. Li, C.-H. Wong, "Engineering transaldolase in *Pichia stipitis* to improve bioethanol production", ACS Chem. Biol., 7 (3), 481-486, (2012). doi: 10.1021/cb200396b. PMID: 22148723.
147. J. Lenger, M. Schröder, E. C. Ennemann, B. Müller, C.-H. Wong, T. Noll, T. Dierks, S. R. Hanson, N. Sewald, "Evaluation of sulfatase-directed quinone methide traps for proteomics", Bioorg. Med. Chem., 20 (2), 622-627, (2012). doi: 10.1016/j.bmc.2011.04.044. PMID: 21570853.
148. Y. Hsu, X.-A. Lu, M. Zulueta, C.-M. Tsai, K.-I. Lin, S.-C. Hung, C.-H. Wong, "Acyl and silyl group effects in reactivity-based one-pot glycosylation: synthesis of embryonic stem cell surface carbohydrates Lc<sub>4</sub> and IV<sup>2</sup>Fuc-Lc<sub>4</sub>", J. Am. Chem. Soc., 134 (10), 4549-4552, (2012). doi: 10.1021/ja300284x. PMID: 22390569.
149. C.-Y. Huang, H.-W. Shih, L.-Y. Lin, Y.-W. Tien, T.-J. R. Cheng, W.-C. Cheng, C.-H. Wong and C. Ma, "Crystal structure of *Staphylococcus aureus* membrane-bound transglycosylase in complex with a lipid II analog and elucidation of the mechanism of peptidoglycan synthesis", Proc. Nat. Acad. Sci. U.S.A., 109 (17), 6496-6501, (2012). doi: 10.1073/pnas.1203900109. PMID: 22493270.
150. S.-C. Hung, M. Zulueta, S.-Y. Lin, Y.-T. Lin, C.-J. Huang, C.-C. Wang, C.-C. Ku, Z.-H. Shi, C.-L. Chyan, D. Irene, L.-H. Lim, T.-I. Tsai, Y.-P. Hu, S. Arco, C.-H. Wong, "α-Glycosylation by D-glucosamine-derived donors: synthesis of heparosan and heparin analogs that interact with mycobacterial heparin-binding hemagglutinin", J. Am. Chem. Soc., 134, 8988-8995, (2012). doi: 10.1021/ja302640p. PMID: 22587381.
151. M.-H. Hsieh, J.-T. Hung, Y.-W. Liw, Y.-J. Lu, C.-H. Wong, A. L. Yu, and P.-H. Liang, "Synthesis and evaluation of acyl-chain- and galactose-6"-modified analogues of α-GalCer for NKT cell activation", ChemBioChem, 13 (11), 1689-1697, (2012). doi: 10.1002/cbic.201200004. PMID: 22730199.
152. J. L. Price, E. K. Culyba, W. Chen, A. N. Murray, S. R. Hanson, C.-H. Wong, E. T. Powers, J. W. Kelly, "N-glycosylation of enhanced aromatic sequons to increase glycoprotein stability", Biopolymers, 98 (3), 195-211, (2012). doi: 10.1002/bip.22030. PMID: 22782562.
153. H.-W. Shih, Y.-F. Chang, W.-J. Li, F.-C. Meng, C.-Y. Huang, C. Ma, T.-J. R. Cheng, C.-H. Wong, W.-C. Cheng, "Effect of the peptide moiety of lipid II on bacterial transglycosylase", Angew. Chem. Int. Ed., 51 (40), 10123-10126, (2012). doi: 10.1002/anie.20120403. PMID: 22952114.
154. K.-C. Liu, J.-M. Fang, J.-T. Jan, T.-J. R. Cheng, S.-Y. Wang, Y.-S. E. Cheng, K.-C. Tsai, A.-S. Yang, and C.-H. Wong, "Enhanced anti-influenza agents conjugated with anti-inflammatory activity", J. Med. Chem., 55 (19), 8493-8501, (2012). doi: 10.1021/jm3009844. PMID: 22963087.
155. T.-J. R. Cheng, S. Weinheimer, E. B. Tarbet, J.-T. Jan, Y.-S. E. Cheng, J.-J. Shie, C.-L. Chen, C.-A. Chen, W.-C. Hsieh, P.-W. Huang, W.-H. Lin, S.-Y. Wang, J.-M. Fang, O. Y.-P. Hu, and C.-H. Wong, "Development of oseltamivir phosphonate congeners as anti-influenza agents", J. Med. Chem., 55 (20), 8657-8670, (2012). doi: 10.1021/jm3008486. PMID: 23009169.
156. C.-H. Liang, S.-K. Wang, C.-W. Lin, C.-C. Wang, C.-H. Wong, C.-Y. Wu, "Effects of neighboring glycans on antibody-carbohydrate interaction", Angew. Chem. Int. Ed., 50 (7), 1608-1612, (2011). doi: 10.1002/anie.201003482. PMID: 21308915.
157. E. K. Culyba, J. L. Price, S. R. Hanson, A. Dhar, C.-H. Wong, M. Gruebele, E. T. Powers and J. W. Kelly, "Protein native-state stabilization by placing aromatic side chains in N-glycosylated reverse

- turns”, Science, 331 (6017), 571-575, (2011). doi: 10.1126/science.1198461. PMID: 21292975.
158. M. W. Chen, H.-Y. Liao, T.-J. R. Cheng, C.-T. Ren, C.-Y. Wu, Y. Huang, D. D. Ho, C.-H. Wong, “Broadly neutralizing DNA vaccine with site specific mutation alters the antigenicity and sugar binding activities of influenza hemagglutinin”, Proc. Nat. Acad. Sci. U.S.A., 108 (9), 3510-3515, (2011). doi: 10.1073/pnas.1019744108. PMID: 21321237.
  159. R. T. Lee, T.-L. Hsu, S. K. Huang, S.-L. Hsieh, C.-H. Wong, and Y. C. Lee, “Survey of immune-related, mannose/fucose-binding C-Type lectin receptors reveals widely divergent sugar-binding specificities”, Glycobiology, 21 (4), 512-520, (2011). doi: 10.1093/glycob/cwq193. PMID: 21112966.
  160. C.-Y. Chou, T.-P. Ko, K.-J. Wu, K.-F. Huang, C.-H. Lin, C.-H. Wong, A. H.-J. Wang, “Modulation of substrate specificities of D-sialic acid aldolase through single mutations of Val251”, J. Biol. Chem., 286 (16), 14057-14064, (2011). doi: 10.1074/jbc.M110.179465. PMID: 21270125.
  161. B.-L. Tsai, J.-L. Han, C.-T. Ren, C.-Y. Wu and C.-H. Wong, “Programmable one-pot synthesis of tumor-associated carbohydrate antigens Lewis X dimer and KH-1 epitopes”, Tetrahedron Letters, 52 (17), 2132-2135, (2011). <https://doi.org/10.1016/j.tetlet.2010.11.055>.
  162. C.-F. Chang, J.-F. Pan, C.-N. Lin, C.-H. Wong, C.-H. Lin, “Rapid characterization of sugar-binding specificity by in-solution proximity binding with photosensitizers”, Glycobiology, 21 (7), 895-902, (2011). doi: 10.1093/glycob/cwr021. PMID: 21325337.
  163. C.-Y. Wu and C.-H. Wong, “Chemistry and glycobiology”, ChemComm, 47 (22), 6201-6207, (2011). doi: 10.1039/c0cc04359a. PMID: 21503322.
  164. C.-Y. Wu and C.-H. Wong, “Programmable one-pot glycosylation”, Topics in Current Chemistry, 301, 223-252, (2011). doi: 10.1007/128\_2010\_109. PMID: 21290217.
  165. Y.-C. Liu, H.-Y. Yen, C.-Y. Chen, C.-H. Chen, P.-F. Cheng, Y.-H. Juan, C.-H. Chen, K.-H. Khoo, C.-J. Yu, P.-C. Yang, T.-L. Hsu, C.-H. Wong, “Sialylation and fucosylation of epidermal growth factor receptor suppress its dimerization and activation in lung cancer cells”, Proc. Nat. Acad. Sci. U.S.A., 108 (28), 11332-11337, (2011). doi: 10.1073/pnas.1107385108. PMID: 21709263.
  166. R. Schmaltz, S. R. Hanson, C.-H. Wong, “Enzymes in the synthesis of glycoconjugates”, Chemical Reviews, 111 (7), 4259-4307, (2011). doi: 10.1021/cr200113w. PMID: 21749134.
  167. K.-C. Liu, P.-S. Lee, S.-Y. Wang, Y.-S. E. Cheng, J.-M. Fang and C.-H. Wong, “Intramolecular ion-pair prodrugs of zanamivir and guanidino-oseltamivir”, Bioorg. Med. Chem., 19, 4796-4802, (2011). doi: 10.1016/j.bmc.2011.06.080. PMID: 21778065.
  168. H.-L. Yen, C.-H. Liang, C.-Y. Wu, H. L. Forrest, A. Ferguson, K.-T. Choy, J. Jones, D. D.-Y. Wong, P. P.-H. Cheung, C.-H. Hsu, O. T. Li, K. M. Yuen, R. W. Y. Chan, L. L. M. Poon, M. C. W. Chan, J. Nicholls, S. Krauss, C.-H. Wong, Y. Guan, R. G. Webster, R. J. Webby & J. S. M. Peiris, “Hemagglutinin-neuraminidase balance confers respiratory droplet transmissibility of the pandemic H1N1 influenza virus in ferrets”, Proc. Nat. Acad. Sci. U.S.A., 108 (34), 14264-14269, (2011). doi: 10.1073/pnas.1111000108. PMID: 21825167.
  169. H.-W. Shih, K.-T. Chen, T.-J. Cheng, C.-H. Wong, W.-C. Cheng, “A new synthetic approach toward bacterial transglycosylase substrates, lipid II and lipid IV”, Org. Lett., 13 (17), 4600-4603, (2011). doi: 10.1021/ol201806d. PMID: 21797279.
  170. J.-R. Chen, C. Ma and C.-H. Wong, “Vaccine design of hemagglutinin glycoprotein against influenza”, Trends in Biotechnology, 29 (9), 426-434, (2011). doi: 10.1016/j.tibtech.2011.04.007.



PMID: 21640418.

171. L. M. Walker, M. Huber, K. J. Doores, E. Falkowska, R. Pejchal, J.-P. Julien, S.-K. Wang, P.-Y. Chan-Hui, P. W. Hammond, O. A. Olsen, A. Ramos, P. Phung, T. Wrin, M. D. Simek, S. Fling, C.-H. Wong, S. Phogat, W. C. Koff, I. A. Wilson, D. R. Burton, P. Poignard, "Broad neutralization coverage of HIV by multiple highly potent antibodies", *Nature*, 477 (7365), 466-470, (2011). doi: 10.1038/nature10373. PMID: 21849977.
172. K.-C. Chu, C.-T. Ren, C.-P. Lu, C.-H. Hsu, T.-H. Sun, T.-A. Chao, Y.-F. Lin, S.-H. Wu, C.-H. Wong and C.-Y. Wu, "Efficient and stereoselective synthesis of  $\alpha(2\rightarrow9)$  oligosialic acids up to dodecamer", *Angew. Chem. Int. Ed.*, 50 (40), 9391-9395, (2011). doi: 10.1002/anie.201101794. PMID: 21948436.
173. F.-C. Meng, K.-T. Chen, L.-Y. Huang, H.-W. Shih, H.-H. Chang, F.-Y. Nien, P.-H. Liang, T.-J. Cheng, C.-H. Wong, W.-C. Cheng, "Total synthesis of polyprenyl N-glycolyl lipid II as a mycobacterial transglycosylase substrate", *Org. Lett.*, 13 (19), 5306-5309, (2011). doi: 10.1021/ol2021687. PMID: 21913698.
174. C.-H. Hsu, S.-C. Hung, C.-Y. Wu, and C.-H. Wong, "Toward automatic oligosaccharide synthesis and applications", *Angew. Chem. Int. Ed.*, 50 (50), 11872-11923, (2011). doi: 10.1002/anie.201100125. PMID: 22127846.
175. Y. Kinjo, P. Illarionov, J. L. Vela, B. Pei, E. Girardi, X. Li, Y. Li, M. Imamura, Y. Kaneko, Y. Miyazaki, P. Rogers, S. Dahesh, S. Uchiyama, A. Khurana, K. Kawahara, H. Yesilkaya, P. W. Andrew, C.-H. Wong, K. Kawakami, V. Nizet, G. S. Besra, M. Tsuji, D. M. Zajonc, M. Kronenberg, "Invariant NKT cells recognize glycolipids from pathogenic Gram-positive bacteria", *Nat. Immunol.*, 12 (10), 966-974, (2011). doi: 10.1038/ni.2096. PMID: 21892173.
176. Y.-F. Shen, Y.-H. Chen, S.-Y. Chu, M.-I. Lin, H.-T. Hsu, P.-Y. Wu, C.-J. Wu, H.-W. Liu, F.-Y. Lin, G. Lin, P.-H. Hsu, A.-S. Yang, Y.-S. E. Cheng, Y.-T. Wu, C.-H. Wong, and M.-D. Tsai, "The E339...R416 salt bridge of nucleoprotein as a feasible target for influenza virus inhibitors", *Proc. Nat. Acad. Sci. U.S.A.*, 108 (40), 16515-16520, (2011). doi: 10.1073/pnas.1113107108. PMID: 21930946.
177. R. Pejchal, K. J. Doores, L. M. Walker, R. Khayat, P.-S. Huang, S.-K. Wang, R. L. Stanfield, J.P. Julien, A. Ramos, M. Crispin, R. Depetris, U. Katpally, A. Marozsan, A. Cupo, S. Malveste, Y. Liu, R. McBride, Y. Ito, R.W. Sanders, C. Ogohara, J. C. Paulson, T. Feizi, C. N. Scanlan, C.-H. Wong, J. P. Moore, W. C. Olson, A. B. Ward, P. Poignard, W. R. Schief, D. R. Burton, I. A. Wilson, "A potent and broad neutralizing antibody recognizes and penetrates the HIV glycan shield", *Science*, 334 (6059), 1097-1103, (2011). doi: 10.1126/science.1213256. PMID: 21998254.
178. T.-N. Wu, K.-H. Lin, Y.-J. Chang, J.-R. Huang, J.-Y. Cheng, A. L. Yu, and C.-H. Wong, "Avidity of CD1d-ligand-receptor ternary complex contributes to Th1 polarization and anticancer efficacy", *Proc. Nat. Acad. Sci. U.S.A.*, 108 (42), 17275-17280, (2011). doi: 10.1073/pnas.1114255108. PMID: 21987790.
179. J.-J. Shie, J.-M. Fang, P.-T. Lai, W.-H. Wen, S.-Y. Wang, Y.-S. Cheng, K.-C. Tsai, A.-S. Yang, C.-H. Wong, "A practical synthesis of zanamivir phosphonate congeners with potent anti-influenza activity", *J. Am. Chem. Soc.*, 133 (44), 17959-17965, (2011). doi: 10.1021/ja207892q. PMID: 21942552.
180. D. Punyadarsaniya, C.-H. Liang, C. Winter, H. Petersen, S. Rautenschlein, I. Hennig-Pauka, C. Schwegmann-Wessels, C.-Y. Wu, C.-H. Wong, G. Herrler, "Infection of differentiated porcine

- airway epithelial cells by influenza virus: differential susceptibility to infection by porcine and avian viruses”, PLOS One, 6 (12), e28429, (2011). doi: 10.1371/journal.pone.0028429. PMID: 22174804.
181. R. J. Payne and C.-H. Wong, “Advances in chemical ligation strategies for the synthesis of glycopeptides and glycoproteins”, ChemComm., 46, 21-43, (2010). doi: 10.1039/b913845e. PMID: 20024291.
  182. C.-H. Hsu, K.-C. Chu, Y.-S. Lin, J.-L. Han, Y.-S. Peng, C.-T. Ren, C.-Y. Wu, C.-H. Wong, “Highly alpha-selective sialyl phosphate donors for efficient preparation of natural sialosides”, Chemistry-A European Journal, 16, 1754-1760, (2010). doi: 10.1002/chem.200903035. PMID: 20066711.
  183. C.-Y. Liu, C.-W. Guo, Y.-F. Chang, J.-T. Wang, H.-W. Shih, Y.-F. Hsu, C.-W. Chen, S.-K. Chen, Y.-C. Wang, T.-J. Cheng, C. Ma, C.-H. Wong, J.-M. Fang, W.-C. Cheng, “Synthesis and evaluation of a new fluorescent transglycosylase substrate: lipid II-based molecule possessing a dansyl-C20 polyprenyl moiety”, Org Lett., 12 (7), 1608-1611, (2010). doi: 10.1021/ol100338. PMID: 20187630.
  184. C.-C. Chang, A. F. Ku, Y.-Y. Tseng, W.-B. Yang, J.-M. Fang, and C.-H. Wong, “6,8-Di-C-glycosyl flavonoids from *Dendrobium huoshanense*”, J. Nat. Prod., 73 (2), 229-232, (2010). doi: 10.1021/np900252f. PMID: 20055483.
  185. R. D. Astronomo, E. Kaltgrad, A. K. Udit, S.-K. Wang, R. Pantophlet, C.-Y. Huang, J. C. Paulson, C.-H. Wong, M. G. Finn and D. R. Burton, “Defining criteria for oligomannose immunogens for HIV using icosahedral virus capsid scaffolds”, Chemistry & Biology, 17 (4), 357-370, (2010). doi: 10.1016/j.chembiol.2010.03.012. PMID: 20416507.
  186. H.-W. Shih, K.-T. Chen, S.-K. Chen, C.-Y. Huang, T.-J. Cheng, C. Ma, C.-H. Wong, W.-C. Cheng, “Combinatorial approach toward synthesis of small molecule libraries as bacterial transglycosylase inhibitors”, Organic & Biomolecular Chemistry, 8 (11), 2586-2593, (2010). doi: 10.1039/c000622j. PMID: 20485795.
  187. W.-H. Wen, S.-Y. Wang, K.-C. Ysai, Y.-S. E. Cheng, A.-S. Yang, J.-M. Fang, C.-H. Wong, “Analogues of zanamivir with modified C4-substituents as the inhibitors against the group-1 neuraminidases of influenza viruses”, Bioorg. Med. Chem., 18 (11), 4074-4084, (2010). doi: 10.1016/j.bmc.2010.04.010. PMID: 20452227.
  188. S. Otsuki, S. Hanson, S. Miyaki, S. Grogan, M. Kinoshita, H. Asahara, C.-H. Wong, M. Lotz, “Extracellular sulfatases support cartilage homeostasis by regulating BMP and FGF signaling pathways”, Proc. Nat. Acad. Sci. U.S.A., 107 (22), 10202-10207, (2010). doi: 10.1073/pnas.0913897107. PMID: 20479257.
  189. C.-S. Tsai, P.-Y. Liu, H.-Y. Yen, T.-L. Hsu, C.-H. Wong, “Development of trifunctional probes for glycoproteomic analysis”, ChemComm., 46 (30), 5575-5577, (2010).
  190. X. Li, D. Wu, M. Fujio, M. Imamura, S. Vasani, C.-H. Wong, D. D. Ho, M. Tsuji, “Design of a potent CD1d-binding NKT cell ligand as a vaccine adjuvant”, Proc. Nat. Acad. Sci. U.S.A., 107 (29), 13010-13015, (2010). doi: 10.1039/c0cc00345j. PMID: 20467665.
  191. K.-H. Lin, J.-J. Liang, W.-I. Huang, S.-Y. Lin-Chu, C.-Y. Su, Y.-L. Lee, J.-T. Jan, Y.-L. Lin, Y.-S. E. Cheng, and C.-H. Wong, “In vivo protection of bacterial and viral infections in murine models using a synthetic new alpha-GalCer analog”, Antimicrobial Agents and Chemotherapy, 54 (10), 4129-4136, (2010). doi: 10.1128/AAC.00368-10. PMID: 20660669.
  192. S.-H. Chang, J.-L. Han, Susan Y. Tseng, H.-Y. Lee, C.-W. Lin, Y.-C. Lin, W.-Y. Jeng, A. H.-J.

- Wang, C.-Y. Wu, C.-H. Wong, "Glycan array on aluminum oxide coated glass slides through phosphonate chemistry", *J. Am. Chem. Soc.*, 132 (38), 13371-13380, (2010). doi: 10.1021/ja1046523. PMID: 20822102.
193. J.-J. Shie, C.-A. Chen, C.-C. Lin, A. F. Ku, T.-J. R. Cheng, J.-M. Fang, and C.-H. Wong, "Regioselective synthesis of Di-C-glycosylflavones possessing anti-inflammation activities", *Organic & Biomolecular Chemistry*, 8 (19), 4451-4462, (2010). doi: 10.1039/c0ob00011f. PMID: 20725659.
194. H.-Y. Liao, C.-H. Hsu, S.-C. Wang, C.-H. Liang, H.-Y. Yen, C.-Y. Su, J.-T. Jan, C.-T. Ren, T.-J. Cheng, C.-Y. Wu, C.-H. Wong, "Differential receptor binding affinities of influenza hemagglutinins on glycan arrays", *J. Am. Chem. Soc.*, 132 (42), 14849-14856, (2010). doi: 10.1021/ja104657b. PMID: 20882975.
195. C.-Y. Su, T.-J. R. Cheng, M.-I. Lin, S.-Y. Wang, W.-I. Huang, S.-Y. Lin-Chu<sup>a</sup>, Y.-H. Chen, C.-Y. Wu, M. M. C. Lai, W.-C. Cheng, Y.-T. Wu, M.-D. Tsai, Y.-S. E. Cheng, C.-H. Wong, "High-throughput identification of compounds targeting influenza RNA-dependent RNA Polymerase activity", *Proc. Nat. Acad. Sci. U.S.A.*, 107 (45), 19151-19156, (2010). doi: 10.1073/pnas.1013592107. PMID: 20974907.
196. M. Schelwies, D. Brinson, Y.-H. Hong, M. K. Lotz, C.-H. Wong, and S. R. Hanson, "GlcN-6-sulfamate heparan analogs as inhibitors of endosulfatases", *ChemBioChem*, 11 (17), 2393-2397, (2010). doi: 10.1002/cbic.201000401. PMID: 20973023.
197. J. C. Lewis, S. M. Mantovani, Y. Fu, C. D. Snow, R. S. Komor, C.-H. Wong, F. H. Arnold, "Combinatorial alanine substitution enables rapid optimization of cytochrome P450<sub>BM3</sub> for selective hydroxylation of large substrates", *ChembioChem*, 11 (18), 2502-2505, (2010). doi: 10.1002/cbic.201000565. PMID: 21108271.
198. W.-Y. Chen, W.-B. Yang, C.-H. Wong, D.T.-B. Shih, "Effect of Reishi polysaccharides on human stem/progenitor cells", *Bioorg. Med. Chem.*, 18 (24), 8583-8591, (2010). doi: 10.1016/j.bmc.2010.10.016. PMID: 21055951.
199. T.-J. R. Cheng, Y.-T. Wu, S.-T. Yang, A. Loh, S.-K. Chen, Y.-H. Chen, W.-I. Huang, C.-H. Yuan, H.-W. Shih, Y.-S. E. Cheng, W.-C. Cheng, C.-H. Wong, "High-throughput identification of antibacterials against methicillin-resistant *Staphylococcus aureus* (MRSA) and the transglycosylase", *Bioorg. Med. Chem.*, 18 (24), 8512-8529, (2010). doi: 10.1073/pnas.1013592107. PMID: 20974907.
200. S.-Y. Wang, C.-Y. Su, M. Lin, S.-Y. Huang, W.-I. Huang, C.-C. Wang, Y.-T. Wu, T.-J. R. Cheng, H.-M. Yu, C.-T. Ren, C.-Y. Wu, C.-H. Wong, Y.-S. E. Cheng, "HA-pseudotyped retroviral vectors for influenza antagonist screening", *J. Biomolecular Screening*, 14 (3), 294-302, (2009). doi: 10.1177/1087057108330786. PMID: 19211776.
201. S. R. Hanson, E. K. Culyba, T. L. Hsu, C.-H. Wong, J. W. Kelly, E. T. Powers, "The Core Trisaccharide of an N-linked Glycoprotein intrinsically accelerates folding and enhances stability", *Proc. Nat. Acad. Sci. U.S.A.*, 106 (9), 3131-3136, (2009). doi: 10.1073/pnas.0810318105. PMID: 19204290.
202. C.-Y. Wu, P.-H. Liang and C.-H. Wong, "New development of glycan arrays", *Organic & Biomolecular Chemistry*, 7 (11), 2247-2254, (2009). doi: 10.1039/b902510n. PMID: 19462030.
203. M.-T. Sung, Y.-T. Lai, C.-Y. Huang, L.-Y. Chou, H.-W. Shih, W.-C. Cheng, C.-H. Wong, C. Ma, "Crystal structure of the membrane-bound bifunctional transglycosylase PBP1b from *Escherichia*

- coli”, Proc. Nat. Acad. Sci. U.S.A., 106 (22), 8824-8829, (2009). doi: 10.1073/pnas.0904030106. PMID: 19458048.
204. Z. Hong, L. Liu, M. Sugiyama, Y. Fu, C.-H. Wong, “Concise synthesis of iminocyclitols via petasis-type aminocyclization”, J. Am. Chem. Soc., 131 (24), 8352–8353, (2009). doi: 10.1021/ja901656e. PMID: 19530721.
205. L. Motiei, S. Rahimpour, D. A. Thayer, C.-H. Wong and M. R. Ghadiri, “Antibacterial cyclic D,L-alpha-glycopeptides”, ChemComm., 7 (25), 3693-3695, (2009). doi: 10.1039/b902455g. PMID: 19557251.
206. W.-H. Wen, M. Lin, C.-Y. Su, S.-Y. Wang, Y.-S. E. Cheng, J.-M. Fang and C.-H. Wong, “Synergistic effect of zanamivir–porphyrin conjugates on inhibition of neuraminidase and inactivation of influenza virus”, J. Med. Chem., 52 (15), 4903-4910, (2009). doi: 10.1021/jm900515g. PMID: 19522501.
207. C.-H. Wong, “Enzymes for glycoprotein synthesis”, CHIMIA, 63 (6), 318-326, (2009).
208. C.-H. Liang, C.-C. Wang, Y.-C. Lin, C.-H. Chen, C.-H. Wong, C.-Y. Wu, “Iron oxide/gold core/shell nanoparticles for ultrasensitive detection of carbohydrate-protein interactions”, Analytical Chemistry, 81 (18), 7750-7756, (2009). doi: 10.1021/ac9012286. PMID: 19689135.
209. J. C. Lewis, S. Bastian, C. S. Bennett, Y. Fu, Y. Mitsuda, M. M. Chen, W. A. Greenberg, C.-H. Wong, and F. H. Arnold, “Chemoenzymatic elaboration of monosaccharides using engineered cytochrome P450<sub>BM3</sub> demethylases”, Proc. Nat. Acad. Sci. U.S.A., 106 (39), 16550-16555, (2009). doi: 10.1073/pnas.0908954106. PMID: 19805336.
210. C.-C. Wang, J.-R. Chen, Y.-C. Tseng, C.-H. Hsu, Y.-F. Hung, S.-W. Chen, C.-M. Chen, K.-H. Khoo, T.-J. Cheng, Y.-S. E. Cheng, J.-T. Jan, C.-Y. Wu, C. Ma, and C.-H. Wong, “Glycans on influenza hemagglutinin affect receptor binding and immune response”, Proc. Nat. Acad. Sci. U.S.A., 106 (43), 18137-18142, (2009). doi: 10.1073/pnas.0909696106. PMID: 19822741.
211. A. Schiefner, M. Fujio, D. Wu, C.-H. Wong and I. A. Wilson, “Structural evaluation of potent NKT cell agonists: implications for design of novel stimulatory ligands”, J. Mol. Bio., 394 (1), 71-82, (2009). doi: 10.1016/j.jmb.2009.08.061. PMID: 19732779.
212. M.-H. Chuang, S.-H. Chiou, C.-H. Huang, W.-B. Yang and C.-H. Wong, “The lifespan-promoting effect of acetic acid and Reishi polysaccharide”, Bioorg. Med. Chem., 17 (22), 7831-7840, (2009). doi: 10.1016/j.bmc.2009.09.002. PMID: 19837596.
213. T.-L. Hsu, S.-C. Cheng, W.-B. Yang, S.-W. Chin, B.-H. Chen, M.-T. Huang, S.-L. Hsieh, C.-H. Wong, “Profiling carbohydrate-receptor interaction with recombinant innate immunity receptor-Fc fusion proteins”, J. Biol. Chem., 284 (50), 34479-34489, (2009). doi: 10.1074/jbc.M109.065961. PMID: 19837675.
214. T.-J. R. Cheng, M.-T. Sung, H.-Y. Liao, Y.-F. Chang, C.-W. Chen, C.-Y. Huang, L.-Y. Chou, Y.-D. Wu, Y.-H. Chen, Y.-S. E. Cheng, C.-H. Wong, C. Ma, W.-C. Cheng, “Domain requirement of moenomycin binding to bi-functional transglycosylases and its application for high-throughput drug discovery”, Proc. Nat. Acad. Sci. U.S.A., 105 (2), 431-436, (2008). doi: 10.1073/pnas.0710868105. PMID: 18182485.
215. D. Wu, M. Fujio, C.-H. Wong, “Glycolipids as immunostimulating agents”, Bioorg. Med. Chem., 16, 1073–1083, (2008). doi: 10.1016/j.bmc.2007.10.026. PMID: 18006319.
216. T. R. Northen, J.-C. Lee, L. Hoang, J. Raymond, D.-R. Hwang, S. M. Yannoni, C.-H. Wong, G.

- Siuzdak, "A nanostructure-initiator mass spectrometry-based enzyme activity assay", *Proc. Nat. Acad. Sci. U.S.A.*, 105 (10), 3678-3683, (2008). doi: 10.1073/pnas.0712332105. PMID: 18319341.
217. S.-K. Wang, P.-H. Liang, R. Astronomo, T.-L. Hsu, S.-L. Hsieh, D. Burton, C.-H. Wong, "Targeting the carbohydrates on HIV-1: interaction of oligomannose dendrons with human monoclonal antibody 2G12 and DC-SIGN", *Proc. Nat. Acad. Sci., U.S.A.*, 105 (10), 3690-3695, (2008). doi: 10.1073/pnas.0712326105. PMID: 18310320.
218. P.-H. Liang, C.-Y. Wu, W. A. Greenberg, C.-H. Wong, "Glycan arrays: perspectives in biological and medical applications", *Current Opin. Chem. Biol.*, 12 (1), 86-92, (2008). doi: 10.1016/j.cbpa.2008.01.031. PMID: 18258211.
219. S. Ficht, R. Payne, R. Guy, C.-H. Wong, "Solid-phase synthesis of peptide- and glycopeptide thioesters via side chain anchoring strategies", *Chemistry- A Euro. J.*, 14 (12), 3620-3629, (2008). doi: 10.1002/chem.200701978. PMID: 18278777.
220. Y.-M. Shao, W.-B. Yang, T.-H. Kuo, K.-C. Tsai, C.-H. Lin, A.-S. Yang, P.-H. Liang, C.-H. Wong, "Design, synthesis, and evaluation of trifluoromethyl ketones as inhibitors of SARS-CoV 3CL protease", *Bioorg. Med. Chem.*, 16, 4652-4660, (2008). doi: 10.1016/j.bmc.2008.02.040. PMID: 18329272.
221. R. Payne, S. Ficht, W. A. Greenberg, C.-H. Wong, "Cysteine-free peptide and glycopeptide ligation by direct aminolysis", *Angew. Chem. Int. Ed.*, 47, 4411-4415, (2008). doi: 10.1002/anie.200705298. PMID: 18442150.
222. S.-T. Chen, Y.-L. Lin, M.-T. Huang, M.-F. Wu, S.-C. Cheng, H.-Y. Lei, C.-K. Lee, T.-W. Chiou, C.-H. Wong, S.-L. Hsieh, "CLEC5A is critical for dengue virus-induced lethal disease", *Nature*, 453, 672-676, (2008). doi: 10.1038/nature07013. PMID: 18496526.
223. N.-Y. Hsu, S. Y. Tseng, C.-Y. Wu, C.-T. Ren, Y.-C. Lee, C.-H. Wong, C.-H. Chen, "Desorption ionization of biomolecules on metals", *Analyt. Chem.*, 80, 5203-5210, (2008). doi: 10.1021/ac800435r. PMID: 18489127.
224. R. D. Astronomo, H. K. Lee, C. N. Scanlan, R. Pantophlet, C. Y. Huang, I. A. Wilson, O. Blixt, R. A. Dwek, C.-H. Wong, D. R. Burton, "A glycoconjugate antigen based on the recognition motif of a broadly-neutralising human immunodeficiency virus antibody, 2G12, is immunogenic but elicits antibodies unable to bind to the self glycans of gp120", *J. Virology*, 82, 6359-6368, (2008). doi: 10.1128/JVI.00293-08. PMID: 18434393.
225. Y. S.-Y. Hsieh, C. Chien, S. K.-S. Liao, S.-F. Liao, W.-T. Hung, W.-B. Yang, C.-C. Lin, T.-J. R. Cheng, C.-C. Chang, J.-M. Fang, C.-H. Wong, "Structure and bioactivity of the polysaccharides in medicinal plant *Dendrobium huoshanense*", *Bioorg. Med. Chem.*, 16, 6054-6068, (2008). doi: 10.1016/j.bmc.2008.04.042. PMID: 18467102.
226. Y. Kinjo, B. Pei, S. Bufali, R. Raju, S. K. Richardson, M. Imamura, M. Fujio, D. Wu, A. Khurana, K. Kawahara, C.-H. Wong, A. R. Howell, P. H. Seeberger, M. Kronenberg, "Natural *Sphingomonas* glycolipids vary greatly in their ability to activate natural killer T cells", *Chem. Biol.*, 15 (7), 654-664, (2008). doi: 10.1016/j.chembiol.2008.05.012. PMID: 18635002.
227. C.-C. Wang, Y.-L. Huang, C.-T. Ren, C.-W. Lin, J.-T. Hung, J.-C. Yu, A. Yu, C.-Y. Wu, C.-H. Wong, "Glycan microarray of Globo H and related structures for quantitative analysis of breast cancer", *Proc. Nat. Acad. Sci., U.S.A.*, 105, 11661-11666, (2008). doi: 10.1073/pnas.0804923105. PMID: 18689688.

228. W.-W. Chang, C. H. Lee, P. Lee, J. Lin, C.-W. Hsu, J.-T. Hung, J.-J. Lin, J.-C. Yu, L. E. Shao, J. Yu, C.-H. Wong, A. L. Yu, "Expression of Globo H and SSEA3 in breast cancer stem cells and the involvement of fucosyl transferases 1 & 2 in Globo H synthesis", Proc. Nat. Acad. Sci., U.S.A., 105, 11667-11672, (2008). doi: 10.1073/pnas.0804979105. PMID: 18685093.
229. C.-Y. Su, S.-Y. Wang, J.-J. Shie, K.-S. Jeng, N. J. Temperton, J.-M. Fang, C.-H. Wong, Y.-S.E. Cheng, "In vitro evaluation of neuraminidase inhibitors using the neuraminidase-dependent release assay of hemagglutinin-pseudotyped viruses", Antiviral Res., 79 (3), 199-205, (2008). doi: 10.1016/j.antiviral.2008.03.002. PMID: 18453004.
230. J.-J. Shie, J.-M. Fang, C.-H. Wong, "A concise and flexible synthesis of the potent anti-influenza agents – Tamiflu and Tamiphosphor", Angew. Chem. Int. Ed., 47 (31), 5788-5791, (2008). doi: 10.1002/anie.200801959. PMID: 18613158.
231. P.-H. Liang, M. Imamura, X. Li, D. Wu, M. Fujio, R. Guy, B.-C. Wu, M. Tsuji, C.-H. Wong, "Quantitative microarray analysis of intact glycolipid-CD1d interaction and correlation with cell-based cytokine production", J. Am. Chem. Soc., 130 (37), 12348-12354, (2008). doi: 10.1021/ja8012787. PMID: 18712867.
232. C. Bennett, S. Dean, R. Payne, S. Ficht, A. Brik, C.-H. Wong, "Sugar-assisted glycopeptide ligation with complex oligosaccharides: scope and limitations", J. Am. Chem. Soc., 130 (36), 11945-11952, (2008). doi: 10.1021/ja8010513. PMID: 18698778.
233. S. Y. Tseng, C. C. Wang, C.-W. Lin, C.-L. Chen, W.-Y. Yu, C.-H. Chen, C.-Y. Wu, C.-H. Wong, "Glycan arrays on aluminum coated glass slides", Chemistry – An Asian J., 3 (8), 1395-1405, (2008). doi: 10.1002/asia.200800154. PMID: 18683161.
234. C.-S. Shi, G.-Y. Shi, S.-M. Hsiao, Y.-C. Kao, K.-L. Kuo, C.-Y. Ma, C.-H. Kuo, B.-I. Chang, C.-F. Chang, C.-H. Lin, C.-H. Wong, H.-L. Wu, "Lectin-like domain of thrombomodulin binds to its specific ligand Lewis Y antigen and neutralizes lipopolysaccharide-induced inflammatory response", Blood, 112 (9), 3661-3670, (2008). doi: 10.1182/blood-2008-03-142760. PMID: 18711002.
235. M. W. Chen, T.-J. R. Cheng, Y. Huang, J.-T. Jan, S.-H. Ma, A. L. Yu, C.-H. Wong, D. D. Ho, "A consensus-hemagglutinin-based DNA vaccine that protects mice against divergent H5N1 Influenza viruses", Proc. Nat. Acad. Sci., U.S.A., 105 (36), 13538-13543, (2008). doi: 10.1073/pnas.0806901105. PMID: 18765801.
236. M.-L. Chen, A. K. Adak, N.-C. Yeh, W.-B. Yang, Y.-J. Chuang, C.-H. Wong, K.-C. Hwang, J.-R. R. Hwu, S.-L. Hsieh, C.-C. Lin, "Fabrication of an oriented Fc-fused lectin microarray through boronate formation", Angew. Chem. Int. Ed., 47 (45), 8627-8630, (2008). doi: 10.1002/anie.200803377. PMID: 18850623.
237. M. J. Giffin, H. Heaslet, A. Brik, Y.-C. Lin, G. Cauvi, C.-H. Wong, D. E. McRee, J. H. Elder, C. D. Stout, B. E. Torbett, "A copper(I)-catalyzed 1,2,3-triazole azide-alkyne click compound is a potent inhibitor of a multidrug-resistant HIV-1 protease variant", J. Med. Chem., 51 (20), 6263-6270, (2008). doi: 10.1021/jm800149m. PMID: 18823110.
238. E. Tupin, M. R.-E.-I. Benhnia, Y. Kinjo, R. Patsey, C. Lena, M. Haller, M. J. Caimano, M. Imamura, C.-H. Wong, S. Crotty, J. D. Radolf, T. J. Sellati, M. Kronenberg, "NKT cells prevent chronic joint inflammation following infection with *Borrelia burgdorferi*", Proc. Nat. Acad. Sci. U.S.A., 105 (50), 19863-19868, (2008). doi: 10.1073/pnas.0810519105. PMID: 19060201.
239. Z. Yu, A. R. Sawkar, L. J. Whalen, C.-H. Wong, J. W. Kelly, "Isogomine- and 2,5-anhydro-2,5-imino-D-glucitol-based glucocerebrosidase pharmacological chaperones for Gaucher disease

- intervention”, J. Med. Chem., 50, 94-100, (2007). doi: 10.1021/jm060677i. PMID: 17201413.
240. T.-L. Hsu, S. R. Hanson, K. Kishikawa, S.-K. Wang, M. Sawa, C.-H. Wong, “Alkynyl sugar analogs for the labeling and visualization of glycoconjugates in cells”, Proc. Nat. Acad. Sci. U.S.A., 104 (8), 2614-2619, (2007). doi: 10.1073/pnas.0611307104. PMID: 17296930.
241. M.-L. Michel, A. C. Keller, C. Paget, M. Fujio, F. Trottein, P. B. Savage, C.-H. Wong, E. Schneider, M. Dy, & M. C. Leite-de-Moraes, “Identification of an IL-17–producing NK1.1<sup>neg</sup> iNKT cell population involved in airway neutrophilia”, J. Exper. Med., 204 (5), 995-1001, (2007). doi: 10.1084/jem.20061551. PMID: 17470641.
242. S. R. Hanson, T.-L Hsu, E. Weerapana, K. Kishikawa, G. M. Simon, B. F. Cravatt, C.-H. Wong, “Tailored glycoproteomics and glycan site mapping using saccharide-selective bioorthogonal probes”, J. Am. Chem. Soc., 129 (23), 7266-7267, (2007). doi: 10.1021/ja0724083. PMID: 17506567.
243. N.-Y. Hsu, W.-B. Yang, C.-H. Wong, Y.-C. Lee, R.-T. Lee, Y.-S. Wang, C.-H. Chen, “Matrix-assisted laser desorption/ionization mass spectrometry of polysaccharides with 20,40,60-trihydroxyacetophenone as matrix”, Rapid Commun. Mass Spectrom., 21, 2137-2146, (2007). doi: 10.1002/rcm.3072. PMID: 17546658.
244. Y.-Y. Yang, S. Ficht, A. Brik, C.-H. Wong, “Sugar-assisted ligation in glycoprotein synthesis”, J. Am. Chem. Soc., 129 (24), 7690-701, (2007). doi: 10.1021/ja065601q. PMID: 17105315.
245. Y.-J. Chang, J.-R. Huang, Y.-C. Tsai, J.-T. Hung, D. Wu, M. Fujio, C.-H. Wong, A. L. Yu, “Potent immune-modulating and anti-cancer effects of NKT cell stimulatory glycolipids”, Proc. Nat. Acad. Sci. U.S.A., 104 (25), 10299-10304, (2007). doi: 10.1073/pnas.0703824104. PMID: 17566107.
246. A. Brik, C.-H. Wong, “Sugar-assisted ligation for the synthesis of glycopeptides”, Chemistry-A Euro. J., 13 (20), 5670-5675, (2007). doi: 10.1002/chem.200700330. PMID: 17508364.
247. S. M. Dean, W. A. Greenberg, C.-H. Wong “Recent advances in aldolase-catalyzed asymmetric synthesis”, Adv. Syn. Catal., 349, 1308-1320, (2007). <https://doi.org/10.1002/adsc.200700115>.
248. M. Sugiyama, Z-Y. Hong, W. A. Greenberg, C.-H. Wong, “In vivo selection for the directed evolution of L-rhamnulose aldolase from L-rhamnulose-1-phosphate aldolase (RhaD)”, Bioorg. Med. Chem., 15 (17), 5905-5911, (2007). doi: 10.1016/j.bmc.2007.05.062. PMID: 17572092.
249. S. Ficht, R.J. Payne, A. Brik, C.-H. Wong, “Second-generation sugar-assisted ligation: an effective new method for the synthesis of cysteine-containing glycopeptides”, Angew. Chem. Int. Ed., 46 (31), 5975-5979, (2007). doi: 10.1002/anie.200700546. PMID: 17607677.
250. C. S. Bennett, C.-H. Wong, “Chemoenzymatic approaches to glycoprotein synthesis”, Chem. Soc. Rev., 36 (8), 1227-1238, (2007). doi: 10.1039/b617709c. PMID: 17619683.
251. E. Kaltgrad, S. Sen Gupta, S. Punna, C.-Y. Huang, A. Chang, C.-H. Wong, M. G. Finn, O. Blixt, “Anti-carbohydrate antibodies elicited by polyvalent display on a viral scaffold”, ChemBioChem, 8 (12), 1455-1462, (2007). doi: 10.1002/cbic.200700225. PMID: 17676704.
252. M.-T. Wei, K.-F. Hua, J. Hsu, A. Karmenyan, K.-Y. Tseng, C.-H. Wong, H.-Y. Hsu, A. Chiou, “The interaction of lipopolysaccharide with membrane receptors on macrophages pretreated with extract of Reishi polysaccharides measured by optical tweezers”, Optical Soc. Amer., 15 (17), 11020-11032, (2007). doi: 10.1364/oe.15.011020. PMID: 19547459.
253. P.-H. Liang, S.-K. Wang, C.-H. Wong, “Quantitative analysis of carbohydrate–protein interactions

- using glycan microarrays: determination of surface and solution dissociation constants”, J. Am. Chem. Soc., 129 (36), 11177-11184, (2007). doi: 10.1021/ja072931h. PMID: 17705486.
254. Y.-M. Shao, W.-B. Yang, H.-P. Peng, M.-F. Hsu, K.-C. Tsai, T.-H. Kuo, A.-S. Yang, A.H.-J. Wang, P.-H. Liang, C.-H. Lin, C.-H. Wong, “Structure-based design and synthesis of highly potent SARS-CoV 3CL protease inhibitors”, ChemBioChem, 8 (14), 1654-1657, (2007). doi: 10.1002/cbic.200700254. PMID: 17722121.
255. K.-F. Hua, H.-Y Hsu, L.-K. Chao, S.-T. Chen, W.-B. Yang, J. Hsu, C.-H. Wong, “Ganoderma lucidum polysaccharides enhance CD14 endocytosis of LPS and promote TLR4 signal transduction of cytokine expression”, J. Cell. Physiol., 212, 537-550, (2007). doi: 10.1002/jcp.21050. PMID: 17474083.
256. J.-J. Shie, J.-M. Fang, S.-Y. Wang, K.-C. Tsai, Y.-S. E. Cheng, A.-S. Yang, S.-C. Hsiao, C.-Y. Su, C.-H. Wong, “Synthesis of Tamiflu and its phosphonate congeners possessing potent anti-influenza activity”, J. Am. Chem. Soc., 129 (39), 11892-11893, (2007). doi: 10.1021/ja073992i. PMID: 17850083.
257. C. Casey, C.-H. Wong, “Partly cloudy with a chance of showers”, Chem. Biol., 2 (9), 573-576, (2007). doi: 10.1021/cb7001895. PMID: 17894433.
258. T. Polat, C.-H. Wong, “Anomeric reactivity-based one-pot synthesis of heparin-like oligosaccharides”, J. Am. Chem. Soc., 129 (42), 12795-12800, (2007). doi: 10.1021/ja073098r. PMID: 17914818.
259. R. J. Payne, S. Ficht, S. Tang, A. Brik, Y.-Y. Yang, D.A. Case, C.-H. Wong, “Extended sugar-assisted ligations: development, scope and applications”, J. Am. Chem. Soc., 129 (44), 13527-13536, (2007). doi: 10.1021/ja073653p. PMID: 17935327.
260. M. Sugiyama, Z. Hong, P.-H. Liang, L. J. Whalen, W. A. Greenberg, C.-H. Wong, “D-Fructose-6-phosphate aldolase catalyzed one-pot synthesis of iminocyclitols”, J. Am. Chem. Soc., 129 (47), 14811-14817, (2007). doi: 10.1016/j.bmc.2007.05.062. PMID: 17572092.
261. K.-C. Cheng, H.-C. Huang, J.-H. Chen, J.-W. Hsu, H.-C. Cheng, C.-H. Ou, W.-B. Yang, S.-T. Chen, C.-H. Wong, H.-F. Juan, “Ganoderma lucidum polysaccharides in human monocytic leukemia cells: from gene expression to network construction”, BMC Genomics, 8 (1), 411, (2007). doi: 10.1186/1471-2164-8-411. PMID: 17996095.
262. S. R. Hanson, W. A. Greenberg, C.-H. Wong, “Probing glycans with the copper(I)-catalyzed [3+2] azide-alkyne cycloaddition”, QSAR Comb. Sci., 26, 1243-1252, (2007). <https://doi.org/10.1002/qsar.200740112>
263. M. Brigl, P. van den Elzen, X. Chen, J. H. Meyers, D. Wu, C.-H. Wong, P. A. Illarianov, G. S. Besra, M. B. Brenner and J. E. Gumperz, “Conserved and heterogeneous lipid antigen specificities of CD1d-restricted NKT cell receptors”, J. Immunol., 176 (6), 3625-3634, (2006). doi: 10.4049/jimmunol.176.6.3625. PMID: 16517731.
264. P.-H. Liang, W.-C. Cheng, Y.-L. Lee, H.-P. Yu, Y.-T. Wu, Y.-L. Lin, C.-H. Wong, “Novel five-membered iminocyclitol derivatives as selective and potent glycosidase inhibitors: new structures for antivirals and osteoarthritis”, ChemBioChem, 7 (1), 165-173, (2006). doi: 10.1002/cbic.200500321. PMID: 16397876.
265. L. Liu, C. S. Bennett, C.-H. Wong, “Advances in glycoprotein synthesis,” Chem. Commun., 1, 21-33, (2006). doi: 10.1039/b513165k. PMID: 16353085.



266. F.-S. Liang, A. Brik, Y.-C. Lin, J. H. Elder, C.-H. Wong, “Epoxide opening in water and in situ screening for rapid inhibitors in microtiter plate”, Bioorg. Med. Chem., 14 (4), 1058–1062, (2006). doi: 10.1016/j.bmc.2005.09.026. PMID: 16275107.
267. C.-Y. Huang, D. A. Thayer, A. Y. Chang, M. D. Best, J. Hoffman, S. Head, C.-H. Wong, “Carbohydrate microarray for profiling the antibodies interacting with Globo H tumor antigen”, Proc. Natl. Acad. Sci. U.S.A., 103 (1), 15–20, (2006). doi: 10.1073/pnas.0509693102. PMID: 16373501.
268. L. Liu, Z. Hong, C.-H. Wong, “Convergent glycopeptide synthesis by traceless Staudinger ligation and enzymatic coupling”, ChemBioChem, 7 (3), 429–432, (2006). doi: 10.1002/cbic.200500437. PMID: 16444769.
269. M.-H. Chuang, M.-S. Wu, W.-L. Lo, J.-T. Lin, C.-H. Wong, S.-H. Chiou, “The antioxidant protein alkylhydroperoxide reductase of *Helicobacter pylori* switches from a peroxide reductase to a molecular chaperone function”, Proc. Natl. Acad. Sci. U.S.A., 103 (8), 2552–2557, (2006). doi: 10.1073/pnas.0510770103. PMID: 16481626.
270. D. Wu, D. M. Zajonc, M. Fujio, B.A. Sullivan, Y. Kinjo, M. Kronenberg, I. A. Wilson, C.-H. Wong, “Design of NKT-cell activators: structure and function of a microbial glycosphingolipid bound to mouse CD1d”, Proc. Natl. Acad. Sci. U.S.A., 103 (11), 3972–3977, (2006). doi: 10.1073/pnas.0600285103. PMID: 16537470.
271. C.-Y. Wu, K.-Y. King, C.-J. Kuo, J.-M. Fang, Y.-T. Wu, M.-Y. Ho, C.-L. Liao, J.-J. Shie, P.-H. Liang, C.-H. Wong, “Stable benzotriazole esters as mechanism-based inactivators of the severe acute respiratory syndrome 3CL protease”, Chem. & Biol., 13, 261–268, (2006). doi: 10.1016/j.chembiol.2005.12.008. PMID: 16638531.
272. A. Brik, C.-Y. Wu, C.-H. Wong, “Microtiter plate-based chemistry and in situ screening: a useful approach for enzymatic inhibitor discovery”, Org. Biomol. Chem., 4, 1446–1457, (2006). doi: 10.1039/b600055j. PMID: 16604207.
273. J.-C. Lee, C.-Y. Wu, J. V. Apon, G. Siuzdak, C.-H. Wong, “Reactivity-based one-pot synthesis of tumor-associated antigen N3 minor octasaccharide for the development of a photocleavable DIOS-MS sugar array”, Angew. Chem. Int. Ed., 45 (17), 2753–2757, (2006). doi: 10.1002/anie.200504067. PMID: 16548041.
274. A. Brik, Y.-Y. Yang, S. Ficht, C.-H. Wong, “Sugar-assisted glycopeptide ligation”, J. Am. Chem. Soc., 128, 5626–5627, (2006). doi: 10.1021/ja061165w. PMID: 16637616.
275. H.-Y. Hsu, K.-F. Hua, Y.-C. Su, L.-C. Chu, H.-W. Chiu, C.-H. Wong, S. U-S. Yang, L. K. Chao, “Alkali-soluble polysaccharides of *Rhizoclonium riparium* alga induces IL-1 gene expression via protein kinase signaling pathways”, J. Agricultural & Food Chem., 54, 3558–3565, (2006). doi: 10.1021/jf060442f. PMID: 19127725.
276. H. Qiu, A. Gabrielsen, H. E. Agardh, M. Wan, A. Wetterholm, C.-H. Wong, U. Hedin, J. Swedenborg, G. K. Hansson, B. Samuelsson, G. Paulsson-Berne, J. Z. Haeggstrom, “Expression of 5-lipoxygenase and leukotriene A<sub>4</sub> hydrolase in human atherosclerotic lesions correlate with symptoms of plaque instability”, Proc. Natl. Acad. Sci. U.S.A., 103 (21), 8161–8166, (2006). doi: 10.1073/pnas.0602414103. PMID: 16698924.
277. L. J. Whalen, C.-H. Wong, “Enzymes in organic synthesis: aldolase-mediated synthesis of iminocyclitols and novel heterocycles”, Aldrichimica Acta, 39 (3), 63–71, (2006). <http://ntur.lib.ntu.edu.tw/handle/246246/218220>.

278. Y.-C. Lin, A. Brik, A. P., K. Tam, A. Parseval, B. E. Torbett, C.-H. Wong, J. H. Elder, "Altered gag polyprotein cleavage specificity of feline immunodeficiency virus/human immunodeficiency virus mutant proteases as demonstrated in a cell-based expression system", J. Virology, 80 (16), 7832-7834, (2006). doi: 10.1128/JVI.00374-06. PMID: 16873240.
279. M. Fujio, D. Wu, R. Garcia-Navarro, D. D. Ho, M. Tsuji, C.-H. Wong, "Structure-based discovery of glycolipids for CD1d-mediated NKT cell activation: tuning the adjuvant versus immunosuppression activity", J. Am. Chem. Soc., 128, 9022-9023, (2006). doi: 10.1021/ja062740z. PMID: 16834361.
280. F.-S. Liang, W. A. Greenberg, J. A. Hammond, J. Hoffmann, S. R. Head, C.-H. Wong, "Evaluation of RNA-binding specificity of aminoglycosides with DNA microarrays", Proc. Nat. Acad. Sci. U.S.A., 103 (33), 12311-12316, (2006). doi: 10.1073/pnas.0605264103. PMID: 16891415.
281. M. G. Sanna, S.-K. Wang, P. J. Gonzalez-Cabrera, A. Don, D. Marsolais, M. P. Matheu, S. H. Wei, I. Parker, E. Jo, W.-C. Cheng, M. D. Cahalan, C.-H. Wong, H. Rosen, "Enhancement of capillary leakage and restoration of lymphocyte egress by a chiral S1P1 antagonist in vivo", Nature Chem. Biol., 2 (8), 434-441, (2006). doi: 10.1038/nchembio804. PMID: 16829954.
282. M. Sawa, T.-L. Hsu, T. Itoh, M. Sugiyama, S. R. Hanson, P. K. Vogt, and C.-H. Wong, "Glycoproteomic probes for fluorescent imaging of fucosylated glycans in vivo", Proc. Nat. Acad. Sci. U.S.A., 103 (33), 12371-12376, (2006). doi: 10.1073/pnas.0605418103. PMID: 16895981.
283. K.-T. Huang, B.-C. Wu, C.-C. Lin, S.-C. Luo, C. Chen, C.-H. Wong, C.-C. Lin, "Multi-enzyme one-pot strategy for the synthesis of sialyl Lewis X-containing PSGL-1 glycopeptide", Carbohydrate Res., 341 (12), 2151-2155, (2006). doi: 10.1016/j.carres.2006.04.047. PMID: 16762328.
284. Y. Kinjo, E. Tupin, D. Wu, M. Fujio, R. Garcia-Navarro, M. R. E. I. Benhnia, D. M. Zajonc, G. Ben-Menachem, G. D. Ainge, G. F. Painter, A. Khurana, K. Hoebe, S. M. Behar, B. Beutler, I. A. Wilson, M. Tsuji, T.J. Sellati, C.-H. Wong, M. Kronenberg, "NKT cells recognize diacylglycerol antigens from pathogenic bacteria", Nature Immunol., 7 (9), 978-986, (2006). doi: 10.1038/ni1380. PMID: 16921381.
285. H. Liu, C.-H. Wong, "Characterization of a transglycosylase domain of Streptococcus pneumonia PBP1b", Bioorg. Med. Chem., 14, 7187-7195, (2006). doi: 10.1016/j.bmc.2006.06.058. Epub 2006 Jul 25. PMID: 16870450.
286. D. A. Thayer, C.-H. Wong, "Vancomycin analogues containing monosaccharides exhibit improved antibiotic activity: a combined one-pot enzymatic glycosylation and chemical diversification strategy", Chem. An Asian J., 1, 445-452, (2006). doi: 10.1002/asia.200600084. PMID: 17441081.
287. L. Liu, Z.-Y. Hong, C.-H. Wong, "Three-step synthesis of sialic acids and derivatives", Angew. Chem. Int. Ed., 45 (44), 7417-7421, (2006). doi: 10.1002/anie.200601555. PMID: 17031889.
288. K.-I. Lin, Y.-Y. Kao, H.-K. Kuo, W.-B. Yang, A. Chou, H.-H. Lin, A. L.-T. Yu, C.-H. Wong, "Reishi polysaccharides induce immunoglobulin production through the TLR4/TLR2-mediated induction of transcription factor Blimp-1", J. Biol. Chem., 281 (34), 24111-24123, (2006). doi: 10.1074/jbc.M601106200. PMID: 16798741.
289. Y.-S. E. Cheng, K.-H. Lo, H.-H. Hsu, Y.-M. Shao, W.-B. Yang, C.-H. Lin, C.-H. Wong, "Screening for HIV protease inhibitors by protection against activity-mediated cytotoxicity in Escherichia coli", J. Virological Methods, 137 (1), 82-87, (2006). doi: 10.1016/j.jviromet.2006.06.003. PMID: 16849028.

290. A. Brik, S. Ficht, C.-H. Wong, "Strategies for the preparation of homogenous glycoproteins", Curr. Opin. Chem. Biol., 10 (6), 638-644, (2006). doi: 10.1016/j.cbpa.2006.10.003. PMID: 17046315.
291. A. Brik, S. Ficht, Y.-Y. Yang, C. Bennett, C.-H. Wong, "Sugar-assisted ligation (SAL) of N-linked glycopeptides with broad sequence tolerance at the ligation junction", J. Am. Chem. Soc., 128 (46), 15026-15033, (2006). doi: 10.1021/ja065601q. PMID: 17105315.
292. S. Hanson, L. Whalen, C.-H. Wong, "Synthesis and evaluation of general mechanism-based inhibitors of sulfatases based on (difluoro)methyl phenol sulfate and phenol cyclic sulfamate motifs", Bioorg. Med. Chem., 14 (24), 8386-8395, (2006). doi: 10.1016/j.bmc.2006.09.002. PMID: 17045481.
293. M. Sugiyama, L. J. Whalen, Z.-Y. Hong, W. A. Greenberg, C.-H. Wong, "Borate as a phosphate ester mimic in aldolase-catalyzed reactions: practical syntheses of L-fructose and L-iminocyclitols", Adv. Syn. Catal., 348, 2555-2559, (2006). <https://doi.org/10.1002/adsc.200600356>.
294. J.-C. Lee, W. A. Greenberg, C.-H. Wong, "Programmable reactivity-based one-pot oligosaccharide synthesis", Nature Protocols, 1 (6), 3143-3152, (2006). doi: 10.1038/nprot.2006.489. PMID: 17406577.
295. S.-C. Cheng, W.-B. Yang, S.-W. Chin, C.-C. Lin, C.-H. Lin, Y.-J. Chen, P.-C. Lin, M.-F. Wu, C.-H. Wong, S.-L. Hsieh, "Profiling of polysaccharide-receptor interaction with recombinant innate immunity receptor-Fc fusion proteins", Glycobiology, 11, 1131-1132, (2006).
296. T. J. Tolbert, D. Franke, C.-H. Wong, "A new strategy for glycoprotein synthesis: ligation of synthetic glycopeptides with truncated proteins expressed in E. coli as TEV protease cleavable fusion protein", Bioorg. Med. Chem., 13, 909-915, (2005). doi: 10.1016/j.bmc.2004.06.047. PMID: 15653356.
297. D. Wu, G.-W. Xing, M. Poles, Y. Kinjo, B. Sullivan, O. Plettenburg, M. Kronenberg, M. Tsuji, D. D. Ho, C.-H. Wong, "Bacterial glycolipids and analogs as antigens for CD1d-restricted NKT cells," Proc. Natl. Acad. Sci. U.S.A., 102, 1351-1356, (2005). doi: 10.1073/pnas.0408696102. PMID: 15665086.
298. M. Fridman, V. Belakhov, L. V. Lee, F.-S. Liang, C.-H. Wong, T. Baasov, "Dual effect of synthetic aminoglycosides: antibacterial activity against Bacillus anthracis and inhibition of anthrax lethal factor", Angew. Chem. Int. Ed., 44, 447-452, (2005). doi: 10.1002/anie.200462003. PMID: 15624157.
299. Y. Kinjo, D. Wu, G. Kim, G.-W. Xing, M. Poles, D. D. Ho, M. Tsuji, K. Kawahara, C.-H. Wong, M. Kronenberg, "Recognition of bacterial glycosphingolipids by natural killer T cells", Nature, 434, 520-525, (2005). doi: 10.1038/nature03407. PMID: 15791257.
300. G.-T. Fan, Y.-S. Pan, K.-C. Lu, Y.-P. Cheng, W.-C. Lin, S. Lin, S.-H. Lin, C.-H. Wong, J.-M. Fang, C.-C. Lin, "Synthesis of  $\alpha$ -galactosyl ceramide and the related glycolipids for evaluation of their activities on mouse splenocytes", Tetrahedron, 61, 1855-1862, (2005). <https://doi.org/10.1016/j.tet.2004.12.027>.
301. A. Brik, C.-Y. Wu, M.D. Best, C.-H. Wong, "Tetrabutylammonium fluoride-assisted rapid N<sup>9</sup>-alkylation on purine ring: application to combinatorial reactions in microtiter plates for the discovery of potent sulfotransferase inhibitors in situ", Bioorg. Med. Chem., 13, 4622-4626, (2005). doi: 10.1002/cbic.200500295. PMID: 16270365.
302. G.-W. Xing, D. Wu, M.A. Poles, A. Horowitz, M. Tsuji, D. D. Ho, C.-H. Wong, "Synthesis and

- human NKT cell stimulating properties of 3-O-sulfo- $\alpha/\beta$ -galactosylceramides”, Bioorg. Med. Chem., 13, 2907-2916, (2005). doi: 10.1016/j.bmc.2005.02.018. PMID: 15781400.
303. A. Brik, J. Alexandratos, Y.-C. Lin, J. H. Elder, A. J. Olson, A. Wlodawer, D. S. Goodsell, C.-H. Wong, “1,2,3-Triazole as a peptide surrogate in the rapid synthesis of HIV protease inhibitors”, ChemBioChem, 6, 1167-1169, (2005). doi: 10.1016/j.bmc.2005.02.018. PMID: 15781400.
304. H. N. Yu, D.A. Thayer, M.C. Galan, C.-H. Wong, “A general strategy to S-linked glycopeptides”, Angew. Chem. Int. Ed., 44, 4596-4599, (2005). doi: 10.1002/anie.200500090. PMID: 15991213.
305. M. M. D. Numa, L. V. Lee, C.-C. Hsu, K. E. Bower, C.-H. Wong, “Identification of novel anthrax lethal factor inhibitors generated by combinatorial Pictet–Spengler reaction followed by screening in situ”, ChemBioChem, 6, 1002-1006, (2005). doi: 10.1002/cbic.200500009. PMID: 15880659.
306. C.-H. Wong, “Protein glycosylation: new challenges and opportunities”, J. Org. Chem., 70, 4219-4225, (2005). doi: 10.1021/jo050278f. PMID: 15903293.
307. J.-J. Shie, J.-M. Fang, C.-J. Kuo, T.-H. Kuo, P.-H. Liang, H.-J. Huang, W.-B. Yang, C.-H. Lin, J.-L. Chen, Y. T. Wu, C.-H. Wong, “Discovery of potent anilide inhibitors against the severe acute respiratory syndrome 3CL protease”, J. Med. Chem., 48, 4469-4473, (2005). doi: 10.1021/jm050184y. PMID: 15974598.
308. J.-J. Shie, J.-M. Fang, T.-H. Kuo, C.-J. Kuo, P.-H. Liang, H.-J. Huang, Y.-T. Wu, J.-T. Jan, Y.-S.E. Cheng, C.-H. Wong, “Inhibition of the severe acute respiratory syndrome 3CL protease by peptidomimetic  $\alpha,\beta$ -unsaturated esters”, Bioorg. Med. Chem., 13, 5240-5252, (2005). doi: 10.1016/j.bmc.2005.05.065. PMID: 15994085.
309. C.-Y. Wu, A. Brik, S.-K. Wang, Y.-H. Chen, C.-H. Wong, “Tetrabutylammonium fluoride-mediated rapid alkylation reaction in microtiter plates for discovery of enzyme inhibitors in situ”, ChemBioChem, 6 (12), 2176–2180, (2005). doi: 10.1002/cbic.200500295. PMID: 16270365.
310. C.-C. Hsu, Y. Zhang, M. Wada, D. Franke, C.-H. Wong, “Directed evolution of d-sialic acid aldolase 1-3-deoxy-manno-2-octulosonic acid (l-KDO) aldolases”, Proc. Natl. Acad. Sci. U.S.A., 102, 9122–9126, (2005). doi: 10.1016/S0076-6879(04)88020-0. PMID: 15289075.
311. S. H. Wei, H. Rosen, M. P. Matheu, M. G. Sanna, S.-K. Wang, E. Jo, C.-H. Wong, I. Parker, M. D. Cahalan, “Sphingosine 1-phosphate type 1 receptor agonism inhibits transendothelial migration of medullary T cells to lymphatic sinuses”, Nat. Immunol., 6 (12), 1228–1235, (2005). doi: 10.1038/ni1269. PMID: 16273098.
312. D. A. Calarese, H.-K. Lee, C.-Y. Huang, M. D. Best, R. D. Astronomo, R. L. Stanfield, H. Katinger, D. R. Burton, C.-H. Wong, I. A. Wilson “Dissection of the carbohydrate specificity of the broadly neutralizing anti-HIV-1 antibody 2G12”, Proc. Natl. Acad. Sci. U.S.A., 102 (38), 13372–13377, (2005). doi: 10.1073/pnas.0505763102. PMID: 16174734.
313. D. M. Zajonc, I. Maricic, D. Wu, R. Halder, K. Roy, C.-H. Wong, V. Kumar, I. A. Wilson, “Structural basis for CD1d presentation of a sulfatide derived from myelin and its implications for autoimmunity”, J. Exp. Med., 202 (11), 1517–1526, (2005). doi: 10.1084/jem.20051625. PMID: 16314439.
314. A. R. Sawkar, S. L. Adamski-Werner, W.-C. Cheng, C.-H. Wong, E. Beutler, K.-P. Zimmer, J. W. Kelly, “Gaucher disease-associated glucocerebrosidases show mutation-dependent chemical chaperoning profiles”, Chem. Biol., 12 (11), 1235–1244, (2005). doi: 10.1016/j.chembiol.2005.09.007. PMID: 16298303.

315. S. Sinchaikul, F.-M. Pan, C.-W. Cheng, C.-H. Wong, J.-M. Fang, M.-J. Tseng, S.-T. Chen, "Protein microarray using alpha-amino acids as metal tags on chips", Bioorg. Med. Chem. Lett., 15 (5), 1413-1416, (2005). doi: 10.1016/j.bmcl.2005.01.001. PMID: 15713398.
316. A. Heine, J. G. Luz, C. -H. Wong and I. A. Wilson, "Analysis of the class I aldolase binding site architecture based on the crystal structure of 2-deoxyribose-5-phosphate aldolase at 0.99A resolution", J. Mol. Biol., 343, 1019-1034, (2004). doi: 10.1016/j.jmb.2004.08.066. PMID: 15476818.
317. F. Agnelli, S. J. Sucheck, K. A. Marby, D. Rabuka, S.-L. Yao, P. S. Sears, F.-S. Liang, C.-H Wong: "Dimeric aminoglycosides as antibiotics", Angew Chem. Int. Ed., 43, 1562-1566, (2004). doi: 10.1002/anie.200353225. PMID: 15022234.
318. J. Liu, C.-C Hsu, C.-H. Wong, "Sequential aldol condensation catalyzed by DERA mutant Ser238Asp and a formal total synthesis of Atorvastatin", Tetrahedron Lett., 45, 2439-2441, (2004). <https://doi.org/10.1016/j.tetlet.2004.01.110>.
319. C.-W. Cheng, K.-C. Lin, F.-M. Pan, S. Sinchaikul, C.-H. Wong, W.-C. Su, C.-H. Hsu, S.-T. Chen, "Facile synthesis of metal-chelating peptides on chip for protein array", Bioorg. Med. Chem. Lett., 14, 1987-1990, (2004). doi: 10.1016/j.bmcl.2004.01.084. PMID: 15050643.
320. H.-K. Lee, C. N. Scanlan, C.-Y. Huang, A. Y. Chang, D. A. Calarese, R. A. Dwek, P. M. Rudd, I. A. Wilson, D. R. Burton, C.-H. Wong "Reactivity-based one-pot synthesis of oligomannoses: defining antigens recognized by 2G12, a broadly neutralizing anti-HIV-1 antibody", Angew. Chem. Int. Ed., 43, 1000-1003, (2004). doi: 10.1002/anie.200353105. PMID: 14966891.
321. C.-H. Chou, C.-S. Wu, C.-H. Chen, L.-D. Lu, S.S. Kulkarni, C.-H. Wong, S.-C. Hung, "Regioselective glycosylation of neamine core: A facile entry to kanamycin B related analogues", Org. Lett., 6, 585-588, (2004). doi: 10.1021/ol0363927. PMID: 14961629.
322. H. N. Yu, J.-I. Furukawa, T. Ikeda, C.-H. Wong, "Novel efficient routes to heparin monosaccharides and disaccharides achieved via regio- and stereoselective glycosidation", Org. Lett., 6, 723-726, (2004). doi: 10.1021/ol036390m. PMID: 14986959.
323. S. G. Duron, T. Polat, C.-H. Wong, "N-(Phenylthio)- $\epsilon$ -caprolactam: A new promoter for the activation of thioglycosides", Org. Lett., 6, 839-841, (2004). doi: 10.1021/ol0400084. PMID: 14986988.
324. T.-J. Cheng, A. Brik, C.-H. Wong, C.-C. Kan, "Model system for high-throughput screening of novel human immunodeficiency virus protease inhibitors in Escherichia coli", Antimicrob. Agent Chemother., 48, 2437-2447, (2004). doi: 10.1128/AAC.48.7.2437-2447.2004. PMID: 15215092.
325. M. C. Bryan, C.-H. Wong, "Aminoglycoside array for the high-throughput analysis of small molecule-RNA interactions", Tetrahedron Lett., 45, 3639-3642, (2004). <https://doi.org/10.1016/j.tetlet.2004.03.035>.
326. F. Fazio, M. C. Bryan, H.-K. Lee, A. Chang, C.-H. Wong, "Assembly of sugars on polystyrene plates: a new facile microarray fabrication technique", Tetrahedron Lett., 45, 2689-2692, (2004). <https://doi.org/10.1016/j.tetlet.2004.01.159>.
327. L. V. Lee, K. E. Bower, F.-S. Liang, J. Shi, D. Wu, S. J. Sucheck, P. K. Vogt, C.-H. Wong, "Inhibition of the proteolytic activity of anthrax lethal factor by aminoglycosides", J. Am. Chem. Soc., 126, 4774-4775, (2004). doi: 10.1021/ja0495359. PMID: 15080670.
328. M. C. Bryan, L. V. Lee, C.-H. Wong, "High-throughput identification of fucosyltransferase

- inhibitors using carbohydrate microarrays,” *Bioorg. Med. Chem. Lett.*, 14, 3185-3188, (2004). doi: 10.1016/j.bmcl.2004.04.001. PMID: 15149672.
329. E. Chapman, M.D. Best, S. R. Hanson, C.-H. Wong, “Sulfotransferases: structure, mechanism, biological activity, inhibition and synthetic utility,” *Angew. Chem. Int. Ed.*, 43, 3526-3548, (2004). doi: 10.1002/anie.200300631. PMID: 15293241.
330. S. R. Hanson, M.D. Best, C.-H. Wong, “Sulfatases: structure, mechanism, biological activity, inhibition and synthetic utility,” *Angew. Chem. Int. Ed.*, 43, 5736-5763, (2004). doi: 10.1002/anie.200300632. PMID: 15493058.
331. M. D. Best, A. Brik, E. Chapman, L. V. Lee, W.-C. Cheng, C.-H. Wong, “Rapid discovery of potent sulfotransferase inhibitors by diversity-oriented reaction in microplates followed by in situ screening”, *ChemBioChem*, 5, 811-819, (2004). doi: 10.1002/cbic.200300841. PMID: 15174164.
332. D. Klostermeier, P. Sears, C.-H. Wong, D. P. Millar, J. R. Williamson, “A three-fluorophore FRET assay for high-throughput screening of small-molecule inhibitors of ribosome assembly”, *Nucleic Acid. Res.*, 32, 2707-2715, (2004). doi: 10.1093/nar/gkh588. PMID: 15148358.
333. T. J. Tolbert, C.-H. Wong, “Carbohydrate chains: enzymatic and chemical synthesis”, in *Encyclopedia of Biological Chemistry*, Elsevier: New York, NY, Volume 1, pp 307–313, (2004). <https://doi.org/10.1016/b0-12-443710-9/00720-1>.
334. D. Franke, C.-C. Hsu, C.-H. Wong, “Directed evolution of aldolases”, *Methods Enzymol.*, 388, 224-238, (2004). doi: 10.1016/S0076-6879(04)88020-0. PMID: 15289075.
335. M. C. Bryan, F. Fazio, H.-K. Lee, C.-Y. Huang, A. Chang, M. D. Best, D. A. Calarese, O. Blixt, J. C. Paulson, D. Burton, I. A. Wilson, C.-H. Wong, “Covalent display of oligosaccharide arrays in microtiter plates”, *J. Am. Chem. Soc.*, 126, 8640-8641, (2004). doi: 10.1021/ja048433f. PMID: 15250702.
336. C.-F. Chang, C.-W. Ho, C.-Y. Wu, T. A. Chao, C.-H. Wong, C.-H. Lin, “Discovery of picomolar slow tight-binding inhibitors of  $\alpha$ -fucosidase”, *Chem. Biol.*, 11, 1301-1306, (2004). doi: 10.1016/j.chembiol.2004.07.009. PMID: 15380190.
337. J. Liu, M. M. D. Numa, H. Liu, S.-J. Huang, P. Sears, A. R. Shikhman, C.-H. Wong, “Synthesis and high-throughput screening of N-acetyl- $\beta$ -hexosaminidase inhibitor libraries targeting osteoarthritis”, *J. Org. Chem.*, 69, 6273-6283, (2004). doi: 10.1021/jo049355h. PMID: 15357586.
338. F.-S. Liang, S.-K. Wang, T. Nakatani, C.-H. Wong, “Targeting RNAs by Tobramycin Analogs”, *Angew. Chem.*, 43, 6496-6500, (2004). doi: 10.1002/anie.200460558. PMID: 15578772.
339. H.-S. Chen, Y.-F. Tsai, S. Lin, C.-C. Lin, K.-H. Khoo, C.-H. Lin, C.-H. Wong, “Studies on the Immuno-Modulating and Antitumor Activities of Ganoderma lucidum (Reishi) Polysaccharides”, *Bioorg. Med. Chem.*, 12, 5595-5601, (2004). doi: 10.1016/j.bmc.2004.08.003. PMID: 15465337.
340. C. M. Chien, J.-L. Cheng, W.-T. Chang, M.-H. Tien, W.-Y. Wu, Y.-H. Chang, H.-Y. Chang, J.-F. Hsieh, C.-H. Wong, S.-T. Chen, “Polysaccharides of Ganoderma lucidum alter cell immunophenotypic expression and enhance CD56+ NK-cell cytotoxicity in cord blood”, *Bioorg. Med. Chem.*, 12, 5603-5609, (2004). doi: 10.1016/j.bmc.2004.08.004. PMID: 15465338.
341. H.-Y. Hsu, K.-F. Hua, C.-C. Lin, C.-H. Lin, C.-H. Wong, “Extract of Reishi polysaccharides induces cytokine expression via toll-like receptor 4-modulated protein kinase signaling pathways”, *J. Immunol.*, 173, 5989-5999, (2004). doi: 10.4049/jimmunol.173.10.5989. PMID: 15528333.

342. C.-Y. Wu, J.-T. Jan, H.-H. Ma, C.-J. Kuo, H.-F. Juan, Y.-S. E. Cheng, H.-H. Hsu, H.-C. Huang, D. Wu, A. Brik, F.-S. Liang, R.-S. Liu, J.-M. Fang, S.-T. Chen, P.-H. Liang, C.-H. Wong, "Small molecules targeting severe acute respiratory syndrome (SARS) human coronavirus", Proc. Natl. Acad. Sci. U.S.A., 101, 10012-10017, (2004). doi: 10.1073/pnas.0403596101. PMID: 15226499.
343. M.-P. Heck, S. P. Vincent, B. W. Murray, F. Bellamy, C.-H. Wong, C. Mioskowski, "Cyclic amidine sugars as transition-state analogue inhibitors of glycosidases: potent competitive inhibitors of mannosidases", J. Am. Chem. Soc., 126, 1971-1979, (2004). doi: 10.1021/ja037822r. PMID: 14971930.
344. P. T. Nyffeler, L. Eltepu, N. A. Boyle, C.-H. Wong, A. Eschenmoser, R. A. Lerner, P. Wentworth, Jr., "Dihydrogen trioxide (HOOH) is generated during the thermochemical reaction between hydrogen peroxide and ozone", Angew. Chem. Int. Ed., 43, 4656-4659, (2004). doi: 10.1002/anie.200460457. PMID: 15317003.
345. H. Lin, D.A. Thayer, C.-H. Wong, C. T. Walsh, "Macrolactamization of glycosylated peptide thioesters by the thioesterase domain of tyrocidine synthetase", Chem. Biol., 11, 1635-1642, (2004). doi: 10.1016/j.chembiol.2004.09.015. PMID: 15610847.
346. O. Blixt, S. Head, T. Mondala, C. Scanlan, M.E. Huflejt, R. Alvarez, M.C. Bryan, F. Fazio, D. Calarese, J. Stevens, N. Razi, I. van Die, D. Burton, I. A. Wilson, R. Cummings, N. Bovin, C.-H. Wong, J.C. Paulson, "Printed covalent glycan array for ligand profiling of diverse glycan binding proteins", Proc. Natl. Acad. Sci. U.S.A., 101, 17033-17038, (2004). doi: 10.1073/pnas.0407902101. PMID: 15563589.
347. J. H. Chen, Y.-W. Chang, C.-W. Yao, T.-S. Chiueh, S.-C. Huang, K.-Y. Chien, A. Chen, F.-Y. Chang, C.-H. Wong, Y.-J. Chen, "Plasma proteome of severe acute respiratory syndrome (SARS) analyzed by two-dimensional gel electrophoresis and mass spectrometry", Proc. Natl. Acad. Sci. U.S.A., 101, 17039-17044, (2004). doi: 10.1073/pnas.0407992101. PMID: 15572443.
348. S. R. Hanson, M. D. Best, M. C. Bryan, C.-H. Wong, "Chemoenzymatic synthesis of oligosaccharides and glycoproteins", Trends Biochem. Sci., 29, 656-663, (2004). doi: 10.1016/j.tibs.2004.10.004. PMID: 15544952.
349. V. P. Mocharla, B. Colasson, L. V. Lee, S. Romper, K. B. Sharpless, C.-H. Wong, H. C. Kolb, "In situ click chemistry: enzyme-generated inhibitors of carbonic anhydrase II", Angew. Chem. Int. Ed., 44, 116-120, (2004). doi: 10.1002/anie.200461580. PMID: 15599912.
350. P. Nyffeler, C.-H. Wong, "Selectflour™: mechanistic insight and application", Angew. Chem. Int. Ed., 44, 192-212, (2004). doi: 10.1002/anie.200400648. PMID: 15578736.
351. E. Chapman, M. C. Bryan, C.-H. Wong, "Mechanistic studies of  $\beta$ -arylsulfotransferase IV," Proc. Natl. Acad. Sci. U.S.A., 100, 910-915, (2003). doi: 10.1073/pnas.0337638100. PMID: 12547913.
352. C.-H. Wong, M. C. Bryan, P. T. Nyffeler, H. Liu, E. Chapman, "Synthesis of carbohydrate-based antibiotics", Pure Appl. Chem., 75, 179-186, (2003). <http://dx.doi.org/10.1351/pac200375020179>.
353. G. DeSantis, J. Liu, D. P. Clark, A. Heine, I. A. Wilson, C.-H. Wong, "Structure-based mutagenesis approaches toward expanding the substrate specificity and enantioselectivity of D-2-deoxy-ribose-5-phosphate aldolase", Bioorg. Med. Chem., 11, 43-52, (2003). doi: 10.1016/s0968-0896(02)00429-7. PMID: 12467706.
354. T. K.-K. Mong, C.-Y. Huang, C.-H. Wong, "A new reactivity-based one-pot synthesis of N-acetyllactosamine oligomers", J. Org. Chem., 68, 2135-2142, (2003). doi: 10.1021/jo0206420.

PMID: 12636372.

355. M. Wada, C.-C. Hsu, D. Franke, M. Mitchell, A. Heine, I. Wilson, C.-H. Wong, "Directed evolution of N-acetylneuraminic acid aldolase to catalyze enantiomeric aldol reactions", Bioorg. Med. Chem., 11, 2091–2098, (2003). doi: 10.1016/s0968-0896(03)00052-x. PMID: 12670660.
356. M. G. Silvestri, G. DeSantis, C.-H. Wong, "Asymmetric aldol reactions using aldolases", Top. Stereochem., 23, 267–342, (2003). <https://doi.org/10.1002/0471224499.ch5>.
357. A. Brik, C.-H. Wong, "HIV-1 protease: Mechanism and drug discovery", Org. Biomol. Chem., 1, 1–14, (2003). doi: 10.1039/b208248a. PMID: 12929379.
358. H. Liu, T. K. Ritter, R. Sadamoto, P.S. Sears, M. Wu, C.-H. Wong, "Acceptor specificity and inhibition of the bacterial cell-wall glycosyltransferase Mur G", ChemBioChem, 4, 603–609, (2003). doi: 10.1002/cbic.200300557. PMID: 12851929.
359. H. Liu, L. Wang, A. Brock, C.-H. Wong, P. G. Schultz, "A method for the generation of glycoprotein mimetics", J. Am. Chem. Soc., 125, 1702–1703, (2003). doi: 10.1021/ja029433n. PMID: 12580587.
360. T. K.-K. Mong, H. K. Lee, S. G. Duron, C.-H. Wong, "Reactivity-based one-pot synthesis of fucose GM<sub>1</sub> oligosaccharide: A sialylated antigenic epitope of small-cell lung cancer", Proc. Natl. Acad. Sci. U.S.A., 100, 797–802, (2003). doi: 10.1073/pnas.0337590100. PMID: 12552090.
361. C. C. Mak, A. Brik, D. L. Lerner, J. H. Elder, G. M. Morris, A. J. Olson, C.-H. Wong, "Design and synthesis of broad-based mono- and bicyclic inhibitors of HIV and FIV proteases", Bioorg. Med. Chem., 11, 2025–2040, (2003). doi: 10.1016/s0968-0896(03)00054-3. PMID: 12670654.
362. L. V. Lee, M. L. Mitchell, S.-J. Huang, V. V. Fokin, K. B. Sharpless, C.-H. Wong, "A potent and highly selective inhibitor of human  $\alpha$ -1,3-fucosyltransferase via click chemistry", J. Am. Chem. Soc., 125, 9588–9599, (2003). doi: 10.1021/ja0302836. PMID: 12904015.
363. C.-Y. Wu, C.-F. Chang, J. S.-Y. Chen, C.-H. Wong, C.-H. Lin, "Rapid diversity-oriented synthesis in microtiter plates for in situ screening: discovery of potent and selective  $\alpha$ -fucosidase inhibitors", Angew. Chem. Int. Ed., 42, 4661–4664, (2003). doi: 10.1002/anie.200351823. PMID: 14533157.
364. A. Brik, J. Muldoon, Y.-C. Lin, J. H. Elder, D. Goodsell, A. J. Olson, V. V. Fokin, K. B. Sharpless, C.-H. Wong, "Rapid diversity-oriented synthesis in microtiter plates for in situ screening of HIV protease inhibitors", ChemBioChem, 4, 1246–1248, (2003). doi: 10.1002/cbic.200300724. PMID: 14613121.
365. T. K. Ritter, K.-K. T. Mong, H. Liu, T. Nakatani, C.-H. Wong, "A programmable one-pot oligosaccharide synthesis for diversifying the sugar domains of natural products: A case study of vancomycin", Angew. Chem. Int. Ed., 42, 4657–4660, (2003). doi: 10.1002/anie.200351534. PMID: 14533156.
366. C.-H. Wong, M. C. Bryan, "Sugar arrays in microtiter plates", Methods Enzymol., 362, 218–225, (2003). doi: 10.1016/S0076-6879(03)01015-2. PMID: 12968366.
367. K.-K. T. Mong, L. V. Lee, J. R. Brown, J. D. Esko, C.-H. Wong, "Synthesis of N-acetyl-lactosamine derivatives with variation in the aglycon moiety for the study of inhibition of sialyl Lewis X expression", ChemBioChem., 4, 835–840, (2003). doi: 10.1002/cbic.200300650. PMID: 12964157.
368. D. Franke, T. Machajewski, C.-C. Hsu, C.-H. Wong, "One-pot synthesis of L-fructose using coupled multienzyme systems based on rhamnulose-1-phosphate aldolase". J. Org. Chem., 68, 6828–6831,



- (2003). doi: 10.1021/jo030021m. PMID: 12919060.
369. F. Fazio, C.-H. Wong, “RuCl<sub>3</sub>-promoted amide formation from azides and thioacids”, Tetrahedron Lett., 44, 9083-9085, (2003). <https://doi.org/10.1016/j.tetlet.2003.10.054>.
370. T. Feizi, F. Fazio, W. Chai, C.-H. Wong, “Carbohydrate microarrays – a new set of technologies at the frontier of glycomics”, Curr. Opin. Struct. Biol., 13, 637-645, (2003). doi: 10.1016/j.sbi.2003.09.002. PMID: 14568620.
371. C.-H. Wong, F.-S. Liang, “Surface plasmon resonance study of RNA-aminoglycoside interactions”, in Methods in Enzymol, 362, 340-353, (2003). doi: 10.1016/S0076-6879(03)01024-3. PMID: 12968375.
372. E. Chapman, C.-H. Wong, “A pH sensitive colorimetric assay for the high-throughput screening of enzyme inhibitors and substrates: a case study using kinases”, Bioorg. Med. Chem., 10, 551–555, (2002). doi: 10.1016/s0968-0896(01)00306-6. PMID: 11814841.
373. Y.-Y. Wang, K.-H. Khoo, S.-T. Chen, C.-C. Lin, C.-H. Wong, C.-H. Lin, “Studies on the immunomodulating and antitumor activities of Ganoderma lucidum (Reishi) polysaccharides: Functional and proteomic analysis of a fucose-containing glycoprotein responsible for the activities”, Bioorg. Med. Chem., 10, 1057–1062, (2002). doi: 10.1016/s0968-0896(01)00377-7. PMID: 11836115.
374. C.-T. Guo, X.-L. Sun, O. Kanie, K. F. Shortridge, T. Suzuki, D. Miyamoto, K. I.-P. J. Hidari, C.-H. Wong, Y. Suzuki, “An O-glycoside of sialic acid derivative that inhibits both hemagglutinin and sialidase activities of influenza viruses”, Glycobiology, 12, 183–190, (2002). doi: 10.1093/glycob/12.3.183. PMID: 11971862.
375. T. Kanemitsu, C.-H. Wong, O. Kanie, “Solid-phase synthesis of oligosaccharides and on-resin quantitative monitoring using gated decoupling <sup>13</sup>C-NMR”, J. Am. Chem. Soc., 124, 3591–3599, (2002). doi: 10.1021/ja0167396. PMID: 11929248.
376. Z. Zhang, K. Niikura, X. Huang, C.-H. Wong, “A new strategy for the one-pot synthesis of sialylated oligosaccharides”, (Ray Lemieux special issue) Can. J. Chem., 80, 1051–1054, (2002). <https://doi.org/10.1139/v02-131>.
377. J. Liu, G. DeSantis, C.-H. Wong, “Structure-based rationalization of aldolase-catalyzed asymmetric synthesis”, (in honor of J. B. Jones) Can. J. Chem., 80, 643–645, (2002). <https://doi.org/10.1139/v02-094>.
378. J. Liu, C.-H. Wong, “Aldolase-catalyzed asymmetric synthesis of novel pyranose synthons as a new entry to heterocycles and epothilones”, Angew. Chem. Int. Ed., 41, 1404–1407, (2002). doi: 10.1002/1521-3773(20020415)41:8<1404::aid-anie1404>3.0.co;2-g. PMID: 19750780.
379. T. J. Tolbert, C.-H. Wong, “New methods for proteomic research: preparation of proteins with N-terminal cysteines for labeling and conjugation”, Angew. Chem. Int. Ed., 41, 2171–2174, (2002). Angew. Chem., 114, 2275, (2002). doi: 10.1002/1521-3773(20020617)41:12<2171::aid-anie2171>3.0.co;2-q. PMID: 19746634.
380. M. C. Bryan, O. Plettenburg, P. Sears, D. Rabuka, S. Wacowich-Sgarbi, C.-H. Wong, “Saccharide display on microtiter plates”, Chem. Biol., 9, 713–720, (2002). doi: 10.1016/s1074-5521(02)00155-2. PMID: 12079783.
381. O. Plettenburg, C.-H. Wong, “Rapid preparation of glycolipid libraries by cross metathesis”, Adv. Synth. Catal., 344, 622–626, (2002). [https://doi.org/10.1002/1615-4169\(200208\)344:6/7<622::AID-](https://doi.org/10.1002/1615-4169(200208)344:6/7<622::AID-)

ADSC622>3.0.CO;2-W.

382. O. Plettenburg, V. Narkevitch, C.-H. Wong, "Synthesis of  $\alpha$ -galactosyl ceramide, a potent immunostimulatory agent", *J. Org Chem.*, 67, 4559–4564, (2002). doi: 10.1021/jo0201530. PMID: 12076157.
383. M. L. Mitchell, F. Tian, L. V. Lee, C.-H. Wong "Synthesis and evaluation of transition-state analogue inhibitors of  $\alpha$ -1,3-fucosyltransferases", *Angew. Chem. Int. Ed.*, 41 (16), 3041–3044, (2002). *Angew. Chem.*, 114, 3167–3170, (2002). doi: 10.1002/1521-3773(20020816)41:16<3041::AID-ANIE3041>3.0.CO;2-V. PMID: 12203452.
384. J. Liu, C.-Y. Huang, C.-H. Wong, "An efficient method for the preparation of 2-hydroxy- and 2-aminoglycals from glycosyl sulfoxides", *Tetrahedron Lett.*, 43, 3447–3448, (2002). [https://doi.org/10.1016/S0040-4039\(02\)00555-5](https://doi.org/10.1016/S0040-4039(02)00555-5).
385. J. Liu, C.-H. Wong, "An efficient method for the cleavage of p-methoxybenzylidene (PMP), tetrahydropyranyl (THP) and 1,3-dithiane protecting groups by Selectfluor", *Tetrahedron Lett.*, 43, 3915–3917, (2002). [https://doi.org/10.1016/S0040-4039\(02\)00740-2](https://doi.org/10.1016/S0040-4039(02)00740-2).
386. J. Liu, C.-H. Wong, "Selectfluor-mediated allylstannation of aldehydes and imines", *Tetrahedron Lett.*, 43, 3915–3917, (2002). [https://doi.org/10.1016/S0040-4039\(02\)00640-8](https://doi.org/10.1016/S0040-4039(02)00640-8).
387. R. Sadamoto, K. Niikura, P.S. Sears, H. Liu, C.-H. Wong, A. Suksumcheep, F. Tomita, K. Monde, S.-I. Nishimura, "Cell-wall engineering of living bacteria", *J. Am. Chem. Soc.*, 124, 9018–9019, (2002). doi: 10.1021/ja026133x. PMID: 12148983.
388. A. Brik, Y.-C. Lin, J. Elder, C.-H. Wong, "A quick diversity-oriented amide-forming reaction to optimize P-subsite residues of HIV protease inhibitors", *Chem. Biol.*, 9, 891–896, (2002). doi: 10.1016/s1074-5521(02)00184-9. PMID: 12204688.
389. M. L. Mitchell, L. V. Lee, C.-H. Wong, "Synthesis and evaluation of six-membered GDP-iminocyclitol", *Tetrahedron Lett.*, 43, 5691–5793, (2002). [https://doi.org/10.1016/S0040-4039\(02\)01108-5](https://doi.org/10.1016/S0040-4039(02)01108-5).
390. Z. Zhang, C.-H. Wong, "Regioselective benzylation of sugars mediated by excessive  $\text{Bu}_2\text{SnO}$ : observation of temperature promoted migration", *Tetrahedron*, 58, 6513–6519, (2002). [https://doi.org/10.1016/S0040-4020\(02\)00661-0](https://doi.org/10.1016/S0040-4020(02)00661-0).
391. F. Fazio, M. C. Bryan, O. Blixt, J. C. Paulson, C.-H. Wong, "Synthesis of sugar arrays in microtiter plates", *J. Am. Chem. Soc.*, 124, 14397–14402, (2002). doi: 10.1021/ja020887u. PMID: 12452714.
392. E. Chapman, S. Ding, P. G. Schultz, C.-H. Wong, "A potent and highly selective sulfotransferase inhibitor", *J. Am. Chem. Soc.*, 124, 14524–14525, (2002). doi: 10.1021/ja021086u. PMID: 12465948.
393. P. T. Nyffeler, C.-H. Liang, K. M. Koeller, C.-H. Wong, "The chemistry of amine-azide interconversion: Catalytic diazotransfer and regioselective azide reduction", *J. Am. Chem. Soc.*, 124, 10773–10778, (2002). doi: 10.1021/ja0264605. PMID: 12207533.
394. K.-K. T. Mong, C.-H. Wong, "Reactivity-based one-pot synthesis of Lewis Y carbohydrate hapten: A colon-rectal cancer antigen determinant", *Angew. Chem. Int. Ed.*, 41, 4087–4090, (2002); *Angew. Chem.*, 114, 4264–4267, (2002). doi: 10.1002/1521-3773(20021104)41:21<4087::AID-ANIE4087>3.0.CO;2-X. PMID: 12412090.
395. M. M. G. M. Thunnissen, B. Andersson, B. Samuelsson, C.-H. Wong, J. Z Haeggstrom, "Crystal

- structures of leukotriene A4 hydrolase in complex with captopril and two competitive tight-binding inhibitors”, *FASEB J.*, 16 (12), 1648-1650, (2002). doi: 10.1096/fj.01-1017fje. Epub 2002 Aug 7. PMID: 12207002.
396. A. R. Sawkar, W.-C. Cheng, E. Beutler, C.-H. Wong, W. E. Balch, J. W. Kelly, “Chemical chaperones increase the cellular activity of N370S  $\beta$ -glucosidase; a therapeutic strategy for Gaucher disease”, *Proc. Natl. Acad. Sci. U.S.A.*, 99, 15428–15433, (2002). doi: 10.1073/pnas.192582899. PMID: 12434014.
397. X.-S. Ye, X. Huang, C.-H. Wong, “A new glycosyl donor for efficient sialylation with unusual stereoselectivity: conversion of the carboxyl group to a protected hydroxymethyl increases the reactivity and yield dramatically with no elimination”, *Chem. Comm.*, 11, 974–975, (2001). <https://doi.org/10.1039/B102166B>.
398. F. Burkhart, Z. Zhang, S. Wacowich-Sgarbi, C.-H. Wong, “Synthesis of Globo H using the programmable reactivity-based one-pot strategy”, *Angew. Chem. Int. Ed.*, 40, 1274–1276, (2001). doi: 10.1002/1521-3773(20010401)40:7<1274:aid-anie1274>3.0.co;2-w. PMID: 11301448.
399. M. G. Silvestri, C.-H. Wong, “Opening of thiiranes: Preparation of orthogonal protected 2-thioglyceraldehyde”, *J. Org. Chem.*, 66, 910–914, (2001). doi: 10.1021/jo001392v. PMID: 11430112.
400. C. C. Mak, V.-D. Le, Y.-C. Lin, J. H. Elder, C.-H. Wong, “Design, synthesis and biological evaluation of HIV/FIV protease inhibitors incorporating conformational-constrained macrocycle with a small P3’ residue”, *Bioorg. Med. Chem. Lett.*, 11, 219–222, (2001). doi: 10.1016/s0960-894x(00)00641-7. PMID: 11206463.
401. T. K. Ritter, C.-H. Wong, “Synthesis of N-acetyl glucosamine thiazoline/lipid II hybrids”, *Tetrahedron Lett.*, 42, 615–618, (2001). [https://doi.org/10.1016/S0040-4039\(00\)02020-7](https://doi.org/10.1016/S0040-4039(00)02020-7).
402. V.-D. Le, C. C. Mak, Y.-C. Lin, J. H. Elder, C.-H. Wong, “Structure–activity studies of FIV and HIV proteases inhibitors containing allophenylnorstatine”, *Bioorg. Med. Chem.*, 9, 1185–1195, (2001). doi: 10.1016/s0968-0896(00)00346-1. PMID: 11377177.
403. I. A. Kozlov, S. Mao, Y. Xu, X. Huang, L. Lee, P. S. Sears, C. Gao, A. R. Coyle, K.D. Janda, C.-H. Wong, “Synthesis of solid-supported mirror-image sugars: a novel method for selecting receptors for cellular-surface carbohydrates”, *ChemBioChem*, 2, 741–746, (2001). doi: 10.1002/1439-7633(20011001)2:10<741::AID-CBIC741>3.0.CO;2-B. PMID: 11948856.
404. K. M. Koeller, C.-H. Wong, “Enzymes for chemical synthesis”, *Nature*, 409, 232–240, (2001).
405. P. Sears, C.-H. Wong, “Toward automated synthesis of oligosaccharides and glycoproteins”, *Science*, 291, 2344–2350, (2001). doi: 10.1038/35051706. PMID: 11196651.
406. J. Liu, A. R. Shikhaman, M. K. Lotz, C.-H. Wong, “Hexosaminidase inhibitors as new drug candidates for the therapy of osteoarthritis”, *Chem. Biol.*, 8, 701–711, (2001). doi: 10.1016/s1074-5521(01)00045-x. PMID: 11451670.
407. T. K. Ritter, C.-H. Wong, “Carbohydrate-based antibiotics: a new approach to tackling the problem of resistance”, *Angew. Chem. Int. Ed.*, 40, 3508–3533. *Angew. Chem.*, 113, 3616–3641, (2001). doi: 10.1002/1521-3773(20011001)40:19<3508::AID-ANIE3508>3.0.CO;2-I. PMID: 11592183.
408. X. Huang, K. L. Witte, D. E. Bergbreiter, C.-H. Wong, “Homogeneous enzymatic synthesis using a thermoresponsive water-soluble polymer support”, *Adv. Synth. Catal.*, 343, 675–681, (2001). [https://doi.org/10.1002/1615-4169\(200108\)343:6/7<675::AID-ADSC675>3.0.CO;2-2](https://doi.org/10.1002/1615-4169(200108)343:6/7<675::AID-ADSC675>3.0.CO;2-2).

409. C.-S. Yu, K. Niikura, C.-C. Lin, C.-H. Wong, “The thioglycoside and glycosyl phosphite of 5 azido sialic acid: excellent donors for  $\alpha$ -glycosylation of primary hydroxyls”, Angew. Chem. Int. Ed., 40, 2900–2903, (2001); Angew. Chem., 113, 2984–2987, (2001). doi: 10.1002/1521-3773(20010803)40:15<2900::AID-ANIE2900>3.0.CO;2-4. PMID: 29711986.
410. C. Saotome, C.-H. Wong, O. Kanie, “Combinatorial library of five-membered iminocyclitol and the inhibitory activities against glyco-enzymes”, Chem. Biol., 8, 1061–1070, (2001).
411. H. Liu, R. Sadamoto, P. S. Sears, C.-H. Wong, “An efficient chemo-enzymatic strategy for the synthesis of wild-type and vancomycin-resistant bacterial cell-wall precursors: UDP-N-acetylmuramyl-peptides”, J. Am. Chem. Soc., 123, 9916–9917, (2001). doi: 10.1016/s1074-5521(01)00074-6. PMID: 11731297.
412. M. Izumi, G.-J. Shen, S. Wacowich-Sgarbi, T. Nakatani, O. Plettenburg, C.-H. Wong, “Microbial glycosyltransferases for carbohydrate synthesis:  $\alpha$ -2,3-sialyltransferase from *Neisseria gonorrhoeae*”, J. Am. Chem. Soc., 123, 10909–10918, (2001). doi: 10.1021/ja011382r. PMID: 11686694.
413. A. Heine, G. DeSantis, J. G. Luz, M. Mitchell, C.-H. Wong, I. A. Wilson, “Observation of covalent intermediates in an enzyme mechanism at atomic resolution”, Science, 294, 369–374, (2001). doi: 10.1126/science.1063601. PMID: 11598300.
414. M. Mitchell, L. Qaio, C.-H. Wong, “Chemical-enzymatic synthesis of iminocyclitol phosphonic acids”, Adv. Synth. Catal., 343, 596–599, (2001). [https://doi.org/10.1002/1615-4169\(200108\)343:6/7<596::AID-ADSC596>3.0.CO;2-V](https://doi.org/10.1002/1615-4169(200108)343:6/7<596::AID-ADSC596>3.0.CO;2-V).
415. B. Bühler, Y.-C. Lin, G. Morris, A. Olson, C.-H. Wong, D. D. Richman, J. H. Elder, B. E. Torbett, “Viral evolution in response to the broad-based retroviral protease inhibitor TL-3”, J. Virol., 75, 9502–9508, (2001). doi: 10.1128/JVI.75.19.9502-9508.2001. PMID: 11533212.
416. V. Wittmann, A. K. Datta, K. M. Koeller, C.-H. Wong, “Chemoenzymatic synthesis and fluorescent visualization of cell-surface selectin-bound sialyl Lewis X derivatives”, Chem. Eur. J., 6, 162–171, (2000). doi: 10.1002/(sici)1521-3765(20000103)6:1<162::aid-chem162>3.0.co;2-9. PMID: 10747401.
417. V.-D. Le, C.-H. Wong, “Synthesis of 2-substituted polyhydroxyhexahydropyrimidines (N-hydroxy cyclic guanidino-sugars): transition-state mimics of enzymatic glycosidic cleavage”, J. Org. Chem., 65, 2399–2409, (2000). doi: 10.1021/jo9915574. PMID: 10789452.
418. S. J. Sucheck, W. A. Greenberg, T. J. Tolbert, C.-H. Wong, “Design of small molecules that recognize RNA: development of aminoglycosides as potential antitumor agents targeting oncogenic RNA sequences”, Angew. Chem. Int. Ed. Engl., 39, 1080–1084, (2000). Angew. Chem., 112, 1122–1126, (2000). doi: 10.1002/(sici)1521-3773(20000317)39:6<1080::aid-anie1080>3.0.co;2-b. PMID: 10760928.
419. K. M. Koeller, C.-H. Wong, “Chemoenzymatic synthesis of sialyl-trimeric-Lewis X”, Chem. Eur. J., 6, 1243–1251, (2000).
420. K. M. Koeller, M. E. B. Smith, C.-H. Wong, “Tyrosine sulfation on a PSGL-1 glycopeptide influences the reactivity of glycosyltransferases responsible for synthesis of the attached O-glycan”, J. Am. Chem. Soc., 122, 742–743, (2000). doi: 10.1002/(sici)1521-3765(20000403)6:7<1243::aid-chem1243>3.3.co;2-a. PMID: 10785811.
421. T. D. Machajewski, C.-H. Wong, “The catalytic asymmetric aldol reaction”, Angew. Chem. Int. Ed. Engl., 39, 1352–1374, (2000). Angew. Chem., 112, 1406–1430, (2000). 10.1002/(sici)1521-

3773(20000417)39:8<1352::aid-anie1352>3.0.co;2-j. PMID: 10777624.

422. K. M. Koeller, M. E. B. Smith, R.-F. Huang, C.-H. Wong, "Chemoenzymatic synthesis of a PSGL-1 N-terminal glycopeptide containing tyrosine sulfate and  $\alpha$ -O-linked sialyl Lewis X", J. Am. Chem. Soc., 122, 4241–4242, (2000). doi: 10.1016/s0968-0896(00)00041-9. PMID: 10882013.
423. X.-L. Sun, Y. Kanie, C.-T. Guo, O. Kanie, Y. Suzuki, C.-H. Wong, "Syntheses of C-3 modified sialylglycosides as selective inhibitors of influenza hemagglutinin and neuraminidase", Eur. J. Org. Chem., 14:2643–2653, (2000). [https://doi.org/10.1002/1099-0690\(200007\)2000:14<2643::AID-EJOC2643>3.0.CO;2-1](https://doi.org/10.1002/1099-0690(200007)2000:14<2643::AID-EJOC2643>3.0.CO;2-1).
424. X.-S. Ye, C.-H. Wong, "Anomeric reactivity-based one-pot oligosaccharide synthesis: A rapid route to oligosaccharide libraries", J. Org. Chem., 65, 2410–2431, (2000).
425. T. J. Tolbert, C.-H. Wong, "Intein-mediated synthesis of proteins containing carbohydrates and other molecular probes", J. Am. Chem. Soc., 122, 5421–5428, (2000). doi: 10.1021/jo991558w. PMID: 10789453.
426. S. Fong, T. D. Machajewski, C. C. Mak, C.-H. Wong, "Directed evolution of D-2-keto-3-deoxy-6-phosphogluconate s to new aldolases capable of making D- and L-sugars", Chem. Biol., 7, 873–883, (2000). doi: 10.1016/s1074-5521(00)00035-1. PMID: 11094340.
427. M. D. Burkart, M. Izumi, E. Chapman, C.-H. Lin, C.-H. Wong, "Regeneration of PAPS for the enzymatic synthesis of sulfated oligosaccharides", J. Org. Chem., 65, 5565–5574, (2000). doi: 10.1021/jo000266o. PMID: 10970295.
428. C. Saotome, Y. Kanie, O. Kanie, C.-H. Wong, "Synthesis and enzymatic evaluation of five-membered iminocyclitols and a pseudodisaccharide", Bioorg. Med. Chem., 8, 2249–2261, (2000). doi: 10.1016/s0968-0896(00)00170-x. PMID: 11026538.
429. M. Takayanagi and C.-H. Wong, "A strategy for the solution-phase parallel synthesis of N-(pyrrolidinylmethyl) hydroxamic acids", J. Org. Chem., 65, 3811–3815, (2000). doi: 10.1021/jo000186k. PMID: 10864769.
430. S. P. Vincent, A. Schleyer, C.-H. Wong, "Asymmetric strecker synthesis of C-glycosides", J. Org. Chem., 65, 4440–4443, (2000). <https://doi.org/10.1021/jo000034p>.
431. K. M. Koeller, C.-H. Wong, "Synthesis of complex carbohydrates and glycoconjugates: enzyme-based and programmable one-pot strategies", Chem. Rev., 100, 4465–4493, (2000). doi: 10.1021/cr990297n. PMID: 11749355.
432. K. M. Koeller, M. E. B. Smith C.-H. Wong, "Chemoenzymatic synthesis of PSGL-1 glycopeptides: Sulfation on tyrosine affects glycosyltransferase-catalyzed synthesis of the O-glycan", Bioorg. Med. Chem., 8, 1017–1025, (2000). doi: 10.1016/s0968-0896(00)00041-9. PMID: 10882013.
433. S. J. Sucheck, A. L. Wong, K. M. Koeller, D. D. Boehr, K.-A. Draker, P. Sears, G. D. Wright, C.-H. Wong, "Design of bifunctional antibiotics that target bacterial rRNA and inhibit resistance-causing enzymes", J. Am. Chem. Soc., 122, 5230–5231, (2000). <https://doi.org/10.1021/ja000575w>.
434. K. Shibata, K. Hiruma, O. Kanie, C.-H. Wong, "Synthesis of 1,1-linked galactosyl mannosides carrying a thiazine ring as mimetics of sialyl Lewis x antigen: Investigation of the effect of carboxyl group orientation on P-selectin inhibition", J. Org. Chem., 65, 2393–2398, (2000). doi: 10.1021/jo991556b. PMID: 10789451.
435. A. Romero, C.-H. Wong, "Chemo-enzymatic total synthesis of 3-epiaustraline, australine and 7-

- epialexine”, *J. Org. Chem.*, 65, 8264–8268, (2000). doi: 10.1021/jo000933d. PMID: 11101383.
436. O. Kanie, G. Grotenberg, C.-H. Wong, “Removal of benzyl protecting group from solid supported compounds by hydrogenolysis using palladium nanoparticles”, *Angew. Chem. Int. Ed.*, 39, 4545–4546, (2000). *Angew. Chem.*, 112, 4719–4721, (2000). PMID: 11169665.
437. K. M. Koeller, C.-H. Wong, “Emerging themes in medicinal glycoscience”, *Nature Biotech.*, 18, 835–844, (2000). doi: 10.1038/78435. PMID: 10932151.
438. M. D. Burkart, S. P. Vincent, A. Düffels, B. W. Murray, S. V. Ley, C.-H. Wong, “Chemo-enzymatic synthesis of fluorinated sugar nucleotide; useful mechanistic probes for glycosyltransferases”, *Bioorg. Med. Chem.*, 8, 1937–1946, (2000). doi: 10.1016/s0968-0896(00)00139-5. PMID: 11003139.
439. S. J. Sucheck, C.-H. Wong, “RNA as a target for small molecules”, *Curr. Opin. Chem. Biol.*, 4, 678–686, (2000). doi: 10.1016/s1367-5931(00)00142-3. PMID: 11102874.
440. K. M. Koeller, C.-H. Wong, “Complex carbohydrate synthesis tools for glycobiochemists: enzyme-based approach and programmable one-pot strategies”, *Glycobiology*, 10, 1157–1169, (2000). doi: 10.1093/glycob/10.11.1157. PMID: 11087708.
441. T. Flessner, C.-H. Wong, “Efficient synthesis of triazoles from D-arabinose and L-fucose”, *Tetrahedron Lett.*, 41, 7805–7808, (2000). [https://doi.org/10.1016/S0040-4039\(00\)01356-3](https://doi.org/10.1016/S0040-4039(00)01356-3).
442. T. L. Sheppard, C.-H. Wong, G. F. Joyce, “Nucleoglycoconjugates: design and synthesis of a new class of DNA–carbohydrate conjugates”, *Angew. Chem. Int. Ed.*, 39, 3660–3663, (2000); *Angew. Chem.*, 112, 3806–3809, (2000). PMID: 11091431.
443. C.-Y. Tsai, X. Huang, C.-H. Wong, “Design and synthesis of cyclic sialyl Lewis x mimetics: A remarkable enhancement of inhibition by pre-organizing all essential functional groups”, *Tetrahedron Lett.*, 41, 9299–9503, (2000). [https://doi.org/10.1016/S0040-4039\(00\)01653-1](https://doi.org/10.1016/S0040-4039(00)01653-1).
444. A. Düffels, L. G. Green, R. Lenz, S. V. Ley, S. P. Vincent, C.-H. Wong, “Chemoenzymatic synthesis of L-galactosylated dimeric sialyl Lewis X structures employing  $\alpha$ -1,3-fucosyltransferase V”, *Bioorg. Med. Chem.*, 8, 2519–2525, (2000). doi: 10.1016/s0968-0896(00)00187-5. PMID: 11058047.
445. Y.-C. Lin, Z. Beck, T. Lee, V.-D. Le, B. M. Morris, A. J. Olson, C.-H. Wong, J. H. Elder, “Alteration of substrate and inhibitor specificity of feline immunodeficiency virus protease”, *J. Virol.*, 74, 4710–4718, (2000). doi: 10.1128/jvi.74.10.4710-4720.2000. PMID: 10775609.
446. X. Zhang, P. B. Rosenthal, W. Fitz, C.-H. Wong, H. Meier-Ewert, J. J. Skehel, D. C. Wiley, “X-ray crystallographic determination of the structure of the influenza C virus haemagglutinin-esterase-function glycoprotein”, *ACTA Cryst.*, D55, 945–961, (1999). doi: 10.1107/s0907444999000232. PMID: 10216291.
447. P. Sears, K. Witte, C.-H. Wong, “The effect of counterion, water concentration, and stirring on the stability of subtilisin BPN’ in organic solvents”, *J. Mol. Catalysis*, 6, 297–304, (1999).
448. H. Yuasa, H. Hashimoto, Y. Abe, T. Kajimoto, C.-H. Wong, “Studies on the unusual stability of cis-2,5-diethoxy-1,4-dioxane-2,5-dimethanol”, *Tetrahedron* 55, 2193–2204, (1999).
449. C.-C. Lin, F. Moris-Varas, G. Weitz-Schmidt, C.-H. Wong, “Synthesis of sialyl Lewis x mimetics as selectin inhibitors by enzymatic aldol condensation reactions”, *Bioorg. Med. Chem.*, 7, 425–434, (1999). doi: 10.1016/s0968-0896(98)00242-9. PMID: 10220028.

450. G.-J. Shen, A. K. Datta, C.-C. Lin, K. Koeller, R.-F. Huang, C.-H. Wong, "Expression of (2,8/2,9-polysialyltransferase from *E. coli* K92: Characterization of the enzyme and its reaction products", J. Biol. Chem., 274, 35139–35146, (1999). doi: 10.1074/jbc.274.49.35139. PMID: 10574996.
451. C.-H. Wong, "Mimics of complex carbohydrates recognized by receptors", Acc. Chem. Res., 32, 376–385, (1999).
452. S. Takayama, S. J. Chung, Y. Igarashi, Y. Ichikawa, A. Sepp, R. I. Lechler, J. Wu, T. Hayashi, G. Siuzdak, C.-H. Wong, "Selective inhibition of  $\beta$ -1,4- and  $\alpha$ -1,3-galactosyltransferases: donor sugar-nucleotide based approach", Bioorg. Med. Chem., 7, 401–409, (1999). doi: 10.1016/s0968-0896(98)00249-1. PMID: 10218835.
453. S. Takayama, S. T. Lee, S.-C. Hung, C.-H. Wong, "Designing acylating reagents for enzymatic resolution of amines", Chem. Comm., 127–128, (1999).
454. Z. Zhang, I. R. Ollmann, X.-S. Ye, R. Wischnat, T. Baasov, C.-H. Wong, "Programmable one-pot oligosaccharide synthesis", J. Am. Chem. Soc., 121, 734–753, (1999).
455. M. Takebayashi, S. Hiranuma, Y. Kanie, T. Kajimoto, O. Kanie, C.-H. Wong, "A versatile synthetic strategy for the preparation and discovery of new iminocyclitols as inhibitors of glycosidases", J. Org. Chem., 64, 5280–5291, (1999). doi: 10.1021/jo9902446. PMID: 34237850.
456. C. M. Huwe, T. J. Woltering, J. Jiricek, G. Weitz-Schmidt, C.-H. Wong, "Design, synthesis and biological evaluation of aryl-substituted sialyl Lewis X mimetics prepared via cross-metathesis of C-fucopeptides", Bioorg. Med. Chem., 7, 773–788, (1999). doi: 10.1016/s0968-0896(98)00245-4. PMID: 10400330.
457. T. Lee, V.-D. Le, Y.-C. Lin, A. L. Wong, G. M. Morris, A. J. Olson, J. H. Elder, C.-H. Wong, "Development of a new type of protease inhibitors efficacious against FIV and HIV variants", J. Am. Chem. Soc., 121, 1145–1155, (1999).
458. G. Weitz-Schmidt, K. W. Gong, C.-H. Wong, "Selectin/glycoconjugate binding assays for the identification and optimization of selectin antagonists", Anal. Biochem., 273, 81–88, (1999). doi: 10.1006/abio.1999.4180. PMID: 10452802.
459. W.-G. Wu, L. Pasternak, D.-H. Huang, K. M. Koeller, C.-C. Lin, O. Seitz, C.-H. Wong, "Structural study on O-glycopeptides: glycosylation-induced conformational changes of O-GlcNAc, O-LacNAc, O-Sialyl-LacNAc and O-sialyl Lewis x peptides of the mucin domain of MadCAM-1", J. Am. Chem. Soc., 121, 2409–2417, (1999).
460. S. Mao, C. Gao, L. Lo, P. Wirsching, C.-H. Wong, K. D. Janda, "Phage-display library selection of high-affinity human single-chain antibodies to tumor-associated carbohydrate antigens sialyl Lewis x and Lewis x", Proc. Natl. Acad. Sci. U.S.A., 96, 6953–6958, (1999).
461. S. Vincent, M.D. Burkart, Z. Zhang, C.-Y. Tsai, C.-H. Wong, "Electrophilic fluorination-nucleophilic addition reaction mediated by Selectfluor: mechanistic studies and new applications", J. Org. Chem., 64, 5264–5279, (1999). doi: 10.1021/jo990686h. PMID: 34237857.
462. W. A. Greenberg, E. S. Priestley, P.S. Sears, P. B. Alper, C. Rosenbohm, S.-C. Hung, C.-H. Wong, "Design and synthesis of new aminoglycoside antibiotics using neamine as a core structure: correlation of antibiotic activity with in vitro inhibition of translation", J. Am. Chem. Soc., 121, 6527–6541, (1999).
463. R. D. Kidd, P. Sears, D.-H. Huang, K. Witte, C.-H. Wong, G. K. Farber, "Breaking the low barrier hydrogen bond in a serine protease", Protein Sci., 8, 410–417, (1999). doi: 10.1110/ps.8.2.410.

PMID: 10048334.

464. S. Hiranuma, O. Kanie, C.-H. Wong, "Formation of the 1,2,6-orthoester of mannose and its utilization in the glycosylation reaction", Tetrahedron Lett., 40, 6423–6426, (1999).
465. P. Sears, C.-H. Wong, "Carbohydrate mimetics: A new strategy for tackling the problem of carbohydrate-mediated biological recognition", Angew. Chem. Int. Ed. Engl., 38, 2300-2324, (1999). PMID: 10458780.
466. M. D. Burkart, M. Izumi, C.-H. Wong, "Enzymatic regeneration of 3'-phosphoadenosine-5'-phosphosulfate (PAPS) using aryl sulfotransferase: Synthesis of sulfated carbohydrates and spectrophotometric assay of sulfotransferases", Angew. Chem. Int. Ed. Engl., 38, 2747–2750, (1999). doi: 10.1002/(sici)1521-3773(19990917)38:18<2747::aid-anie2747>3.0.co;2-2. PMID: 10508369.
467. T. D. Machajewski, C.-H. Wong, "Chemoenzymatic synthesis of key epothilone fragments", Synthesis, S1, 1469–1472, (1999).
468. M. D. Burkart, S. P. Vincent, C.-H. Wong, "An efficient synthesis of CMP-3-fluoro-neuraminic acid", Chem. Comm., 1525–1526, (1999).
469. M. D. Burkart, C.-H. Wong, "A continuous assay for the spectrophotometric analysis of sulfotransferases using aryl sulfotransferase IV", Anal. Biochem., 274, 131–137, (1999). doi: 10.1006/abio.1999.4264. PMID: 10527506.
470. D. Depre, A. Duffels, L. G. Green, R. Lenz, S. V. Ley, C.-H. Wong "Synthesis of glycans from the glycodefins: two undeca-, two deca-, three nona-, an octa- and a heptasaccharide", Chem. Eur. J., 5, 3326–3340, (1999).
471. M. Li, G. M. Morris, T. Lee, G. S. Laco, C.-H. Wong, A. J. Olson, J. H. Elder, A. Wlodawer, A. Gustchina, "Structural studies of FIV and HIV-1 proteases complexed with an efficient inhibitor of FIV protease", Proteins: Struct. Funct. Genet., 38, 29–40, (1999).
472. J. B. Jones, C.-H. Wong, "Biocatalysis and biotransformation exploiting nature's magic", Curr. Opin. Chem. Biol., 2, 67–69, (1998).
473. E. Simanek, G. J. McGarvey, C.-H. Wong, "Selectin-carbohydrate interaction: From natural ligands to designed mimics", Chem. Rev., 98, 838–862, (1998).
474. P. Sears, C.-H. Wong, "Enzyme action in glycoprotein synthesis", Cell. Mol. Life Sci., 54, 223-252, (1998). doi: 10.1007/s000180050146. PMID: 9575336.
475. P. B. Alper, M. Hendrix, C.-H. Wong, "Probing the specificity of aminoglycoside–RNA interactions with designed synthetic analogs", J. Am. Chem. Soc., 120, 1965–1978, (1998).
476. T. F. J. Lampe, G. Weitz-Schmidt, C.-H. Wong, "Parallel synthesis of sialyl Lewis x mimetics on solid phase, a library approach toward fucopeptides", Angew. Chem. Int. Ed. Engl., 37, 1707–1711, (1998). doi: 10.1002/(SICI)1521-3773(19980703)37:12<1707::AID-ANIE1707>3.0.CO;2-V. PMID: 29711524.
477. K. Hiruma, O. Kanie, C.-H. Wong, "Synthesis of analogs of 1,1-linked galactosyl mannoside as mimetics of sialyl Lewis x tetrasaccharide", Tetrahedron, 54, 15781–15792, (1998).
478. T. Lee, G. S. Laco, B. E. Torbett, H. S. Fox, D. L. Lerner, J. H. Elder, C.-H. Wong, "Analysis of the S<sub>3</sub> and S<sub>3</sub>' subsite specificity of FIV protease: Development of a broad-based protease inhibitor efficacious against FIV, SIV and HIV in vitro and ex vivo", Proc. Natl. Acad. Sci. U.S.A., 95, 939–



- 944, (1998). doi: 10.1073/pnas.95.3.939. PMID: 9448264; PMCID: PMC18632.
479. C. Y. Tsai, W. K. C. Park, G. Weitz-Schmidt, B. Ernst, C.-H. Wong, "Synthesis of sialyl Lewis x mimetics using the Ugi four-component reaction", Bioorg. Med. Chem. Lett., 8, 2333–2338, (1998). doi: 10.1016/s0960-894x(98)00422-3. PMID: 9873537.
480. E. E. Simanek, D.-H. Huang, L. Pasternack, T. D. Machajewski, O. Seitz, D. S. Millar, H. J. Dyson and C.-H. Wong, "Glycosylation of Threonine of the Repeating Unit of RNA Polymerase II with  $\beta$ -Linked N-Acetylglucosamine Leads to a Turnlike Structure", J. Am. Chem. Soc., 120 (45), 11567–11575, (1998).
481. P. Sears, C.-H. Wong, "Mechanism-based inhibition of carbohydrate-mediated biological recognitions", Chem. Comm., 11, 1161–1170, (1998).
482. R. Martin, K. L. Witte, C.-H. Wong, "The synthesis and enzymatic incorporation of sialic acid derivatives for use as tools to study the structure, activity and inhibition of glycoproteins and other glycoconjugates", Bioorg. Med. Chem., 6, 1283–1292, (1998). doi: 10.1016/s0968-0896(98)00121-7. PMID: 9784869.
483. Y. Kanie, A. Kirsch, O. Kanie, C.-H. Wong, "Enzymatic assay of galactosyltransferase by capillary electrophoresis", Anal. Biochem., 263, 240–245, (1998). doi: 10.1006/abio.1998.2762. PMID: 9799537.
484. H. Kamitakahara, T. Suzuki, N. Nishigori, Y. Suzuki, O. Kanie, C.-H. Wong, "Lyso GM<sub>3</sub> ganglioside-poly-L-glutamic acid conjugate as picomolar inhibitor of influenza hemagglutinin", Angew. Chem. Int. Ed. Engl., 37, 1524–1528, (1998). doi: 10.1002/(SICI)1521-3773(19980619)37:11<1524::AID-ANIE1524>3.0.CO;2-D. PMID: 29710929.
485. V. Wittmann, S. Takayama, K. W. Kong, G. Weitz-Schmidt, C.-H. Wong, "Ligand recognition by E- and P-selectin: chemoenzymatic synthesis and inhibitory activity of bivalent sialyl Lewis x derivatives and sialyl Lewis x carboxylic acids", J. Org. Chem., 63, 5137–5143, (1998).
486. J. H. Hogg, I. R. Ollmann, A. Wetterhold, M.B. Andberg, J. Haeggstrom, B. Samuelsson, C.-H. Wong, "Probing the activities and mechanisms of leukotriene A<sub>4</sub> hydrolase with synthetic inhibitors", Chem. Eur. J., 4, 1698–1713, (1998).
487. K. Witte, O. Seitz, C.-H. Wong, "Solution and solid-phase synthesis of N-protected peptide esters of the benzyl type as substrates for subtilisin-catalyzed glycopeptide coupling", J. Am. Chem. Soc., 120, 1979–1989, (1998).
488. V. P. Vassilev, E. E. Simanek, M. R. Wood, C.-H. Wong, "Enzymatic synthesis of a chiral gelator with remarkably low molecular weight", Chem. Comm., 1865–1866, (1998).
489. C.-H. Wong, M. Hendrix, D. D. Manning, C. Rosenbohm, W. A. Greenberg, "A library approach to the discovery of small molecules that recognize RNA: use of a 1,3-hydroxyamine motif as core", J. Am. Chem. Soc., 120, 8319–8327, (1998).
490. C.-H. Wong, M. Hendrix, E. S. Priestley, W. A. Greenberg, "Specificity of aminoglycoside antibiotics for the ribosomal decoding region A-site RNA", Chem. Biol., 5, 397–406, (1998). doi: 10.1016/s1074-5521(98)90073-4. PMID: 9662506.
491. C.-H. Wong, X.-S. Ye, Z. Zhang, "Assembly of oligosaccharide libraries using a designed building block and an efficient orthogonal protection-deprotection strategy", J. Am. Chem. Soc., 120, 7137–7138, (1998).

492. R. Wischnat, R. Martin, C.-H. Wong, "Synthesis of a new class of N-linked Lewis x and LacnAc analogs as potential inhibitors of human fucosyltransferases: A general method for the incorporation of an iminocyclitol as transition-state mimic of the donor sugar to the acceptor", *J. Org. Chem.*, **63**, 8361–8365, (1998).
493. T. Miura, T. Kajimoto, M. Jimbo, K. Yamagishi, J.-C. Inokuchi, C.-H. Wong, "Synthesis and evaluation of morpholino- and pyrrolidinosphingolipids as inhibitors of glycosylceramide synthase", *Bioorg. Med. Chem.*, **6**, 1481–1489, (1998). doi: 10.1016/s0968-0896(98)00077-7. PMID: 9801819.
494. T. Kanemitsu, O. Kanie, C.-H. Wong, "Quantitative monitoring of solid-phase synthesis using gated decoupling <sup>13</sup>C-NMR with <sup>13</sup>C-enriched protecting group and internal standard in the synthesis of sialyl Lewis x tetrasaccharide", *Angew. Chem. Int. Ed. Engl.*, **37**, 3415–3418, (1998). doi: 10.1002/(SICI)1521-3773(19981231)37:24<3415::AID-ANIE3415>3.0.CO;2-8. PMID: 29711282.
495. K. Witte, J. Skolnick, C.-H. Wong, "A synthetic retrotransition (backwards reading) sequence of the right handed three-helix bundle domain B (10-53) of protein A shows similarity in conformation as predicted by computation", *J. Am. Chem. Soc.*, **120**, 13042–13045, (1998).
496. R. Wischnat, R. Martin, S. Takayama, C.-H. Wong, "Chemoenzymatic synthesis of iminocyclitol derivatives: A useful library strategy for the development of selective fucosyltransferase inhibitors", *Bioorg. Med. Chem. Lett.*, **8**, 3353–3358, (1998). doi: 10.1016/s0960-894x(98)00617-9. PMID: 9873733.
497. P. B. Rosenthal, X. Zhang, F. Formanowski, W. Fitz, C.-H. Wong, H. Meier-Ewert, J. Skehel, D.C. Wiley, "Three-dimensional structure of the haemagglutinin-esterase-function glycoprotein of influenza C virus", *Nature*, **396**, 92–96, (1998).
498. S. J. Chung, S. Takayama, C.-H. Wong, "Acceptor substrate-based selective inhibition of galactosyltransferases", *Bioorg. Med. Chem. Lett.*, **8**, 3359–3364, (1998). doi: 10.1016/s0960-894x(98)00618-0. PMID: 9873734.
499. C.-T. Guo, C.-H. Wong, T. Kajimoto, T. Miura, Y. Ida, L. R. Juneja, M.-J. Kim, H. Masuda, T. Suzuki, Y. Suzuki, "Synthetic sialylphosphatidylethanolamine binds to human influenza A viruses and inhibits the viral infection", *Glycoconjugates*, **15**, 1099–1108, (1998). doi: 10.1023/a:1006961912465. PMID: 10386895.
500. J. Wu, S. Takayama, C.-H. Wong, G. Siuzdak, "Quantitative electrospray mass spectrometry for the rapid assay of enzyme inhibitors", *Chem. Biol.*, **4**, 653–657, (1997). doi: 10.1016/s1074-5521(97)90220-9. PMID: 9331404.
501. T. Hayashi, B. W. Murray, R. Wang, C.-H. Wong, "A chemoenzymatic synthesis of UDP-(2-deoxy-2-fluoro)-galactose and evaluation of its interaction with galactosyltransferase", *Bioorg. Med. Chem.*, **5**, 497–500, (1997). doi: 10.1016/s0968-0896(96)00263-5. PMID: 9113327.
502. R. Wang, D. H. Steensma, Y. Takaoka, C.-H. Wong, "A search of pyrophosphate mimetics for the development of substrates and inhibitors of glycosyltransferases", *Bioorg. Med. Chem.*, **5**, 641–644, (1997). doi: 10.1016/s0968-0896(97)00005-9. PMID: 9158864.
503. M. Hendrix, P. B. Alper, E. S. Priestley, C.-H. Wong, "Hydroxyamines as a new motif for the molecular recognition of phosphodiester: implications for aminoglycoside RNA interactions", *Angew. Chem. Int. Ed. Engl.*, **36**, 95–96, (1997).
504. B. W. Murray, V. Wittmann, M. D. Burkart, S. -C. Hung, C.-H. Wong, "Mechanism of human  $\alpha$ -

- 1,3-fucosyltransferase V: Glycosidic cleavage occurs prior to nucleophilic attack”, Biochemistry, 36, 823–831, (1997). doi: 10.1021/bi962284z. PMID: 9020780.
505. C.-H. Lin, B. W. Murray, I. R. Ollmann, C.-H. Wong, “Why is CMP-KDO highly unstable?”, Biochemistry, 36, 780–785, (1997). doi: 10.1021/bi962055c. PMID: 9020775.
506. W. Fitz, C.-H. Wong, “Oligosaccharide synthesis by enzymatic glycosidation”, in Preparative Carbohydrate Chemistry, S. Hanessian ed., M. Dekker Publication Inc., New York 1997, pp 485–504.
507. S. Takayama, C.-H. Wong, “Chemo-enzymatic approach to carbohydrate recognition”, Curr. Org. Chem., 1, 109–126, (1997).
508. V. Wittmann, C.-H. Wong, “1H-Tetrazole as catalyst in phosphoramidite coupling reactions: efficient synthesis of GDP-fucose, GDP-mannose and UDP-galactose”, J. Org. Chem., 62, 2144–2147, (1997). doi: 10.1021/jo9620066. PMID: 11671520.
509. M. Hendrix, E. S. Priestley, G. Joyce, C.-H. Wong, “Direct observation of aminoglycoside–RNA interactions by surface plasmon resonance”, J. Am. Chem. Soc., 119, 3641–3646, (1997). doi: 10.1021/ja964290o. PMID: 11540136.
510. W. J. Moree, P. Sears, K. Kawashiro, K. Witte, C.-H. Wong, “Exploitation of subtilisin BPN’ as catalysts for the synthesis of peptides containing noncoded amino acids, peptide mimetics and peptide conjugates”, J. Am. Chem. Soc., 119, 3942–3947, (1997).
511. K. D. Janda, L.-C. Lo, C.-H. Lo, M.-M. Sim, R. Wang, C.-H. Wong, R.A. Lerner, “Chemical selection for catalysis in combinatorial antibody libraries”, Science, 275, 945–948, (1997). doi: 10.1126/science.275.5302.945. PMID: 9020070.
512. C.-H. Wong, F. Moris-Varas, S.-C. Hung, T. G. Marron, C.-C. Lin, K. W. Gong, G. Weitz-Schmidt, “Small molecules as structural and functional mimics of the tetrasaccharide sialyl Lewis X in selectin inhibition: A remarkable enhancement of inhibition by additional negative charge and/or hydrophobic group”, J. Am. Chem. Soc., 119, 8152–8158, (1997).
513. S.-C. Hung, C.-C. Lin, C.-H. Wong, “One-pot synthesis of 1-allyl and 1-allenyl-6-O-benzyl- $\alpha$ -D-glycosides from methyl tetra-O-benzyl- $\alpha$ -D-glycosides”, Tetrahedron Lett., 38, 5419–5422, (1997).
514. M. W. Cappi, W. J. Moree, L. Qiao, T. G. Marron, G. Weitz-Schmidt, C.-H. Wong, “Synthesis of novel 6-amino-6-deoxy-L-galactose derivatives as potent sialyl Lewis x mimetics”, Bioorg. Med. Chem., 5, 283–296, (1997). doi: 10.1016/s0968-0896(96)00236-2. PMID: 9061193.
515. G. J. McGarvey, C.-H. Wong, “Chemical, enzymatic and structural studies in molecular glycobiology”, Liebigs Annal., 6, 1059–1074, (1997).
516. S. Takayama, G. J. McGarvey, C.-H. Wong, “Microbial aldolases and transketolases: New biocatalytic approaches to simple and complex sugars”, Annu. Rev. Microbiol., 51, 285–310, (1997). doi: 10.1146/annurev.micro.51.1.285. PMID: 9343352.
517. C.-C. Lin, C.-H. Lin, C.-H. Wong, “Sialic acid aldolase-catalyzed condensation of pyruvate and N-substituted mannosamine: A useful method for the synthesis of N-substituted sialic acids”, Tetrahedron Lett., 38, 2649–2652, (1997).
518. K. Witte, P. Sears, R. Martin, C.-H. Wong, “Enzymatic glycoprotein synthesis: Preparation of ribonuclease glycoforms via enzymatic glycopeptide condensation and glycosylation”, J. Am. Chem. Soc., 119, 2114–2118, (1997).

519. M. J. Kim, I. T. Lim, H.-J. Kim, C.-H. Wong, "Enzymatic single aldol reactions of remote dialdehydes", *Tetrahedron Asymmetry*, 8, 1507–1509, (1997).
520. C.-H. Wong, "A chemo-enzymatic approach to the study of carbohydrate-based biological recognitions," *Pure Appl. Chem.*, 69, 419–422, (1997).
521. T. Kimura, V. P. Vassilev, G.-J. Shen, C.-H. Wong, "Enzymatic synthesis of  $\beta$ -hydroxy- $\alpha$ -amino acids based on D- and L-threonine aldolases", *J. Am. Chem. Soc.*, 119, 11734–11742, (1997).
522. O. Seitz, C.-H. Wong, "Chemoenzymatic solution- and solid-phase synthesis of an O-glycopeptides of the mucin domain of MAdCAM-1. a general route to O-LacNAc, O-sialyl-LacNAc, and O-sialyl-Lewis-X peptides", *J. Am. Chem. Soc.*, 119, 8766–8776, (1997).
523. S. Takayama, G. J. McGarvey, C.-H. Wong, "Enzymes in organic synthesis: Recent development in aldol reactions and glycosylations", *Chem. Soc. Rev.*, 26, 407–415, (1997).
524. S. Takayama, R. Martin, J. Wu, K. Laslo, G. Siuzdak, C.-H. Wong, "Chemoenzymatic preparation of novel cyclic imine sugars and rapid biological activity evaluation using electrospray mass spectrometry and kinetic analysis", *J. Am. Chem. Soc.*, 119, 8146–8151, (1997).
525. M. D. Burkart, S.-C. Hung, Z. Zhang, C.-H. Wong, "A new method for the synthesis of fluoro-carbohydrates and glycosides using Selectfluor<sup>TM</sup>", *J. Am. Chem. Soc.*, 119, 11743–11746, (1997).
526. M. Koketsu, T. Nitoda, H. Sugino, L. R. Juneja, M. Kim, T. Yamamoto, N. Abe, T. Kajimoto, C.-H. Wong, "Synthesis of a novel sialic acid derivative (sialylphospholipid) as an antirotaviral agent", *J. Med. Chem.*, 40, 3332–3335, (1997). doi: 10.1021/jm9701280. PMID: 9341907.
527. T. Ikeda, T. Kajimoto, H. Kondo, C.-H. Wong, "Design and synthesis of an  $\alpha$ -mannosyl terpenoid as a selective inhibitor of p-selectin", *Bioorg. Med. Chem. Lett.*, 7, 2485–2490, (1997).
528. M. Kanebo, O. Kanie, T. Kajimoto, C.-H. Wong, "Toward a transition state analog inhibitor of N-acetylglucosaminyl transferase V", *Bioorg. Med. Chem. Lett.*, 7, 2809–2812, (1997).
529. J.-H. Jeong, B. W. Murray, S. Takayama, C.-H. Wong, "Cyclic guanidino-sugars with low pKa as transition-state analog inhibitors of galactosidases: neutral instead of charged species are the active forms", *J. Am. Chem. Soc.*, 118, 4227–4234, (1996).
530. H. M. Gijzen, L. Qiao, W. Fitz, C.-H. Wong, "Recent advances in the chemo-enzymatic synthesis of carbohydrates and carbohydrate mimetics", *Chem. Rev.*, 96, 443–473, (1996). doi: 10.1021/cr950031q. PMID: 11848760.
531. W. Fitz, C.-H. Wong, "Synthesis of a thiomethylmercuric sialic acid to be used in the X-ray structure determination of an influenza virus esterase", *Bioorg. Med. Chem.*, 4, 1349–1353, (1996). doi: 10.1016/0968-0896(96)00123-x. PMID: 8879557; PMCID: PMC7172942.
532. B. Orsat, P. Alper, W. Moree, C. P. Mak, C.-H. Wong, "Homocarbonates as substrates for the enantioselective enzymatic protection of amines", *J. Am. Chem. Soc.*, 118, 712–713, (1996).
533. P. Sears, C.-H. Wong, "Engineering enzymes for bioorganic synthesis: peptide bond formation", *Biotech. Prog.*, 12, 423–433, (1996).
534. S.-H. Wu, M. Shimazaki, C.-C. Lin, L. Qiao, W.J. Moree, C.-H. Wong, "Synthesis of fucopeptides as sialyl Lewis X mimetics", *Angew. Chem. Int. Ed. Engl.*, 35, 88–89, (1996).
535. C.-C. Lin, M. Shimazaki, M-P. Heck, S. Aoki, R. Wang, T. Kimura, H. Ritzen, S. Takayama, S.-H. Wu, G. Weitz-Schmidt, C.-H. Wong, "Synthesis of sialyl Lewis X mimetics and related structures

- using the glycosyl phosphite methodology and evaluation of E-selectin inhibition”, J. Am. Chem. Soc., 118, 6826–6840, (1996).
536. S. Takayama, M. Shimazaki, C.-H. Wong, “Efficient synthesis of lactosamine derivatives using  $\beta$ -D-galactosidase from *B. circulans*”, Bioorg. Med. Chem Lett., 6, 1123–1126, (1996).
537. J. E. Patterson, I. R. Ollmann, B. F. Cravatt, D. L. Boger, C.-H. Wong, R. A. Lerner, “Inhibition of oleamide hydrolase catalyzed hydrolysis of the endogenous sleep-inducing lipid cis-9-octadecenamide”, J. Am. Chem. Soc., 118, 5938–5945, (1996).
538. C.-H. Wong, “Chemoenzymatic synthesis: application to the study of carbohydrate recognition”, Acta Chem. Scand., 50, 211–218, (1996) (Nobel Symposium on Catalytic Asymmetric Synthesis). doi: 10.3891/acta.chem.scand.50-0211. PMID: 8901174.
539. M. Hendrix, C.-H. Wong, “A chemoenzymatic approach to carbohydrate-mediated cell adhesion”, Pure Appl. Chem., 68, 2081–2087, (1996).
540. L. Qiao, B. W. Murray, M. Shimazaki, J. Schultz, C.-H. Wong, “Synergistic inhibition of human  $\alpha$ -1,3-fucosyltransferase V”, J. Am. Chem. Soc., 118, 7653–7662, (1996).
541. W. K. C. Park, M. Auer, C.-H. Wong, “Rapid combinatorial synthesis of aminoglycoside mimetics using a multiple component condensation strategy: Use of a polyethylene glycol-linked amine and a neamine-derived aldehyde as key components”, J. Am. Chem. Soc., 118, 10150–10155, (1996).
542. K. Hiruma, I. R. Ollmann, T. Kajimoto, G. Weitz-Schmidt, C.-H. Wong, “Rational design and synthesis of a 1,1-linked disaccharide that is five times as active as sialyl Lewis X in binding to E-selectin”, J. Am. Chem. Soc., 118, 9265–9270, (1996).
543. C. De Luca, M. Lansing, F. Crescenzi, I. Martini, G.-J. Shen, M. O’Regan, C.-H. Wong, “Overexpression, one-step purification and characterization of UDP-glucose dehydrogenase and UDP-N-acetylglucosamine pyrophosphorylase”, Bioorg. Med. Chem., 4, 131–142, (1996). doi: 10.1016/0968-0896(95)00159-x. PMID: 8689233.
544. R. D. Kidd, H. P. Yennawar, P. Sears, C.-H. Wong, G. K. Farber, “A weak calcium binding site in subtilisin BPN’ has a dramatic effect on protein stability”, J. Am. Chem. Soc., 118, 1645–1650, (1996).
545. R. Wang, C.-H. Wong, “Synthesis of sialyl Lewis X mimetics: use of O- $\alpha$ -fucosyl-(1R,2R)-2-aminocyclohexanol as core structure”, Tetrahedron Lett., 37, 5427–5430, (1996).
546. F. Moris-Varas, X. H. Qian and C.-H. Wong, “Enzymatic and chemical synthesis of seven-membered iminocyclitols as inhibitors of glycosidases”, J. Am. Chem. Soc., 118, 7647–7652, (1996).
547. C.-C. Lin, T. Kimura, S.-H. Wu, G. Weitz-Schmidt, C.-H. Wong, “Liposome-like fucopeptides as sialyl Lewis X mimetics”, Bioorg. Med. Chem Lett., 6, 2755–2760, (1996).
548. X. Qian, F. Moris-Varas, C.-H. Wong, “Synthesis of C<sub>2</sub>-symmetrical polyhydroxyazepanes as inhibitors of glycosidases”, Bioorg. Med. Chem Lett., 6, 1117–1122, (1996).
549. M. W. Cappi, W. J. Moree, L. Qiao, T. G. Marron, G. Weitz-Schmidt, C.-H. Wong, “The synthesis of novel 6-amino-6-deoxy-L-galactose glycopeptides as potent sialyl Lewis X mimetics”, Angew. Chem. Int. Ed. Engl., 35, 2346–2347, (1996).
550. S.-C. Hung, C.-H. Wong, “Samarium diiodide-mediated coupling of glycosyl phosphates with carbon radical or carbon anion acceptors for the synthesis of C-glycosides”, Angew. Chem. Int. Ed.

- Engl., 35, 2671–2674, (1996).
551. P. B. Alper, S.-C. Hung C.-H. Wong, “Metal catalyzed diazo transfer for the synthesis of azides from amines”, Tetrahedron Lett., 37, 6029–6032, (1996).
552. T. Uchiyama, T. J. Woltering, W. Wong, T. Kajimoto, M. Takebayashi, G. Weitz-Schmidt, C.-H. Wong, “Design and synthesis of C-linked fucopeptides as inhibitors of E-selectin”, Bioorg. Med. Chem., 4, 1149–1165, (1996). doi: 10.1016/0968-0896(96)00127-7. PMID: 8831987.
553. B. W. Murray, S. Takayama, C.-H. Wong, “Mechanism and specificity of human  $\alpha$ -1,3-fucosyltransferase V” Biochemistry, 35, 11183–11195, (1996). doi: 10.1021/bi961065a. PMID: 8780523.
554. K. Shibata, K. Shingu, V. P. Vassilev, K. Nishide, T. Fujita, M. Node, T. Kajimoto, C.-H. Wong, “Kinetic and thermodynamic control of L-threonine aldolase catalyzed reaction and its application to the synthesis of Mycestericin D”, Tetrahedron Lett., 37, 2791–2794, (1996).
555. S.-C. Hung, C.-H. Wong, “Synthesis of glycosyl chlorides with acid-labile protecting group”, Tetrahedron Lett., 37, 4903–4906, (1996).
556. T. Kimura, S. Takayama, H. Huang, C.-H. Wong, “A practical method for the synthesis of N-acetyl-D-lactosamine derivatives by the tandem use of galactose oxidase and  $\beta$ -galactosidase”, Angew. Chem. Int. Ed. Engl., 35, 2348–2349, (1996).
557. S. Takayama, W. J. Moree, C.-H. Wong, “Enzymatic resolution of amines and amino alcohols using pent-4-enoyl derivatives”, Tetrahedron Lett., 37, 6287–6290, (1996).
558. T. J. Woltering, G. Weitz-Schmidt, C.-H. Wong, “C-Fucopeptides as selectin antagonists: Attachment of lipid moieties enhances the activity”, Tetrahedron Lett., 37, 9033–9036, (1996).
559. T. G. Marron, T. J. Woltering, G. Weitz-Schmidt, C.-H. Wong, “C-Mannose derivatives as potent mimics of sialyl Lewis X”, Tetrahedron Lett., 37, 9037–9040, (1996).
560. S. Takayama, P. O. Livingston, C.-H. Wong, “Synthesis of the melanoma-associated ganglioside 9-0-acetyl GD<sub>3</sub> through regioselective enzymatic acetylation of GD<sub>3</sub> using subtilisin”, Tetrahedron Lett., 37, 9271–9274, (1996).
561. P. Sears, C.-H. Wong, “Intervention of carbohydrate recognition by proteins and nucleic acids”, Proc. Natl. Acad. Sci. U.S.A., 93, 12086–12093, (1996). doi: 10.1073/pnas.93.22.12086. PMID: 8901537; PMCID: PMC37947.
562. X. Qian, F. Moris-Varas, M. C. Fitzgerald, C.-H. Wong, “C<sub>2</sub>-Symmetrical tetrahydroxyazepanes as inhibitors of glycosidases and HIV/FIV proteases”, Bioorg. Med. Chem., 4, 2055–2069, (1996). doi: 10.1016/s0968-0896(96)00218-0. PMID: 9022971.
563. M. Hendrix, C.-H. Wong, “A chemo-enzymatic approach to the study of carbohydrate recognition in biological systems”, Enantiomer, 1, 305–310, (1996). PMID: 9676274.
564. T. Sugai, C.-H. Lin, G.-J. Shen, C.-H. Wong, “CMP-KDO synthetase: overproduction and application to the synthesis of CMP-KDO and analogs”, Bioorg. Med. Chem., 3, 313–320, (1995). doi: 10.1016/0968-0896(95)00023-a. PMID: 7606392.
565. S. A. DeFrees, W. Kosch, W. Way, J. C. Paulson, S. Sabesan, R. Halcomb, D.-H. Huang, Y. Ichikawa, C.-H. Wong, “Ligand recognition by E-selectin: synthesis, inhibitory activity, and conformational analysis of bivalent sialyl Lewis x analogs”, J. Am. Chem. Soc., 117, 66–79, (1995).

566. C.-H. Wong, E. Garcia-Junceda, L. Chen, O. Blanco, D. H. Steensma, "Recombinant 2-deoxyribose-5-phosphate aldolase in organic synthesis: use of sequential two-substrate and three-substrate aldol Reactions", *J. Am. Chem. Soc.*, 117, 3333–3339, (1995).
567. C.-M. Fang, C.-H. Wong, "Enzymes in organic synthesis: oxidoreductions", *J. Chem. Soc., Perkin Trans I.*, 967–978, (1995).
568. C.-H. Wong, R. Halcomb, Y. Ichikawa, T. Kajimoto, "Enzymes in organic synthesis: application to the problems of carbohydrate recognition (Part I)", *Angew. Chem. Int. Ed. Engl.*, 34, 412–432, (1995).
569. C.-H. Wong, R. Halcomb, Y. Ichikawa, T. Kajimoto, "Enzymes in organic synthesis: application to the problems of carbohydrate recognition (Part II)", *Angew. Chem. Int. Ed. Engl.*, 34, 521–546, (1995).
570. P. Wang, W. Fitz, C.-H. Wong, "Making complex carbohydrates via enzymatic routes", *Chemtech*, 22–32, (1995).
571. C.-H. Wong, "Enzymatic and chemo-enzymatic synthesis of carbohydrates", *Pure Appl. Chem.*, 67, 1609–1616, (1995).
572. C.-H. Wong, R. Alajarin, F. Moris-Varas, O. Blanco, E. Garcia-Junceda, "Enzymatic synthesis of L-fucose and analogs", *J. Org. Chem.*, 60, 7360–7363, (1995).
573. H. Huang, C.-H. Wong, "Synthesis of biologically active sialyl Lewis X mimetics", *J. Org. Chem.*, 60, 3100–3106, (1995).
574. V. P. Vassilev, T. Uchiyama, T. Kajimoto, C.-H. Wong, "An efficient chemo-enzymatic synthesis of  $\alpha$ -amino- $\beta$ -hydroxy  $\gamma$ -butyrolactone", *Tetrahedron Lett.*, 36, 5063, (1995).
575. C.-H. Lin, G.-J. Shen, C.-H. Wong, "Enzymatic synthesis and regeneration of 3'-phosphoadenosine-5'-phosphosulfate (PAPS) for use in regiospecific enzymatic sulfation", *J. Am. Chem. Soc.*, 117, 8031–8032, (1995).
576. C.-H. Wong, L. Provencher, J. Porco, S.-H. Jung, Y.-F. Wang, L. Chen, R. Wang, D. Steensma, "Synthesis and evaluation of homoazasugars as glycosidase inhibitors", *J. Org. Chem.*, 60, 1492–1502, (1995).
577. E. A. Stura, S. Gosh, E. Garcia-Junceda, L. Chen, C.-H. Wong, I. A. Wilson, "Crystallization and preliminary crystallographic data for class I deoxyribose-5-phosphate aldolase from *E. coli*: An application of reverse screening", *Proteins: Struct., Funct., Genet.*, 22, 67–72, (1995). doi: 10.1002/prot.340220110. PMID: 7675789.
578. T. Ikeda, T. Kajimoto, T. Nohara, J.-E. Kinjo, C.-H. Wong, "Preparation of a neoglycolipid carrying the oligosaccharide component of saponin from *Albizzia julibrissin*", *Tetrahedron Lett.*, 36, 1509–1510, (1995).
579. A. Wetterholm, J. Z. Haeggstrom, B. Samuelsson, W. Yuan, B. Munoz, C.-H. Wong, "Potent and selective inhibitors of leukotriene A<sub>4</sub> hydrolase: effects on purified enzyme and human polymorphonuclear leukocytes", *J. Pharmacol. Exp. Ther.*, 275, 31–37, (1995). PMID: 7562564.
580. R. Ollmann, J. H. Hogg, B. Munoz, C.-H. Wong, J. Z. Haeggstrom, B. Samuelsson, "Investigation of the inhibition of leukotriene A<sub>4</sub> hydrolase", *Bioorg. Med. Chem.*, 3, 969–995, (1995).
581. J. H. Hogg, I. R. Ollmann, C.-H. Wong, J. Z. Haeggstrom, B. Samuelsson, "Amino hydroxamic acids as potent inhibitors of leukotriene A<sub>4</sub> hydrolase", *Bioorg. Med. Chem.*, 3, 1405–1415, (1995).

doi: 10.1016/0968-0896(95)00128-4. PMID: 8564408.

582. W. Fitz, J.-R. Schwark, C.-H. Wong, "Aldotetroses and C(3)-modified aldohexoses as substrates for N-acetylneuraminic acid aldolase: comments on the lack of stereospecificity displayed by the enzyme", *J. Org. Chem.*, 60, 3663–3670, (1995).
583. W.-C. Chou, C. Fotsch, C.-H. Wong, "Synthesis of nitrocyclitols based on enzymatic aldol reaction and intramolecular nitroaldol reaction", *J. Org. Chem.*, 60, 2916–2917, (1995).
584. H. J. M. Gijzen, C.-H. Wong, "Sequential one-pot aldol reactions catalyzed by 2-deoxyribose-5-phosphate aldolase and fructose-1,6-diphosphate aldolase", *J. Am. Chem. Soc.*, 117, 2947–2948, (1995).
585. E. Garcia-Junceda, G.-J. Shen, T. Sugai, C.-H. Wong, "A new strategy for the cloning, overexpression and one step purification of three DHAP-dependent aldolases: rhamnulose-1-phosphate aldolase, fuculose-1-phosphate aldolase and tagatose-1,6-diphosphate aldolase", *Bioorg. Med. Chem.*, 3, 945–953, (1995). doi: 10.1016/0968-0896(95)00077-t. PMID: 7582972.
586. T. Uchiyama, V.P. Vassilev, T. Kajimoto, W. Wong, H. Huang, C.-C. Lin, C.-H. Wong, "Design and synthesis of sialyl Lewis X mimetics", *J. Am. Chem. Soc.*, 117, 5395–5396, (1995).
587. V. P. Vassilev, T. Uchiyama, T. Kajimoto, C.-H. Wong, "L-Threonine aldolase in organic synthesis: preparation of novel  $\beta$ -hydroxy- $\alpha$ -amino acids based on threonine aldolase", *Tetrahedron Lett.*, 36, 4081–4084, (1995).
588. C. De Luca, M. Lansing, I. Martin, F. Crescenzi, G.-J. Shen, M. O'Regan, C.-H. Wong, "Enzymatic synthesis of hyaluronic acid with regeneration of sugar nucleotides", *J. Am. Chem. Soc.*, 117, 5869–5870, (1995).
589. M. Hendrix, C.-H. Wong, "Enzymes in organic synthesis: Application to the study of carbohydrate recognition", *Proceedings of the Chiral '95 USA Symposium*, Spring Innovation Ltd., 1995, pp 27–34.
590. H. J. M. Gijzen, C.-H. Wong, "Sequential three- and four-substrate aldol reactions catalyzed by aldolases", *J. Am. Chem. Soc.*, 117, 7585–7591, (1995).
591. R. Alajarin, E. Garcia-Junceda, C.-H. Wong, "A short enzymatic synthesis of L-glucose from dihydroxyacetone phosphate and L-glyceraldehyde", *J. Org. Chem.*, 60, 4294–4295, (1995).
592. C.-H. Wong, "Intervention of carbohydrate-mediated biological recognitions", *RIKEN Rev.*, 8, 3–4, (1995).
593. T. Kajimoto, C.-H. Wong, "Transition-state analog inhibitors for N-acetylglucosaminyltransfer enzymes", *RIKEN Rev.*, 8, 13–14, (1995).
594. S. Hiranuma, V. P. Vassilev, T. Kajimoto, C.-H. Wong, "Design of oligosaccharide mimetics with higher stability and simpler structures than parent oligosaccharides", *RIKEN Rev.*, 8, 19–20, (1995).
595. T. Ikeda, T. Kajimoto, C.-H. Wong, "Oligosaccharides components in traditional Chinese medicines and the liposomes carrying oligosaccharides", *RIKEN Rev.*, 8, 21–22, (1995).
596. V. P. Vassilev, T. Kajimoto, C.-H. Wong, "Application of L-allo-threonine aldolase in the synthesis of glycoconjugate precursors", *RIKEN Rev.*, 8, 25–26, (1995).
597. E. Garcia-Junceda, G.-J. Shen, R. Alajarin, C.-H. Wong, "Cloning and overexpression of rhamnose



- isomerase and fucose isomerase”, Bioorg. Med. Chem., 3, 1349–1355, (1995). doi: 10.1016/0968-0896(95)00119-2. PMID: 8564401.
598. D. H. Slee, K. L. Laslo, J. H. Elder, I. R. Ollmann, A. Gustchina, J. Kervinen, A. Zdanov, A. Wlodawer, C.-H. Wong, “Selectivity in the inhibition of HIV and FIV protease: Inhibitory and mechanistic studies of pyrrolidine-containing  $\alpha$ -keto amide and hydroxyethylamine core structures”, J. Am. Chem. Soc., 117, 11867–11878, (1995).
599. H. J. M. Gijzen, C.-H. Wong, “Synthesis of a cyclitol via a tandem enzymatic aldol-intramolecular Horner-Wadsworth-Emmons reaction”, Tetrahedron Lett., 36, 7057–7060, (1995).
600. C.-H. Lin, M. Shimazaki, C.-H. Wong, M. Koketsu, L. R. Juneja, M. Kim, “Enzymatic synthesis of a sialyl Lewis X dimer from egg yolk as an inhibitor of E-selectin”, Bioorg. Med. Chem., 3, 1625–1630, (1995). doi: 10.1016/0968-0896(95)00150-6. PMID: 8770386.
601. I. Henderson, K. B. Sharpless, C.-H. Wong, “Synthesis of carbohydrates via tandem use of the osmium-catalyzed asymmetric dihydroxylation and enzyme-catalyzed aldol addition reactions”, J. Am. Chem. Soc., 116, 558–561, (1994).
602. I. Henderson, K. Laslo, C.-H. Wong, “Chemoenzymatic synthesis of homoazasugars”, Tetrahedron Lett., 35, 359–362, (1994).
603. H. J. M. Gijzen, C.-H. Wong, “Unprecedented asymmetric aldol reactions with three aldehyde substrates catalyzed by 2-deoxyribose-5-phosphate aldolase”, J. Am. Chem. Soc., 116, 8422–8423, (1994).
604. L. Provencher, D. Steensma, C.-H. Wong, “Five-membered ring azasugars as potent inhibitors of L- $\alpha$ -rhamnosidase from *Penicillium decumbens*”, Bioorg. Med. Chem., 2, 1179–1188, (1994). doi: 10.1016/s0968-0896(00)82069-6. PMID: 7757415.
605. J.-M. Fang, C.-H. Wong, “Enzymes in organic synthesis: Alteration of reversible reactions to irreversible processes”, Synlett, 6, 393–402, (1994).
606. C. H. Fotsch, C.-H. Wong, “Synthesis of a guanidino-sugar as a glycosyl cation mimic”, Tetrahedron Lett., 35, 3481–3484, (1994).
607. Y.-F. Wang, Y. Takaoka, C.-H. Wong, “Remarkable stereoselectivity in the inhibition of  $\alpha$ -galactosidase from coffee bean by a new polyhydroxypyrrolidine inhibitor”, Angew. Chem. Int. Ed. Engl., 33, 1242–1244, (1994).
608. W.-C. Chou, L. Chen, J.-M. Fang, C.-H. Wong, “A new route to deoxythiosugars based on aldolases”, J. Am. Chem. Soc., 116, 6191–6194, (1994).
609. G. F. Herrmann, P. Wang, G.-J. Shen, C.-H. Wong, “Recombinant whole cells as catalysts for the enzymatic synthesis of oligosaccharides and glycopeptides”, Angew. Chem. Int. Ed. Engl., 33, 1241–1242, (1994).
610. B. Munoz, C.-Z. Giam, C.-H. Wong, “ $\alpha$ -Ketoamide Phe-Pro isostere as a new core structure for the inhibition of HIV protease”, Bioorg. Med. Chem., 2, 1085–1090, (1994). doi: 10.1016/s0968-0896(00)82058-1. PMID: 7773625.
611. G. F. Herrmann, P. Wang, G.-J. Shen, E. Garcia-Junceda, S. Chen, S. H. Khan, K. L. Matta, C.-H. Wong, “Large scale production of recombinant  $\alpha$ -1,2-mannosyltransferase from *E. coli* for the study of acceptor specificity and use of the recombinant whole cells in synthesis”, J. Org. Chem., 59, 6356–6362, (1994).

612. Y. Ichikawa, R. L. Halcomb, C.-H. Wong, "Sticky solutions", Chemistry in Britain, 30, 117–121, (1994).
613. H. Kondo, S. Aoki, Y. Ichikawa, R. L. Halcomb, H. Ritzen, C.-H. Wong, "Glycosylphosphites as glycosylation reagents: Scope and mechanism", J. Org. Chem., 59, 864–877, (1994).
614. P. Sears, P. Wang, K. Witte, M. Schuster, C.-H. Wong, "Engineering subtilisin for peptide coupling: studies on the effects of counterions and site-specific modifications on the stability and specificity of the enzyme in aqueous and organic solvents", J. Am. Chem. Soc., 116, 6521–6530, (1994).
615. I. Henderson, E. Garcia-Junceda, G.-J. Shen, C.-H. Wong, "Cloning, overexpression and isolation of the Type II FDP aldolase from E. coli for specificity study and synthetic application", Bioorg. Med. Chem., 2, 837–843, (1994). doi: 10.1016/s0968-0896(00)82183-5. PMID: 7894977.
616. M. Schuster, P. Wang, J. C. Paulson, C.-H. Wong, "Solid-phase chemical-enzymatic synthesis of glycopeptides and oligosaccharides", J. Am. Chem. Soc., 116, 1135–1136, (1994).
617. Y. Ichikawa, R. Wang, C.-H. Wong, "Regeneration of sugar nucleotides in glycosyltransferase-catalyzed oligosaccharide synthesis", Method. Enzymol., 247, 107–127, (1994).
618. H. Kondo, M. M. Sim, R. Halcomb, Y. Ichikawa, S. Aoki, C.-H. Wong, "Dibenzyl glycosyl phosphites: preparation and use in glycosylation", Method. Enzymol., 247, 193–211, (1994).
619. J. L. Marquardt, E.D. Brown, W. S. Lane, T. M. Haley, Y. Ichikawa, C.-H. Wong, C. T. Walsh, "Kinetics, stoichiometry and identification of the reactive thiolate in the inactivation of UDP-GlcNAc enolpyruvyl transferase by the antibiotic fosfomicin", Biochemistry, 33, 10646–10651, (1994). doi: 10.1021/bi00201a011. PMID: 8075065.
620. S. Hiranuma, T. Kajimoto, C.-H. Wong, "A facile synthesis of 1-thiopentofuranosides", Tetrahedron Lett., 35, 5257–5260, (1994).
621. H. Yuasa, T. Kajimoto, C.-H. Wong, "Synthesis of iminothiasugar as a potential transition-state analog inhibitor of glycosyltransfer reactions", Tetrahedron Lett., 35, 8243–8246, (1994).
622. R. L. Halcomb, H. Huang, C.-H. Wong, "Solution- and solid-phase synthesis of inhibitors of H. pylori attachment and E-selectin-mediated leukocyte adhesion", J. Am. Chem. Soc., 116, 11315–11322, (1994).
623. S.-H. Jung, J.-H. Jeong, P. Miller, C.-H. Wong, "An efficient multigram scale preparation of dihydroxyacetone phosphate", J. Org. Chem., 59, 7182–7184, (1994).
624. R. L. Halcomb, W. Fitz, C.-H. Wong, "Enzymatic synthesis of 7-deoxy-N-acetylneuraminic acid and 7-O-methyl-N-acetylneuraminic acid", Tetrahedron: Asymmetry, 5, 2437–2442, (1994).
625. W. Fitz, C.-H. Wong, "Combined use of subtilisin and N-acetylneuraminic acid aldolase for the synthesis of a fluorescent sialic acid", J. Org. Chem., 59, 8279–8280, (1994).
626. G. Siuzdak, Z.-L. Zheng, J. R. Ramphal, Y. Ichikawa, K. C. Nicolaou, F. C. A. Gaeta, K.S. Chatman, C.-H. Wong, "Examination of the sialyl Lewis X - calcium complex by electrospray mass spectrometry", Bioorg. Med. Chem Lett., 4, 2863–2866, (1994).
627. W. Yuan, B. Munoz, J. Haeggstrom, A. Wetterholm, B. Samuelsson, C.-H. Wong, "Synthesis of selective tight-binding inhibitors of leukotriene A<sub>4</sub> hydrolase", J. Med. Chem., 36, 211–220, (1993). doi: 10.1021/jm00054a004. PMID: 8423594.
628. M. Schuster, B. Munoz, W. Yuan, C.-H. Wong, "Papain catalyzed synthesis of peptide isosteres", Tetrahedron Lett., 34, 1247–1250, (1993).

629. Y.-F. Wang, D. Dumas, C.-H. Wong, "Chemo-enzymatic synthesis of five-membered aza sugars as inhibitors of fucosidase and fucosyltransferase: An issue of stereochemistry discrimination at transition state", Tetrahedron Lett., 34, 403–406, (1993).
630. T. Sugai, G.-J. Shen, Y. Ichikawa, C.-H. Wong, "Synthesis of 3-deoxy-D-manno-2-octulosonic acid (KDO) and its analogs based on KDO aldolase-catalyzed reactions", J. Am. Chem. Soc., 115, 413–421, (1993).
631. P. Wang, G.-J. Shen, Y.-F. Wang, C.-H. Wong, "Enzymes in oligosaccharide synthesis: Active-domain overproduction, specificity study, and synthetic use of an  $\alpha$ 1,2-mannosyltransferase with regeneration of GDP-mannose", J. Org. Chem., 58, 3985–3990, (1993).
632. M. M. Sim, H. Kondo, C.-H. Wong, "Synthesis of dibenzyl glycosyl phosphites using dibenzyl N,N-diethylphosphoramidite as phosphitylating reagent: An effective route to glycosyl phosphates, sugar nucleotides, and glycosides", J. Am. Chem. Soc., 115, 2260–2267, (1993).
633. G. C. Look, C. H. Fotsch, C.-H. Wong, "Enzyme-catalyzed organic synthesis: Practical routes to aza-sugars and their analogs for use as glycoprocessing inhibitors", Acc. Chem. Res., 26, 182–190, (1993).
634. C.-H. Wong, Y. Ichikawa, T. Kajimoto, K. K.-C. Liu, G.-J. Shen, C.-H. Lin, Y.-F. Wang, D. P. Dumas, Y.-C. Lin, R. Wang, G. C. Look, "Practical synthesis of carbohydrates based on aldolases and glycosyltransferases", Pure Appl. Chem., 65, 803–808, (1993).
635. G. Siuzdak, Y. Ichikawa, T. J. Caulfield, B. Munoz, C.-H. Wong, K. C. Nicolaou, "Evidence of  $\text{Ca}^{++}$  dependent carbohydrate association through ion spray mass spectrometry", J. Am. Chem. Soc., 115, 2877–2881, (1993).
636. G. F. Herrmann, Y. Ichikawa, C. Wandrey, F. C. A. Gaeta, J.C. Paulson, C.-H. Wong, "A new multi-enzyme system for a one-pot synthesis of sialyl-oligosaccharides: combined use of  $\beta$ -galactosidase and  $\alpha$ (2,6)-sialyltransferase coupled with regeneration in situ of CMP-sialic acid", Tetrahedron Lett., 19, 3091–3094, (1993).
637. C.-H. Wong, M. Schuster, P. Wang, P. Sears, "Enzymatic synthesis of N- and O-linked glycopeptides", J. Am. Chem. Soc., 115, 5893–5901, (1993).
638. G. C. Look, Y. Ichikawa, G.-J. Shen, P.-W. Cheng, C.-H. Wong, "A combined chemical and enzymatic strategy for the construction of carbohydrate-containing antigen core units", J. Org. Chem., 58, 4326–4330, (1993).
639. C.-H. Wong, "Development of enzymes for chemo-enzymatic synthesis", Chimia, 47, 127–132, (1993).
640. Y. Takaoka, T. Kajimoto, C.-H. Wong, "Inhibition of N-acetylglucosaminyltransfer enzymes: Chemical-enzymatic synthesis of new five-membered acetamido azasugars", J. Org. Chem., 58, 4809–4812, (1993).
641. S. A. DeFrees, F. C. A. Gaeta, Y.-C. Lin, Y. Ichikawa, C.-H. Wong, "Ligand recognition by E-selectin: Analysis of conformation and activity of synthetic monomeric and bivalent sialyl Lewis x analogs", J. Am. Chem. Soc., 115, 7549–7550, (1993).
642. T. Sugai, H. Ritzen, C.-H. Wong, "Towards the chemoenzymatic synthesis of lipid A", Tetrahedron Asymmetry, 4, 1051–1058, (1993).
643. T. Kajimoto, T. Sugai, C.-H. Wong, "Aldolase catalyzed reaction for carbohydrate synthesis",

Trends Glycosci. Glycotechnol., 5, 193–207, (1993).

644. R. L. Halcomb, C.-H. Wong, “Synthesis of oligosaccharides, glycopeptides, and glycolipids”, Curr. Opin. Struct. Biol., 3, 694–700, (1993).
645. P. Wang, M. Schuster, Y.-F. Wang, C.-H. Wong, “Synthesis of phospholipid-inhibitor conjugates by enzymatic transphosphatidylation with phospholipase D”, J. Am. Chem. Soc., 115, 10487–10491, (1993).
646. G.-J. Shen, C.-H. Wong, “Construction of a diverse Fab expression library from autoimmunized mice based on an improved preparation of cloning arms from bacteriophage vectors: a new library with potential for screening of biocatalysts”, Biocatalysis, 6, 101–114, (1992).
647. G.-J. Shen, J. L.-C. Liu, C.-H. Wong, “Cloning and overexpression of CMP-N-acetylneuraminic acid synthetase from *E. coli* using a lambda phage system”, Biocatalysis, 6, 31–42, (1992).
648. L. Chen, D. P. Dumas, C.-H. Wong, “Deoxyribose 5-phosphate aldolase as a catalyst in asymmetric aldol condensation”, J. Am. Chem. Soc., 114, 741–748, (1992).
649. C. W. Bradshaw, H. Fu, G.-J. Shen, C.-H. Wong, “A *Pseudomonas* sp. alcohol dehydrogenase with broad substrate specificity and unusual stereospecificity for organic synthesis”, J. Org. Chem., 57, 1526–1532, (1992). doi: 10.1007/BF02922180. PMID: 1416953.
650. D. P. Dumas, T. Kajimoto, K. K.-C. Liu, C.-H. Wong, D. B. Berkowitz, S. J. Danishefsky, “Azasugar and glycal inhibitors of  $\alpha$ -L-fucosidase”, Bioorg. Med. Chem. Lett., 2, 33–36, (1992).
651. C. W. Bradshaw, W. Hummel, C.-H. Wong, “*Lactobacillus kefir* alcohol dehydrogenase: A useful catalyst for synthesis”, J. Org. Chem., 57, 1532–1536, (1992).
652. J. L.-C. Liu, G.-J. Shen, Y. Ichikawa, J. R. Rutan, C. Zapata, W.F. Vann, C.-H. Wong, “Overproduction of CMP-sialic acid synthetase for organic synthesis”, J. Am. Chem. Soc., 114, 3901–3910, (1992).
653. Y. Ichikawa, M. M. Sim, C.-H. Wong, “Efficient chemical synthesis of GDP-Fucose”, J. Org. Chem., 57, 2943–2946, (1992). doi: 10.1016/0003-2697(92)90099-s. PMID: 1519746.
654. C. W. Bradshaw, J. J. Lalonde, C.-H. Wong, “Enzymatic synthesis of (R)- and (S)-1-deuterohexanol”, Appl. Biochem. Biotech., 33, 15–24, (1992).
655. C.-H. Wong, K. K.-C. Liu, T. Kajimoto, L. Chen, Z. Zhong, D. P. Dumas, J. L.-C. Liu, Y. Ichikawa, G.-J. Shen, “Enzymes for carbohydrate and peptide syntheses”, Pure Appl. Chem., 64, 1197–1202, (1992).
656. Y. Ichikawa, G. C. Look, C.-H. Wong, “Enzymatic oligosaccharide synthesis,” Anal. Biochem., 202, 215–238, (1992).
657. Y.-C. Lin, C. W. Hummel, D.-H. Huang, Y. Ichikawa, K. C. Nicolaou, C.-H. Wong, “Conformational studies of sialyl Le<sup>x</sup> in aqueous solution”, J. Am. Chem. Soc., 114, 5452–5454, (1992).
658. E. Fernholz, D. Schloeder, K. K.-C. Liu, C. W. Bradshaw, H. Huang, K. Janda, R. A. Lerner, C.-H. Wong, “Specificity of antibody catalyzed transesterifications using enol esters: a comparison with lipase reactions”, J. Org. Chem., 57, 4756–4761, (1992).
659. K. K.-C. Liu, C.-H. Wong, “Enzymatic halohydratation of glycals”, J. Org. Chem., 57, 3748–3750, (1992).

660. C.-H. Wong, R. Wang, Y. Ichikawa, "Regeneration of sugar nucleotides for enzymatic oligosaccharide synthesis: use of galactose 1-phosphate uridyltransferase in the regeneration of UDP-galactose, UDP-2-deoxygalactose and UDP-galactosamine", *J. Org. Chem.*, 57, 4343–4344, (1992).
661. G. C. Look, C.-H. Wong, "A facile enzymatic synthesis of Gal  $\beta$ 1,3glucal: a key intermediate for the synthesis of Lea and sialyl Lea", *Tetrahedron Lett.*, 33, 4253–4256, (1992).
662. W. Yuan, J. Z. Haeggstrom, A. Wetterholm, B. Samuelsson, C.-H. Wong, "Novel tight-binding inhibitors of leukotriene A<sub>4</sub> hydrolase", *J. Am. Chem. Soc.*, 114, 6552–6553, (1992).
663. C.-H. Wong, D. P. Dumas, Y. Ichikawa, K. Koseki, S. J. Danishefsky, B. W. Weston, J. B. Lowe, "Specificity, inhibition, and synthetic utility of a recombinant human  $\alpha$ 1,3-fucosyltransferase", *J. Am. Chem. Soc.* 114, 7321–7322, (1992).
664. Y. Ichikawa, Y.-C. Lin, D. P. Dumas, G.-J. Shen, E. Garcia-Junceda, M. A. Williams, R. Bayer, C. Ketcham, L. Walker, J. C. Paulson, C.-H. Wong, "Chemical-enzymatic synthesis and conformational study of sialyl lewis x and derivatives", *J. Am. Chem. Soc.*, 114, 9283–9297, (1992).
665. K. K.-C. Liu, C.-H. Wong, "A new strategy for the enzymatic synthesis of nucleoside analogs using fructose-1,6-diphosphate aldolase", *J. Org. Chem.*, 57, 4789–4791, (1992).
666. S. J. Danishefsky, J. Geruay, J. M. Peterson, F. E. McDonald, K. Koseki, T. Oriyama, D. A. Griffith, C.-H. Wong, D. P. Dumas, "Remarkable regioselectivity in the chemical glycosylation of glycal acceptors: a concise solution to the synthesis of sialyl-Lewis x glycal, a fucosyltransferase inhibitor", *J. Am. Chem. Soc.*, 114, 8329–8331, (1992).
667. R. L. Pederson, C.-H. Wong, "Lipoprotein lipase catalyzed kinetic resolution of 2-acetoxy-3-azidopropanal diethyl acetal", in *Preparative Biotransformations*, S. M. Roberts, K. Wiggins, G. Casy, eds. 1992, 1:6.14.
668. H. Kondo, Y. Ichikawa, C.-H. Wong, " $\beta$ -Sialyl phosphite and phosphoramidite: Synthesis and application to the chemo-enzymatic synthesis of CMP-sialic acid and sialyl Lewis X", *J. Am. Chem. Soc.*, 114, 8748–8750, (1992).
669. H. Fu, H. Kondo, Y. Ichikawa, G. C. Look, C.-H. Wong, "Chloroperoxidase catalyzed asymmetric synthesis: Enantioselective reactions of chiral hydroperoxides with sulfides, and bromohydrate of glycals", *J. Org. Chem.*, 57, 7265–7270, (1992).
670. W. J. Hennen, H. M. Sweers, Y.-F. Wang, C.-H. Wong, "Enzymatic regioselective hydrolysis of a peracetylated furanose derivative", in *Preparative Biotransformations*, S. M. Roberts, K. Wiggins, G. Casy, eds. 1992, 1:7.1.
671. C.-H. Lin, T. Sugai, R. L. Halcomb, Y. Ichikawa, C.-H. Wong, "Unusual stereoselectivity in sialic acid aldolase catalyzed aldol condensations: Synthesis of both enantiomers of high-carbon monosaccharides", *J. Am. Chem. Soc.*, 114, 10138–10145, (1992).
672. C.-H. Wong, "Engineering enzymes for chemoenzymatic synthesis Part I: Practical routes to aza-sugars and complex carbohydrates", *TIBTECH*, 10, 337–341, (1992). doi: 10.1016/0167-7799(92)90264-v. PMID: 1368872.
673. C.-H. Wong, "Engineering enzymes for chemoenzymatic synthesis Part II: Modifying proteases for peptide synthesis", *TIBTECH*, 10, 378, (1992). doi: 10.1016/0167-7799(92)90276-2. PMID: 1368879.

674. K. K.-C. Liu, R. L. Pederson, C.-H. Wong, "Rabbit muscle aldolase catalyzed preparation of 6-deoxy-6-chloro-D-fructose and 6-deoxy-6-chloro-L-sorbose from 3-chloro-2-hydroxypropanal and DHAP", in Preparative Biotransformations, S. M. Roberts, K. Wiggins, G. Casy, eds. 1992, 4:1.1.
675. C.-H. Wong, K. K.-C. Liu, T. Kajimoto, L. Chen, Z. Zhong, Y. Ichikawa, G.-J. Shen, "Developing better enzymes for organic synthesis", Enzyme Engineering XI, Ann. N.Y. Acad. Sci. 672, 343–351, (1992). doi: 10.1111/j.1749-6632.1992.tb32700.x. PMID: 1476380.
676. Z. Zhong, J. L.-C. Liu, L. M. Dinterman, M. A. J. Finkelman, W. Thomas Mueller, M. L. Rollence, M. Whitlow, C.-H. Wong, "Engineering subtilisin for reaction in dimethylformamide", J. Am. Chem. Soc., 113, 683–684, (1991).
677. Z. Zhong, J. A. Bibbs, W. Yuan, C.-H. Wong "Active-site directed modification of subtilisin", J. Am. Chem. Soc., 113, 2259–2263, (1991).
678. D. G. Drueckhammer, W. J. Hennen, R. L. Pederson, C. F. Barbas III, C. M. Gautheron, T. Krach, C.-H. Wong, "Enzyme catalysis in synthetic carbohydrate chemistry", Synthesis, 7, 499–525, (1991).
679. C.-H. Wong, K.-T. Wang, "New development in enzymatic peptide synthesis", Experientia, 47, 1123–1129, (1991). doi: 10.1007/BF01918376. PMID: 1765124.
680. C. F. Barbas, C.-H. Wong, "Overexpression and substrate specificity studies of phosphodeoxyribomutase and thymidine phosphorylase", Bioorg. Chem., 19, 261–269, (1991).
681. C. Bradshaw, C.-H. Wong, W. Hummel, M.-R. Kula, "Enzyme-catalyzed asymmetric synthesis of (S)-2-hydroxy-4-phenylbutyric acid and (R)-2-amino-4-phenylbutyric acid", Bioorg. Chem., 19, 29–39, (1991).
682. C.-H. Wong, G.-J. Shen, R. L. Pederson, Y.-F. Wang, W. J. Hennen, "Enzymatic catalysis in organic synthesis", Method. Enzymol., 202, 591–602, (1991). doi: 10.1016/0076-6879(91)02028-8. PMID: 1784190.
683. H. Fu, G.-J. Shen, C.-H. Wong, "Asymmetric epoxidation of allyl alcohol derivatives by  $\omega$ -hydroxylase from *Pseudomonas oleovorans*", Recueil (Journal of the Royal Netherlands Chemical Society), 110, 167–170, (1991).
684. R. L. Pederson, J. Esker, C.-H. Wong, "An improved synthesis of dihydroxyacetone phosphate", Tetrahedron, 47, 2643–2648, (1991).
685. T. Kajimoto, L. Chen, K. K.-C. Liu, C.-H. Wong "Palladium-mediated stereocontrolled reductive amination of azasugars prepared from enzymatic aldol condensation: a general approach to the synthesis of azasugars", J. Am. Chem. Soc., 113, 6678–6680, (1991).
686. T. Kajimoto, K. K.-C. Liu, R. L. Pederson, Z. Zhong, Y. Ichikawa, J. A. Porco, C.-H. Wong, "Enzyme-catalyzed aldol condensation for asymmetric synthesis of azasugars: synthesis, evaluation, and modeling of glycosidase inhibitors", J. Am. Chem. Soc., 113, 6187–6196, (1991).
687. H. Fu, M. Newcomb, C.-H. Wong, "Pseudomonas oleovorans monooxygenase-catalyzed asymmetric epoxidation of allyl alcohol derivatives and hydroxylation of a hypersensitive radical probe with the radical ring opening rate exceeding rebound rate", J. Am. Chem. Soc., 113, 5878–5880, (1991).
688. Y. Ichikawa, G.-J. Shen, C.-H. Wong, "Enzyme-catalyzed synthesis of sialyl oligosaccharide with in situ regeneration of CMP-sialic acid", J. Am. Chem. Soc., 113, 4698–4700, (1991).

689. C.-H. Wong, C. Gautheron, T. Krach, Y. Ichikawa, G. C. Look, F. Gaeta, D. Thomson, K. C. Nicolaou, "Synthesis of novel disaccharides using glycosyltransferases:  $\beta$ 1,4-galactosyltransferase", Tetrahedron Lett., 32, 4867–4870, (1991).
690. C. Gautheron, Y. Ichikawa, C.-H. Wong, "A complete change of stereoselectivity in sialic acid aldolase reactions: a novel synthetic route to the KDO type of nine carbon L-sugars", J. Am. Chem. Soc., 113, 7816–7818, (1991).
691. C. Bradshaw, G.-J. Shen, C.-H. Wong, "A new alcohol dehydrogenase with unique stereospecificity from *Pseudomonas* sp.", Bioorg. Chem., 19, 398–417, (1991).
692. K. C. Nicolaou, C. W. Hummel, N. J. Bockovich, C.-H. Wong, "Stereocontrolled synthesis of sialyl Le<sup>x</sup>, the oligosaccharide binding ligand to ELAM-1", J. Chem. Soc., Chem. Commun., 870–871, (1991).
693. C. Gautheron, C.-H. Wong, "Glycosyltransferase-catalyzed stereoselective glycosylation of monosaccharide-based glycosidase inhibitors: a new approach to the synthesis of sequence-specific glycosidase inhibitors", J. Chem. Soc., Chem. Commun., 1130–1131, (1991).
694. C.-H. Wong, Y. Ichikawa, T. Krach, C. Gautheron, D. Dumas, G. Look, "Probing the acceptor specificity of  $\beta$ -1,4-galactosyltransferase for the development of enzymatic synthesis of novel oligosaccharides", J. Am. Chem. Soc., 113, 8137–8145, (1991).
695. K. K.-C. Liu, T. Kajimoto, L. Chen, Y. Ichikawa, C.-H. Wong, "Use of dihydroxyacetone phosphate dependent aldolases in the synthesis of deoxyazasugars", J. Org. Chem., 56, 6280–6289, (1991).
696. Y. Ichikawa, J. L.-C. Liu, G.-J. Shen, C.-H. Wong, "A highly efficient multienzyme system for the one-step synthesis of a sialyl trisaccharide: in situ generation of sialic acid and N-acetylglucosamine coupled with regeneration of UDP-glucose, UDP-galactose and CMP-sialic acid", J. Am. Chem. Soc., 113, 6300–6302, (1991).
697. D. P. Dumas, Y. Ichikawa, C.-H. Wong, J. B. Lowe, R. P. Nair, "Enzymatic synthesis of sialyl Le<sup>x</sup> and derivatives based on a recombinant fucosyltransferase", Bioorg. Med. Chem. Lett., 1, 425–428, (1991).
698. W. Yuan, Z. Zhong, C.-H. Wong, J. Z. Haeggstrom, A. Witterholm, B. Samuelsson, "Probing the inhibition of leukotriene A<sub>4</sub> hydrolase based on its aminopeptidase activity", Bioorg. Med. Chem. Lett., 10, 551–556, (1991).
699. K. K.-C. Liu, R. L. Pederson, C.-H. Wong, "Fructose-1,6-diphosphate aldolase catalyzed stereoselective C–C bond formation", J. Chem. Soc. Perkin, 1, 2669, (1991).
700. H. Fu, G. C. Look, W. Zhang, E. N. Jacobsen, C.-H. Wong, "Mechanistic study of a synthetically useful mono-oxygenase model using the hypersensitive probe trans-2-phenyl-1-vinylcyclopropane", J. Org. Chem., 56, 6497–6500, (1991).
701. Z. Zhong, C.-H. Wong, "Development of new enzymatic catalysts for peptide synthesis in aqueous and organic solvents", Biomed. Biochim. Acta, 50, S9–S14, (1991). PMID: 1820067.
702. C. F. Barbas, Y.-F. Wang, C.-H. Wong, "Deoxyribose-5-phosphate aldolase as a synthetic catalyst", J. Am. Chem. Soc., 112, 2013–2014, (1990).
703. J. B. West, W. J. Hennen, J. A. Bibbs, J. L. Lalonde, Z. Zhong, E. F. Meyer, C.-H. Wong, "Enzymes as synthetic catalysts: mechanistic and active site considerations of natural and modified chymotrypsin", J. Am. Chem. Soc., 112, 5313–5320, (1990).

704. C.-H. Wong, "Enzymes in organic synthesis", Chemtracts-Organic Chemistry, 3, 91–111, (1990).
705. K. K.-C. Liu, K. Nozaki, C.-H. Wong, "Problems of acyl migration in lipase-catalyzed enantioselective transformation of meso-1,3-diol systems", Biocatalysis, 3, 169–177, (1990).
706. C.-H. Wong, S.-T. Chen, W. J. Hennen, J.A. Bibbs, Y.-F. Wang, J. L.-C. Liu, M.W. Pantoliano, M. Whitlow, P.N. Bryan, "Enzymes in organic synthesis: use of subtilisin and a highly stable mutant derived from multiple site-specific mutations", J. Am. Chem. Soc., 112, 945–953, (1990).
707. R. L. Pederson, K. K.-C. Liu, J. F. Rutan, L. Chen, C.-H. Wong, "Enzymes in organic synthesis: Synthesis of highly enantiomerically pure 1,2-epoxy aldehyde, epoxyalcohols, thiirane, aziridine and glyceraldehyde 3-phosphate", J. Org. Chem., 55, 4897–4901, (1990).
708. Y.-F. Wang, C.-H. Wong, John S. Ngo, K. A. Babiak, J. H. Dygos, "Lipase-catalyzed transesterifications using enol esters: resolution of prostaglandin synthons 4-hydroxy-2-alkyl-2-cyclopentenones and inversion of the 4S enantiomer to the 4R Enantiomer", J. Org. Chem., 55, 3377–3381, (1990).
709. G.-J. Shen, Y.-F. Wang, C. Bradshaw, C.-H. Wong, "A new NAD-dependent alcohol dehydrogenase with opposite facial selectivity useful for asymmetric reduction and cofactor regeneration", J. Chem. Soc., Chem. Commun., 677–679, (1990).
710. S.-H. Hsu, S.-S. Wu, Y.-F. Wang, C.-H. Wong, "Lipase-catalyzed irreversible transesterification using enol esters: XAD-8 immobilized lipoprotein lipase-catalyzed resolution of secondary alcohols", Tetrahedron Lett., 31, 6403–6406, (1990).
711. C.-H. Wong, "Design and development of enzymatic organic synthesis", Chem. Aspects Enzyme Biotech., Scott, A. I., Baldwin, T., Raushel, F. (eds.), Plenum, 1990, pp 165–178.
712. S.-H. Hsu, S.-S. Wu, Y.-F. Wang, C.-H. Wong, "Lipase catalyzed irreversible transesterification using enol esters: XAD-8 immobilized lipoprotein lipase-catalyzed resolution of secondary alcohols", Tetrahedron Lett., 31, 6403–6406, (1990).
713. D. G. Drueckhammer, J. R. Durrwachter, R. L. Pederson, D. C. Crans, C.-H. Wong, "Reversible and in situ formation of organic arsenates and vanadates as organic phosphate mimics in enzymatic reactions: investigation of aldol reactions and synthetic applications", J. Org. Chem., 54, 70–77, (1989).
714. Y.-F. Wang, C.-H. Wong "Lipase catalyzed irreversible transesterification using enol esters: resolution of cyanohydrins and syntheses of ethyl (R)-2-hydroxy-4-phenylbutyrate and (S)-propanolol", Tetrahedron Lett., 30, 1917–1920, (1989).
715. R. L. Pederson, C.-H. Wong, "Enzymatic aldol reactions as a route to heterocycles: synthesis of 1,4-dideoxy-1,4-imino-D-arabinitol, fagomine, 1-deoxynojirimycin and 1-deoxymannojirimycin", Heterocycles, 28, 477–480, (1989).
716. C. H. von der Osten, A. J. Sinskey, C.F. Barbas, R. L. Pederson, Y.-F. Wang, C.-H. Wong "Use of recombinant bacterial fructose-1,6-diphosphate aldolase in aldol reactions: preparative synthesis of 1-deoxynojirimycin, 1-deoxymannojirimycin, 1,4-dideoxy-1,4-imino-D-arabinitol and fagomine", J. Am. Chem. Soc., 111, 3924–3927, (1989).
717. C.-H. Wong "Enzymatic catalysts in organic synthesis", Science, 244, 1145–1152, (1989). doi: 10.1126/science.2658059. PMID: 2658059.
718. C. H. Von der Osten, C. F. Barbas, C.-H. Wong, A. J. Sinskey, "Molecular cloning, nucleotide



- sequence and fine structural analysis of the *Corynebacterium glutamicum* fda gene: structural comparison of *C. glutamicum* fructose-1,6-diphosphate aldolase to class I and class II aldolases”, Mol. Microbiol., 3, 1625–1637, (1989). doi: 10.1111/j.1365-2958.1989.tb00148.x. PMID: 2615658.
719. W. J. Hennen, C.-H. Wong, “A new method for the enzymatic synthesis of nucleosides using purine nucleoside phosphorylase”, J. Org. Chem., 54, 4692–4699, (1989).
720. S.-T. Chen, C.-H. Wong, “Studies on angiotensin-converting enzyme inhibitors: protease catalyzed resolution of aryl 3-mercapto-2-methylpropionic ester”, J. Chin. Chem. Soc., 36, 451–458, (1989).
721. Y.-F. Wang, C.-H. Wong, “Enantioselective synthesis of platelet-activating factor and a phospholipase A<sub>2</sub> inhibitor from chiral synthons prepared enzymatically”, J. Chin. Chem. Soc., 36, 463–468, (1989).
722. J. J. Lalonde, D. E. Bergbreiter, C.-H. Wong, “Enzymatic kinetic resolution of  $\alpha$ -nitro  $\alpha$ -methyl carboxylic acids”, J. Org. Chem., 53, 2323–2327, (1988).
723. D. G. Drueckhammer, C. F. Barbas, III, K. Nozaki, C. Y. Wood, M. Cinfolini, “Chemoenzymatic synthesis of chiral furan derivatives: useful building blocks for optically active structures”, J. Org. Chem., 53, 1607–1611, (1988).
724. C. F. Barbas, J. R. Matos, J. B. West, C.-H. Wong, “A search for peptide ligase: cosolvent mediated conversion of proteases to esterases for peptide synthesis”, J. Am. Chem. Soc., 110, 5162–5166, (1988).
725. J. B. West, J. Scholten, W. J. Stolowich, J. L. Hogg, A. I. Scott, C.-H. Wong, “Modification of proteases to esterases for peptide synthesis: methylchymotrypsin”, J. Am. Chem. Soc., 110, 3709–3710, (1988).
726. Y.-F. Wang, J. J. Lalonde, M. Momogan, D. E. Bergbreiter, C.-H. Wong, “Lipase catalyzed irreversible transesterification using enol esters as acylating reagents: preparative enantio- and regioselective synthesis of alcohols, glycerol derivatives, sugars and organometallics”, J. Am. Chem. Soc., 110, 7200–7205, (1988).
727. C. F. Barbas, C.-H. Wong, “One-pot tripeptide synthesis catalyzed by papain”, Tetrahedron Lett., 29, 2907–2910, (1988).
728. M. J. Kim, W. J. Hennen, H. M. Sweers, C.-H. Wong “Enzymes in carbohydrate synthesis: N-acetylneuraminic acid aldolase catalyzed reactions and preparation of N-acetyl-2-deoxy- D-neuraminic acid derivatives”, J. Am. Chem. Soc., 110, 6481–6486, (1988).
729. Y. F. Wang, C.-H. Wong “Lipase-catalyzed irreversible transesterification for preparative synthesis of chiral glycerol derivatives”, J. Org. Chem., 53, 3127–3129, (1988).
730. J. R. Durrwachter, C.-H. Wong “Fructose-1,6-diphosphate aldolase catalyzed stereoselective synthesis of C-alkyl and N-containing sugars: thermodynamically controlled C–C bond formations”, J. Org. Chem., 53, 4175–4181, (1988).
731. W. J. Hennen, H. M. Sweers, Y. F. Wang, C.-H. Wong “Enzymes in carbohydrate synthesis: lipase-catalyzed selective acylation and deacylation of furanose and pyranose derivatives”, J. Org. Chem., 53, 4939–4945, (1988).
732. R. L. Pederson, M. J. Kim, C.-H. Wong “A combined chemical and enzymatic procedure for the synthesis of 1-deoxynojirimycin and 1-deoxymannojirimycin”, Tetrahedron Lett., 29, 4645–4648, (1988).

733. C.-H. Wong, J. R. Matos, J. B. West, and C. F. Barbas “Practical enzymatic approaches to unusual peptides”, J. Indust. Microbiol. Supp., 3, 171–177, (1988).
734. D. C. Crans, R. J. Kazlauskas, B. L. Hirschbein, C.-H. Wong, O. Abril, G. M. Whitesides, “Enzymatic regeneration of ATP: acetyl phosphate, phosphoenolpyruvate, methoxycarbonyl phosphate, dihydroxyacetone phosphate, 5-phospho-D-ribosyl-1-pyrophosphate, uridine-5'-diphosphoglucose”, Method Enzymol., 136, 263–280, (1987).
735. J. R. Matos, F. M. Raushel, C.-H. Wong, “S-Adenosylmethionine: studies on chemical and enzymatic synthesis”, Biotech. Appl. Biochem., 9, 39–52, (1987).
736. J. R. Matos, C.-H. Wong, “S-Adenosylmethionine: stability and stabilization”, Bioorg. Chem., 15, 71–80, (1987).
737. C. F. Barbas, C.-H. Wong, “Papain catalyzed peptide synthesis: control of amidase activity and the introduction of unusual amino acids”, J.C.S. Chem. Comm., 533–534, (1987).
738. J. B. West, C.-H. Wong, “Use of non-proteases in peptide synthesis”, Tetrahedron Lett., 28, 1629–1632, (1987).
739. D. G. Drueckhammer, S. K. Sadozai, S. M. Roberts, C.-H. Wong, “Biphasic one-pot synthesis of two useful and separable compounds using cofactor-requiring enzymes as catalysts”, Enzyme Microb. Tech., 9, 564–569, (1987).
740. J. R. Matos, J. B. West, C.-H. Wong, “Lipase catalyzed synthesis of peptides: preparation of a penicillin G precursor and other peptides”, Biotech. Lett., 9, 233–236, (1987).
741. J. R. Durrwachter, H. M. Sweers, K. Nozaki, C.-H. Wong, “Enzymatic aldol reaction/isomerization as a route to unusual sugars”, Tetrahedron Lett., 27, 1261–1264, (1986).
742. J. B. West, C.-H. Wong, “Enzyme-catalyzed synthesis of peptides containing D-amino acids”, J. Chem. Soc. Chem. Commun., 417–418, (1986).
743. J. R. Matos, C.-H. Wong, “Biphasic one-pot synthesis of two useful and separable compounds using cofactor-requiring enzymatic reactions: glutamate dehydrogenase-catalyzed synthesis of L-2-aminoadipate coupled with alcohol dehydrogenase-catalyzed synthesis of a chiral lactone”, J. Org. Chem., 51, 2388, (1986).
744. J. B. West, C.-H. Wong, “Enzyme-catalyzed irreversible formation of peptides containing D-amino acids”, J. Org. Chem., 51, 2728–2735, (1986).
745. C.-H. Wong, J. B. West “Enzymatic synthesis of peptides containing D-amino acids”, Fed. Proc., 45, 1789, (1986).
746. H. M. Sweers, C.-H. Wong, “Enzyme-catalyzed regioselective deacylation of protected sugars in carbohydrate synthesis”, J. Am. Chem. Soc., 108, 6421–6422, (1986).
747. S.-T. Chen, K.-T. Wang and C.-H. Wong, “Chirally selective hydrolysis of D,L-amino acid esters catalyzed by alkaline protease”, J.C.S. Chem. Comm., 1514–1516, (1986)
748. C.-H. Wong, “Enzyme-catalyzed synthesis of unusual carbohydrates and peptides”, Proceeding of 5<sup>th</sup> International Symposium on Life Science: Prospects for Enzyme Technology (H. Yamada, ed.), Kyoto, Japan. 1986, pp 86–89.
749. J. R. Durrwachter, D. G. Drueckhammer, K. Nozaki, H.M. Sweers, C.-H. Wong, “Enzymatic aldol condensation/isomerization as a route to unusual sugar derivatives”, J. Am. Chem. Soc., 108, 7812–

- 7818, (1986).
750. J. R. Matos, M. B. Smith, C.-H. Wong, "Enantioselectivity of alcohol dehydrogenase-catalyzed oxidation of 1,2-diols and aminoalcohols", Bioorg. Chem., 13, 121–130, (1985).
751. C.-H. Wong, D. G. Drueckhammer, H. M. Sweers, "Enzymatic versus fermentative synthesis: thermostable glucose dehydrogenase catalyzed regeneration of NAD(P)H for use in enzymatic synthesis", J. Am. Chem. Soc., 107, 4028–4031, (1985).
752. R. L. Root, J. R. Durrwachter, C.-H. Wong, "Enzymatic synthesis of unusual sugars: galactose oxidase-catalyzed stereospecific oxidation of polyols", J. Am. Chem. Soc., 107, 2997–2999, (1985).
753. C.-H. Wong, J. R. Matos, "Enantioselective oxidation of 1,2-diols to L- $\alpha$ -hydroxy acids using co-immobilized alcohol dehydrogenase/aldehyde dehydrogenase as catalysts", J. Org. Chem., 50, 1992–1994, (1985).
754. C.-H. Wong, D. G. Drueckhammer, "Enzymatic synthesis of chiral hydroxy compounds using immobilized glucose dehydrogenase from *Bacillus cereus* for NAD(P)H regeneration", Bio/Technology, 3, 649–651, (1985).
755. G. M. Whitesides, C.-H. Wong, "Enzymes as catalysts in synthetic organic chemistry", Angew. Chem. Int. Ed. Engl., 24, 617–638, (1985).
756. C.-H. Wong "Enzymes in organic synthesis: aldol condensation", Industrial Chemical News, 6(12), 24–25, (1985).
757. D. G. Drueckhammer, C.-H. Wong, "FMN Reductase-catalyzed regeneration of NAD(P) for use in enzymatic synthesis", J. Org. Chem., 50, 5387–5389, (1985).
758. D. G. Drueckhammer, C.-H. Wong, "Chemoenzymatic syntheses of fluoro sugar phosphates and analogues", J. Org. Chem., 50, 5912–5913, (1985).
759. C.-H. Wong, S. L. Haynie, G. M. Whitesides, "Preparation of a mixture of nucleoside triphosphates from yeast RNA: use in enzymatic synthesis requiring nucleoside triphosphate regeneration, and conversion to nucleoside diphosphate sugars", J. Am. Chem. Soc., 105, 115–117, (1983).
760. C.-H. Wong, G. M. Whitesides, "Enzyme-catalyzed organic synthesis: regeneration of deuterated nicotinamide cofactors for use in large-scale enzymatic synthesis of deuterated substances", J. Am. Chem. Soc., 105, 5012–5014, (1983).
761. C.-H. Wong, G. M. Whitesides, "Synthesis of sugars by aldolase-catalyzed condensation reactions", J. Org. Chem., 48, 3199–3205, (1983).
762. C.-H. Wong, F. P. Mazenod, G. M. Whitesides, "Chemical and enzymatic synthesis of 6-deoxyhexoses; conversion to 2,5-dimethyl-4-hydroxy-2,3-dihydrofuran-3-one (furanol) and analogs", J. Org. Chem., 48, 3493–3497, (1983).
763. G. M. Whitesides, C.-H. Wong, "Enzymes as catalysts in organic synthesis", Aldrichimica, 16, 27–34, (1983).
764. C.-H. Wong, A. Pollak, S. McCurry, J. Sue, J. R. Knowles, G. M. Whitesides, "Ribulose-1,5-bisphosphate: routes from glucose-6-phosphate (via 6-phosphogluconate and ribose-5-phosphate) and from adenosine monophosphate (via ribose-5-phosphate and ribulose-5-phosphate)", Method. Enzymol., 89, 108–121, (1982).
765. C.-H. Wong, G. M. Whitesides, "Enzyme-catalyzed transhydrogenation between nicotinamide

- cofactors and its application in organic synthesis”, J. Am. Chem. Soc., 104, 3542–3544, (1982).
766. C.-H. Wong, G. M. Whitesides, “Enzyme-catalyzed organic synthesis: NAD(P)H cofactor regeneration using ethanol/alcohol dehydrogenase/aldehyde dehydrogenase and methanol/alcohol dehydrogenase/aldehyde dehydrogenase/formate dehydrogenase”, J. Org. Chem., 47, 2816–2818, (1982).
767. C.-H. Wong, S. L. Haynie, G. M. Whitesides, “Enzyme-catalyzed synthesis of N-acetyllactosamine with in situ regeneration of uridine 5'-diphosphate glucose and uridine 5'-diphosphate galactose”, J. Org. Chem., 47, 5416–5418, (1982).
768. C.-H. Wong, G. M. Whitesides, “Enzyme-catalyzed organic synthesis: NAD(P)H cofactor regeneration using glucose-6-phosphate and the glucose-6-phosphate dehydrogenase from *Leuconostoc mesenteroides*”, J. Am. Chem. Soc., 103, 4890–4899, (1981).
769. C.-H. Wong, L. Daniels, W. H. Orme-Johnson, G. M. Whitesides, “Enzyme-catalyzed organic synthesis: NAD(P)H cofactor regeneration using dihydrogen and the hydrogenase from *Methanobacterium thermoautotrophicum*”, J. Am. Chem. Soc., 103, 6227–6228, (1981).
770. C.-H. Wong, J. Gordon, C. L. Cooney, G. M. Whitesides, “Regeneration of NAD(P)H using glucose-6-sulfate and glucose-6-phosphate dehydrogenase”, J. Org. Chem., 46, 4676–4679, (1981).
771. R. DiCosimo, C.-H. Wong, L. Daniels, G. M. Whitesides, “Enzyme-catalyzed organic synthesis: electrochemical regeneration of NAD(P)H from (NAD(P) using methyl viologen and flavoenzymes”, J. Org. Chem., 4622–4623, (1981).
772. C.-H. Wong and K.T. Wang, Synthesis and study of cobra venom peptides-4, J. Chin. Biochem. Soc. 9, 25, (1980).
773. C.-H. Wong, S. D. McCurry, G. M. Whitesides, “Practical enzymatic synthesis of ribulose-1,5-bisphosphate and ribose-5-phosphate”, J. Am. Chem. Soc., 102, 7938–7939, (1980).
774. C.-H. Wong and K.-T. Wang, Enzymatic-synthesis of oligopeptide .2. synthesis of bis-(n-protected amino-acid) hydrazides by papain, J. Chin. Chem. Soc. 26, 11-15, (1979).
775. C.-H. Wong and K.-T. Wang, The resolution of mandelic acid. J. Chin. Chem. Soc. 26, 75–78, (1979).
776. C.-H. Wong, S.-T. Chen, K.-T. Wang, “Enzymic synthesis of opioid peptides”, Biochim. Biophys. Acta, 576, 247–249, (1979).
777. S.-H. Chou, S.-T. Chen, C.-H. Wang and K.-T. Wang, Enzymatic-synthesis of oligopeptide .1. papain-catalyzed synthesis of dipeptide, tripeptide and tetrapeptide, J. Chin. Chem. Soc. 25, 215-218 (1978).
778. C.-H. Wong and K.-T. Wang, Mutual resolution of dl-ephedrine and n-benzyloxycarbonyl-dl-amino acids, J. Chin. Chem. Soc. 25, 209–214, (1978).
779. C.-H. Wong, S.-W. Chen, C.-L. Ho, K.-T. Wang, “Synthesis of cobra neurotoxin”, Proc. Natl. Sci. Council R.O.C., 2, 149–153, (1978).
780. C.-H. Wong and K.-T. Wang, Synthesis of cobra venom toxin, Proc. Natl. Acad. Council R.O.C., 2, 346–351, (1978).
781. C.-H. Wong, Y.-H. Chen, M.-C. Hung, K.-T. Wang, C.-L. Ho, T.-B. Lo, “Regeneration of a reduced cobra cardiotoxin”, Biochim. Biophys. Acta, 533, 105–111, (1978).

782. C.-H. Wong, C.-L. Ho, K.-T. Wang, "Purification of synthetic cardiotoxin by affinity chromatography", *J. Chromatogr.*, 154, 25–32, (1978).
783. C.-H. Wong, K.-T. Wang, "Electrochemistry in organic synthesis: large-scale preparation of cysteine from cystine", *J. Chin. Chem. Soc.*, 25, 149–152, (1978).
784. C.-H. Wong, S.-T. Chen, C.-L. Ho, K.-T. Wang, "Synthesis of a fully active snake venom cardiotoxin by fragment condensation on a solid polymer", *Biochim. Biophys. Acta*, 536, 376–389, (1978).
785. C.-H. Wong, M.-F. Ho, K.-T. Wang, "Preparation of optically pure N-tert-butyloxycarbonyl-O-benzyl-L-serine and its antipode", *J. Org. Chem.*, 43, 3604, (1978).
786. C.-H. Wong, K.-T. Wang, "Mutual resolution of ( $\pm$ )-ephedrine and Z-DL-amino acid induced by seeding chiral salt", *Tetrahedron Lett.*, 40, 3813–3816, (1978).
787. C.-H. Wong, S.-T. Chen and K.-T. Wang, Resolution of amino acids by enzymes, proteolytic enzyme bromelain for hydrolysis of l-amino-acid methyl esters, *J. Chin. Chem. Soc.* 24, 129–133, (1977).
788. F.-K. Kong, T.-C. Lin, C.-H. Wong and K.-T. Wang, Synthesis of Taiwan cobra venom cardiotoxin.2. Synthesis of protected hexapeptide, sequence 44-49 and protected tripeptide, sequence 50-52, *J. Chin. Chem. Soc.*, 23, 155-164, (1976).
789. C.-H. Wong and K.-T. Wang, Synthesis and study of cobra venom peptides-3, *J. Chin. Biochem. Soc.* 5, 1–6, (1976).
790. C.-H. Wong and K.-T. Wang, Chemical synthesis of Taiwan cobra venom toxins, *Toxicon*, 14, 420, (1976).
791. C.-H. Wong and K.-T. Wang, Synthesis and study of cobra venom peptides-2, *J. Chin. Biochem. Soc.* 4, 24, (1975).
792. C.-H. Wong and K.-T. Wang, Synthesis and study of cobra venom peptides-1, *J. Chin. Biochem. Soc.*, 2, 64–69, (1973).

### Books:

- C.-H. Wong and G. M. Whitesides, "Enzymes in Synthetic Organic Chemistry," Pergamon Press, 1994.
- M. Famulok, E.-L. Winnacker, C.-H. Wong, "Combinatorial Chemistry in Biology," Springer-Verlag, Berlin, 1999.
- B. Cornils, W. A. Herrmann, R. Schlögl, C.-H. Wong, "Catalysis from A to Z—A Concise Encyclopedia," Wiley-VCH, Weinheim, Germany, 1999.
- C.-H Wong: "Carbohydrate-based Drug Discovery" Vols. I & II, Wiley-VCH, Weinheim, Germany, 2003.
- C.-H. Wong and P. G. Wang, eds. "Carbohydrates, Nucleosides and Nucleic Acids." Comprehensive Natural Products II: Chemistry and Biology ("CONAP II"), Vol. 6, 10 vols. Elsevier, Missouri, USA, 2009.
- N. Taniguchi, T. Endo, G. W. Hart, P. H. Seeberger, C.-H. Wong, eds. "Glycoscience: Biology and Medicine", Springer Japan, 2014.

## Book Chapters:

1. K.-T. Wang, C.-H. Wong, "Total synthesis of cobra cardiotoxin," in Proceeding of the Fifth American Peptide Symposium, M. Goodman, J. Meienhofer, eds., Wiley, New York, pp 528–531 (1977).
2. G. M. Whitesides, C.-H. Wong, A. Pollak, "Asymmetric synthesis using cofactor-requiring enzymes," in Asymmetric Reactions and Processes in Chemistry, E. L. Eliel and S. Otsuka, eds., ACS Symposium Series, the American Chemical Society, 185, 205–218 (1982).
3. C.-H. Wong, "Aldolases as catalysts in organic synthesis," in Enzymes as Catalysts in Organic Synthesis (Schneider, M. P ed.), D. Reidel Publishing Co., 1986, pp 199–216.
4. C.-H. Wong, "Nicotinamide cofactor-requiring enzymatic synthesis in organic solvent-water biphasic systems," Biocatalysis in Organic Media (C. Laane, ed.), Wageningen, The Netherlands, 1986, pp 197–208.
5. C.-H. Wong, D. G. Drueckhammer, H. M. Sweers, "Chemoenzymatic synthesis of fluorosugars," ACS Symposium Series on Fluorocarbohydrates: Chemistry and Biochemistry (N. F. Tylor, ed.), 1988, pp 29–42.
6. C.-H. Wong, "Enzyme-catalyzed synthesis of carbohydrates," in Trends in Synthetic Carbohydrate Chemistry, ACS Symposium Series 386 (Horton, D.; Hawkins, L. D.; McGarvey, G. J.; eds.), American Chemical Society, Washington, D.C. 1989, pp 317–335.
7. C.-H. Wong, "Enzymes in organic synthesis: aldol reactions as a route to unusual sugars," in Bioproducts and Bioprocesses (A. Fiechter, H. Okada, R. D. Tanner, eds.), Springer-Verlag, 1989, pp 147–154.
8. J. A. Bibbs, Z. Zhong, C.-H. Wong, "Modification of protease for peptide synthesis," in Proceedings of symposium on materials synthesis utilizing biological processes, in Materials Synthesis Utilizing Biological Processes (Rieke, P. C.; Calvert, P. D.; Alper, M. eds.), Materials Research Society, Pittsburgh, Pennsylvania, 1990, pp 223–228.
9. C.-H. Wong, "Aldolases in organic synthesis," in Biocatalysis (Abramowicz, D. ed.) Van Nostrand Reinhold, New York, 1990, p 319.
10. C.-H. Wong, "Aldolases in synthesis of Fluorosugars," In: "Selective fluorination in organic and bioorganic chemistry." Welch, J. T. (ed.), American Chemical Society Symposium Series 456, American Chemical Society, Washington, D.C., pp 156–162 (1991).
11. C.-H. Wong, "Microbial aldolases in carbohydrate synthesis," In Enzymes in carbohydrate synthesis. Bednarski, M., Simon, E. (eds.), American Chemical Society Symposium Series, No. 406, American Chemical Society, Washington, D.C., 1991, pp 23–37.
12. C.-H. Wong, "Engineering enzymes for the synthesis of carbohydrates and peptides" in Harnessing Biotechnology for the 21st Century (M. R. Ladisch, a. Bose, eds.) ACS Conference Proceedings Series, American Chemical Society, Washington, D.C. 1992, pp 168–171.
13. C.-H. Wong, Y. Ichikawa, T. Kajimoto, K. K.-C. Liu, Y.-C. Lin, G. C. Look, "Chemical-enzymatic synthesis of carbohydrates" in Microbial Reagents in Organic Synthesis, (S. Servi, ed.) Kluwer Academic Publishers, NATO ASI Series, 1992, pp 35–42.

14. Y. Ichikawa, G. C. Look, G.-J. Shen, P. Sears, P. Wang, C.-H. Wong, "Recent development in enzymatic synthesis of oligosaccharides and glycopeptides" in Carbohydrates and Carbohydrate Polymers, M. Yalpani, ed., ATL Press, pp 1–16 (1993).
15. R. L. Halcomb, C.-H. Wong, "Asymmetric synthesis based on enzymes" in Stereocontrolled Organic Synthesis (B. M. Trost, ed.) IUPAC, Blackwell Scientific Publications, Oxford, England, 1994, p 413.
16. Y. Ichikawa, C.-H. Wong, "Topochemistry and inhibition of selectin-mediated cell adhesion: Chemical-enzymatic synthesis of inhibitors related to E-selectin recognition" in The Alfred Benzon Symposium No. 36, Complex Carbohydrates in Drug Research (K. Bock, H. Clausen, P. Krogsgaard-Larsen, H. Kofod), Blackwell Scientific Publications, Oxford, UK, 1994, pp 118–133.
17. C.-H. Wong, "Topochemistry and inhibition of carbohydrate-mediated cell adhesion" in New Perspectives in Drug Design, Academic Press, London, 1995, pp 35–50.
18. R. L. Halcomb, C.-H. Wong, "Enzymatic synthesis of glycoside bonds" in Handbook of enzyme catalysis in organic synthesis (K. Dranz, H. Waldmann, eds.) VCH, Germany, 1995, pp 279–316.
19. I. Henderson, C.-H. Wong, "Formation of carbon-carbon bonds" in Handbook of enzyme catalysis in organic synthesis (K. Dranz, H. Waldmann, eds.) VCH, Germany, 1995, pp 547–580.
20. C.-H. Wong, "Practical synthesis of oligosaccharides based on glycosyltransferases and glycosylphosphites" in Modern methods in carbohydrate synthesis, (S. H. Khan, R.A. O'Neill, eds.), Harwood Academic Publishers, Amsterdam, The Netherlands, 1996, pp 467–491.
21. M. Hendrix, C.-H. Wong, "Enzymatic synthesis of carbohydrates" in Bioorganic Chemistry: Carbohydrates. (S. M. Hecht, ed.) Oxford University Press, Oxford, 1999, pp 198–243.
22. K. D. Kreutter, C.-H. Wong, "Enzyme inhibitors" in Stimulating Concepts in Chemistry (M. Shibasaki, J. F. Stoddart, F. Vogtle eds), Wiley-VCH Verlag GmbH, Weinheim, Germany, pp 355–368 (2000).
23. Z. Zhang, C.-H. Wong, "Glycosylation methods: use of phosphites" in Carbohydrates in Chemistry and Biology (B. Ernst, G. W. Hart, P. Sinay, eds), Wiley-VCH Verlag GmbH, Weinheim, Germany, pp 117–134 (2000).
24. K. M. Koeller, C.-H. Wong, "Recycling of sugar nucleotides in enzymatic glycosylation" in Carbohydrates in Chemistry and Biology (B. Ernst, G. W. Hart, P. Sinay, eds), Wiley-VCH Verlag GmbH, Weinheim, Germany, pp 663–684 (2000).
25. T. J. Tolbert, C.-H. Wong, "Glycoprotein synthesis" in Yearbook of Science & Technology, McGraw-Hill Professional, New York, pp 159–162 (2003).
26. T. J. Tolbert, C.-H. Wong, "Conjugation of glycopeptide thioesters to expressed protein fragments," in Methods in Molecular Biology, C. M. Niemeyer, Ed., Humana Press: Totowa, New Jersey, Vol. 283, pp 255–266, (2004).
27. T. J. Tolbert, C.-H. Wong, "Subtilisin-catalyzed glycopeptide condensation," in Methods in Molecular Biology, C. M. Niemeyer, Ed., Humana Press: Totowa, New Jersey, Vol. 283, 267–279, (2004).
28. C. Scanlan, D. Calarese, H. K. Lee, O. Blixt, C.-H. Wong, I. Wilson, D. Burton, R. Dwek, P. Rudd, "Antibody recognition of a carbohydrate epitope: a template for HIV vaccine design," in Glycobiology and Medicine: Proceedings of the 7th Jenner Glycobiology and Medicine Symposium, Advances in Experimental Medicine and Biology, (J. S. Axford, Ed.) Kluwer Academic/Plenum Publishers,

Oxford, UK, Volume 564, pp 71-84, (2005).

29. C.-H. Wong, W. A. Greenberg, "Asymmetric synthesis using Deoxyribose-5-phosphate Aldolase," in Asymmetric Synthesis – The Essentials, M. Christmann, S. Brase, ed., Wiley-VCH Verlag GmbH & Co., KGaA, Germany, pp. 217-221, (2007).
30. C. S. Bennett, R. J. Payne, K. M. Koeller, C.-H. Wong, "Synthesis and applications of biologically relevant glycopeptides," in Glycoscience (B. Fraser-Reid, K. Tatsuta, J. Thiem, eds.), Springer-Verlag, pp. 1795-1858, (2008).
31. W. A. Greenberg, C.-H. Wong, "One-step synthesis of L-fructose using rhamnulose-1-phosphate aldolase in borate buffer" in From Practical Methods for Biocatalysis and Biotransformations, J. Whittall, P. Sutton, Eds., John Wiley & Sons, Inc., New York, NY, pp. 203-205, (2010).
32. J.-W. Hsu, H.-C. Huang, S.-T. Chen, C.-H. Wong, H.-F. Juan, "Ganoderma lucidum polysaccharides induce macrophage-like differentiation in human leukemia THP-1 cells via caspase and p53 activation," Evidence Based Complementary and Alternative Medicine, Volume 2011, Article ID 358717, 13 pages, (2011).
33. T.J. Tolbert, C.-H. Wong, "Carbohydrate Chains: Enzymatic and Chemical Synthesis," in Encyclopedia of Biological Chemistry (William Lennarz, M. Lane, eds), Academia Press, 2013
34. C.-Y. Wu, C.-H. Wong "Automated programmable one-pot synthesis of glycans" in Glycoscience: Biology and Medicine, (N. Taniguchi, T. Endo, G. W. Hart, P. H. Seeberger, C.-H. Wong, eds.), Springer Japan, 2014, pp. 45-52.
35. C.-Y. Wu, C.-H. Wong "Vaccines" in Glycoscience: Biology and Medicine, (N. Taniguchi, T. Endo, G. W. Hart, P. H. Seeberger, C.-H. Wong, eds.), Springer Japan, 2014, pp. 1529-1508.
36. C.-Y. Wu, C.-H. Wong "Preparation of glycan array and its applications" in Glycoscience: Biology and Medicine, (N. Taniguchi, T. Endo, G. W. Hart, P. H. Seeberger, C.-H. Wong, eds.), Springer Japan, 2014, pp. 35-43.
37. C.-Y. Wu, C.-H. Wong "Imaging by click chemistry" in Glycoscience: Biology and Medicine, (N. Taniguchi, T. Endo, G. W. Hart, P. H. Seeberger, C.-H. Wong, eds.), Springer Japan, 2014, pp. 459-465.
38. C.-Y. Wu, C.-H. Wong "Automation in glycan synthesis" in Glycoscience: Biology and Medicine, (N. Taniguchi, T. Endo, G. W. Hart, P. H. Seeberger, C.-H. Wong, eds.), Springer Japan, 2014, pp. 345-351.
39. T.-I. Tsai, C.-Y. Wu, C.-H. Wong "Large-scale enzymatic synthesis of glycans with cofactor regeneration" in Glycoscience: Biology and Medicine, (N. Taniguchi, T. Endo, G. W. Hart, P. H. Seeberger, C.-H. Wong, eds.), Springer Japan, 2014, pp. 409-417.
40. C.-H. Wong "Chemo-enzymatic synthesis of glycans: overview" in Glycoscience: Biology and Medicine, (N. Taniguchi, T. Endo, G. W. Hart, P. H. Seeberger, C.-H. Wong, eds.), Springer Japan, 2014, pp. 293-294.
41. C.-H. Wong "Homogeneous glycoproteins: overview" in Glycoscience: Biology and Medicine, (N. Taniguchi, T. Endo, G. W. Hart, P. H. Seeberger, C.-H. Wong, eds.), Springer Japan, 2014, pp. 959-962.



42. C.-H. Wong “Molecular probes for glycosylation: overview” in Glycoscience: Biology and Medicine, (N. Taniguchi, T. Endo, G. W. Hart, P. H. Seeberger, C.-H. Wong, eds.), Springer Japan, 2014, pp. 455-457.
43. C.-H. Wong and Naoyuki Taniguchi “Current status and new challenges in glycoscience: overview” in Glycoscience: Biology and Medicine, (N. Taniguchi, T. Endo, G. W. Hart, P. H. Seeberger, C.-H. Wong, eds.), Springer Japan, 2014, pp. 11-14.

**Patents:**

1. G. M. Whitesides, P. F. Mazenod, C.-H. Wong, “Preparation of 6-Deoxy-d-Fructose and 6-deoxy-L-Sorbose” US Patent No. 4,440,854 (1984).
2. G. M. Whitesides, P. F. Mazenod, C.-H. Wong, “Preparation of 6-Deoxy-d-Fructose and 6-deoxy-L-Sorbose” US Patent No. 4,440,854 (1984).
3. C.-H. Wong, W. J. Hennen, “Process for the enzymatic synthesis of nucleosides” US Patent No. 5075225 (1991).
4. C.-H. Wong, Y.-F. Wang, W. J. Hennen, “Enantio- and Regioselective Synthesis of Organic Compounds Using Enol Esters as Irreversible Transacylation Reagents” US Patent No. 5106750 (1992).
5. C.-H. Wong, J. R. Durrwachter, R. L. Pederson, “Fructose-1,6-diphosphate Aldolase Catalyzed Stereoselective Synthesis of Sugars” US Patent No. 5,143,831 (1992).
6. P.N. Bryan, M. Pantoliano, M. L. Rollence, C.-H. Wong, “Biosynthetic uses of thermostable proteases” US Patent No. 5,116,741 (1992).
7. C.-H. Wong, “l-Isomeric sugars having formed stereogenic centers of (R)-configuration: Methods and compositions” US Patent No. 5,162,513 (1992).
8. C.-H. Wong, W. J. Hennen, “2-Deoxy Derivatives of N-Acetyl Neuraminic Acid and Their Preparation” US Patent No. 5,239,091 (1993).
9. C.-H. Wong, K. K.-C. Liu, “2-Methyl-5-hydroxymethyl and 2,5-dimethyl-3,4-dihydropyrrolidines” US Patent No. 5,229,523 (1993).
10. C.-H. Wong, C. W. Bradshaw, “Lactobacillus kefir alcohol dehydrogenase” US Patent No. 5,225,339 (1993).
11. C.-H. Wong, G.-J. Shen, Y. Ichikawa, “A method and composition for synthesizing sialylated glycosyl compounds” US Patent No. 5,278,299 (1994).
12. C.-H. Wong, T. Kajimoto, K. K.-C. Liu, L. Chen, “Process for forming Omega-deoxy-azasugars” US Patent No. 5,276,120 (1994).
13. C.-H. Wong, K. K.-C. Liu, “Aldolase enzyme process for making 5-azido-5-deoxy-hexulose-1-phosphate” US Patent No. 5,352,591 (1994).
14. C.-H. Wong, T. Sugai, G.-J. Shen, “KDO aldolase and condensation reactions employed therewith” US Patent No. 5,358,859 (1994).
15. C.-H. Wong, F. Gaeta, “Combined use of  $\beta$ -galactosidase and sialyltransferase coupled with in situ regeneration of CMP-sialic acid for one-pot synthesis of oligosaccharides” US Patent No. 5,374,541 (1994).

16. C.-H. Wong, M. Schuster, "Process for solid-phase glycopeptide synthesis" US Patent No. 5,369,017 (1994).
17. C.-H. Wong, G. C. Look, "Enzymatic process for producing a galactosyl  $\beta$ -1,3-glycal disaccharide using  $\beta$ -galactosidase" US Patent No. 5,403,726 (1995).
18. W. Yuan, C.-H. Wong, B. Samuelsson, "Novel tight-binding inhibitors of leukotriene A<sub>4</sub> hydrolase" US Patent No. 5,455,271 (1995).
19. C. W. Bradshaw, C.-H. Wong, G.-J. Shen, "Pseudomonas sp. ATCC 49794 PED alcohol dehydrogenase" US Patent No. 5,385,833 (1995).
20. C.-H. Wong, C. W. Bradshaw, "Lactobacillus kefir alcohol dehydrogenase" US Patent No. 5,342,767 (1995).
21. C.-H. Wong, K. K.-C. Liu, "Fructosyl C-glycoside nucleoside analogs" US Patent No. 5,393,879 (1995).
22. C.-H. Wong, Y. Ichikawa, "Oligosaccharide enzyme substrates and inhibitors: Methods and composition" US Patent No. 5,461,143 (1995), Australian Patent No. 668505 (1996), Canadian Patent No. 2106301 (1999).
23. C.-H. Wong, "N-Acetylgalactosaminyl or N-acetylglucosaminyl transfer using N-acetylglucosaminyl-1-phosphate or N-acetylgalactosaminyl-1-phosphate as precursor and glycosyl-nucleotide regeneration" US Patent No. 5, 516, 665 (1996).
24. C.-H. Wong, Y.-F. Wang, W. J. Hennen, "Enantio- and regio-selective synthesis of organic compounds using enol esters as irreversible transacylation reagents" US Patent No. 5,585,252 (1996).
25. C.-H. Wong, R. L. Pederson, Y.-F. Wang, "Azido diacetal propane derivatives" US Patent No. 5,565,585 (1996).
26. C.-H. Wong, W. J. Hennen, "2-Deoxyderivatives of N-acetylneuraminic acid and their preparation" US Patent No. 5,554,771 (1996).
27. C.-H. Wong, J. R. Durrwachter, R. L. Pederson, "Aldolase catalyzed stereoselective synthesis of arabinohexulose, xyloheptulose, threohexulose and xylohexulose" US Patent No. 5,576,426 (1996).
28. C.-H. Wong, H. Kondo, "Thio Linked Glycosyl Compounds" US Patent No. 5,514,784 (1996).
29. C.-H. Wong, H. Kondo, "Carbon Linked Glycosyl Compounds" US Patent No. 5,597,906 (1997).
30. C.-H. Wong, T. Kajimoto, "Sialyl Lewis X mimetics" US Patent No. 5,599,915 (1997).
31. C.-H. Wong, "Sialyl Lewis x mimetics incorporating fucopeptides" US Patent No. 5,614,615 (1997).
32. C.-H. Wong, T. Kajimoto, K. C. Liu, L. Chen, "Omega-deoxy-azasugars" US Patent No. 5,596,005 (1997).
33. C.-H. Wong, G. C. Look, "A facile enzymatic synthesis of galactosyl- $\beta$ -1,3-glycals" Australian Patent No. 672029 (1997); Canadian Patent No. 2,139,506 (1998).

34. C.-H. Wong, Y. Ichikawa, G.-J. Shen, "Oligosaccharide enzyme substrates and inhibitors: methods and compositions" US Patent No. 5,593,887 (1997); 5,759,823 (1998); 6,168,934 (2001), European Patent No. EP0576592 (2000).
35. C.-H. Wong, "Method for synthesizing 2-ketoaldonic acids" US Patent No. 5,759,825 (1998).
36. C.-H. Wong, S. Takayama, "Synthesis of 9-O-acetyl N-acetyl-neuraminic acid oligosaccharides" US Patent No. 5,766,887 (1998) C.-H. Wong, T. Hayashi, "Process for preparing nucleoside inhibitors of glycosyltransferases" US Patent No. 5,770,407 (1998).
37. C.-H. Wong, H. J. M. Gijzen, "Use of 2-deoxyribose-5-phosphate aldolase to prepare 2-deoxyfucose, analogues and derivatives" US Patent No. 5,795,749 (1998).
38. C.-H. Wong, T. G. Marron, T. J. Woltering, G. Weitz-Schmidt, "Sialyl Lewis x mimetics incorporating mannopeptides" US Patent No. 5,837,862 (1998).
39. C.-H. Wong, F. Moris-Varas, C.-C. Lin, "Inhibitors of E-, P-, and L-selectin binding" US Patent No. 5,830,871 (1998).
40. C.-H. Wong, H. Kondo, "Glycosylation of peptides using glycosyl phosphite reagents" US Patent No. 5,854,391 (1998).
41. C.-H. Wong, T. Kimura, "Transglycosylation reactions employing  $\alpha$ -galactosidase" US Patent No. 5,876,981 (1999).
42. C.-H. Wong, T. Sugai, G.-J. Shen, "Biologically pure culture of aureobacterium barkeri: KDO-37-2" US Patent No. 5,869,316 (1999).
43. C.-H. Wong, C.-H. Lin, G.-J. Shen, "One-pot enzymatic sulfation process using 3'-phosphoadenosine-5'-phosphosulfate and recycled phosphorylated adenosine intermediates" US Patent No. 5,919,673 (1999).
44. R. A. Lerner, C.-H. Wong, D. L. Boger, S. J. Henriksen, "Inhibitors of oleamide hydrolase" US Patent No. 5,856,537 (1999), US Patent No. 6,096,784 (2000).
45. C.-H. Wong, C.-C. Lin, T. Kajimoto "Sialyl Lewis X mimetics incorporating fucopeptides" US Patent No. 5,962,660 (1999).
46. C.-H. Wong, S. Takayama, B. Orsat, W. Moree, "Enantioselective enzymatic protection of amines" US Patent No. 5,981,267 (1999).
47. C.-H. Wong, D. Slee, K. Laslo "HIV protease inhibitors" US Patent No. 6,900,238 (2005). EP0873519 (1999).
48. C.-H. Wong, C.-C. Lin, T. Woltering "Sialyl Lewis X mimetics incorporating fucopeptides" US Patent No. 5,962,660 (1999).
49. C.-H. Wong, Y. Ichikawa, G.-J. Shen, "Production of fucosylated carbohydrates by enzymatic fucosylation; synthesis of sugar nucleotides; and in situ regeneration of GDP-fucose" US Patent No. 6,319,695B1 (2001), Russian Patent No. 2,125,092 (1999).
50. C.-H. Wong, C.-H. Lin, "Ketoaldonic acids having formed stereogenic centers of R configuration: Methods and Compositions" US Patent No. 6,080,563 (2000).
51. C.-H. Wong, M. Hendrix, P. Alper, S. Priestley "Nucleic acid binders having a hydroxyamine motif" US Patent No. 6,120,997 (2000).

52. C.-H. Wong, "Inhibition of human fucosyltransferases with N-Linked Lewis-X and LacNAc analogs" U.S. Patent No. 6,232,450 (2001).
53. C.-H. Wong, M. D. Burkart "Enzymatic sulfation of biomolecules" US Patent No. 6255088 (2001).
54. C.-H. Wong "Mannosyl transfer with regeneration of GDP-mannose" US Patent No. 6,485,930 (2002).
55. C.-H. Wong, F. Moris-Varas "Hydroxyazepanes as inhibitors of glycosidases and HIV protease" US Patent No. 6,462,143 (2002); US Patent No. 6,462,193 (2002).
56. C.-H. Wong, Z. Zhang, I. Ollmann, T. Bassov, X. S. Yeh "Programmable one-pot oligosaccharide synthesis" US Patent No. 6,538,117 (2003); 7,019,131 (2006).
57. C.-H. Wong, "Enzymatic synthesis of l-fucose and l-fucose analogs" US Patent No. 6,713,287 (2004).
58. T. Lee, J. H. Elder, C.-H. Wong "HIV/FIV protease inhibitors with small P<sub>3</sub> residues" PCT Patent Application No. PCT/US1998/025964, US Patent No. 6,803,466 (2004).
59. C.-H. Wong, S. J. Sucheck "Bifunctional antibiotics" US Patent No. 6921810 (2005).
60. Y. Ichikawa, Y-K Shue, N. K. Orida, M. Lotz, C.-H. Wong, F. W. Okumu, S.-B. Hwang, "Treatment of degenerative cartilage conditions in a mammal with glycosidase inhibitors" Canadian Patent CA2553866A1; Japanese Patent No. JP2007518814A; PCT/WO2005072268A2
61. C.-H. Wong, D. R. Burton, I. A. Wilson "Arrays with cleavable linkers" US Patent No. 20070213278A1 (2007); Japanese Patent No. JP2008504531A (2008); PCT WO/2006/002382 (2006).
62. C.-H. Wong, J. Liu "Iminocyclitol inhibitors of hexoaminidase and glycosidase" US Patent No. 7135578 (2006).
63. C.-H. Wong, C.-Y. Wu, J.-T. Jan "Anti-coronavirus compounds" US Patent No. 8,481,571 (2013), Taiwan Patent No. I372048 (2012), Chinese Patent No. CN1949977B (2010), New Zealand Patent No. NZ550945 (2010).
64. Y.-Y Wang, K.-H. Khoo, S.-T. Chen, C.-C. Lin, C.-H. Wong, C.-H. Lin, H.-S. Chen, Y.-F. Tsai "Immuno-modulating antitumor activities of Ganoderma Lucidum (Reishi) polysaccharides" US Patent No. 7,135,183 (2006), US Patent No. 7,323,176 (2008), US Patent No. 7,560,114 (2009), Taiwan Patent No. I281399 (2007).
65. Brik, Y.-Y. Yang, S. Ficht, R. Payne and C.-H. Wong "Method of preparing glycopeptides" US Patent No. 8,816,050 (2014), European Patent No. 1996609 (2016), Japanese Patent No. 5885378 (2016).
66. C.-H. Wong, R. Xu, S. R. Hanson, Z. Zhang, Y.-Y. Yang, P. G. Schultz "Site-specific incorporation of mucin-type N-acetylgalactosamine  $\alpha$ -O-threonine into protein in E. Coli" US Patent No. 7378263 (2008).
67. C.-H. Wong, J.-M. Fang, J.-J. Shie, Y.-S. Cheng, J.-T. Jan "Synthesis of oseltamivir containing phosphonate congeners with anti-influenza activity" US Patent No. 7,888,337 (2011), Chinese Patent No. ZL200880113461.2 (2013), Australian Patent No. 2008292859 (2014), Japanese

- Patent No. 5509080 (2014), Korean Patent No. 10-1535691 (2015), Canadian Patent No. 2697837 (2016), European Patent No. EP2190439 (2016).
68. C.-H. Wong, C.-Y. Wu, C.-C. Wang, Alice L. Yu “Cancer diagnosis based on levels of antibodies against Globo-H and its fragments” Chinese Patent No. CN102066940B (2015), European Patent No. 2307887B1 (2014), Hong Kong Patent No. HK1153273 (2014), Australian Patent No. 2009271411(2013), Japanese Patent No. 5216139 (2013), Korean Patent No. 10-1324109 (2013), Mexican Patent No. 315453 (2013), New Zealand Patent No. 590064 (2012), US Patent No. 8,158,367 (2012), Canadian Patent No. CA 2,728,574 (2020).
  69. C.-H. Wong, C.-Y. Wu, A. Yu, J. Yu “Globo H and related anti-cancer vaccines with novel glycolipid adjuvants” US Patent No. 9,603,913B2 (2017); 9,028,836 B2 (2015); 8,268,969 (2012). Canadian Patent No. 2728341 (2019); Chinese Patent No. CN105535955B (2019); ZL200980122743.3 (2016); Mexican Patent No. 350230 (2017); 319370 (2014), Indian Patent No. 314985 (2019), Japanese Patent No. 6151319 (2017); 5795655 (2015); 5628158 (2014), Taiwan Patent No. I583393 (2017); I392502 (2013), Hong Kong Patent No. HK1153645 (2017); European Patent No. EP2310047A1 (2016), Korean Patent No. 10-1677279 (2016), Australian Patent No. 2014201215 (2016); 2009269127 (2014), New Zealand Patent No. 590140 (2012).
  70. M. Tsuji, D. D. Ho, C.-H. Wong, D. Wu, M. Fujio, X. Li “Glycolipids and analogues thereof as antigens for NKT cells” US Patent No. 8,586,051 (2013), US Patent No. 8,163,290 (2012), US Patent No. 7,923,013 (2011), US Patent No. 7,534,434 (2009).
  71. C.-H. Wong, A. Yu, Y.-J. Chang, K.-H. Lin, J.-T. Hung “Alpha-galactosyl ceramide analogs and their use as immunotherapies”, US Patent No. 7,928,077 (2011); Korean Patent No. 10-1755526 (2017), Indian Patent No. 302381 (2018), Canadian Patent No. CA 2,756,053 (2018), Australian Patent No. 2009268381 (2016), Philippines Patent No. 1-2011-500318 (2016), European Patent No. EP2320947 (2015), Chinese Patent No. ZL200980138107.X (2015), Indonesia Patent No. IDP000038138 (2015), South Africa Patent No. 2011/01128 (2014), UK Patent No. GB2461656 (2012), Singapore Patent No. 168917 (2012).
  72. C.-H. Wong, C.-Y. Wu, S. Y. Tseng, “Glycan arrays on PTFE-like aluminum coated glass slides and related methods” US Patent No. 10,274,488 (2019); 8,680,020 (2014); Japanese Patent No. 6475673 (2019); 5986745 (2016); European Patent No. EP2318832 (2013).
  73. K.-F. Hua, H.-Y. Hsu, C.-H. Wong “Methods and compositions associated with administration of an extract of Ganoderma lucidum” US Patent No. 7,687,064 (2009).
  74. T.-R. Tu, C.-F. Li, S.-H. Su, C.-H. Wong, E. Fan “Compositions and methods for treating psoriasis by Ganoderma lucidum (Reishi) polysaccharides” US Patent No. 7,947,283 (2011).
  75. T.-R. Tu, C.-F. Li, S.-H. Su, C.-H. Wong, E. Fan “Compositions and methods for treating allergies, auto-immune diseases, and improving skin condition by Ganoderma lucidum (Reishi) polysaccharides” US Patent No. 7,785,600 (2010).
  76. C.-H. Wong, S.-L. Hsieh, T.-L. Hsu, S.-C. Cheng, S.-T. Chen “Methods and reagents for the analysis and purification of polysaccharides” US Patent No. 7998482 (2011), US Patent No. 7,943,134 (2011), Taiwan Patent No. I333959 (2010).
  77. C.-H. Wong, C.-Y. Wu “Methods for modifying human antibodies by glycan engineering” US Patent No. 11,267,870 (2022); 11,377,485 B2 (2022); 10,087,236 (2018).

78. C.-H. Wong, C.-Y. Wu “Alpha-selective sialyl phosphate donors for preparation of sialosides and sialoside arrays for influenza virus” European Patent No. 2411528 (2015), US Patent No. 8,507,660 (2013).
79. C.-H. Wong, C. Ma, C.-C. Wang, J.-R. Chen “Methods and compositions for immunization against virus” US Patent No. 10307475B2 (2019); 8,741,311 (2014), Australian Patent No. 2016203431 (2018); 2010229675 (2016), Chinese Patent No. ZL201710696137.9 (2022); ZL201080022917.1 (2017), Korean Patent No. 10-1793195 (2017), Israel Patent No. 215430 (2017), Chile Patent No. 55277 (2017), Colombia Patent No. 30288 (2016), Taiwan Patent No. I510247 (2015), Mexican Patent No. 327466 (2015).
80. S.-M. Liang, Y.-P. Chen, W.-B. Yang, C.-H. Wong “Reishi F3 sub fraction polysaccharides and methods of using same” US Patent No. 8,071,105 (2011).
81. C.-H. Wong, E. Fan, H.-Y. Hsu, T.-R. Tu, W.-C. Lin, C.-F. Li, S.-T. Weng, W.-T. Wang “Reishi polysaccharide-based compositions and methods for treatment of cancer” Taiwan Patent No. I606835 (2017), PCT Patent Application No. PCT/US2011/033831 (2011).
82. C.-H. Wong, C. A. Ma, Y.-C. Tseng “Methods for producing virus particles with simplified glycosylation of surface proteins” US Patent No. 9,920,347 (2018); 9,403,878 B2 (2016), Australian Patent No. 2016204276 (2018); 2011323141 (2016), Korean Patent No. 10-2156209 (2020); 10-1927421 (2018); Japanese Patent No. 6773513 (2020); 6166178 (2017), Russian Patent No. 2607452 (2017); Mexican Patent No. 394274 (2022); 349530 (2017), Taiwan Patent No. I537385 (2016), Colombian Patent No. 30832 (2016); Israel Patent No. 226143 (2020), European Patent No. EP2635693 (2020), Chinese Patent Application No. 201180063980.4 (2011), Chile Patent No. 59812 (2020); Canadian Patent No. 2854619 (2022); Brazil Patent No. BR1120130111984 (2022).
83. C.-H. Wong, C.-Y. Wu, C.-H. Liang, A.-S. Yang “Glycan arrays for high throughput screening of viruses” US Patent No. 10,338,069 (2019), PCT Patent Application No. PCT/US2011/32192 (2011).
84. C.-H. Wong, J.-M. Fang, J.-J. Shie, Y.-S. Cheng “Zanamivir phosphonate congeners with anti-influenza activity and determining oseltamivir susceptibility of influenza viruses” US Patent No. 9,874,562 B2 (2018), US Patent No. 9,403,855 (2016), Korean Patent No. 101915647 (2018), Chinese Patent No. ZL 201510157505.3 (2018), European Patent No. 2975409 (2018), Australian Patent No. 2011250970 (2017), Korean Patent No. 10-1745386 (2017), Japanese Patent No. 5947289 (2016), Chinese Patent No. ZL 201180034218.3 (2016), European Patent No. 2568976 (2015), Canadian Patent No. 2,835,489 (2018).
85. C.-H. Wong, Y.-T. Wu “Compounds and methods for treating tuberculosis infection” US Patent No. 9,073,941 (2015).
86. C.-H. Wong, T.-L. Hsu, S. Hanson, Masaaki Sawa “Alkynyl sugar analogs for the labeling and visualization of glycoconjugates in cells” US Patent No. 10,317,393 (2019); 7,960,139 (2011); 9,816,981 (2017).
87. C.-H. Wong, T.-L. Hsu, S. Hanson “Tailored glycoproteomic methods for the sequencing, mapping and identification of cellular glycoproteins” US Patent No. 7,943,330 (2011).
88. P.-H. Liang, Y.-L. Lin, C.-H. Wong “Novel five-membered iminocyclitol derivatives as selective and potent glycosidase inhibitors: new structures for antivirals and osteoarthritis therapeutics” US Patent No. 8,273,788 (2012), US Patent No. 7,919,521 (2011).

89. C.-H. Wong, T.-L. Hsu, S. Hanson, M. Sawa “Glycoproteomic probes for fluorescent imaging of fucosylated glycans in vivo” US Patent No. 8,329,413 (2012); 7,910,319 (2011).
90. D. Ho, Y. Hung, M.-W. Chen, R. T. J. Cheng, C.-H. Wong, A. Yu “Flu vaccines and methods of use thereof” Taiwan Patent No. I403518 (2013), US Patent No. 7,981,428 (2011), US Patent No. 8,030,029 (2011).
91. S.-L. Hsieh, C.-H. Wong, T.-L. Hsu, S.-T. Chen “Compositions and methods for identifying response targets and treating flavivirus infection responses” Chinese Patent No. ZL200880129343.0 (2014), Taiwan Patent No. I403586 (2013), US Patent No. 8460669 (2013), US Patent No. 7943134 (2011).
92. C.-H. Wong, Y.-S. Cheng, H.-M. Yu, T.-J. Cheng, C.-Y. Wu, J.-M. Fang “Compositions and methods for treating inflammation and inflammation-related disorders by *Plectranthus amboinicus* extract” US Patent No. 8,105,636 (2012).
93. C.-H. Wong, Alice L. Yu, W.-B. Yang, E. Fan, H.-Y. Hsu, P. Lee T.-R. Tu, C.-C. Hung “*Hirsutella sinensis* mycelia compositions and methods for treating sepsis and related inflammatory responses” US Patent No. 8,486,914 (2013).
94. C.-H. Wong, P.-H. Liang “Quantitative microarray of intact glycolipid CD1d interaction and correlation with cell-based cytokine production” US Patent No. 8,383,554 (2013).
95. C.-H. Wong, J.-M. Fang, W.-B. Yang, T.-J. R. Cheng, Y. S.-Y. Hsieh, C. Chien, C.-C. Lin, H.-Y. Wen “Structure and bioactivity of the polysaccharides in medicinal plant *Dendrobium huoshanense*” Taiwan Patent No. I488636 (2015), US Patent No. 8,354,127 (2013).
96. Yu, J. Yu, K.-I. Lin, W.-B. Yang, C.-H. Wong “Fungal immunostimulatory compositions” US Patent No. US 8,906,380 B2 (2014), Taiwan Patent No. I386220 (2013).
97. C.-H. Wong, J.-M. Fang, Y.-S. E. Cheng, C.-S. Tsai “Cell-permeable probes for identification and imaging of sialidases” US Patent No. 10,214,765 (2019), US Patent No. 9,914,956 B2 (2018), EP Patent No. EP 2885311 (2020), Japanese Patent No. 6302909 (2018), PCT Patent Application No. PCT/US2013/55472 (2013).
98. C.-H. Wong, J.-M. Fang, J.-J. Shie “Benzocyclooctyne compounds and uses thereof” US Patent No. 9,547,009 (2017), Japanese Patent No. 6211084 (2017), PCT Patent Application No. PCT/US2013/56018 (2013), EP Patent Application No. 13830785.5 (2013).
99. C.-H. Wong, J.-M. Fang, K.-C. Liu, J.-T. Jan, T.-J. R. Cheng, Y.-S. E. Cheng “Enhanced anti-influenza agents conjugated with anti-inflammatory activity” Israel Patent No. 235117 (2019), US Patent No. 9,914,956 (2018), Chinese Patent No. ZL201380030579.X (2018), Australian Patent No. 2013245756 (2018), Japanese Patent No. 6174117 (2017), PCT Patent Application No. PCT/US2013/36308 (2013), Mexican Patent No. 369397 (2019), Korean Patent No. KR 10-2195657 5 (2020), EP Patent No. EP 2841066 (2021), Canadian Patent No. 2,870,335 (2022).
100. C.-H. Wong, T.-I. Tsai, C.-Y. Wu “Large scale enzymatic synthesis of oligosaccharides” US Patent No. 9,340,812 (2016); Japanese Patent No. 6647382 (2020); 6462756 (2019); 6125637 (2017); Canadian Patent No. 2882294 (2019); 3052909 (2019); Australian Patent No. 2019203313 (2020); 2018200094 (2019), 2016206315 (2018); 2013305937 (2016), Taiwan Patent No. I573876 (2017); I567200 (2017); I563092 (2016); I563091 (2016); I510627 (2015); Korean Patent No. 10-1685628 (2016), Hong Kong Patent No. HK 1254775 (2022); 1254776 (2022); 1254774 (2022); 1254773 (2021); 1254772 (2021); 1207668 (2019), Chinese Patent No.

ZL201810425413.2 (2022); ZL201810425113.4 (2022); ZL201810425064.4 (2021); ZL201810424957.7 (2021); ZL201810425034.3 (2021); ZL201380044460.8 (2018).

101. C.-H. Wong, T.-J. Cheng, C. Ma, W.-C. Cheng “Antibiotic compositions and related screening methods” US Patent No. 8,916,540 B2 (2014).
102. C.-H. Wong, P.-H. Liang “Quantitative analysis of carbohydrate-protein interactions using glycan microarrays: determination of surface and solution dissociation constants” US Patent No. 8,906,832 B2 (2014).
103. F. H. Arnold, C.-H. Wong, Y. Mitsuda, M. M. Yu Chen, C. Bennett, W. Greenberg, J. C. Lewis, S. Bastian, “Methods and compositions for preparation of selectively protected carbohydrates” US Patent No. 8,802,401 (2014).
104. C.-H. Wong, C.-Y. Wu, C.-H. Wang, S.-T. Li “Glycan conjugates and use thereof” US Patent No. 9981030 (2018), European Patent No. EP 3013347 (2019).
105. C.-H. Wong, C.-Y. Wu, H.-Y. Chuang, C.-T. Ren “RM2 antigens and use thereof” European Patent No. 3013365 (2019), US Patent No. 10,086,054 B2 (2018).
106. C.-H. Wong, C.-Y. Wu, H.-Y. Hsu, S.-F. Liao, C.-H. Liang “Antibody-mediated anti-tumor activity induced by Reishi mushroom polysaccharides” Taiwan Patent No. I599370 (2017), US Patent No. 10,307,470 (2019).
107. C.-H. Wong, A. Yu, K.-H. Lin, T.-N. Wu “Human iNKT cell activation using glycolipids with altered glycosyl groups” Japanese Patent No. 6486368 (2019), Israel Patent No. 244326 (2019), US Patent No. 10,111,951 B2 (2018); 9,782,476 B2 (2017), Korean Patent No. 10-2298172 (2021), EP Patent No. 3041484 (2021), Chinese Patent No. ZL201480049320.4 (2021), Australian Patent No. 2014317889 (2020), US Patent No. 10,918,714 (2021).
108. C.-H. Wong, Y.-W. Lou, C.-W. Lin, S.-C. Yeh, T.-L. Hsu, C.-Y. Wu, Han-Chung Wu, “Compositions and methods for treatment and detection of cancers” US Patent No. 9,982,041 (2018); 9,975,965 B2 (2018); 10,150,818 (2018), Chinese Patent No. ZL 201580004867.7 (2020), Chinese Patent No. ZL 201580073451.0 (2021), European Patent No. EP3094352 (2020); EP3245225 (2021).
109. C.-H. Wong, J.-M. Fang, J.-J. Shie “Reactive labelling compounds and uses thereof” Japanese Patent No. 6562942 (2019), US Patent No. 10,119,972 B2 (2018), US Patent No. 9,759,726 B2 (2017), Japanese Patent No. 6884177 (2021), PCT Patent Application No. PCT/US2015/022977 (2015), Taiwan Patent No. I687428(2020), Chinese Patent No. ZL 201580016671.X (2020), European Patent No. 3129767 (2021).
110. C.-H. Wong, C.-Y. Wu, Ming-Hung Tsai “Anti-CD20 glycoantibodies and uses thereof” Taiwan Patent No. I670078 (2019), Israel Patent No. 249186 (2022).
111. C.-H. Wong, C.-Y. Wu “Anti-HER2 glycoantibodies and uses thereof” US Patent No. 10,005,847 B2 (2018); Taiwan Patent No. I679020 (2019), Japanese Patent No. 7062361 (2022); Australian Patent No. 2015267045 (2021).
112. C.-H. Wong, C.-Y. Wu “Anti-TNF-alpha glycoantibodies and uses thereof” US Patent No. US 11,332,523 B2 (2022), Taiwan Patent No. I732738 (2021), Japan Patent No. 7063538 (2022); Canadian Patent No. 2950433 (2015).
113. C.-H. Wong, T.-I. Tsai “Fucosidase from bacteroides and methods using the same” PCT Patent Application No. PCT/US2015/032744 (2015), US Patent No. US 11,319,567 B2 (2022), Taiwan



- Patent No. I717319 (2021), Japanese Patent No. 7093612 (2022), European Patent No. 3149161 (2021), Australian Patent No. 2015267051 (2022), Israel Patent No. 249183 (2021).
114. C.-H. Wong, C.-Y. Wu, H.-Y. Lee “Novel glycan conjugates and use thereof” Korean Patent No. 10-2003138 (2019), US Patent No. 10155823B2 (2018), Japanese Patent No. 6401380 (2018), Canadian Patent No. 2959030 (2018), Australian Patent No. 2015305332 (2018), New Zealand Patent No. 729243 (2018), Taiwan Patent No. I587871 (2017), Chinese Patent No. ZL 201580045205.4 (2020), EP Patent No. 3183262 (2020), Mexican Patent No. 382791 (2021), Indian Patent No. 337688 (2020).
115. C.-H. Wong, A. Yu, K.-H. Lin, T.-N. Wu “Human iNKT cell activation using glycolipids” US Patent No. 9,879,042 B2 (2018), US Patent No. 10,533,034 (2020), PCT Patent Application No. PCT/US2015/049014 (2015), Australian Patent No. 2015315294 (2020), Japanese Patent No. 6899321 (2021), Chinese Patent No. ZL 201580048074.5 (2021); Korean Patent No. 10-2422375 (2022), Israel Patent No. 250957 (2021), Taiwan Patent No. I745275 (2021).
116. C.-H. Wong, C.-Y. Wu, “Novel glycan conjugates and methods of use thereof” US Patent No. 10,342,858 (2019), Chinese Patent No. ZL 201580074177.9 (2019), PCT Patent Application No. PCT/US2015/46420 (2015), Taiwan Patent No. I736523 (2021), Japanese Patent No. 6779887 (2020), EP Patent No. 3248005 (2020), Israel Patent No. 253161 (2021).
117. C.-H. Wong, C.-Y. Wu, C. Ma, “Compositions and methods relating to universal glycoforms for enhanced antibody efficacy” Taiwan Patent No. I717333 (2021); I654202 (2019), US Patent No. 10,023,892 B2 (2018); 10,118,969 B2 (2018), European Patent No. EP 325059 (2021), Japanese Patent No. 6942633 (2021); 6894239 (2021); Israel Patent No. 249195 (2022).
118. C.-H. Wong, C.-Y. Wu, Sarah K.-C. Cheung, P.-K. Chuang, T.-L. Hsu, “Cancer markers and methods of use thereof” US Patent No. 10,495,645 (2019), European Patent No. 3248013 (2020), Taiwan Patent No. I710571 (2020), Chinese Patent No. ZL 201680006858.6 (2020), Australian Patent No. 2016209056 (2021), Israel Patent No. 253160 (2021).
119. C.-H. Wong, T.-J. Cheng, R.-J. Chein, P.-C. Yang, S.-H. Pan, “4, 9-Dioxo-4,9-dihydronaphtho[2,3-b]furan-3-carboxamide derivatives and uses thereof for treating proliferative diseases and infectious diseases” US Patent No. 11,434,229 B2 (2022), US Patent 11,919,886B2 (2024), Taiwan Patent No. I744288 (2021).
120. C.-H. Wong, T.-J. Cheng, J.-M. Fang, P.-C. Yang, S.-H. Pan, L.-W. Li, “Purine compounds possessing anticancer activity” US Patent No. 10,765,681 (2020), Taiwan Patent No. I722106 (2021).
121. C.-H. Wong, C.-Y. Wu, Sachin S Shivatare, “Methods for modular synthesis of N-glycans and arrays thereof” US Patent No. 10,336,784 (2019).
122. C.-H. Wong, C.-Y. Wu, “Recombinant virus, composition comprising the same, and uses thereof” US Patent No. US11480391B2 (2022), Taiwan Patent No. I725253 (2021), Taiwan Patent No. I793547 (2023), Japanese Patent No. 6975233 (2021), Korean Patent No. 10-2439864 (2022), Korean Patent No. 10-2527547 (2023), Indian Patent No. 400182 (2022).
123. C.-H. Wong, C.-Y. Wu, N.-H. Lin, C.-C. Huang, L.-Y. Huang, Sachin S. Shivatare, T. Cheng, L.-T Chen, “Endoglycosidase mutants for glycoprotein remodeling and methods of using it” US Patent No. 10,000,747 (2018); 10,407,673 (2019), Taiwan Patent No. I706035 (2020), Japan Patent No. 6965350 (2021).

124. C.-H. Wong, C. Ma, T.-J. Cheng, W.-C. Cheng “Crystal structure of bifunctional transglycosylase pbp1b from E. coli and inhibitors thereof” US Patent No. 9,890,111 B2 (2018).
125. N.-H. Lin, C.-C. Huang, C.-Y. Chen, K.-C. Chu, C.-H. Wong, H.-C. Wu, “Antibodies, binding fragments, and methods of use” US Patent No. 10,538,592 (2020).
126. H.-J. Lo, C.-H. Wong, “Sialidase-resistant saccharide and method of making and using the same” PCT Patent Application No. PCT/US20/14608 (2020), Taiwan Patent No. I749504 (2021), US Patent Application No. 17/598,064 (2020), European Patent Application No. 20 783 332.8 (2020).
127. C.-H. Wong, H.-Y. Liao, S.-C. Wang, Y.-A. Ko, K.-I. Lin, C. Ma, T.-J. Cheng, “Chimeric influenza vaccines” PCT Patent Application No. PCT/US2021/031406 (2021), Taiwan Patent Japanese Patent Application No. 2022-567535(2022), US Patent Application No. 17/998,208(2022), European Patent Application No. 21800534.6(2022).
128. S.-C. Hung, C.-H. Wong, T.-J. Cheng, “Compounds and methods for treating osteoarthritis” Taiwan Patent Application No. 110106062 (2021), Japanese Patent No. 7337111 (2023), US Patent No. US 11,332,490 B1 (2022).
129. S.-C. Hung, C.-H. Wong, V. Gannedi, B. K. Villuri, N. S. Reddy, C.-C. Ku, “Catalysts and their uses in One-pot diastereoselective synthesis of Remdesivir” PCT Patent Application No. PCT/US21/53886 (2021), Taiwan Patent No. I830071 (2024), US Patent Application No. 18/030,773 (2021), European Patent Application No. 21878502 (2021).
130. S.-C. Hung, C.-H. Wong, J.-T. Jan, T.-J. Cheng, C. Ma, R.-J. Chein, W.-B. Yang, Y.-T. Wu, P.-H. Liang, “Methods for treating SARS-COV-2 infection” PCT Patent Application No. PCT/US21/60889 (2021), Taiwan Patent Application No. 110144112 (2021).
131. C. Ma, C.-H. Wong, H.-Y. Huang, “Monoglycosylated spike vaccine for SARS-CoV-2 and its variants of concern” PCT Patent Application No. PCT/US2022/071682 (2022), Taiwan Patent Application No. 111113933 (2022), US Patent Application No. 18/005,573 (2023), European Patent Application No. 22789118.1(2023), Chinese Patent Application No. 202280005924.3(2023), Japanese Patent Application No. 2023-502656(2023).
132. C.-H. Wong, C.-C. Jiang, S.-C. Hung, C.-H. Hsieh, P.-H. Liang, T.-J. Cheng, H.-I. Yang, “Methods of diagnosing and treating osteoarthritis” Taiwan Patent Application No. 111143067 (2022), PCT Patent Application No. PCT/US2022/49671 (2022).
133. C.-H. Wong, C. Ma, C.-Y. Wu, “Glycosite-deleted mRNA of SARS-COV-2 spike protein as broad-spectrum vaccine” PCT Patent Application No. PCT/US2022/071679 (2022), Taiwan Patent Application No. 111113932 (2022), Chinese Patent Application No. 202280006776.7 (2023), Japanese Patent Application No. 2023-520111 (2023), US Patent Application No. 18/029,758 (2022), European Patent Application No. 22789117.3(2022).
134. C.-H. Wong, C. Ma, K.-I. Ling, S.-W. Wang, Y.-H. Chang, X. Chen, H. -Y. Huang, “Antibody specific to spike protein of SARS-COV-2 and uses thereof” PCT Patent Application No. PCT/US2022/77481 (2022), Taiwan Patent Application No. 111137397 (2022), US Patent Application No. 17/937,744 (2022), US Patent Application No. 18/403,419 (2024).
135. C.-H. Wong, K.-I. Ling, S.-W. Wang, Y.-H. Chang, “ANTIBODY SPECIFIC TO SPIKE PROTEIN OF SARS-COV-2 AND USES THEREOF” PCT Patent Application No. PCT/US2022/082428 (2022), Taiwan Patent Application No. 111150166 (2022), US Patent Application No. 18/146,873 (2022).

