

Glen R. Nemerow, Ph.D.
Curriculum Vitae

Birth December 14, 1950
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Work Address The Scripps Research Institute
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Education B.S., Biology
Syracuse University, Syracuse, New York
June 1973

Ph.D., Microbiology and Immunology
University of Illinois, Chicago, IL
March 1979

Teaching Assistant, Department of Microbiology
University of Illinois, Chicago, IL
1975-1979

Postdoctoral Training, Department of Immunology
Scripps Clinic and Research Foundation
La Jolla, CA
1979-1983

Professional Record 1983-1984 Senior Research Fellow, Department of Immunology
Scripps Clinic and Research Foundation
La Jolla, CA

1984-1990 Assistant Professor, Department of Immunology
Scripps Clinic and Research Foundation
La Jolla, CA

1991-1997 Associate Professor, Department of Immunology
The Scripps Research Institute
La Jolla, CA

1997-2006 Associate Professor (Tenured), Department of Immunology
The Scripps Research Institute
La Jolla, CA

2006-Present Professor, Department of Immunology
The Scripps Research Institute
La Jolla, CA

Honors and Awards

1975-1978	Graduate Student Teaching Assistantship, University of Illinois
1981-1983	Leukemia Society of America Fellowship
1983-1985	Leukemia Society of America Special Fellowship
1986-1990	Pew Scholars Award in the Biomedical Sciences

Recent Invited Lectures and Meetings

2nd International Conference on Gene Therapy, Crete, Greece, 1998
Symposium on “Signaling and the Cytoskeleton”, Amgen Institute, Toronto, Canada, 1998
Gordon Conference (Viruses and Cells), Il Ciocco, Italy, 1999
ASV Symposium (19th annual meeting), Fort Collins, Colorado, 2000
FASEB Summer Conference “Microbial Pathogenesis”, Snowmass Village, Colorado, 2000
Seminar, University of Southern California, School of Medicine, Los Angeles, California, 2001
FASEB Summer Conference “Virus Assembly”, Saxtons River, Vermont, 2002
Gene Vectors EuroLab Course, Invited Speaker, Paris, France, 2002
Seminar, University of Virginia, School of Medicine, Charlottesville, Virginia, 2002
ASV Conference (Session Chair), University of California, Davis, California, 2003
50 Years of Adenoviridae (Session Chair), Montpellier, France, 2003
Seminar, McArdle Cancer Biology Series, Univ of Wisconsin, School of Medicine, Madison, Wisconsin 2003
Seminar, Harvard Medical School, Boston, Massachusetts, 2004
ASM Conference “Signal Transduction in Viral Systems” (Co-organizer), Savannah, Georgia, 2004
FASEB Summer Conference “Virus Assembly” (Session Chair), Saxtons River, Vermont, 2004
Seminar, Stanford University (SSRL laboratory), Stanford, California, 2004
Seminar, University of Pennsylvania School of Medicine, Philadelphia, Pennsylvania, 2005
EMBO Workshop “The Structural Basis of Papovavirus Biology”, Invited Speaker, Siena, Italy, 2005
Invited Symposium Speaker, American Society for Gene Therapy, St. Louis, Missouri, 2005
Seminar, Baylor College of Medicine, Houston, Texas, 2005
Seminar, University of Michigan Medical School, Ann Arbor, Michigan, 2006
8th International Adenovirus Meeting (Program Committee Member), Zurich, Switzerland, 2006
Invited Symposium Speaker, NIH Salzman Symposium, Bethesda, Maryland, 2006
Gordon Research Conference, Ventura, California, 2008
Seminar, University of California, Irvine, School of Medicine, Irvine, California 2009
9th International Adenovirus Meeting, Dobogókő, Hungary, 2009
Gene Therapy Seminar Series, Gene Therapy Center at University of Alabama, Birmingham, Alabama, 2009
Session Chair, Keystone Symposia on Molecular and Cellular Biology, Taos, New Mexico, 2010
Division Lecturer, ASM 110th General Meeting, San Diego, California, 2010
Invited Seminar Speaker, UCLA School of Medicine, Los Angeles, CA 2011
Faculty Lecture Series, The Scripps Research Institute, La Jolla, California, 2011
Invited Speaker, Keystone Symposium on Cell Biology of Virus Entry, Replication and Pathogenesis, Whistler, British Columbia, 2012
10th International Adenovirus Meeting, Umeå, Sweden, 2012

Invited Speaker, Indiana University, Microbiology Seminar Series, 2012
Invited Speaker, University of Utah School of Medicine, Microbial Pathogenesis Training Grant Retreat, 2012
Organizer, 11th International Adenovirus Meeting, La Jolla, CA, 2014

External Advisory

Special Reviewer, NIH, Experimental Virology Study Section, 1991
Ad hoc Reviewer, NIH, Oral Biology and Medicine Study Section, 1995
Editorial Board, Trends in Microbiology, 1992-
Editorial Board, International Immunopharmacology, 1995-2013
Editorial Board, Journal of Virology, 2004-2015
Editorial Board, Virology, 2010-2015
Ad hoc Reviewer, NIH, Recombinant DNA Advisory Committee (RAC), 1999, 2000, 2001
Ad hoc Reviewer, NSERC (Natural Sciences and Engineering Council of Canada), 2001-2002
Swedish Research Council (Receptor Biology), 2002
Ad hoc Reviewer, NIH, Visual Sciences "C" Study Section, 2002
Review Panel for NCI SPORE applications for Pancreatic Cancer, NIH, 2003
Recombinant DNA Advisory Committee (RAC), NIH, January 2004 – August 2007
Ad hoc Reviewer, NIH, Visual Sciences "A" Study Section, 2005
Editorial Board, Molecular Therapy, 2005-2008
Ad hoc Reviewer, NIH, Special Emphasis Panel, 2009, 2011, 2012
Editorial Board, mBio[™], 2010-2015

Institutional Administration

Co-organizer Pathogenesis Affinity Group seminar series, 1993-1995, 2005-2007
Member of Immunology Appointments and Promotions Committee, 2001-2004, 2006-
TSRI Graduate Student Recruitment Committee 2000-
TSRI Fellowship Selection Committee, 2002-
TSRI Institutional Bio-Safety Committee (IBC), Member, 2007-; Chairman, 2009-2013

Professional Activities

Charter Member, American Society for Virology (ASV), 1981-
Member, American Association of Immunologists (AAI), 1985-1991
Member, American Association for the Advancement of Science (AAAS), 1990-2009, 2011-
Member, American Society for Cell Biology (ASCB), 1997-2005
Member, American Society for Microbiology (ASM), 1997-

Teaching Activities

TSRI Kellogg School of Science & Technology, Course Director, Virology Elective Course, Spring 2007
TSRI Kellogg School of Science & Technology, Course Director, Virology Elective Course, Spring 2009
TSRI Kellogg School of Science & Technology, Course Director, Virology Elective Course, Spring 2013

Publications

1. Lint TF, Osofsky SG, Gewurz A, Nemerow GR, Gewurz H. 1978. Recent experiences with patients having inborn deficiencies of the terminal complement components. In: Opferkuch W, Rother K, editors. Clinical aspects of the complement system: international symposium, Bochum, October 1976. Stuttgart: Georg Thieme, publisher. p. 206-211.
2. Nemerow GR, Gewurz H, Osofsky SG, Lint TF. 1978. Inherited deficiency of the seventh component of complement associated with nephritis. Propensity to formation of C5b and related C7-consuming activity. *J Clin Invest.* 61(6):1602-10. PMID: PMC372686
3. Nemerow GR, Yamamoto KI, Lint TF. 1979. Restriction of complement-mediated membrane damage by the eighth component of complement: a dual role for C8 in the complement attack sequence. *J Immunol.* 123:1245-52.
4. Nemerow GR, Cooper NR. 1981 Isolation of Epstein Barr-virus and studies of its neutralization by human IgG and complement. *J Immunol.* 127:272-278.
5. Cooper NR, Beebe DP, Nemerow GR. 1982. Mechanisms of complement-dependent viral neutralization. In: Dixon FJ, Miesche PA, editors. Immunopathology: VIIIth international symposium, San Diego, CA 1980. New York: Academic Press, Inc. p. 529-551.
6. Nemerow GR, Jensen FC, Cooper NR. 1982. Neutralization of Epstein-Barr virus by nonimmune human serum. Role of cross-reacting antibody to herpes simplex virus and complement. *J Clin Invest.* 70:1081-91. PMID: PMC370321
7. Cooper NR, Nemerow GR, Mayes JT. 1983. Methods to detect and quantitate complement activation. *Springer Semin Immunopathol.* 6:195-212. Review.
8. Cooper NR, Nemerow GR. 1983. Complement, viruses, and virus-infected cells. *Springer Semin Immunopathol.* 6:327-347. Review.
9. Nemerow GR, Cooper NR. 1984. Early events in the infection of human B lymphocytes by Epstein-Barr virus: the internalization process. *Virology.* 132:186-98.
10. Cooper NR, Nemerow GR. 1984. The role of antibody and complement in the control of viral infections. *J Invest Dermatol.* 183(1 Suppl):121s-127s. Review
11. Nemerow GR, Cooper NR. 1984. Infection of B lymphocytes by a human herpesvirus, Epstein-Barr virus, is blocked by calmodulin antagonists. *Proc Natl Acad Sci U S A.* 81:4955-4959. PMID: PMC391611
12. Nemerow GR, Cooper NR. 1985. The role of calmodulin in the infection of human B lymphocytes by Epstein-Barr virus. *Trans Assoc Am Physicians.* 97:232-241.
13. Nemerow GR, McNaughton ME, Cooper NR. 1985. Monoclonal antibody to the Epstein-Barr virus receptor induces human B lymphocyte activation and differentiation. *Trans Assoc Am Physicians.* 98:290-300.
14. Cooper NR, Nemerow GR. 1985. Complement effector mechanisms in health and disease. *J Invest Dermatol.* 85(1 Suppl):39s-46s. Review.
15. Nemerow GR, Wolfert R, McNaughton ME, Cooper NR. 1985. Identification and characterization of the Epstein-Barr virus receptor on human B lymphocytes and its relationship to the C3d complement receptor (CR2). *J Virol.* 55(2):347-351. PMID: PMC254939
16. Nemerow GR, McNaughton ME, Cooper NR. 1985. Binding of monoclonal antibody to the Epstein Barr virus (EBV)/CR2 receptor induces activation and differentiation of human B lymphocytes. *J Immunol.* 135(5):3068-3073.
17. Nemerow GR, Siaw MF, Cooper NR. 1986. Purification of the Epstein-Barr virus/C3d complement receptor of human B lymphocytes: antigenic and functional properties of the purified protein. *J Virol.* 58(2):709-712. PMID: PMC252969

18. Siaw MF, Nemerow GR, Cooper NR. 1986. Biochemical and antigenic analysis of the Epstein Barr virus/C3d receptor (CR2). *J Immunol.* 136(11):4146-4151.
19. Mold C, Cooper NR, Nemerow GR. 1986. Incorporation of the purified Epstein Barr virus/C3d receptor (CR2) into liposomes and demonstration of its dual ligand binding functions. *J Immunol.* 136(11):4140-4145.
20. Nemerow GR, Siaw, MFE, Cooper NR. 1986. Biological significance of the Epstein-Barr virus receptor on B lymphocytes. In: Crowell RL, Lonberg-Holm K, editors. *Virus Attachment and entry into cells. Proceedings of an ASM conference held in Philadelphia, Pennsylvania, 10-13 April 1985.* Washington, D.C.: American Society of Microbiology Press. p. 160-167.
21. Cooper NR, Nemerow GR. 1986. Complement-dependent mechanisms of virus neutralization. In: Ross GD, editor. *Immunobiology of the complement system.* Orlando: Academic Press, Inc. p. 139-162.
22. Nemerow GR, Cooper NR. 1987. Virus receptors on lymphoid cells. In: DiSabato G, Langone JJ, vanVunakis H, editors. *Methods in enzymology. Immunochemical techniques Part K: in vitro models of B and T cell functions and lymphoid cell receptors.* Orlando: Academic Press, Inc. 150:548-558.
23. Nemerow GR, Mold C, Schwend VK, Tollefson V, Cooper NR. 1987. Identification of gp350 as the viral glycoprotein mediating attachment of Epstein-Barr virus (EBV) to the EBV/C3d receptor of B cells: sequence homology of gp350 and C3 complement fragment C3d. *J Virol.* 61(5):1416-1420. PMID: PMC254117
24. Moore MD, Cooper NR, Tack BF, Nemerow GR. 1987. Molecular cloning of the cDNA encoding the Epstein-Barr virus/C3d receptor (complement receptor type 2) of human B lymphocytes. *Proc Natl Acad Sci U S A.* 84:9194-9198. PMID: PMC299719
25. Cooper NR, Moore MD, Nemerow GR. 1988. Immunobiology of CR2, the B lymphocyte receptor for Epstein-Barr virus and the C3d complement fragment. *Ann Rev Immunol.* 6:85-113. Review.
26. Mold C, Nemerow GR, Bradt BM, Cooper NR. 1988. CR2 is a complement activator and the covalent binding site for C3 during alternative pathway activation by Raji cells. *J Immunol.* 140(6):1923-1929.
27. Mold C, Bradt BM, Nemerow GR, Cooper NR. 1988. Activation of the alternative complement pathway by EBV and the viral envelope glycoprotein, gp350. *J Immunol.* 140(11):3867-3874.
28. Mold C, Bradt BM, Nemerow GR, Cooper NR. 1988. Epstein-Barr virus regulates activation and processing of the third component of complement. *J Exp Med.* 168(3):949-969. PMID: PMC2189017
29. Cooper NR, Nemerow GR. 1989. Complement and infectious agents: a tale of disguise and deception. *Complement Inflamm.* 6:249-258. Review.
30. Nemerow GR, Houghten RA, Moore MD, Cooper NR. 1989. Identification of an epitope in the major envelope protein of Epstein-Barr virus that mediates viral binding to the B lymphocyte EBV receptor (CR2). *Cell.* 56:369-377.
31. Moore MD, DiScipio RG, Cooper NR, Nemerow GR. 1989. Hydrodynamic, electron microscopic, and ligand-binding analysis of the Epstein-Barr virus/C3dg receptor (CR2). *J Biol Chem.* 264(34):20576-20582.
32. Nemerow GR, Moore MD, Cooper NR. 1990. Structure and function of the B-lymphocyte Epstein-Barr virus/C3d receptor. *Adv Cancer Res.* 54:273-300. Review.
33. Nemerow GR, Mullen JJ 3rd, Dickson PW, Cooper NR. 1990. Soluble recombinant CR2 (CD21) inhibits Epstein-Barr virus infection. *J Virol.* 64(3):1348-1352. PMID: PMC249254
34. Cooper NR, Bradt BM, Rhim JS, Nemerow GR. 1990. CR2 complement receptor. *J Invest Dermatol.* 94(6 Suppl):112S-117S. Review.
35. Moore MD, Cannon MJ, Sewall A, Finlayson M, Okimoto M, Nemerow GR. 1991. Inhibition of Epstein-Barr virus infection in vitro and in vivo by soluble CR2 (CD21) containing two short consensus repeats. *J Virol.* 65(7):3559-3565. PMID: PMC241353

36. Cooper NR, Nemerow GR, Compton, T. 1991. Human herpesvirus receptors. In: Verna R, Nishizuka Y, editors. *Biotechnology of Cell Regulation*. New York:Raven Press. p.135-152.
37. Nemerow GR, Cooper, NR. 1992. CR2 (CD21) mediated infection of B lymphocytes by Epstein-Barr virus. *Seminars in Virology* 3:117-124.
38. Stura, EA., Nemerow GR, and Wilson, IA. 1992. Strategies in the crystallization of glycoproteins and protein complexes. *J. Crystal Growth* 122:273-285.
39. Wickham TJ, Nemerow GR. 1993. Optimization of growth methods and recombinant protein production in BTI-Tn-5B1-4 insect cells using the baculovirus expression system. *Biotechnol Prog.* 9:25-30.
40. Wickham TJ, Mathias P, Cheresch DA, Nemerow GR. 1993. Integrins $\alpha v \beta 3$ and $\alpha v \beta 5$ promote adenovirus internalization but not virus attachment. *Cell.* 73:309-19.
41. Nemerow GR, Wickham TJ, Cheresch DA. 1993. The role of αv integrins in adenovirus infection. In: Preissner KT, Rosenblatt S, Kost C, Wegerhoff J, Mosher DF, editors. *Biology of vitronectins and their receptors*. Amsterdam, The Netherlands:Elsevier Science Publishers. p 177-184.
42. Nemerow GR, Cheresch DA, Wickham TJ. 1994. Adenovirus entry into host cells: a role for αv integrins. *Trends Cell Biol.* 4:52-55. Review.
43. Nemerow GR, Luxembourg A, Cooper NR. 1992. CD21/CD2: Its role in EBV infection and immune function. *Epstein-Barr Virus Report* 1(3):59-64.
44. Mathias P, Wickham T, Moore M, Nemerow G. 1994. Multiple adenovirus serotypes use alpha v integrins for infection. *J Virol.* 68(10):6811-6814. PMID: PMC237109
45. Wickham TJ, Filardo EJ, Cheresch DA, Nemerow GR. 1994. Integrin alpha v beta 5 selectively promotes adenovirus mediated cell membrane permeabilization. *J Cell Biol.* 127(1):257-264. PMID: PMC2120185
46. Wickham TJ, Nemerow GR, Wood HA, Shuler ML. 1995. Comparison of different cell lines for the production of recombinant baculovirus proteins. In: Richardson CD, editor. *Methods in molecular biology, baculovirus expression protocols*. Totowa, NJ:Humana Press Inc. p. 39:385-395.
47. Huang S, Endo RI, Nemerow GR. 1995. Upregulation of integrins $\alpha v \beta 3$ and $\alpha v \beta 5$ on human monocytes and T lymphocytes facilitates adenovirus-mediated gene delivery. *J Virol.* 69(4):2257-2263. PMID: PMC188895
48. Huang S, Kamata T, Takada Y, Ruggeri ZM, Nemerow GR. 1996. Adenovirus interaction with distinct integrins mediates separate events in cell entry and gene delivery to hematopoietic cells. *J Virol.* 70(7):4502-4508. PMID: PMC190385
49. Stewart PL, Chiu CY, Huang S, Muir T, Zhao Y, Chait B, Mathias P, Nemerow GR. 1997. Cryo-EM visualization of an exposed RGD epitope on adenovirus that escapes antibody neutralization. *EMBO J.* 16(6):1189-1198. PMID: PMC1169718
50. Stewart PL, Nemerow GR. 1997. Recent structural solutions for antibody neutralization of viruses. *Trends Microbiol.* 5(6):229-233. Review.
51. Huang S, Jiang Y, Li Z, Nishida E, Mathias P, Lin S, Ulevitch RJ, Nemerow GR, Han J. 1997. Apoptosis signaling pathway in T cells is composed of ICE/Ced-3 family proteases and MAP kinase kinase 6b. *Immunity.* 6:739-749.
52. Huang S, Stupack D, Mathias P, Wang Y, Nemerow G. 1997. Growth arrest of Epstein-Barr virus immortalized B lymphocytes by adenovirus-delivered ribozymes. *Proc Natl Acad Sci U S A.* 94:8156-8161. PMID: PMC21573
53. Li E, Stupack D, Klemke R, Cheresch DA, Nemerow GR. 1998. Adenovirus endocytosis via αv integrins requires phosphoinositide-3-OH kinase. *J Virol.* 72(3):2055-2061. PMID: PMC109499

54. Wang K, Huang S, Kapoor-Munshi A, Nemerow G. 1998. Adenovirus internalization and infection require dynamin. *J Virol.* 72(4):3455-3458. PMID: PMC109852
55. Von Seggern DJ, Kehler J, Endo RI, Nemerow GR. 1998. Complementation of a fibre mutant adenovirus by packaging cell lines stably expressing the adenovirus type 5 fibre protein. *J Gen Virol.* 79:1461-1468.
56. Li E, Stupack D, Bokoch GM, Nemerow GR. 1998. Adenovirus endocytosis requires actin cytoskeleton reorganization mediated by Rho family GTPases. *J Virol.* 72(11):8806-8812. PMID: PMC110297
57. Mathias P, Galleno M, Nemerow GR. 1998. Interactions of soluble recombinant integrin $\alpha\beta 5$ with human adenoviruses. *J Virol.* 72(11):8669-8675. PMID: PMC110279
58. Von Seggern DJ, Nemerow GR. 1999. Adenoviral vectors for protein expression. In: Fernandez JM, Hoeffler JP, editors. *Gene Expression Systems: Using Nature for the Art of Expression.* San Diego: Academic Press. p 111-156.
59. Von Seggern DJ, Chiu CY, Fleck SK, Stewart PL, Nemerow GR. 1999. A helper-independent adenovirus vector with E1, E3, and fiber deleted: Structure and infectivity of fiberless particles. *J Virol.* 73(2):1601-1608. PMID: PMC103985
60. Stupack DG, Li E, Silletti SA, Kehler JA, Geahlen RL, Hahn K, Nemerow GR, Cheresch DA. 1999. Matrix valency regulates integrin-mediated lymphoid adhesion via Syk kinase. *J Cell Biol.* 144(4):777-787. PMID: PMC2132930
61. Huang S, Reddy V, Dasgupta N, Nemerow GR. 1999. A single amino acid in the adenovirus type 37 fiber confers binding to human conjunctival cells. *J Virol.* 73(4):2798-2802. PMID: PMC104037
62. Chiu CY, Mathias P, Nemerow GR, Stewart PL. 1999. Structure of adenovirus complexed with its internalization receptor, $\alpha\beta 5$ integrin. *J Virol.* 73(8):6759-6768. PMID: PMC112761
63. Pampori N, Hato T, Stupack DG, Aidoudi S, Cheresch DA, Nemerow GR, Shattil SJ. 1999. Mechanisms and consequences of affinity modulation of integrin $\alpha\beta 3$ detected with a novel patch-engineered monovalent ligand. *J Biol Chem.* 274(31):21609-21616.
64. Nemerow GR, Stewart PL. 1999. Role of αv integrins in adenovirus cell entry and gene delivery. *Microbiol Mol Biol Rev.* 63(3):725-734. Review. PMID: PMC103752
65. Von Seggern DJ, Huang S, Fleck SK, Stevenson SC, Nemerow GR. 2000. Adenovirus vector pseudotyping in fiber-expressing cell lines: Improved transduction of Epstein-Barr virus-transformed B cells. *J Virol.* 74(1):354-362. PMID: PMC111546
66. Saphire ACS, Guan T, Schirmer EC, Nemerow GR, Gerace L. 2000. Nuclear import of adenovirus DNA in vitro involves the nuclear protein import pathway and hsc70. *J Biol Chem.* 275(6):4298-4304.
67. Wang K, Guan T, Cheresch DA, Nemerow GR. 2000. Regulation of adenovirus membrane penetration by the cytoplasmic tail of integrin $\beta 5$. *J Virol.* 74(6):2731-2739. PMID: PMC111763
68. Huang S, New L, Pan Z, Han J, Nemerow GR. 2000. Urokinase plasminogen activator/urokinase-specific surface receptor expression and matrix invasion by breast cancer cells requires constitutive p38 α mitogen-activated protein kinase activity. *J Biol Chem.* 275(16):12266-12272.
69. Huang S, Stupack D, Liu A, Cheresch D, Nemerow GR. 2000. Cell growth and matrix invasion of EBV-immortalized human B lymphocytes is regulated by expression of αv integrins. *Oncogene.* 19(15):1915-1923.
70. Li E, Stupack DG, Brown SL, Klemke R, Schlaepfer DD, Nemerow GR. 2000. Association of p130CAS with phosphatidylinositol-3-OH kinase mediates adenovirus cell entry. *J Biol Chem.* 275(19):14729-14735.
71. Xia Y, Makris C, Su B, Li E, Yang J, Nemerow GR, Karin M. 2000. MEK kinase 1 is critically required for c-Jun N-terminal kinase activation by proinflammatory stimuli and growth factor-induced cell migration. *Proc Natl Acad Sci U S A.* 97(10):5243-5248. PMID: PMC25813
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73. Nemerow GR. 2000. Adenoviral vectors--new insights. *Trends Microbiol.* 8(9):391-394. Comment.
74. Li E, Brown SL, Von Seggern DJ, Brown GB, Nemerow GR. 2000. Signaling antibodies complexed with adenovirus circumvent CAR and integrin interactions and improve gene delivery. *Gene Ther.* 7:1593-1599.
75. Wu E, Fernandez J, Fleck SK, Von Seggern DJ, Huang S, Nemerow GR. 2001. A 50-kDa membrane protein mediates sialic acid-independent binding and infection of conjunctival cells by adenovirus type 37. *Virology.* 279:78-89.
76. Li E, Brown SL, Dolman CS, Brown GB, Nemerow GR. 2001. Production of functional antibodies generated in a nonlytic insect cell expression system. *Protein Expr Purif.* 21:121-128.
77. Jakubczak JL, Rollence ML, Stewart DA, Jafari JD, Von Seggern DJ, Nemerow GR, Stevenson SC, Hallenbeck PL. 2001. Adenovirus type 5 viral particles pseudotyped with mutagenized fiber proteins show diminished infectivity of coxsackie B-adenovirus receptor-bearing cells. *J Virol.* 75(6):2972-2981. PMID: PMC115923
78. Li E, Brown SL, Stupack DG, Puente XS, Cheresch DA, Nemerow GR. 2001. Integrin $\alpha\beta 1$ is an adenovirus coreceptor. *J Virol.* 75(11):5405-5409. PMID: PMC114949
79. Chiu CY, Wu E, Brown SL, Von Seggern DJ, Nemerow GR, Stewart PL. 2001. Structural analysis of a fiber-pseudotyped adenovirus with ocular tropism suggests differential modes of cell receptor interactions. *J Virol.* 75(11):5375-5380. PMID: PMC114944
80. Nemerow GR, Stewart PL. 2001. Antibody neutralization epitopes and integrin binding sites on nonenveloped viruses. *Virology.* 288:189-191. Review.
81. Nicklin SA, Von Seggern DJ, Work LM, Pek DC, Dominiczak AF, Nemerow GR, Baker AH. 2001. Ablating adenovirus type 5 fiber-CAR binding and HI loop insertion of the SIGYPLP peptide generate an endothelial cell-selective adenovirus. *Mol Ther.* 4(6):534-542.
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83. Nemerow GR. 2002. Biology of adenovirus Cell Entry. In: Curiel DT, Douglas JT, editors. *Adenoviral vectors for gene therapy.* Amsterdam; Boston: Elsevier Science; Academic Press. p. 19-38.
84. Von Seggern DJ, Aguilar E, Kinder K, Fleck SK, Gonzalez Armas JC, Stevenson SC, Ghazal P, Nemerow GR, Friedlander M. 2003. In vivo transduction of photoreceptors or ciliary body by intravitreal injection of pseudotyped adenoviral vectors. *Mol Ther.* 7(1):27-34.
85. Nemerow G, Bloomer, L. Control of Communicable and Certain Noninfectious Diseases. In: Salvato JA., Nemerow NL, Agardy FJ, editors. *Environmental Engineering.* 5th ed. Hoboken, N.J.: Wiley. p 1-166.
86. Goosney DL, Nemerow GR. Adenovirus infection: taking the back roads to viral entry. *Curr Biol.* 13:R99-R100.
87. Hsia DA, Mitra SK, Hauck CR, Streblow DN, Nelson JA, Ilic D, Huang S, Li E, Nemerow GR, Leng J, Spencer KS, Cheresch DA, Schlaepfer DD. 2003. Differential regulation of cell motility and invasion by FAK. *J Cell Biol.* 160(5):753-767. PMID: PMC2173366
88. Wu E, Pache L, Von Seggern DJ, Mullen TM, Mikiyas Y, Stewart PL, Nemerow GR. 2004. Flexibility of the adenovirus fiber is required for efficient receptor interaction. *J Virol.* 77(13):7225-35. PMID: PMC164825 (Erratum: *J Virol.* 2004 Feb;78(4):2167)
89. Smith TA, Idamakanti N, Rollence ML, Marshall-Neff J, Kim J, Mulgrew K, Nemerow GR, Kaleko M, Stevenson SC. 2003. Adenovirus serotype 5 fiber shaft influences in vivo gene transfer in mice. *Hum Gene Ther.* 14:777-787.
90. Stewart PL, Dermody TS, Nemerow GR 2003. Virus Structure: Structural basis of nonenveloped virus cell entry. In: Chiu W, Johnson JE, editors. *Advances in Protein Chemistry.* Amsterdam; Boston: Elsevier; Academic Press. 64:455-491.

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92. Wodrich H, Guan T, Cingolani G, Von Seggern D, Nemerow G, Gerace L. 2003. Switch from capsid protein import to adenovirus assembly by cleavage of nuclear transport signals. *EMBO J.* 22(23):6245-55. PMID: PMC291855
93. Wu E, Trauger SA, Pache L, Mullen TM, Von Seggern DJ, Siuzdak G, Nemerow GR. 2004. Membrane cofactor protein is a receptor for adenoviruses associated with epidemic keratoconjunctivitis. *J Virol.* 78(8):3897-3905. PMID: PMC374279
94. Wu E, Nemerow GR. 2004. Virus yoga: the role of flexibility in virus host cell recognition. *Trends Microbiol.* 12(4):162-169. Review.
95. Trauger SA, Wu E, Bark SJ, Nemerow GR, Siuzdak G. 2004. The identification of an adenovirus receptor by using affinity capture and mass spectrometry. *Chembiochem.* 5:1095-1099.
96. Hsu C, Boysen M, Gritton LD, Frosst PD, Nemerow GR, Von Seggern DJ. 2005. In vitro dendritic cell infection by pseudotyped adenoviral vectors does not correlate with their in vivo immunogenicity. *Virology.* 332:1-7.
97. Wiethoff CM, Wodrich H, Gerace L, Nemerow GR. 2005. Adenovirus protein VI mediates membrane disruption following capsid disassembly. *J Virol.* 79(4):1992-2000. PMID: PMC546575
98. Saban SD, Nepomuceno RR, Gritton LD, Nemerow GR, Stewart PL. 2005. CryoEM structure at 9Å resolution of an adenovirus vector targeted to hematopoietic cells. *J Mol Biol.* 349:526-37.
99. Nicklin SA, Wu E, Nemerow GR, Baker AH. 2005. The influence of adenovirus fiber structure and function on vector development for gene therapy. *Mol Ther.* 12(3):384-393. Review.
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Patents

1. "Targeting And Delivery Of Genes And Antiviral Agents Into Cells By The Adenovirus Penton." Nemerow, Wickham. Serial Number 94/01263/Patent Number WO 94/17832/Issue Date 8/18/94.
2. "Packaging Cell Lines, Adenovirus Vectors, and Methods of Using Same." Von Seggern, Nemerow. Serial Number EP 97/05251/Patent Number WO 98/13499/Issue Date 4/2/98.
3. "Vectors For Ocular Transduction And Use Thereof For Genetic Therapy" Nemerow, Von Seggern, Friedlander. Serial Number EP01/04863/Patent Number WO 01/083729/Issue Date 11/8/01.
4. "Bifunctional Molecules and Vectors Complexed Therewith For Targeted Gene Delivery." Nemerow, Li. Serial Number EP01/07878/Patent Number WO 02/004522/Issue Date 1/17/02.
5. "Modified Fiber Proteins for Efficient Receptor Binding" Nemerow, Wu, Stewart. Serial Number 04/018623/Patent Number WO 04/111251/Issue Date 12/23/04.
6. "Fiber Shaft Modifications for Efficient Targeting" Kaleko, Nemerow, Smith, Stevenson. Serial Number 03732097.5/Patent Number 1516055/Issue Date 3/23/05.
7. "Adenovirus Vectors, Packaging Cell Lines, Compositions, and Methods for Preparation and Use". Von Seggern, Nemerow, Hallenback, Stevenson, Skripchenko. Serial Number 09/482,682/Patent Number 7,232,899/Issue Date 6/19/07.