

SCIENTIST PROFILE

60 Seconds with: TSRI Professor Jerold Chun



Tell us about your research and the diseases it impacts.

We want to understand how the brain works at a basic level, which will lead to breakthroughs in the treatment of brain diseases such as Alzheimer's, Parkinson's and depression. There are roughly a hundred billion neurons in the brain that were thought to have identical genomes. We discovered that genomes of single neurons actually differ from cell to cell, from person to person. This surprising fact changes our understanding of how genes affect brain diseases; we are currently deep into analyses of single-cell genomes and their functional consequences. Separately, we are also studying receptors that are drug targets for brain diseases.

In one of our projects, we discovered a class of receptors that are the target of a promising drug called Gilenya for patients suffering from multiple sclerosis, and helped bring the drug into the marketplace. The success of the drug may involve an unexpected biological mechanism acting within the central nervous system. Gilenya represents the first MS therapy with direct central nervous system activities. This drug could make a big difference in terms of better treatment for MS patients.

We also found what may be a major cause of congenital hydrocephalus, one of the most common neurological disorders of childhood that produces mental debilitation and sometimes death in premature and newborn children. Currently only symptomatic treatment exists – the surgical placement of a shunt to drain away excess fluid in the brain. We wanted to know the condition's causes, so we can figure out how to prevent and treat it.

I understand that you're working on the San Diego County Alzheimer's Project. Tell us a little about that.

The project brings together the local research community with caregivers and advocates to work as one in finding more funds for the ongoing search for a cure and to embrace those in the community struggling with the disease. We want to raise awareness and visibility, and help families dealing with the disease, focusing on care and cure. It's stunning how little is put in financially for Alzheimer's disease research relative to other diseases – there's a need for fresh resources and thinking.

How did you get interested in science?

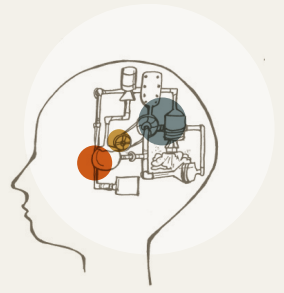
I'm a fifth generation Hawaiian. My dad was a physician and left a big impression on me by helping people. I used to accompany him on his house calls around Hawaii – he wore a bow tie and carried a big black bag – and was often paid in fruit, fish and chickens! After graduating from the University of Hawaii, as an English Literature major, I went on to get my MD/PhD from Stanford, with more training at MIT before coming to San Diego. Ultimately, I really want discoveries made in our lab to benefit patients, the same sentiment Dad had with his house calls.

What do you like about TSRI?

TSRI combines the best of academia and industry. It allows you to pursue your research to the fullest through its flexibility. It's a lot less bureaucratic than typical universities, and bureaucracy tends to slow down research.

What do you do for fun?

This year, I'll hopefully be running in my 42nd consecutive Honolulu marathon, having run every year since its inception in 1973. I grew up in a family of runners – my brother, who is now a physician, was a world-class age group runner. You could say that the marathon is a metaphor for our science – it's not a flash in the pan or sound-bite – you need to persevere in research, which produces real understanding.



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