

# UCSF Newsbreak

## Bishop, Varmus Become UCSF's First Nobel Prize Winners

Virologists Harold E. Varmus and J. Michael Bishop, UCSF's two "oncogene" experts, have been awarded the Nobel Prize in Medicine or Physiology. They are the first ever from this campus to receive a Nobel Prize.

Both professors of microbiology, biochemistry and biophysics, Varmus and Bishop received the prize for their "discovery of the cellular origin of retroviral oncogenes," according to the Nobel committee in Stockholm.

The timing couldn't be better. The Nobel Prize news comes to this campus practically on the eve of our 125th Anniversary celebration, which will be this Saturday, October 14. Upon hearing the news, Mayor Agnos stated, "The Nobel Prize in Medicine is the pinnacle of achievement for medical research. UC San Francisco, with two researchers honored in one year, demonstrates to the world what we in San Francisco already know about its standards of excellence. The announcement reinforces UCSF's position at the cutting edge of biomedical research worldwide."

Bishop and Varmus discovered that cancer-causing genes called "oncogenes"—which were first found in viruses—can be found in the cells of all normal animals, ranging from flies to humans. Their discovery raised the possibility that humans carry the seeds of cancer in their own genes. These genes, called proto-oncogenes, appear to be essential to normal development, but can

become cancer genes when they are damaged or go out of control.

The work of Bishop, Varmus and others suggests that carcinogens—such as chemicals, radiation and viruses—damage these proto-oncogenes and trigger the development of cancer. If further evidence confirms this theory, it may lead to better ways to prevent and treat cancer.

Varmus has studied retroviruses for more than 18 years and Bishop for more than 23 years, seeking to determine how they grow and how they alter the fundamental behavior of cells. Rous sarcoma virus is one such retrovirus that causes cancer in chickens by inserting its own genes into the genetic material (DNA) of a cell. From work on the Rous sarcoma virus, most of it done together, came several important conclusions that are leading scientists closer to an understanding of cancer.

Neither Bishop, who directs UCSF's George W. Hooper Research Foundation, nor Varmus, American Cancer Society Professor of Molecular Virology, expected that their work would lead to the Nobel. "I don't go to work thinking about the Nobel Prize," says Varmus, "I go to work thinking about the next experiment."

And what did Varmus and Bishop do that afternoon after learning of their Nobel Prize? They went to see the Giants defeat the Cubs, of course.



Harold Varmus (left) gives thumbs-up at Monday's press conference on campus announcing the Nobel Prize given to both him and J. Michael Bishop (right).

Mikkel Aaland