



The Star-Ledger

Nobel glow of jellyfish

Martin Chalfie, Roger Y. Tsien and Osamu Shimomura were awarded the 2008 Nobel Prize for Chemistry.

Thursday, October 09, 2008

BY ANA M. ALAYA

Star-Ledger Staff

Two scientists with ties to New Jersey and another from New York were named winners of the 2008 Nobel Prize in Chemistry yesterday for research on a glowing jellyfish protein widely used in modern bioscience.

Former Princeton University researcher Osamu Shimomura, 80, was awarded for his discovery of the protein, and Livingston High School graduate Roger Y. Tsien, 56, was cited for developing similar proteins in a variety of colors. They share the prize with Martin Chalfie, 61, of Columbia University in New York.

The Nobel committee in Stockholm called their development of the protein "a guiding star for biochemists, biologists, medical scientists and other researchers." They will share a \$1.4 million prize.

Shimomura, a Japanese citizen who has studied in the United States for 50 years and now works as a professor emeritus at the Marine Biological Laboratory at Woods Hole, Mass., and Boston, said the prize was unexpected.

"This morning I had a call at 5 a.m. and I was still in a deep sleep, so my wife answered," Shimomura said during a news conference. "It was from Stockholm. I was surprised, but I was happy."

Shimomura was a researcher at Princeton's Department of Biology when, in 1962, he first isolated the green fluorescent protein, GFP, in the jellyfish, *Aequorea victoria*.

Since then, the protein has become a tool for "tagging" cells at a microscopic level. It can illuminate growing cancer tumors, pinpoint the development of Alzheimer's disease in the brain and spotlight the growth of deadly bacteria, according to Princeton University.

"GFP technology has revolutionized what we can see at the most fundamental levels of life," said Gary Borisy, a prominent cell biologist who heads the lab where Shimomura works. "GFP is revealing, for example, how proteins move and interact in cells. Now that the genome is sequenced, understanding protein function is one of the greatest scientific and medical challenges of our time."

After Shimomura discovered the protein, Tsien, a professor of pharmacology, chemistry and biochemistry at University of California/San Diego and a Howard Hughes Medical Institute investigator, dedicated his career to the development and application of the protein. He describes his life's work as building molecules to look inside cells, allowing scientists to see beyond what the human eye can see, according to a news release from his university.

In that release, Tsien said he had set his sights on imaging and treating cancer.

Tsien, who was unavailable for comment yesterday, grew up in Livingston, among a number of engineers in his extended family. Childhood asthma often kept him indoors, where he spent hours conducting chemistry experiments in his basement laboratory, according to the Howard Hughes Medical Institute.

In Livingston High School's 1968 Yearbook, then-senior Tsien is quoted saying, "never let your studies interfere with your education." His biography says he was "usually in the chem lab doing his own experiments."

"He was a fantastic student here," said Livingston High School Principal Pam McGroarty. "He was a scholar and the top of his class, and he is a wonderful role model."

At Columbia University yesterday, prize winner Chalfie fielded phone calls from well-wishers congratulating him on his award from the Nobel committee, which cited him for his work showing that the GFP gene could make individual nerve cells in tiny worms glow bright green.

Chalfie, who said he slept through the Nobel committee's phone calls to tell him he won, noted that Shimomura's original work on jellyfish was unrelated to human health.

"He was looking at what chemicals allow an organism to make light," he said. "It has nothing to do with cancer or disease or a human condition. It was a fundamental issue, and in the process he discovers this fabulous protein. This has to do with someone being curious about science, about a problem."

During yesterday's news conference, Shimomura said he didn't realize the importance of his discovery until 1994.

Describing himself as a mostly self-taught scientist who came of age during the post-war years in Japan, Shimomura said he hopes his award inspires young Japanese scientists, and others around the world, to pursue research no matter how difficult it may seem.

"There is a tendency of young researchers to do easy subjects and shy away from difficult subjects," Shimomura said. "If they find a subject they are interested in don't stop and don't give up until you are finished with the project."

Winning the Nobel Prize didn't seem to diminish his humility. When asked by a reporter why the jellyfish he studies make the protein he discovered, Shimomura joked: "I don't know. You have to ask the jellyfish."

The Associated Press contributed to this report.

©2008 Star Ledger

© 2008 NJ.com All Rights Reserved.