

The Man Who Missed the Nobel Prize

The Nobel Prize in chemistry 2008 was awarded to three scientists: **Osamu Shimomura**, then at Princeton; **Martin Chalfie** of Columbia; and **Roger Tsien** of the University of California at San Diego.

Their accomplishment: **Discovery and Development of Green Fluorescent Protein (GFP), a key tool scientist now use to observe biological processes in living things.**

In 1961, Osamu Shimomura of the Marine Biological Laboratory in Woods Hole discovered the green fluorescent protein that gives the *Aequoria Victoria* jellyfish its “glow”. But the scientist who found the gene for that protein, and eventually gave it to Nobel winners, is no longer working in the field. He now drives a shuttle bus for an auto dealership!

Where did they get the gene for GFP? **Dr. Douglas C. Prasher.**

Dr. Douglas C. Prasher (born August 1951) is an American molecular biologist, known for his work to clone and sequence the gene for green fluorescent protein (GFP) and for his proposal to use GFP as a tracer molecule.

Prasher, according to people in the field, "**was the first person to realize the potential of GFP as a tracer molecule.** In 1987 he got the idea that sparked the GFP revolution. He thought that GFP from a jellyfish could be used to report when a protein was being made in a cell."



Prasher received his Ph.D. in Biochemistry from the Ohio State University in 1979. In 1983, he joined the Biology Department of the Woods Hole Oceanographic Institution, Massachusetts where he studied bioluminescence. In 1988, he received a three-year, \$200,000 grant from the American Cancer Society to try to clone the gene for green fluorescent protein (GFP)

Prasher succeeded in this project and was **first to clone the green fluorescent protein gene from *Aequorea victoria* in 1992, as published in *Gene*, entitled “Primary structure of the *Aequorea victoria* green-fluorescent protein” [Volume 111, Issue 2, 15 Feb 1992, Pages 229-233; Pubmed ID: 1347277]. However, his grants dried up because he had used up all three years trying to find a genetic sequence that matched the protein (a task that could be done quickly today!) and he had no funding left. Later he shared his findings and willingly gave the gene to **Martin Chalfie** and **Roger Y. Tsien** after each scientist had communicated with him.**

Subsequently, he worked in Plant Protection Center in Cape Cod, Massachusetts as a population geneticist, and later at Plant Germplasm Quarantine & Biotechnology Laboratory in Beltsville, Maryland. After funding was also cut at that location, he went to work for NASA subcontractor AZ Technology in Huntsville, Alabama, where he again lost his job after another round of funding cuts!

Prasher was unable to find a job in science and his life savings had run out. In order to support his family, he took a job driving a courtesy van at a Toyota dealership in Huntsville for \$10 per hour. While his former colleagues will fly to Stockholm in December to accept the Nobel Prize and a \$1.4 million check, the former scientist who discovered the DNA for GFP will be trying hard to put two of his children through college. However, Prasher expressed his pleasure at learning of the awarding of the Nobel Prize to Shimomura, Chalfie and Tsien: "I'm really happy for them. I was really surprised that particular topic carried that much weight"