

## American Nobel laureate Richard Heck is buried in Manila

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American Nobel laureate for chemistry Richard Heck, who designed a method of building complex molecules that has helped fight cancer, protect crops and make electronic devices, was buried Tuesday in a metropolitan Manila cemetery beside the tomb of his Filipino wife. He was 84.

The professor emeritus at the University of Delaware died Saturday due to multiple organ failure after bouts with pneumonia, diabetes and liver cirrhosis, said Michael Nardo, his nephew-in-law who had taken care of Heck and his wife over the last decade.

Heck, whose interest in plants as a child led him to a career in chemistry, shared the Nobel prize for chemistry in 2010 with two Japanese scientists.

He retired to the Philippines with his wife Socorro Nardo-Heck, who died in 2012. The couple had no children.

Family members and fellow scientists paid tribute to Heck's humility and simplicity despite his achievements. Wreaths and prayer cards from various scientific groups adorned a chapel where he was interred.

"He was very kind, very helpful to my family, very humble, very quiet," said Nardo. "I hope his contributions to the chemical society and the whole world will be remembered."



Alvin Culaba, a professor of De La Salle University in Manila, said Heck was "so simple and very human and very humble" and disliked public attention despite his achievements.

In a 2012 speech given to accept an honorary degree from De La Salle University, Heck said he came from humble beginnings—the son of a department store salesman and a housewife in a suburb of Massachusetts. He said he got interested about nutrients and pigments in plants when as a boy, his family moved to a new home on a barren lot in California.

"I had never thought the simple work of planting an empty yard would bloom and peak into an achievement of the noblest honor in the world of science," he said.

"I find my meaning as a scientist in what I have been able to make of my country, in what I have been able to contribute to significantly better the lives of peoples across cultures and societies," he said.

Heck and his co-winners Ei-ichi Negishi and Akira Suzuki designed the technique to bind together <u>carbon atoms</u>, a key step in assembling the skeletons of organic compounds used in medicine, agriculture and electronics.

Carbon atoms are normally shy about pairing up. The winning approach was to use atoms of the metal palladium kind of like a singles bar, a place where pairs of carbon atoms are jammed together and encouraged to bond. This idea, called palladium-catalyzed cross coupling, was easier to do than previous methods.

The Nobel committee cited the technique as "one of the most sophisticated tools available to chemists today (and) vastly improved the possibilities of chemists to create sophisticated chemicals."



Heck published his initial work in 1968 and an improved method in 1972. In 1977, Negishi developed a variant of the palladium approach and two years later Suzuki developed another. The chemical process has also become known as the Heck Reaction.

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