

Richard F. Heck (1931–2015)

An obituary

Richard Heck, one of the most renowned chemists of our time, died on 9 October 2015 at Manila, Philippines. He is best known for the discovery and development of the Heck reaction, he was a recipient of the coveted Nobel Prize for Chemistry in the year 2010, shared with the Japanese chemists Ei-ichi Negishi and Akira Suzuki.

Heck was born in Springfield, Massachusetts, USA in 1931. It is said that as a child, he was interested in plants, their nutrients and pigments, and used to ponder on the chemical composition of the fertilizers his family used for gardening. This penchant for chemistry right from a young age led him to take up chemistry in high school. Heck obtained his Bachelor's degree in chemistry from the University of California, Los Angeles in 1952, and later also pursued his doctoral degree there.

His ground-breaking work on the palladium-catalysed cross-coupling of carbon atoms was initially propounded in 1968, when Heck was employed at Hercules, a chemicals and munitions manufacturing company in Wilmington, Delaware, USA. He put forth a method involving the use of palladium as a catalyst to create bonds between carbon atoms. Creation of complex organic molecules essentially involves bringing together carbon atoms to bind with each other and it was a seemingly impossible task until Heck achieved the feat. The coupling is also called as the Mirozoki–Heck reaction, after the Japanese chemist

Tsutomu Mirozoki, whose work Heck improved in 1972.

This is inarguably one of the most important chemical reactions developed in this century. The Heck reaction became indispensable for the pharmaceutical industry in the fields of drug manufacture and drug delivery for illnesses like



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asthma, migraine, HIV, cancer, and many more. DNA sequencing was revolutionized after incorporating the Heck reaction to mark the DNA bases with organic dyes. Another important application of the reaction is in the production of organic light-emitting diodes for electronic display screens.

Heck served as a professor of chemistry at the University of Delaware for 18 years from 1971 till his retirement, after which he continued as Professor Emeritus. He was also an adjunct professor at De La Salle University (DLSU) in Manila, where he moved with his wife after

retirement. His colleagues and friends fondly remember Heck as a simple, understanding and a humble person who disliked public attention. His modest life in the Philippines belied his accomplishments in the scientific world.

Heck had survived prostate cancer and had also been suffering from several ailments such as diabetes, chronic obstructive pulmonary disease and liver cirrhosis when he died.

'If you would not be forgotten as soon as you are gone, either write things worth reading or do things worth writing,' quotes Benjamin Franklin. Richard Heck was one such true stalwart of science, who will always be remembered and written about as his life and work stand testimony to his legacy.

An excerpt from Heck's speech at DLSU, which may very well have served as his last words, is as follows: '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 people across cultures and societies. I find my meaning in what I can bequeath to this world, when the glory and splendour of a celebrated achievement begins to wane, when I would have to finally desert this earthly habitat and leave myself to the creator.'

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