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## Robert J. Lefkowitz Wins \$1 Million Shaw Prize

The Shaw Prize Foundation in Hong Kong announced today that Robert J. Lefkowitz, a Howard Hughes Medical Institute investigator at Duke University, has been awarded the \$1 million Shaw Prize in Life Science and Medicine.

Lefkowitz is one of four Americans receiving the 2007 Shaw Prizes from the Shaw Prize Foundation. He is being honored “for his relentless elucidation of the major receptor system that mediates the response of cells and organs to drugs and hormones,” according to the award citation.

Lefkowitz's fellow Shaw laureates include Peter Goldreich of the Institute for Advanced Study at Princeton and California Institute of Technology, who received the Shaw Prize in Astronomy; and Robert Langlands of the Institute for Advanced Study at Princeton and Richard Taylor of Harvard University, who received the Shaw Prize in Mathematical Sciences.

The Shaw Prize is an international award which honors individuals for distinguished breakthroughs in academic and scientific research or applications, who have made outstanding contributions in culture and the arts, or who in other domains have achieved excellence. The award is dedicated to furthering societal progress, enhancing quality of life, and enriching humanity's spiritual civilization. The 2007 prizes will be presented to recipients in September at a ceremony in Hong Kong.

Lefkowitz's work with G protein-coupled receptors, the largest and most pervasive family of cell receptors, began in 1982 with the identification of the gene for the  $\beta$ -adrenergic receptor, which helps regulate the body's fight-or-flight response by reacting to epinephrine. Shortly thereafter, he discovered seven additional adrenergic receptors. These receptors—and all G-protein receptors—share a basic structure, in which the molecule weaves its way back and forth seven times across a cell's membrane. When the portion of the molecule that lies outside the cell connects with the receptor's favored signaling molecule, the internal portions of the molecule can trigger the appropriate cellular response.

About a thousand G protein-coupled receptors are now known to contribute to physiological processes including pain tolerance, glucose metabolism, and the regulation of heart rate and blood pressure. Understanding the similarities that shape how these receptors function has helped pharmaceutical researchers target these molecules in the body. Lefkowitz has also discovered two new families of proteins that desensitize G protein-coupled receptors, a finding that has helped scientists understand how receptors become tolerant of certain drugs.

In 2006, the Shaw Prize in Life Science and Medicine was awarded to HHMI investigator Xiaodong Wang at the University of Texas Southwestern Medical Center at Dallas. The Shaw Prizes were established under the auspices of Sir Run Run Shaw, a Hong Kong film producer and chairman of Television Broadcasts Limited (TVB), the largest Chinese program producer in the world. The Shaw Prize is accompanied by a medal displaying a portrait of Sir Run Run Shaw and the imprint of a Chinese phrase that translates as “Grasp the law of nature and make use of it.”