

**Publications**

## ▼ AIP Journals

[Subscription and Access](#)[Options](#)[AIP Digital Archive](#)[Journal Policies and  
Guidelines](#)

## ▶ Magazines

## ▶ Conference Proceedings

## ▶ Scitation®

## ▶ Librarians

## ▶ Authors

## ▶ Advertisers

## 2012 Chemistry Nobel Prize Resources

**Robert J. Lefkowitz**

Credit: Unknown

**Brian K. Kobilka**

Credit: Wikimedia Commons

» [Overview](#)» [Access AIP journal and proceedings articles related to G-protein-coupled receptors](#)» [From \*Inside Science News Service\*](#)» [Biographies and personal pages](#)» [Pictures, graphics, and multimedia](#)**Overview**

The 2012 Nobel Prize in Chemistry has been awarded to Robert J. Lefkowitz of the Howard Hughes

Medical Institute and Duke University Medical Center in Durham, N.C. and Brian K. Kobilka of the Stanford University School of Medicine in Stanford, Calif., “for studies of G-protein-coupled receptors.”

Receptor biology and signal transduction explore how a variety of signals over a cell membrane can be transmitted between cells and over large distances within the human body. Human cells respond to changes in their environment and G-protein-coupled receptors, discovered and studied by this year’s Nobel Laureates, are a family of proteins, found across cell membranes, that detect key molecules such as hormones and activate signals in cells and over longer distances in the body.

Lefkowitz identified and extracted the receptors from cells by using radioactive materials starting in 1968 to trace these important proteins. Kobilka and his co-workers then successfully isolated a gene that produces one of these receptors, and after analysis, noted that it resembled light receptors in the eye and belonged to a large family of similar receptor proteins. Many physiological processes depend on these receptors and with these tremendous breakthroughs, the pharmaceutical drug industry can now tailor drugs to target specific cell functions that are efficient and generate little or no side effects.

---

### **Access AIP Journal and Proceedings Articles Related to G-Protein-Coupled Receptors**

*All AIP journal content is free through the month of October. AIP journal content pertaining to the 2012 Nobel Prize in Chemistry is free until December 31, 2012.*

#### **[Pathway Analysis and Modeling of the Differentiation of Human Embryonic Stem Cells into Hepatocyte-like Cells](#)**

Andriani Daskalaki, Justyna Jozefczuk, Hans Lehrach, James Adjaye, and Christoph Wierling  
*AIP Conf. Proc.* **1371**, 253 (2011)

#### **[Topological change and impedance spectrum of rat olfactory receptor I7: A comparative analysis with bovine rhodopsin and bacteriorhodopsin](#)**

Eleonora Alfinito, Cecilia Pennetta, and Lino Reggiani  
*J. Appl. Phys.* **105**, 084703 (2009)

#### **[Computer Molecular Dynamics Studies on Protein Structures \(Visual Pigment Rhodopsin and Cyclin-Dependent Kinases\)](#)**

Kholmirzo T. Kholmurodov  
*AIP Conf. Proc.* **912**, 495 (2007)

#### **Thermal Fluctuations Of A GPCR: A Two Force Constant Model**

E. Alfinito, V. Akimov, C. Pennetta, L. Reggiani, and G. Gomila  
*AIP Conf. Proc.* **800**, 381 (2005)

#### **Modelization of Thermal Fluctuations in G Protein-Coupled Receptors**

C. Pennetta, V. Akimov, E. Alfinito, L. Reggiani, G. Gomila, G. Ferrari, L. Fumagalli, and M. Sampietro  
*AIP Conf. Proc.* **780**, 611 (2005)

**We also are pleased to provide the link to the below related article from AIP Member Society AVS:**

#### **Imaging of G protein-coupled receptors in solid-supported planar lipid membranes**

Marcel Leutenegger, Theo Lasser, Eva-Kathrin Sinner, and Rudolf Robelek  
*Biointerphases* **3**, FA136 (2008)

---

### **From *Inside Science News Service***

[2 Americans Share Nobel Prize for Biochemical Discoveries](#)

---

### **Biographies and Personal Pages**

#### ***Robert J. Lefkowitz***

[http://www.hhmi.org/research/investigators/lefkowitz\\_bio.html](http://www.hhmi.org/research/investigators/lefkowitz_bio.html) (biography)

<http://www.lefkolab.org/> (personal page)

#### ***Brian K. Kobilka***

[http://www.hhmi.com/research/investigators/kobilka\\_bio.html](http://www.hhmi.com/research/investigators/kobilka_bio.html) (biography)

<http://med.stanford.edu/kobikalab/> (personal page)

---

## Pictures, Graphics, and Multimedia

[Animation of G-protein-coupled receptor](#)

[GPCRDB-information systems for G-protein-coupled receptors](#)

[Robert J. Lefkowitz — 2009 Frontiers of Knowledge Award in Biomedicine](#)

[Robert J. Lefkowitz — Lecture on Seven Transmembrane Receptors](#)

---

© 2012 American Institute of Physics | [contact us](#) | [privacy policy](#) | [site map](#)

