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|  | **Highlights of News Media Coverage**  **Comments**  **By**  **Bassam Z. Shakhashiri, Ph.D.**  **President, American Chemical Society**  **On the**  **2012 Nobel Prize in Chemistry**    **ACS Presidential Comments**  **2012 Nobel Prize in Chemistry**  **Highlights of News Media Coverage**  **Summary**  Comments from American Chemical Society President Bassam Z. Shakhashiri, Ph.D., on the 2012 Nobel Prize in Chemistry received extensive news media coverage on October 10 and for several days thereafter. Shakhashiri was quoted in some of the world’s largest and most prestigious print and online news media outlets. In addition, his comments on the prize appeared in a blog in the Huffington Post, which has more than 77 million unique visitors per month. Shakhashiri’s comments leveraged publicity in print publications with a circulation and online sites with an average monthly unique visitor count exceeding 3 *billion*. This publicity resulted from Shakhashiri’s impressive performance in more than a dozen personal interviews with journalists and Office of Public Affairs press releases distributed to almost 4,000 journalists worldwide within 30 minutes of the Royal Swedish Academy of Sciences’ announcement of the prize at 5:45 a.m. Eastern U. S. time. Shakhashiri’s interviews began at 6 a.m. and continued throughout the morning. In addition to his own comments, Shakhashiri’s provided news media with other sources for expert comment references to articles published on G-coupled protein receptors, the topic of the prize. We are pleased to provide a glimpse of news media coverage of this unprecedented coverage selected from more than 1,000 stories that appeared in print and online. Screenshots of online coverage begin on page 53.  [**The New York Times**](http://www.nytimes.com/2012/10/11/science/2-american-scientists-win-nobel-prize-in-chemistry.html?_r=0)**;** [**The Washington Post**](http://www.washingtonpost.com/national/health-science/two-americans-get-chemistry-nobel-for-elucidating-cellular-receptors/2012/10/10/10cb81ce-130f-11e2-ba83-a7a396e6b2a7_story.html)**;** [**The Associated Press**](http://www.adn.com/2012/10/10/2656286/2-us-scientists-win-nobel-chemistry.html)**;** [**USA Today**](http://www.usatoday.com/story/news/nation/2012/10/10/scientists-win-nobel-chemistry-prize/1623973/)**;** [**Huffington Post**](http://www.huffingtonpost.com/bassam-z-shakhashiri/nobel-prize-chemistry_b_1955580.html)**;** [**Businessweek**](http://www.businessweek.com/ap/2012-10-10/2-us-scientists-win-nobel-chemistry-prize)**;** [**San Francisco Chronicle**](http://www.sfgate.com/business/bloomberg/article/U-S-Scientists-Share-Chemistry-Nobel-for-Cell-3935596.php)**;** [**The Scientist**](http://www.the-scientist.com/?articles.view/articleNo/32788/title/G-Protein-Receptor-Work-Wins-Nobel/)**;** [**NBC News;**](http://today.msnbc.msn.com/id/49354751/ns/technology_and_science-science/)[**United Press International**](http://www.upi.com/Top_News/World-News/2012/10/10/Two-Americans-share-Nobel-chemistry-award/UPI-37151349865348/)**;** [**Wall Street Journal;**](http://online.wsj.com/article/SB10000872396390444799904578048011360999952.html)[**StarTribune;**](http://www.startribune.com/lifestyle/173431631.html?refer=y)[**OregonLive**](http://www.oregonlive.com/today/index.ssf/2012/10/post_98.html)**;** [**New York Daily News; CBC News**](http://www.cbc.ca/news/technology/story/2012/10/10/nobel-prize-chemistry.html)**;** [**India Today**](http://indiatoday.intoday.in/story/two-us-scientists-win-nobel-prize-in-chemistry/1/224185.html)**;** [**New Zealand Herald;**](http://www.nzherald.co.nz/world/news/article.cfm?c_id=2&objectid=10839722)[**The Boston Globe**](http://bostonglobe.com/news/world/2012/10/10/scientists-win-nobel-prize-chemistry/Db64xhHR6NGJs8q498nyzK/story.html)**;** [**The Daily Mail**](http://www.dailymail.co.uk/news/article-2215634/Nobel-Prize.html)**;** [**Red Orbit**](http://www.redorbit.com/news/science/1112710736/us-scientists-nobel-prize-chemistry-101012/)**;** [**Salt Lake Tribune**](http://www.sltrib.com/sltrib/world/55056380-68/nobel-receptors-lefkowitz-kobilka.html.csp?page=1)**;** [**CBS News**](http://www.cbsnews.com/8301-205_162-57529379/two-americans-win-nobel-chemistry-prize/)**;** [**MSNBC**](http://www.msnbc.msn.com/id/49354751/ns/technology_and_science-science/)**;** [**The Globe and Mail**](http://www.theglobeandmail.com/news/world/us-scientists-lefkowitz-and-kobilka-win-nobel-chemistry-prize-for-work-on-protein-receptors/article4600626/)**;** [**Global News**](http://www.globalnews.ca/americans+lefkowitz+kobilka+win+nobel+chemistry+prize+for+work+on+protein+receptors/6442730732/story.html)**;** [**The News-Leader**](http://www.news-leader.com/viewart/20121010/ENTERTAINMENT09/310100108/2-US-scientists-win-Nobel-chemistry-prize)**;** [**Times-Union**](http://www.timesunion.com/local/article/Albany-Prize-winner-honored-with-Nobel-3937539.php)**.**  **The New York Times**  *Daily circulation: 876,638*  **Two American Scientists Win Nobel Prize in Chemistry**  **By** [**KENNETH CHANG**](http://topics.nytimes.com/top/reference/timestopics/people/c/kenneth_chang/index.html)  Two Americans shared this year’s [Nobel Prize in Chemistry](http://www.nobelprize.org/nobel_prizes/chemistry/laureates/2012/press.html) for deciphering the communication system that the human body uses to sense the outside world and send messages to cells — for example, speeding the heart when danger approaches. The understanding is aiding the development of new drugs.  The winners, Dr. [Robert J. Lefkowitz](http://www.lefkolab.org/), 69, a professor at Duke University Medical Center in Durham, N.C., and a Howard Hughes Medical Institute researcher, and Dr. [Brian K. Kobilka](http://med.stanford.edu/kobilkalab/), 57, a professor at the [Stanford University](http://topics.nytimes.com/top/reference/timestopics/organizations/s/stanford_university/index.html?inline=nyt-org) School of Medicine in California, will split eight million Swedish kronor, or about $1.2 million.  Dr. Lefkowitz spoke by telephone during the news conference Wednesday at the Royal Swedish Academy of Sciences in Stockholm, which awards the Nobels, and said he did not hear the ringing of the early morning phone call to tell him that he had won.  “I wear earplugs when I sleep, and so my wife gave me an elbow,” he said. “And there it was, a total shock and surprise, as many before me have experienced.”  It also changed his plans for the day.  “I was going to get a haircut,” Dr. Lefkowitz said, “which if you could see me, you would see is quite a necessity, but I’m afraid that’ll probably have to be postponed.”  Dr. Lefkowitz and Dr. Kobilka filled in a major gap in the understanding how cells work and respond to outside signals.  “It’s a great tribute to human ingenuity and helping us learn intricate details of what goes on in our bodies,” said Bassam Shakhashiri, president of the American Chemical Society.  Scientists already knew, for example, that stress hormones like adrenaline trigger the body’s fight-or-flight reflex — focusing vision, quickening breathing, diverting blood away from less urgent body systems like the digestive tract — but adrenaline never enters the cells.  “A receptor was correctly assumed to be involved,” said Sven Lidin, a member of the Nobel Prize committee for chemistry during a news conference on Wednesday, “but the nature of this receptor and how it reacted remained a mystery for a long time.”  Dr. Lefkowitz said that although the notion of cell receptors went back more than a century, “when I kind of started my work in the area in the early ’70s, there was still a lot of skepticism as to whether there really was such a thing.” By attaching radioactive iodine to a hormone, Dr. Lefkowitz was able to track the movement of the hormone and explore the behavior of these receptors. Over the years, he was able to pull out the receptor proteins and show they were specific molecules.  In the 1980s, his group, which included Dr. Kobilka as a postdoctoral researcher, searched for and found the gene that produced one of these protein receptors. The genetic blueprint indicated that the shape of the protein included long spirals that wove through the cell membrane seven times. Meanwhile, other researchers had discovered a class of proteins, called G proteins, inside the cell that, when activated, set off a Rube Goldberg cascade of molecular machinery.  The receptor was the last missing piece. “If you have something like adrenaline, it sticks in there, turns the key, changes the shape of the receptor, and now the receptor, having changed shape, is able to tickle the G protein,” Dr. Lefkowitz said.  There was a “eureka moment,” Dr. Lefkowitz said, when he realized that his receptor was the same as another receptor that had been found in another part of the body — the light receptor rhodopsin in the retina. “We said, ‘Well, wait a moment, maybe anything which couples to a G protein looks like this,’ ” he said.  Within a year, they were able to decode the genetic blueprints for several other similar receptors, and they were right.  About 1,000 of these receptors, known as G protein-coupled receptors, are now known, residing on the surface of cells and reacting to a host of hormones and neurotransmitters.  Dr. Lidin of the Royal Swedish Academy said that it turned out that half of all drugs target such receptors.  Dr. Kobilka, who moved to Stanford, then set out to determine the three-dimensional structure of the receptor, which requires building a crystal out of the proteins and then deducing the structure by bouncing X-rays off it. Membrane proteins are notoriously difficult to pack into crystals. Last year, he and his research group were able to get an image of a receptor at the moment it was transferring a signal from the outside of the cell to a protein on the inside.  Knowledge about the shapes of different receptors could refine drug design. Many drug molecules attach to cells not only at the intended target but also to other receptors, causing side effects.  “We hope by knowing the three-dimensional structure we might be able to develop more selective drugs and more effective drugs,” Dr. Kobilka said.  Dr. Kobilka received his good-news phone call at 2:30 in the morning California time. “When you have a number of people with credible Swedish accents congratulating you, you feel it’s probably not a joke someone is playing on you,” he said.  **The Washington Post**  *Daily circulation: 295,438*  **Two Americans get chemistry Nobel for elucidating cellular receptors**  **By** [**David Brown**](http://www.washingtonpost.com/david-brown/2011/02/28/AB2Y0sM_page.html)**, Published: October 10**  Two Americans are sharing this year’s Nobel Prize in chemistry for helping reveal the way that many hormones and neurotransmitters — and hundreds of drugs — communicate with the interior of cells.  The winners, Robert J. Lefkowitz, 69, of Duke University and Brian K. Kobilka, 57, of Stanford University, were teacher and student. Both are physicians and neither has a doctorate in chemistry.  Their research, conducted over four decades, has elucidated the workings of “G-protein-coupled receptors,” a family with about 1,000 varieties that are involved in everything from sight and smell to the regulation of pain and heart rate.  More than one-third of all drugs on the market — including beta blockers, antihistamines and opioid painkillers — operate through G-protein-coupled receptors. Work in the past few years that reveals receptor structure in atomic detail may eventually lead to drugs with more precise action and fewer side effects.  In making the announcement, the Royal Swedish Academy of Sciences said the pair had made “groundbreaking discoveries” and called Kobilka’s success last year in crystallizing a receptor at the moment it is being activated a “molecular masterpiece.” The two will share about $1.2 million.  With its insights both crucial to understanding cell biology and highly useful to clinical medicine, a Nobel for this field had long been predicted.  “This could have been a prize in physiology or medicine, but it’s the chemical nature of the changes [driven by the receptors] that is being recognized here,” said Bassam Shakhashiri, president of the American Chemical Society and a professor at the University of Wisconsin.  At a news conference, Lefkowitz said he and Kobilka “couldn’t be more different.” Lefkowitz is a voluble, Bronx-accented New Yorker; Kobilka is a taciturn, small-town Minnesotan. Lefkowitz said the two had talked by Skype earlier in the day, and Lefkowitz had said Kobilka’s recent work is “maybe what pushed this over the line” into prize-winning territory. Kobilka demurred and said Lefkowitz’s work is what made his achievement possible.  “What little was said was really very moving,” he told the news conference, his voice catching.  Lefkowitz’s research has been supported by the Howard Hughes Medical Institute, based in Chevy Chase, since 1976 — longer than any other of the institute’s fellows, he said.  G-protein-coupled receptors are embedded in the thin membrane of cells. The “receptor” part is outside the cell, in contact with the environment. The“G protein” is inside the cell, in contact with the molecular machinery that does the cell’s work. There are seven ribbon-like strands of the protein that go back and forth through the membrane, stitching it in tightly.  The entire apparatus is a way for a cell to get information from the environment while still keeping itself intact and protected. It is such a successful piece of engineering that natural selection has tweaked and modified it for all kinds of purposes.  “I think that these proteins evolved to be very effective at detecting small things on the outside of the cell and activating big things inside the cell,” Kobilka told reporters in a conference call. “Once that problem was solved, we used the same method over and over again.”  The first receptor Lefkowitz identified and isolated was the “beta-2 adrenergic receptor,” which is the one that responds to adrenaline and is the target of asthma drugs such as albuterol. Lefkowitz said he picked it because there were many pharmacological tools with which to study its properties and, indirectly, its structure.  Kobilka, who like Lefkowitz trained to be a cardiologist, came to work in Lefkowitz’s lab at Duke in 1984. He helped determine the beta-2 adrenergic receptor’s amino acid sequence, which revealed that it was extremely similar to rhodopsin, which detects light in the retina. The function of those two proteins couldn’t be more different — and that was the first sign that G-protein-coupled receptors might be a large family with diverse functions.  Research since then has shown that G-protein-coupled receptors are involved in the detection of odor, the regulation of mood, the triggering of inflammation, the control of blood pressure.  Kobilka’s work led to the cloning of the gene for the adrenergic receptor, and eventually the genes for many others.  After moving to Stanford, Kobilka embarked on a 20-year-quest to isolate enough copies of various receptors to crystallize them into solid form, at which point their atomic structure could be studied by X-ray diffraction.  Getting simple compounds such as salt to form crystals is easy; getting complex proteins composed of thousands of atoms is almost impossible. Kobilka and his colleagues, however, have succeeded for an adrenergic and an opiate receptor. The detail afforded might allow medicinal chemists to design molecules that fit precisely into the “active site” of a receptor.  “I hope what we do will ultimately help to develop safer and more effective drugs in a more cost-effective way,” Kobilka said.  **Associated Press,** *“Seen by half the world's population on any given day.”* **2 US scientists win Nobel chemistry prizePublished: October 10, 2012**  **By KARL RITTER and LOUISE NORDSTROM**  **Associated Press**  STOCKHOLM -- Two American researchers won the Nobel Prize in chemistry Wednesday for studies of protein receptors that let body cells sense and respond to outside signals like danger or the flavor of food. Such studies are key for developing better drugs. The Royal Swedish Academy of Sciences said Robert Lefkowitz and Brian Kobilka had made groundbreaking discoveries, mainly in the 1980s, on an important family of receptors, known as G-protein-coupled receptors. About half of all medications act on these receptors, including beta blockers and antihistamines, so learning about them will help scientists to come up with better drugs. The human body has about 1,000 kinds of such receptors, structures on the surface of cells, which let the body respond to a wide variety of chemical signals, like adrenaline. Some receptors are in the nose, tongue and eyes, and let us sense smells, tastes and light. "They work as a gateway to the cell," Lefkowitz told a news conference in Stockholm by phone. "As a result they are crucial ... to regulate almost every known physiological process with humans." Lefkowitz, 69, is an investigator at the Howard Hughes Medical Institute and professor at Duke University Medical Center in Durham, North Carolina. Kobilka, 57, worked for Lefkowitz at Duke before transferring to Stanford University School of Medicine in California, where he is now a professor.  Lefkowitz said he was fast asleep when the Nobel committee called, but he didn't hear it because he was wearing ear plugs. So his wife picked up the phone. "She said, 'There's a call here for you from Stockholm,'" Lefkowitz told The Associated Press. "I knew they ain't calling to find out what the weather is like in Durham today." He said he didn't have an "inkling" that he was being considered for the Nobel Prize. "Initially, I expected I'd have this huge burst of excitement. But I didn't. I was comfortably numb," Lefkowitz said. Kobilka said he found out around 2:30 a.m., after the Nobel committee called his home twice. He said he didn't get to the phone the first time, but that when he picked up the second time, he spoke to five members of the committee. "They passed the phone around and congratulated me," Kobilka told AP. I guess they do that so you actually believe them. When one person calls you, it can be a joke, but when five people with convincing Swedish accents call you, then it isn't a joke." He said he would put his half of the 8 million kronor ($1.2 million) award toward retirement or "pass it on to my kids." The academy said it was long a mystery how cells interact with their environment and adapt to new situations, such as when they react to adrenaline by increasing blood pressure and making the heart beat faster. Scientists suspected that cell surfaces had some type of receptor for hormones.   Using radioactivity, Lefkowitz managed to unveil receptors including the receptor for adrenaline, and started to understand how it works. Kobilka and his team realized that there is a whole family of receptors that look alike -- a family that is now called G-protein-coupled receptors. In 2011, Kobilka achieved another breakthrough when his team captured an image of the receptor for adrenaline at the moment when it is activated by a hormone and sends a signal into the cell. The academy called the image "a molecular masterpiece." The award is "fantastic recognition for helping us further understand the intricate details of biochemical systems in our bodies," said Bassam Z. Shakhashiri, president of the American Chemical Society. "They both have made great contributions to our understanding of health and disease," Shakhashiri said. "This is going to help us a great deal to develop new pharmaceuticals, new medicines for combating disease."   Drugs such as beta blockers, antihistamines and various psychiatric medicines have been around for some time, but before Lefkowitz and Kobilka's discoveries, their impact on the human body wasn't fully understood, said Sven Lidin, chairman of the prize committee. "All we knew was that they worked, but we didn't know why," Lidin said. There is hope that the Nobel-winning research will lead to new medicines, he added. Mark Downs, chief executive of Britain's Society of Biology, said the critical role receptors play is now taking for granted.   "This groundbreaking work spanning genetics and biochemistry has laid the basis for much of our understanding of modern pharmacology as well as how cells in different parts of living organisms can react differently to external stimulation, such as light and smell, or the internal systems which control our bodies such as hormones," Downs said in a statement. The U.S. has dominated the Nobel chemistry prize in recent years, with American scientists being included among the winners of 17 of the past 20 awards.   This year's Nobel announcements started Monday with the medicine prize going to stem cell pioneers John Gurdon of Britain and Japan's Shinya Yamanaka. Frenchman Serge Haroche and American David Wineland won the physics prize Tuesday for work on quantum particles. The Nobel Prizes were established in the will of 19th-century Swedish industrialist Alfred Nobel, the inventor of dynamite. The awards are always handed out on Dec. 10, the anniversary of Nobel's death in 1896. ------ AP Science Writer Malcolm Ritter in New York and AP writers Amanda Kwan in Phoenix, Jack Jones in Columbia, South Carolina, and Danica Kirka in London contributed to this report.  **USA Today** *5.2 million circulation* **2 U.S. scientists win Nobel chemistry prize**  STOCKHOLM (AP) — Two American researchers won the Nobel Prize in chemistry Wednesday for studies of protein receptors that let body cells sense and respond to outside signals like danger or the flavor of food. Such studies are key for developing better drugs.  The Royal Swedish Academy of Sciences said Robert Lefkowitz and Brian Kobilka had made groundbreaking discoveries, mainly in the 1980s, on an important family of receptors, known as G-protein-coupled receptors.  About half of all medications act on these receptors, including beta blockers and antihistamines, so learning about them will help scientists to come up with better drugs.The human body has about 1,000 kinds of such receptors, structures on the surface of cells, which let the body respond to a wide variety of chemical signals, like adrenaline. Some receptors are in the nose, tongue and eyes, and let us sense smells, tastes and light.  "They work as a gateway to the cell," Lefkowitz told a news conference in Stockholm by phone. "As a result they are crucial ... to regulate almost every known physiological process with humans."  Lefkowitz, 69, is an investigator at the Howard Hughes Medical Institute and professor at Duke University Medical Center in Durham, North Carolina.  Kobilka, 57, worked for Lefkowitz at Duke before transferring to Stanford University School of Medicine in California, where he is now a professor.  Lefkowitz said he was fast asleep when the Nobel committee called, but he didn't hear it because he was wearing ear plugs. So his wife picked up the phone.  "She said, 'There's a call here for you from Stockholm,'" Lefkowitz told The Associated Press. "I knew they ain't calling to find out what the weather is like in Durham today."  He said he didn't have an "inkling" that he was being considered for the Nobel Prize.  "Initially, I expected I'd have this huge burst of excitement. But I didn't. I was comfortably numb," Lefkowitz said.  Kobilka said he found out around 2:30 a.m., after the Nobel committee called his home twice. He said he didn't get to the phone the first time, but that when he picked up the second time, he spoke to five members of the committee.  "They passed the phone around and congratulated me," Kobilka told AP. 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"This groundbreaking work spanning genetics and biochemistry has laid the basis for much of our understanding of modern pharmacology as well as how cells in different parts of living organisms can react differently to external stimulation, such as light and smell, or the internal systems which control our bodies such as hormones," Downs said in a statement.  The U.S. has dominated the Nobel chemistry prize in recent years, with American scientists being included among the winners of 17 of the past 20 awards.  This year's Nobel announcements started Monday with the medicine prize going to stem cell pioneers John Gurdon of Britain and Japan's Shinya Yamanaka. Frenchman Serge Haroche and American David Wineland won the physics prize Tuesday for work on quantum particles.  The Nobel Prizes were established in the will of 19th-century Swedish industrialist Alfred Nobel, the inventor of dynamite. The awards are always handed out on Dec. 10, the anniversary of Nobel's death in 1896.  **Huffington Post**  *76.9 million unique monthly views*  **[Bassam Z. Shakhashiri](http://www.huffingtonpost.com/bassam-z-shakhashiri)**  [**Bassam Z. Shakhashiri**](http://www.huffingtonpost.com/bassam-z-shakhashiri)  **President, American Chemical Society**  **2012 Nobel Prize in Chemistry: Did the 'Right' Science Get Its Due?**  As president of the American Chemical Society, the world's largest scientific society, I applaud the recipients of the 2012 Nobel Prize in Chemistry. Some might wonder about the world's most prestigious chemistry prize being awarded for research in biology and medicine. Drama and controversy often accompany selection of Nobel Prize winners. But in the past, controversy usually involved questions on whether the Nobel selection committees gave credit to the *right people*. The 2012 Nobel Prize in Chemistry may be raising questions about whether the *right science* got its due.  Robert J. Lefkowitz, of Duke University, and Brian K. Kobilka, of Stanford, are M.D.s, medical doctors, not the Ph.D.s who mainly populate the corridors of chemistry. Although medical doctors, both new Nobel laureates do have strong chemistry connections. Lefkowitz, for instance, is a professor of medicine and biochemistry. Kobilka's undergraduate degree is in both biology and chemistry and Lefkowitz's undergrad is in chemistry. They have published more than 30 research research papers in ACS' suite of more than 40 peer-reviewed scientific journals, and all of those articles are being [made available without charge](http://pubs.acs.org/page/Nobel2012) for the next week. The topic of the prize -- G-coupled protein receptors -- also has recieved extensive coverage in [Chemical & Engineering News](http://cen.acs.org/index.html), the weekly that is a mainstay for chemists, policymakers, and others around the world. One was a [cover story](http://cen.acs.org/articles/89/i11/Picture-Pill.html).  Chemistry was the most important science for Alfred Nobel's famous research -- the invention of dynamite, an explosive safer than nitroglycerin that preserved life and limb for the workers who built bridges, roads and the infrastructure of modern society. In Nobel's day and, indeed, until well into the 20th century, chemistry was chemistry. Biology was biology. Medicine was medicine. Chemists developed the medications that doctors used to treat disease. But to a large extent, there were more-or-less distinct boundaries between scientific research in biology-medicine and chemistry.  But the chemistry of today is no longer the chemistry of Alfred Nobel's time, or even of a few decades ago. Things have changed. The traditional borders between chemistry and other fields -- especially biology -- are blurring. And I think the 2012 Nobel Prize in Chemistry was a fantastic development, a dramatic illustration of how chemistry has become so central to other fields of science. There have been others. Remember the [2009 Nobel Prize in Chemistry](http://www.nobelprize.org/nobel_prizes/chemistry/laureates/2009/press.html)? It was biology at heart -- for research on how structures called ribosomes translate the genetic code in DNA into the proteins of life. Biology's overlap into these prizes should not be surprising. After all, living things are chemical systems, the most complicated chemical systems imaginable. And life stripped to its most basics is a series of chemical reactions. Chemistry permeates all the sciences. It's importance is so all-pervasive that chemistry not only has broken down traditional barriers in science, but even risks losing its own identity.  The 2012 Nobel Prize relates directly to chemistry and chemistry's role in all science, especially the biological sciences. Thousands of pharmaceutical chemists, for instance, rely on this work every day in the quest to develop new medicines. Fully half of our prescription drugs have connections to G-coupled protein receptors and more are in the works. Biology and chemistry -- the molecular sciences -- have walked hand-in-hand since life first appeared on Earth almost 4 billion years ago. And they are marching together into the 21st century for the benefit of humanity, promising to solve some of the great global challenges. These challenges include population growth, limited natural resources, malnutrition, disease, climate change, violence and war, and the denial of basic human rights -- especially the right to benefit from scientific and technological progress.  Businessweek *4 million unique monthly views*   2 US scientists win Nobel chemistry prize   NEW YORK (AP) — Two Americans won the Nobel Prize in chemistry Wednesday for studies of how the cells in our bodies pick up signals as diverse as hormones, smells, flavors and light — work that is key to developing better medicines.  Those signals are received by specialized proteins on cell surfaces. Dr. Robert Lefkowitz and Dr. Brian Kobilka made groundbreaking discoveries about the inner workings of those proteins, mainly in the 1980s, the Royal Swedish Academy of Sciences said.  The proteins are called G-protein-coupled receptors. Many of today's drugs — maybe about half — act on these receptors, including beta blockers and antihistamines. Experts say the prize-winning work and subsequent research is helping scientists as they try to improve current drugs and develop new ones.  The receptors pick up signals outside a cell and relay a message to the interior.  "They work as a gateway to the cell," Lefkowitz told a news conference in Stockholm by phone. "As a result, they are crucial ... to regulate almost every known physiological process with humans."  Lefkowitz, 69, is an investigator at the Howard Hughes Medical Institute and professor at Duke University Medical Center in Durham, N.C.  Kobilka, 57, worked for Lefkowitz at Duke before transferring to Stanford University School of Medicine in California, where he is now a professor.  Lefkowitz said he was fast asleep when the Nobel committee called, but he didn't hear the phone because he was wearing ear plugs. So his wife picked up.  "She said, 'There's a call here for you from Stockholm,'" Lefkowitz told The Associated Press. "I knew they ain't calling to find out what the weather is like in Durham today."  He said he didn't have any "inkling" that he was being considered for the Nobel Prize.  "Initially, I expected I'd have this huge burst of excitement. But I didn't. I was comfortably numb," Lefkowitz said.  Kobilka said he found out around 2:30 a.m., after the Nobel committee called his home twice. He said he didn't get to the phone the first time, but that when he picked up the second time, he spoke to five members of the committee.  "They passed the phone around and congratulated me," Kobilka told AP. "I guess they do that so you actually believe them. When one person calls you, it can be a joke. But when five people with convincing Swedish accents call you, then it isn't a joke."  He said he would put his half of the 8 million kronor ($1.2 million) award toward retirement or "pass it on to my kids."  The academy said it was long a mystery how cells interact with their environment and adapt to new situations, such as when they react to adrenaline by increasing blood pressure and making the heart beat faster.  Scientists suspected that cells had some type of receptor for hormones and other substances, but they couldn't find any.  Lefkowitz managed to reveal receptors, such as one for adrenaline, and started to understand how that one works.  Kobilka, working with Lefkowitz, found the gene that tells the body how to make the adrenaline receptor, and it soon became clear that there was a whole family of receptors that look alike — a family that is now called G-protein-coupled receptors.  Since then, scientists have built up detailed knowledge about how those receptors work and how they are regulated. The two prize winners "have been at the forefront of this entire scientific journey," the Nobel committee said.  Kobilka moved on to Stanford after the gene discovery, and just last year he and his team there captured an image of a receptor at the moment it transferred the signal from a hormone to the interior of the cell. The academy called that "a molecular masterpiece."  Awarding the Nobel to Lefkowitz and Kobilka is "a fantastic decision," said Roger Sunahara, who studies how hormones activate the receptors at the University of Michigan. With detailed knowledge about the receptors, scientists can better understand how drugs work, which in turn helps them improve current medications and look for new ones, he said.  Drugs such as beta blockers, antihistamines and various psychiatric medicines have been around for some time, but before Lefkowitz and Kobilka's discoveries, their interaction with the human body wasn't fully understood, said Sven Lidin, chairman of the prize committee  **San Francisco Chronicle**  *Daily circulation: 223,549*  **U.S. Scientists Share Chemistry Nobel for Cell Receptor Work**  **Eva von Schaper, Bloomberg http://analytics.apnewsregistry.com/analytics/v2/image.svc/bloomberg/RWS/sfgate.com/MAI/3935596/E/prod/AT/A**[**Copyright 2012 Bloomberg. All rights reserved. This material may not be published, broadcast, rewritten or redistributed.**](http://www.sfgate.com/business/bloomberg/article/U-S-Scientists-Share-Chemistry-Nobel-for-Cell-3935596.php#license-507c4e6c09b98)  **Eva von Schaper, ©2012 Bloomberg News**  Oct. 10 (Bloomberg) -- Two U.S. scientists won the Nobel Prize in Chemistry for discovering the receptors that transmit signals such as light, taste or smell to cells, providing a key to the efficacy of half of all medicines.  [Robert J. Lefkowitz](http://www.sfgate.com/?controllerName=search&action=search&channel=business%2Fbloomberg&search=1&inlineLink=1&query=%22Robert+J.+Lefkowitz%22), 69, of [Duke University Medical Center](http://www.sfgate.com/?controllerName=search&action=search&channel=business%2Fbloomberg&search=1&inlineLink=1&query=%22Duke+University+Medical+Center%22) in Durham, North Carolina, and [Brian K. Kobilka](http://www.sfgate.com/?controllerName=search&action=search&channel=business%2Fbloomberg&search=1&inlineLink=1&query=%22Brian+K.+Kobilka%22), 57, of [Stanford University School of Medicine](http://www.sfgate.com/?controllerName=search&action=search&channel=business%2Fbloomberg&search=1&inlineLink=1&query=%22Stanford+University+School+of+Medicine%22) in Palo Alto, California, will share the 8 million-krona ($1.2 million) award, the [Royal Swedish Academy of Sciences](http://www.sfgate.com/?controllerName=search&action=search&channel=business%2Fbloomberg&search=1&inlineLink=1&query=%22Royal+Swedish+Academy+of+Sciences%22) said at a news conference today in Stockholm.  They received the prize for their work on “cells and sensibility,” the academy said. The men first established that receptors are responsible for relaying certain signals to cells, and showed the inner workings of the largest and most pervasive family of such switches, known as G-protein-coupled receptors.  Lodged in the fatty envelope that surrounds cells, they are the body’s mechanism to read its environment. Understanding them paves the way for more effective drugs against afflictions such as hypertension and allergies, and helps reveal why the impact of some drugs wanes over time.  “This speaks of how far we have come in chemistry that we can see the intricate details of mechanisms in our bodies,” said Bassam Shakhashiri, the president of the [American Chemical Society](http://www.sfgate.com/?controllerName=search&action=search&channel=business%2Fbloomberg&search=1&inlineLink=1&query=%22American+Chemical+Society%22) and professor of chemistry at the [University of Wisconsin](http://www.sfgate.com/?controllerName=search&action=search&channel=business%2Fbloomberg&search=1&inlineLink=1&query=%22University+of+Wisconsin%22), in a telephone interview. “It’s just fantastic.”  Haircut Delayed  Lefkowitz, a professor of medicine at Duke and an investigator at the [Howard Hughes Medical Institute](http://www.sfgate.com/?controllerName=search&action=search&channel=business%2Fbloomberg&search=1&inlineLink=1&query=%22Howard+Hughes+Medical+Institute%22), said he “didn’t have a clue” he would be in the running for the prize  “I did not go to sleep last night waiting for this call,” he said by telephone at the news conference. “I’m feeling very, very excited. I was fast asleep and the phone rang and I didn’t hear it. I wear earplugs when I sleep and my wife gave me an elbow.”  Lefkowitz had planned to go to the office and get a haircut today, though the haircut will have to wait because he expects “a crazy day at the office,” the researcher said.  Lefkowitz, an only child who grew up in the Bronx, New York, isolated eight out of nine subtypes of the most common G- protein-coupled receptors, which regulate the body’s fight-or- flight response. He also discovered two families of proteins that desensitize the receptors, helping scientists understand how drugs such as beta blockers work.  In his early research, he used radioactive material to track the receptors, a bit of sleight of hand that allowed him to find the whole family of receptors. His lab then revealed the receptors’ genetic blueprint.  **The Scientist**  *56,300 unique monthly views*  **G-Protein Receptor Work Wins Nobel  Robert J. Lefkowitz and Brian K. Kobilka take home this year’s Nobel Prize for Chemistry for revealing how membrane receptors sense and respond to chemical signals.**  **By Dan Cossins | October 10, 2012** Robert J. Lefkowitz of Duke University and Brian K. Kobilka of Stanford have won this year’s Nobel Prize for Chemistry for describing the structure and function of the receptors through which cells sense and respond to chemical signals. The findings, awarded the prize this morning (October 10) by the Nobel Assembly at the Karolinska Institute in Stockholm, have transformed scientists’ understanding of many physiological processes and continue to support advances in drug design.  “They have helped us to develop deeper insights in to the mechanisms of cell reactions and the molecular structures behind them—insights that help us to understand the beautiful complexity of the chemical world inside us,” Bassam Shakhashiri, president of the American Chemical Society, told *The Scientist*. “Their contributions are extremely useful. Every day thousands of chemists use the results of their research in developing new pharmaceuticals for use in society.”  Since the discovery of cells in the 17th century, scientists have understood that these building blocks of life are constantly exposed to myriad chemical signals, which are then recognized, interpreted, and translated into a cellular response. But until around 20 years ago, how cells did this was a mystery. Scientists had suspected that cell surface receptors were responsible, but no such receptors had been identified—and nobody had a clue how they might work.  Taking on the problem in the late 1960s, Lefkowitz set about trying to isolate receptors from cell membranes. He attached iodine isotopes to various hormones to track their paths through cells in the lab. His experiments revealed several cell surface receptors, including the β2-adrenergic receptor, which responds to adrenaline to regulate the body’s fight-or-flight response. Then, in 1982, his team was able to remove one of these receptors, using detergents to dissolve it from the cell membrane, then purifying it with chromatography, which allowed them to study it in more detail.  Around the same time, Kobilka joined Lefkowitz’s lab and was tasked with isolating and determining the sequence of the gene that codes for the β2-adrenergic receptor. Kobilka built a library of genomic sequences and screened it with the few fragments of sequences they had for their receptor, piecing together the full sequence. The researchers then used the sequence to recreate the receptor’s structure, and found it to be similar to rhodopsin, a light-detecting receptor in the eye. Their work was published in [*Nature*](http://www.nature.com/nature/journal/v321/n6065/abs/321075a0.html) in 1986.  Lefkowitz and Kobilka realized that the β2-adrenergic receptor was just one of many receptors that make up the family now known as G-protein-coupled receptors (GPCR). Around a thousand GPCRs are now known to exist in the human body, where they play key roles in virtually every physiological process, including smell, taste, and the regulation of heart rate and pain tolerance.  Lefkowitz and Kobilka have since published studies in [*Nature*](http://www.nature.com/nature/journal/v450/n7168/full/nature06325.html) and [*Science*](http://www.sciencemag.org/content/318/5854/1266), among other high-ranking journals, in which they visualize the structure of GPCRs in high-resolution and detail their function. In 2011, in another paper in [*Nature*](http://www.nature.com/nature/journal/v477/n7366/full/nature10361.html), Kobilka captured the moment at which the receptor is activated by a hormone and sends a signal to the cell.  Such insights have already been critical to drug discovery: around half of all drugs currently available achieve their effects by targeting these receptors. In future, further characterization of these crucial molecular machines should help drug designers come up with even more effective treatments.  “G-protein coupled receptors have for a long time been the holy grail of membrane protein research,” Mark Sansom, a molecular biophysicist at Oxford University, told the Science Media Centre in London, UK, as reported in [*The Guardian*](http://www.guardian.co.uk/science/2012/oct/09/nobel-prize-chemistry-2012-live). “They are fundamental to regulation of many physiological processes, from the nervous system to taste and smell. They are also a major class of drug target and are incredibly important to the pharmaceutical industry.”  Shakhashiri added that awarding the Chemistry Nobel to work with such a biological emphasis is a testament to the reach of chemistry. “Chemistry permeates all the sciences,” he said. “It is so successful that it has broken down traditional barriers in science; so successful, even, that it is at some risk of losing its own identity. That is a tribute to how we have developed insights into the role of chemicals at the molecular level in the body.”  **United Press International** *972,800 unique monthly views*  [**World News**](http://www.upi.com/Top_News/World-News/)  **Two Americans share Nobel chemistry award**  STOCKHOLM, Sweden, Oct. 10 (UPI) -- Two U.S. scientists received the 2012 Nobel Prize for Chemistry for their studies of G-protein-coupled receptors, the Royal Swedish Academy of Sciences said.  Robert Lefkowitz and Brian Kobilka were awarded the prize for their work on an important family of receptors that allow cells to sense their environment to adapt to new situations, the academy said Wednesday in a release.  Lefkowitz began using radioactivity in 1968 to trace cells' receptors, attaching an iodine isotope to hormones, and discovering several receptors, including a receptor for adrenalin, the academy said.  The team achieved its next big step during the 1980s, when Kobilka isolated the gene that codes for the adrenalin receptor from the human genome, the academy said. When researchers analyzed the gene, they found the receptor was similar to one in the eye that captures light and realized a whole family of receptors, the G-protein-coupled receptors, looked and functioned in the same manner.  About half of all medications achieve their effects through G-protein-coupled receptors.  The studies by Lefkowitz and Kobilka are critical for understanding how G-protein-coupled receptors function, the academy said. In 2011, Kobilka achieved another breakthrough when he and his research team captured an image of an adrenalin receptor at the moment it is activated by a hormone and sends a signal into the cell.  Bassam Z. Shakhashiri, president of the American Chemical Society, congratulated the laureates on behalf of the society's 640,000-plus members.  "They have made tremendous strides in our understanding of health and disease. Almost half of all prescription medications work through the mechanisms that Lefkowitz and Kobilka have explored," Shakhashiri said. "The resulting insights are helping us develop new medicines for combating disease, one of the great global challenges facing humanity."  Lefkowitz, born in 1943 in New York, is an investigator with the Howard Hughes Medical Institute, and a James B. Duke professor of medicine and professor of biochemistry at Duke University Medical Center, Durham, N.C.  Kobilka, born in 1955 in Little Falls, Minn., is a professor of medicine and a professor of molecular and cellular physiology at Stanford University School of Medicine, Stanford, Calif.  **Wall Street Journal** *2.1 million circulation*  **Unlocking cells yield prize**  **By Robert Lee Hotz**  Two U.S. scientists shared the Nobel Prize in chemistry on Wednesday for learning how cells respond to the world around them, a finding that underpins the mechanism of many prescription drugs including beta blockers, antihistamines and psychiatric medications.  Brian Kobilka, 57 years old, of Stanford University Medical School, and 69-year-old Robert Lefkowitz, of the Howard Hughes Medical Institute and the Duke University Medical Center in Durham, N.C., will split the $1.2 million award for research that revealed the workings of a fundamental family of cell sensors called the G-protein-coupled receptors.  In its award citation, the Royal Swedish Academy of Sciences lauded the two researchers for their "ground-breaking discoveries" on these molecular receptors, which allow cells to respond and adapt to the chemicals triggered by smell, sight, taste, hormones and other sensory signals. These signaling substances, which include adrenaline, dopamine and serotonin, among others, can make the heart beat faster or alter mood, for example, in response to danger.  "Today, we know what this receptor looks like down to the finest molecular detail," said Sven Lidin, a professor of inorganic chemistry at Sweden's Lund University and chairman of the chemistry prize committee.  This basic understanding of the chemistry of cell communication could be key to the development of more-effective treatments. "Think of a disease, and there is probably a medicine there that affects the G-protein-coupled receptor," Dr. Lidin said. "This work can provide the tools to make better drugs with fewer side effects."  Dr. Lefkowitz said he was asleep at home when the Nobel officials called at dawn Wednesday with news of the award. He couldn't hear the phone ringing because he was wearing earplugs. His wife elbowed him awake.  "Every scientist dreams in a recess of his mind that he one day will get a call like that," Dr. Lefkowitz said.  "I did not have a rumor or a clue that it was coming," he added. "There it was—a total shock and surprise, as many before me have experienced." Almost immediately, Dr. Kobilka at Stanford in California called him via Skype to share the news of their joint award.  Together, it took the two scientists decades of painstaking laboratory experiments to identify just how a cell passes important chemical signals from its surface wall into its complex interior.  Dr. Lefkowitz began the work at Duke in the late 1960s by using radioactive isotopes to identify and map the structure of the receptor adrenaline. In the 1980s, Dr. Kobilka, who worked in Dr. Lefkowitz's laboratory before joining Stanford in 1990, isolated and analyzed the receptor's gene. Gradually, they realized they had found an entire family of a thousand or more receptors that serve as gateways into the cell.  Their work continued through last year, when Dr. Kobilka and his colleagues published the first X-ray image of the key receptor as it responded to the influence of a hormone by transmitting a signal through the cell wall.  "When we saw that, it was amazing and so exciting," said Dr. Kobilka, who at first thought the call Wednesday notifying him of the Nobel Prize was a prank.  "It is a great tribute to human ingenuity," said Bassam K. Shakhashiri, president of the American Chemical Society. "Their contribution is to help us understand how different parts of the cell communicate to each other and trigger changes in the chemical composition of the cell when we smell something, see something, eat something or feel something."  **StarTribune**  *Daily circulation: 295,438*  **Americans Lefkowitz, Kobilka win Nobel chemistry prize for work on protein receptors**  STOCKHOLM - Americans Robert Lefkowitz and Brian Kobilka won the 2012 Nobel Prize in chemistry Wednesday for studies of protein receptors that let body cells sense and respond to outside signals. Such studies are key for developing better drugs.  The Royal Swedish Academy of Sciences said the two researchers had made groundbreaking discoveries on an important family of receptors, known as G-protein-coupled receptors.  About half of all medications act on these receptors, so learning about them will help scientists to come up with better drugs.  The human body has about 1,000 kinds of such receptors, which let it respond to a wide variety of chemical signals, like adrenaline. Some receptors are in the nose, tongue and eyes, and let us sense smells, tastes and vision.  Lefkowitz, 69, is an investigator at the Howard Hughes Medical Institute and professor at Duke University Medical Center in Durham, North Carolina.  Kobilka, 57, is a professor at Stanford University School of Medicine in California.  "I'm feeling very, very excited," Lefkowitz told a news conference in Stockholm by phone.  He said he was fast asleep when the Nobel committee called.  "I did not hear it ... I wear earplugs, so my wife gave me an elbow," he said. "And there it was. ... It was a total shock and surprise."  Lefktowitz said he had no clue that he was being considered for the Nobel Prize, though he added it has always been "a bit of a fantasy" to receive the award.  Kobilka said he found out around 2:30 a.m., after the Nobel committee called his home twice. He said he didn't get to the phone the first time, but that when he picked up the second time, he spoke to five members of the committee.  "They passed the phone around and congratulated me. I guess they do that so you actually believe them. When one person calls you, it can be a joke, but when five people with convincing Swedish accents call you, then it isn't a joke."  The academy said it was long a mystery how cells interact with their environment and adapt to new situations, such as when adrenaline increases blood pressure and makes the heart beat faster.  Scientists suspected that cell surfaces had some type of receptor for hormones.  Using radioactivity, Lefkowitz managed to unveil receptors including the receptor for adrenaline, and started to understand how it works.  Kobilka's work helped researchers realize that there is a whole family of receptors that look alike — a family that is now called G-protein-coupled receptors.  The award is "fantastic recognition for helping us further understand the intricate details of biochemical systems in our bodies," said Bassam Z. Shakhashiri, president of the American Chemical Society.  "They both have made great contributions to our understanding of health and disease," Shakhashiri said. "This is going to help us a great deal to develop new pharmaceuticals, new medicines for combating disease."  Mark Downs, chief executive of Britain's Society of Biology, said the critical role receptors play is now taking for granted.  "This ground breaking work spanning genetics and biochemistry has laid the basis for much of our understanding of modern pharmacology as well as how cells in different parts of living organisms can react differently to external stimulation, such as light and smell, or the internal systems which control our bodies such as hormones," Downs said in a statement.  The Nobel week started Monday with the medicine prize going to stem cell pioneers John Gurdon of Britain and Japan's Shinya Yamanaka. Frenchman Serge Haroche and American David Wineland won the physics prize Tuesday for work on quantum particles.  The Nobel Prizes were established in the will of 19th century Swedish industrialist Alfred Nobel, the inventor of dynamite. Each award is worth 8 million kronor, or about $1.2 million. The awards are always handed out on Dec. 10, the anniversary of Nobel's death in 1896.  **NBC News** *58 million unique monthly views*  **US chemists win Nobel for study of protein receptors**  **By Karl Ritter and Louise Nordstrom  AP**  STOCKHOLM — Two American researchers won the Nobel Prize in chemistry Wednesday for studies of protein receptors that let body cells sense and respond to outside signals like danger or the flavor of food. Such studies are key for developing better drugs.  The Royal Swedish Academy of Sciences said Robert Lefkowitz and Brian Kobilka made groundbreaking discoveries, mainly in the 1980s, on an important family of receptors known as G-protein-coupled receptors.  About half of all medications act on these receptors, including beta blockers and antihistamines, so learning about them will help scientists improve the way such drugs work.  The human body has about 1,000 kinds of such receptors, structures on the surface of cells that let the body respond to a wide variety of chemical signals, like adrenaline. Some receptors are in the nose, tongue and eyes, and let us sense smells, tastes and light.  "They work as a gateway to the cell," Lefkowitz told a news conference in Stockholm by phone. "As a result they are crucial ... to regulate almost every known physiological process with humans."  Lefkowitz, 69, is an investigator at the Howard Hughes Medical Institute and professor at Duke University Medical Center in Durham, N.C. Kobilka, 57, worked for Lefkowitz at Duke before transferring to Stanford University School of Medicine in California, where he is now a professor.  **'Comfortably numb'** Lefkowitz said he was fast asleep when the Nobel committee called, but he didn't hear it because he was wearing ear plugs. So his wife picked up the phone. "She said, 'There's a call here for you from Stockholm,'" Lefkowitz told The Associated Press. "I knew they ain't calling to find out what the weather is like in Durham today."  He said he didn't have an "inkling" that he was being considered for the Nobel Prize. "Initially, I expected I'd have this huge burst of excitement. But I didn't. I was comfortably numb," Lefkowitz said.  Kobilka said he found out around 2:30 a.m., after the Nobel committee called his home twice. He said that he didn't get to the phone the first time, but that when he picked up the second time, he spoke to five members of the committee.  "They passed the phone around and congratulated me," Kobilka told AP. "I guess they do that so you actually believe them. When one person calls you, it can be a joke, but when five people with convincing Swedish accents call you, then it isn't a joke."  He said he would put his half of the 8 million kronor ($1.2 million) award toward retirement or "pass it on to my kids."  **Solving the mystery** The academy said it was long a mystery how cells interact with their environment and adapt to new situations, such as when they react to adrenaline by increasing blood pressure and making the heart beat faster.  Scientists suspected that cell surfaces had some type of receptor for hormones.  Using radioactivity, Lefkowitz managed to identify the receptors — including the receptor for adrenaline — and started to understand how they work.  Kobilka and his team realized that there is a whole family of receptors that look alike — a family now called G-protein-coupled receptors.  In 2011, Kobilka achieved another breakthrough when his team captured an image of the receptor for adrenaline at the moment when it is activated by a hormone and sends a signal into the cell. The academy called the image "a molecular masterpiece."  **'Fantastic recognition'** The award is "fantastic recognition for helping us further understand the intricate details of biochemical systems in our bodies," said Bassam Z. Shakhashiri, president of the American Chemical Society.  "They both have made great contributions to our understanding of health and disease," Shakhashiri said. "This is going to help us a great deal to develop new pharmaceuticals, new medicines for combating disease."  Drugs such as beta blockers, antihistamines and various psychiatric medicines have been around for some time, but before Lefkowitz and Kobilka's discoveries, their impact on the human body wasn't fully understood, said Sven Lidin, chairman of the prize committee.  "All we knew was that they worked, but we didn't know why," Lidin said. There is hope that the Nobel-winning research will lead to new medicines, he added.  Mark Downs, chief executive of Britain's Society of Biology, said the critical role receptors play is now taken for granted.  **Oregon Live** *2.2 million unique monthly views*  **Nobel Prize in Chemistry awarded to 2 U.S. researchers** STOCKHOLM — Two American researchers won the [Nobel Prize](http://www.nobelprize.org/) in chemistry Wednesday for studies of protein receptors that let body cells sense and respond to outside signals like danger or the flavor of food. Such studies are key for developing better drugs.  The Royal Swedish Academy of Sciences said Robert Lefkowitz and Brian Kobilka had made groundbreaking discoveries, mainly in the 1980s, on an important family of receptors, known as [G-protein-coupled receptors](http://jcs.biologists.org/content/116/24/4867).  About half of all medications act on these receptors, including beta blockers and antihistamines, so learning about them will help scientists to come up with better drugs.  The human body has about 1,000 kinds of such receptors, structures on the surface of cells, which let the body respond to a wide variety of chemical signals, like adrenaline. Some receptors are in the nose, tongue and eyes, and let us sense smells, tastes and light.  "They work as a gateway to the cell," Lefkowitz told a news conference in Stockholm by phone. "As a result they are crucial ... to regulate almost every known physiological process with humans."  Lefkowitz, 69, is an investigator at the Howard Hughes Medical Institute and professor at Duke University Medical Center in Durham, North Carolina.  Kobilka, 57, worked for Lefkowitz at Duke before transferring to Stanford University School of Medicine in California, where he is now a professor.  Lefkowitz said he was fast asleep when the Nobel committee called, but he didn't hear it because he was wearing ear plugs. So his wife picked up the phone.  "She said, 'There's a call here for you from Stockholm,'" Lefkowitz told The Associated Press. "I knew they ain't calling to find out what the weather is like in Durham today."  He said he didn't have an "inkling" that he was being considered for the Nobel Prize.  "Initially, I expected I'd have this huge burst of excitement. But I didn't. I was comfortably numb," Lefkowitz said.  Kobilka said he found out around 2:30 a.m., after the Nobel committee called his home twice. He said he didn't get to the phone the first time, but that when he picked up the second time, he spoke to five members of the committee.  "They passed the phone around and congratulated me," Kobilka told AP. I guess they do that so you actually believe them. When one person calls you, it can be a joke, but when five people with convincing Swedish accents call you, then it isn't a joke."  He said he would put his half of the 8 million [kronor](http://en.wikipedia.org/wiki/Swedish_krona) ($1.2 million) award toward retirement or "pass it on to my kids."  The academy said it was long a mystery how cells interact with their environment and adapt to new situations, such as when they react to adrenaline by increasing blood pressure and making the heart beat faster.  Scientists suspected that cell surfaces had some type of receptor for hormones.  Using radioactivity, Lefkowitz managed to unveil receptors including the receptor for adrenaline, and started to understand how it works.  Kobilka and his team realized that there is a whole family of receptors that look alike — a family that is now called G-protein-coupled receptors.  In 2011, Kobilka achieved another breakthrough when his team captured an image of the receptor for adrenaline at the moment when it is activated by a hormone and sends a signal into the cell. The academy called the image "a molecular masterpiece."  The award is "fantastic recognition for helping us further understand the intricate details of biochemical systems in our bodies," said Bassam Z. Shakhashiri, president of the American Chemical Society.  "They both have made great contributions to our understanding of health and disease," Shakhashiri said. "This is going to help us a great deal to develop new pharmaceuticals, new medicines for combating disease."  Mark Downs, chief executive of Britain's Society of Biology, said the critical role receptors play is now taking for granted.  "This groundbreaking work spanning genetics and biochemistry has laid the basis for much of our understanding of modern pharmacology as well as how cells in different parts of living organisms can react differently to external stimulation, such as light and smell, or the internal systems which control our bodies such as hormones," Downs said in a statement.  The U.S. has dominated the Nobel chemistry prize in recent years, with American scientists being included among the winners of 17 of the past 20 awards.  This year's Nobel announcements started Monday with the medicine prize going to stem cell pioneers John Gurdon of Britain and Japan's Shinya Yamanaka. Frenchman Serge Haroche and American David Wineland won the physics prize Tuesday for work on quantum particles.  The Nobel Prizes were established in the will of 19th-century Swedish industrialist Alfred Nobel, the inventor of dynamite. The awards are always handed out on Dec. 10, the anniversary of Nobel's death in 1896.  --The Associated Press  **New York Daily News** *7.4 million circulation*  **Nobel Prize in Chemistry awarded to 2 U.S. researchers**  Americans Robert Lefkowitz and Brian Kobilka won the 2012 Nobel Prize in Chemistry Wednesday for studies of protein receptors that let body cells sense and respond to outside signals. Such studies are key for developing better drugs.  The Royal Swedish Academy of Sciences said the two researchers had made groundbreaking discoveries, mainly in the 1980s, on an important family of receptors, known as G-protein-coupled receptors.  About half of all medications act on these receptors, so learning about them will help scientists to come up with better drugs.  The human body has about 1,000 kinds of such receptors, structures on the surface of cells, which let the body respond to a wide variety of chemical signals, like adrenaline. Some receptors are in the nose, tongue and eyes, and let us sense smells, tastes and light.  Crucial regulator  "They work as a gateway to the cell," Lefkowitz told a news conference in Stockholm by phone. "As a result they are crucial ... to regulate almost every known physiological process with humans."  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"This groundbreaking work spanning genetics and biochemistry has laid the basis for much of our understanding of modern pharmacology as well as how cells in different parts of living organisms can react differently to external stimulation, such as light and smell, or the internal systems which control our bodies such as hormones," Downs said in a statement.  U.S. domination  The U.S. has dominated the Nobel chemistry prize in recent years, with American scientists being included among the winners of 17 of the past 20 awards.  The Nobel week started Monday with the [medicine prize](http://www.cbc.ca/news/technology/story/2012/10/08/nobel-prize-winners-medicine.html) going to stem cell pioneers John Gurdon of Britain and Japan's Shinya Yamanaka. Frenchman Serge Haroche and American David Wineland won the [physics prize](http://www.cbc.ca/news/technology/story/2012/10/09/nobel-prize-physics.html) Tuesday for work on quantum particles.  The Nobel Prizes were established in the 1895 will of Swedish industrialist Alfred Nobel, the inventor of dynamite.  **CBC News** *6.2 million unique monthly views*  **Nobel Prize in Chemistry awarded to 2 U.S. researchers**  Americans Robert Lefkowitz and Brian Kobilka won the 2012 Nobel Prize in Chemistry Wednesday for studies of protein receptors that let body cells sense and respond to outside signals. Such studies are key for developing better drugs.  The Royal Swedish Academy of Sciences said the two researchers had made groundbreaking discoveries, mainly in the 1980s, on an important family of receptors, known as G-protein-coupled receptors.  About half of all medications act on these receptors, so learning about them will help scientists to come up with better drugs.  The human body has about 1,000 kinds of such receptors, structures on the surface of cells, which let the body respond to a wide variety of chemical signals, like adrenaline. 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Frenchman Serge Haroche and American David Wineland won the [physics prize](http://www.cbc.ca/news/technology/story/2012/10/09/nobel-prize-physics.html) Tuesday for work on quantum particles.  The Nobel Prizes were established in the 1895 will of Swedish industrialist Alfred Nobel, the inventor of dynamite.  **India Today** *1.1 million circulation*  **Nobel Prize in Chemistry awarded to 2 U.S. researchers**  Americans Robert Lefkowitz and Brian Kobilka won the 2012 Nobel Prize in Chemistry Wednesday for studies of protein receptors that let body cells sense and respond to outside signals. Such studies are key for developing better drugs.  The Royal Swedish Academy of Sciences said the two researchers had made groundbreaking discoveries, mainly in the 1980s, on an important family of receptors, known as G-protein-coupled receptors.  About half of all medications act on these receptors, so learning about them will help scientists to come up with better drugs.  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Such studies are key for developing better drugs.  The Royal Swedish Academy of Sciences said the two researchers had made groundbreaking discoveries on an important family of receptors, known as G-protein-coupled receptors.  About half of all medications act on these receptors, so learning about them will help scientists to come up with better drugs.  The human body has about 1,000 kinds of such receptors, which let it respond to a wide variety of chemical signals, like adrenaline. Some receptors are in the nose, tongue and eyes, and let us sense smells, tastes and vision.  Lefkowitz, 69, is an investigator at the Howard Hughes Medical Institute and professor at Duke University Medical Center in Durham, North Carolina.  Kobilka, 57, is a professor at Stanford University School of Medicine in California.  "I'm feeling very, very excited," Lefkowitz told a news conference in Stockholm by phone.  He said he was fast asleep when the Nobel committee called.  "I did not hear it ... I wear earplugs, so my wife gave me an elbow," he said. "And there it was. ... It was a total shock and surprise."  Lefktowitz said he had no clue that he was being considered for the Nobel Prize, though he added it has always been "a bit of a fantasy" to receive the award.  Kobilka said he found out around 2:30 a.m., after the Nobel committee called his home twice. He said he didn't get to the phone the first time, but that when he picked up the second time, he spoke to five members of the committee.  "They passed the phone around and congratulated me. I guess they do that so you actually believe them. When one person calls you, it can be a joke, but when five people with convincing Swedish accents call you, then it isn't a joke."  The academy said it was long a mystery how cells interact with their environment and adapt to new situations, such as when adrenaline increases blood pressure and makes the heart beat faster.  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The awards are always handed out on Dec. 10, the anniversary of Nobel's death in 1896.  - AP  *AP Science Writer Malcolm Ritter in New York and AP writers Danica Kirka in London and Amanda Kwan in Phoenix contributed to this report.*  **Boston Globe** *Daily circulation: 225,482*  **Scientists win Nobel Prize in Chemistry**  STOCKHOLM — Americans Robert Lefkowitz and Brian Kobilka won the 2012 Nobel Prize in chemistry Wednesday for studies of protein receptors that let body cells sense and respond to outside signals. Such studies are key for developing better drugs.  The Royal Swedish Academy of Sciences said the two researchers had made groundbreaking discoveries, mainly in the 1980s, on an important family of receptors, known as G-protein-coupled receptors.  About half of all medications act on these receptors, so learning about them will help scientists to come up with better drugs.  The human body has about 1,000 kinds of such receptors, structures on the surface of cells, which let the body respond to a wide variety of chemical signals, like adrenaline. Some receptors are in the nose, tongue and eyes, and let us sense smells, tastes and light.  Lefkowitz, 69, is an investigator at the Howard Hughes Medical Institute and professor at Duke University Medical Center in Durham, North Carolina.  Kobilka, 57, is a professor at Stanford University School of Medicine in California.  Lefkowitz said he was fast asleep when the Nobel committee called, but he didn’t hear it because he was wearing ear plugs. So his wife picked up the phone.  ‘‘She said, ‘There’s a call here for you from Stockholm,’’’ Lefkowitz told The Associated Press. ‘‘I knew they ain’t calling to find out what the weather is like in Durham today.’’  He said he didn’t have an ‘‘inkling’’ that he was being considered for the Nobel Prize.  ‘‘Initially, I expected I’d have this huge burst of excitement. But I didn’t. I was comfortably numb,’’ Lefkowitz said.  Kobilka said he found out around 2:30 a.m., after the Nobel committee called his home twice. He said he didn’t get to the phone the first time, but that when he picked up the second time, he spoke to five members of the committee.  ‘‘They passed the phone around and congratulated me,’’ Kobilka told AP. I guess they do that so you actually believe them. When one person calls you, it can be a joke, but when five people with convincing Swedish accents call you, then it isn’t a joke.’’  He said he would put his half of the 8 million kronor ($1.2 million) award toward retirement or ‘‘pass it on to my kids.’’  The academy said it was long a mystery how cells interact with their environment and adapt to new situations, such as when adrenaline acts on cells to increase blood pressure and make the heart beat faster.  Scientists suspected that cell surfaces had some type of receptor for hormones.  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Shakhashiri, president of the American Chemical Society.  **The Daily Mail** *Daily circulation 2.1 million*  **Two American scientists win Nobel prize in chemistry for groundbreaking discoveries that pave way for better drugs  By John Clarke**  Two Americans won the Nobel prize in chemistry today for their groundbreaking discoveries that will help develop better drugs.  Both Brian Kobilka and Robert Lefkowitz and were completely caught off guard when the Nobel committee called to say they've won for their research on protein receptors that help body cells sense and respond to outside signals that are key to making better drugs.  Kobilka, a 57-year-old professor at Stanford University School of Medicine in California, said he found out around 2:30 a.m. The Nobel committee called his home twice. He didn't get to the phone the first time, but picked up the second time and spoke to five members of the committee.  "They passed the phone around and congratulated me," Kobilka said. "I guess they do that so you actually believe them. When one person calls you, it can be a joke, but when five people with convincing Swedish accents call you, then it isn't a joke."  Lefkowitz, an investigator at the Howard Hughes Medical Institute and professor at Duke University Medical Center in Durham, North Carolina, was fast asleep and wearing earplugs when he got his call. Luckily, his wife picked up the phone.  "She said, 'There's a call here for you from Stockholm,'" said Lefkowitz, 69. "I knew they ain't calling to find out what the weather is like in Durham today."  He said he didn't have a clue that he was being considered for the Nobel Prize.  "Initially, I expected I'd have this huge burst of excitement. But I didn't. I was comfortably numb," Lefkowitz said, tipping his hat to Pink Floyd.  The Nobel committee said the two researchers had made groundbreaking discoveries, mainly in the 1980s, on an important family of receptors, known as G-protein-coupled receptors.  About half of all medications act on these receptors, so learning about them will help scientists to come up with better drugs.  The human body has about 1,000 kinds of such receptors, structures on the surface of cells, which let the body respond to a wide variety of chemical signals, like adrenaline. Some receptors are in the nose, tongue and eyes, and let us sense smells, tastes and light.  The academy said it was long a mystery how cells interact with their environment and adapt to new situations, such as when adrenaline acts on cells to increase blood pressure and make the heart beat faster.  Scientists suspected that cell surfaces had some type of receptor for hormones.  Using radioactivity, Lefkowitz managed to unveil receptors including the receptor for adrenaline, and started to understand how it works.  Kobilka's work in the 1980s helped researchers realize that there is a whole family of receptors that look alike — a family that is now called G-protein-coupled receptors.  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"This groundbreaking work spanning genetics and biochemistry has laid the basis for much of our understanding of modern pharmacology as well as how cells in different parts of living organisms can react differently to external stimulation, such as light and smell, or the internal systems which control our bodies such as hormones," Downs said in a statement.  **Red Orbit** *7.5 million unique monthly views*  **Nobel Prize In Chemistry Awarded To Two US Scientists redOrbit Staff & Wire Reports**   |  |  | | --- | --- | |  |  |   Groundbreaking research into how the protein receptors of cells detect and respond to external signals — work that could lead to the development of better drugs to combat cancer and diabetes — has earned two US scientists the 2012 [Nobel Prize](http://www.nobelprize.org/nobel_prizes/chemistry/laureates/2012/) in Chemistry.  Sixty-nine year old Robert Lefkowitz, a professor at [Duke University Medical Center](http://www.dukemedicine.org/), and 57-year-old Brian Kobilka, a professor at [Stanford University School of Medicine](http://med.stanford.edu/), were jointly awarded the distinction from the [Royal Swedish Academy of Sciences](http://www.kva.se/en/) today (October 10) for their work, which discovered the processes by which the [G-protein-coupled receptors](http://www.redorbit.com/topics/g-protein-coupled-receptors/) (GPCRs) allowed cells to respond to chemical signals.  “I must share with you that I wear earplugs and so my wife gave me an elbow, ‘call for you’, and there it was: a total shock and surprise, as I’m sure many before me have experienced,” Lefkowitz told [BBC News](http://www.bbc.co.uk/news/world-19894971). “I’m thinking this is going to be a very, very hectic day. I was going to get a haircut — which if you could see me is quite a necessity — but I’m afraid that’ll have to be postponed.”  According to Patrick Lannin and Alistair Scrutton of [Reuters](http://www.reuters.com/article/2012/10/10/us-nobel-chemistry-idUSBRE8990EN20121010), Kobilka said that he initially believed the phone call originating from Stockholm was either a wrong number or a crank call. “Then it rang again,” he told the reporters in a telephone interview. “You get congratulated by these members of the Swedish committee and things happen pretty fast.”  The committee chairman, [Lund University](http://www.lunduniversity.lu.se/) Professor of Inorganic Chemistry, told Reuters that Lefkowitz’s and Kobilka’s research into the structure and function of GPCRs “will provide us with the tools to make better drugs with fewer side effects,” and [Oxford University](http://www.ox.ac.uk/) Molecular Biophysics Professor Mark Sansom dubbed it “the holy grail of  The receptors have been linked to an array of different types of diseases, and are relied upon by the body for a plethora of different biological functions, according to Lannin and Scrutton. However, it had been difficult to develop new drugs that would target them because scientists lacked specific information about how they operated, and how they caused cells to react under different circumstances.  In the 1980s, Lefkowitz used radioactivity to discover the various receptors, including those linked to adrenaline, and discovered the family of receptors now known as GPCRs. Then last year, Kobilka led a team which captured for the first time an image of [adrenaline](http://www.redorbit.com/news/health/1806422/research_on_rarely_studied_cellreceptor_regions_opens_door_to_eliminating/) at the exact moment when it is first activated by a hormone and sends a signal into the body’s cell. Combined, their efforts could have a long-lasting, widespread impact on medicine.  “GPCRs are linked to a wide range of diseases, since they play a central role in many biological functions in the body, but developing new drugs to target them accurately has been difficult because of a lack of fundamental understanding as to how they function,” Lannin and Scrutton said. “Experts say the work of the Nobel Prize winners has opened the door to making better medicines…Drugs targeting GPCRs have potential in treating illnesses involving the central nervous system, heart conditions, inflammation and metabolic disorders.”  “This ground-breaking work spanning genetics and biochemistry has laid the basis for much of our understanding of modern pharmacology as well as how cells in different parts of living organisms can react differently to external stimulation,” Mark Downs, chief executive of the UK’s [Society of Biology](http://www.societyofbiology.org/home), said in a statement.  Bassam Z. Shakhashiri, president of the [American Chemical Society](http://portal.acs.org/portal/acs/corg/content), told the [Associated Press](http://news.yahoo.com/2-us-scientists-win-nobel-chemistry-prize-095345202.html;_ylt=A2KJ3CaMw3VQKyEAkSrQtDMD) that the award — and the $1.2 million prize that comes with it — was presented to Lefkowitz and Kobilka because “they both have made great contributions to our understanding of health and disease. This is going to help us a great deal to develop new pharmaceuticals, new medicines for combating disease.”  **The Salt Lake Tribune** *Daily circulation: 105,746*  **2 U.S. scientists win Nobel chemistry prize for work key to receptor drugs**  **By KARL RITTER and LOUISE NORDSTROM| The Associated Press**  STOCKHOLM (AP) — Two American researchers won the Nobel Prize in chemistry Wednesday for studies of protein receptors that let body cells sense and respond to outside signals like danger or the flavor of food. Such studies are key for developing better drugs.  The Royal Swedish Academy of Sciences said Robert Lefkowitz and Brian Kobilka had made groundbreaking discoveries, mainly in the 1980s, on an important family of receptors, known as G-protein-coupled receptors.  About half of all medications act on these receptors, including beta blockers and antihistamines, so learning about them will help scientists to come up with better drugs.The human body has about 1,000 kinds of such receptors, structures on the surface of cells, which let the body respond to a wide variety of chemical signals, like adrenaline. Some receptors are in the nose, tongue and eyes, and let us sense smells, tastes and light.  "They work as a gateway to the cell," Lefkowitz told a news conference in Stockholm by phone. "As a result they are crucial ... to regulate almost every known physiological process with humans."  Lefkowitz, 69, is an investigator at the Howard Hughes Medical Institute and professor at Duke University Medical Center in Durham, North Carolina.  Kobilka, 57, worked for Lefkowitz at Duke before transferring to Stanford University School of Medicine in California, where he is now a professor.  Lefkowitz said he was fast asleep when the Nobel committee called, but he didn't hear it because he was wearing ear plugs. So his wife picked up the phone.  "She said, 'There's a call here for you from Stockholm,'" Lefkowitz told The Associated Press. "I knew they ain't calling to find out what the weather is like in Durham today."  He said he didn't have an "inkling" that he was being considered for the Nobel Prize.  "Initially, I expected I'd have this huge burst of excitement. But I didn't. I was comfortably numb," Lefkowitz said.  Kobilka said he found out around 2:30 a.m., after the Nobel committee called his home twice. 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"This groundbreaking work spanning genetics and biochemistry has laid the basis for much of our understanding of modern pharmacology as well as how cells in different parts of living organisms can react differently to external stimulation, such as light and smell, or the internal systems which control our bodies such as hormones," Downs said in a statement.  The U.S. has dominated the Nobel chemistry prize in recent years, with American scientists being included among the winners of 17 of the past 20 awards.  This year's Nobel announcements started Monday with the medicine prize going to stem cell pioneers John Gurdon of Britain and Japan's Shinya Yamanaka. Frenchman Serge Haroche and American David Wineland won the physics prize Tuesday for work on quantum particles.  The Nobel Prizes were established in the will of 19th-century Swedish industrialist Alfred Nobel, the inventor of dynamite. The awards are always handed out on Dec. 10, the anniversary of Nobel's death in 1896.  **CBS News** *7.5 million unique monthly views*  **Two Americans win Nobel chemistry prize**  STOCKHOLM — Two American researchers won the Nobel Prize in chemistry Wednesday for studies of protein receptors that let body cells sense and respond to outside signals like danger or the flavor of food. Such studies are key for developing better drugs.  The Royal Swedish Academy of Sciences said Robert Lefkowitz and Brian Kobilka had made groundbreaking discoveries, mainly in the 1980s, on an important family of receptors, known as G-protein-coupled receptors.  About half of all medications act on these receptors, including beta blockers and antihistamines, so learning about them will help scientists to come up with better drugs.The human body has about 1,000 kinds of such receptors, structures on the surface of cells, which let the body respond to a wide variety of chemical signals, like adrenaline. Some receptors are in the nose, tongue and eyes, and let us sense smells, tastes and light.  "They work as a gateway to the cell," Lefkowitz told a news conference in Stockholm by phone. "As a result they are crucial ... to regulate almost every known physiological process with humans."  Lefkowitz, 69, is an investigator at the Howard Hughes Medical Institute and professor at Duke University Medical Center in Durham, North Carolina.  Kobilka, 57, worked for Lefkowitz at Duke before transferring to Stanford University School of Medicine in California, where he is now a professor.  Lefkowitz said he was fast asleep when the Nobel committee called, but he didn't hear it because he was wearing ear plugs. So his wife picked up the phone.  "She said, 'There's a call here for you from Stockholm,'" Lefkowitz told The Associated Press. "I knew they ain't calling to find out what the weather is like in Durham today."  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The academy said it was long a mystery how cells interact with their environment and adapt to new situations, such as when they react to adrenaline by increasing blood pressure and making the heart beat faster.  Scientists suspected that cell surfaces had some type of receptor for hormones.  Using radioactivity, Lefkowitz managed to unveil receptors including the receptor for adrenaline, and started to understand how it works.  Kobilka and his team realized that there is a whole family of receptors that look alike — a family that is now called G-protein-coupled receptors.  In 2011, Kobilka achieved another breakthrough when his team captured an image of the receptor for adrenaline at the moment when it is activated by a hormone and sends a signal into the cell. The academy called the image "a molecular masterpiece.  "The award is "fantastic recognition for helping us further understand the intricate details of biochemical systems in our bodies," said Bassam Z. Shakhashiri, president of the American Chemical Society.  "They both have made great contributions to our understanding of health and disease," Shakhashiri said. "This is going to help us a great deal to develop new pharmaceuticals, new medicines for combating disease."  Mark Downs, chief executive of Britain's Society of Biology, said the critical role receptors play is now taking for granted.  "This groundbreaking work spanning genetics and biochemistry has laid the basis for much of our understanding of modern pharmacology as well as how cells in different parts of living organisms can react differently to external stimulation, such as light and smell, or the internal systems which control our bodies such as hormones," Downs said in a statement.  The U.S. has dominated the Nobel chemistry prize in recent years, with American scientists being included among the winners of 17 of the past 20 awards.  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The Royal Swedish Academy of Sciences said Robert Lefkowitz and Brian Kobilka made groundbreaking discoveries, mainly in the 1980s, on an important family of receptors known as G-protein-coupled receptors.  About half of all medications act on these receptors, including beta blockers and antihistamines, so learning about them will help scientists improve the way such drugs work.  The human body has about 1,000 kinds of such receptors, structures on the surface of cells that let the body respond to a wide variety of chemical signals, like adrenaline. Some receptors are in the nose, tongue and eyes, and let us sense smells, tastes and light.  "They work as a gateway to the cell," Lefkowitz told a news conference in Stockholm by phone. "As a result they are crucial ... to regulate almost every known physiological process with humans."  Lefkowitz, 69, is an investigator at the Howard Hughes Medical Institute and professor at Duke University Medical Center in Durham, N.C. Kobilka, 57, worked for Lefkowitz at Duke before transferring to Stanford University School of Medicine in California, where he is now a professor.  **'Comfortably numb'** Lefkowitz said he was fast asleep when the Nobel committee called, but he didn't hear it because he was wearing ear plugs. So his wife picked up the phone.  "She said, 'There's a call here for you from Stockholm,'" Lefkowitz told The Associated Press. "I knew they ain't calling to find out what the weather is like in Durham today."  He said he didn't have an "inkling" that he was being considered for the Nobel Prize. "Initially, I expected I'd have this huge burst of excitement. But I didn't. I was comfortably numb," Lefkowitz said.  Kobilka said he found out around 2:30 a.m., after the Nobel committee called his home twice. He said that he didn't get to the phone the first time, but that when he picked up the second time, he spoke to five members of the committee.  "They passed the phone around and congratulated me," Kobilka told AP. "I guess they do that so you actually believe them. When one person calls you, it can be a joke, but when five people with convincing Swedish accents call you, then it isn't a joke."  He said he would put his half of the 8 million kronor ($1.2 million) award toward retirement or "pass it on to my kids."  **Solving the mystery** The academy said it was long a mystery how cells interact with their environment and adapt to new situations, such as when they react to adrenaline by increasing blood pressure and making the heart beat faster.  Scientists suspected that cell surfaces had some type of receptor for hormones.  Using radioactivity, Lefkowitz managed to identify the receptors — including the receptor for adrenaline — and started to understand how they work.  Kobilka and his team realized that there is a whole family of receptors that look alike — a family now called G-protein-coupled receptors.  In 2011, Kobilka achieved another breakthrough when his team captured an image of the receptor for adrenaline at the moment when it is activated by a hormone and sends a signal into the cell. The academy called the image "a molecular masterpiece."  **'Fantastic recognition'** The award is "fantastic recognition for helping us further understand the intricate details of biochemical systems in our bodies," said Bassam Z. Shakhashiri, president of the American Chemical Society.  "They both have made great contributions to our understanding of health and disease," Shakhashiri said. "This is going to help us a great deal to develop new pharmaceuticals, new medicines for combating disease."  Drugs such as beta blockers, antihistamines and various psychiatric medicines have been around for some time, but before Lefkowitz and Kobilka's discoveries, their impact on the human body wasn't fully understood, said Sven Lidin, chairman of the prize committee.  "All we knew was that they worked, but we didn't know why," Lidin said. There is hope that the Nobel-winning research will lead to new medicines, he added.  Mark Downs, chief executive of Britain's Society of Biology, said the critical role receptors play is now taken for granted.  **Globe and Mail** *Daily circulation: 306,985*  **U.S. scientists Lefkowitz , Kobilka win Nobel; chemistry prize** STOCKHOLM, The Associated Press Two American researchers won the Nobel Prize in chemistry Wednesday for studies of protein receptors that let body cells sense and respond to outside signals like danger or the flavor of food. Such studies are key for developing better drugs.  The Royal Swedish Academy of Sciences said Robert Lefkowitz and Brian Kobilka had made groundbreaking discoveries, mainly in the 1980s, on an important family of receptors, known as G-protein-coupled receptors.  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The awards are always handed out on Dec. 10, the anniversary of Nobel's death in 1896.  **Global News** *773,000 unique monthly visitors*  **Americans Lefkowitz, Kobilka win Nobel chemistry prize for work on protein receptors**  Two American researchers won the Nobel Prize in chemistry Wednesday for studies of protein receptors that let body cells sense and respond to outside signals like danger or the flavor of food. Such studies are key for developing better drugs.  The Royal Swedish Academy of Sciences said Robert Lefkowitz and Brian Kobilka had made groundbreaking discoveries, mainly in the 1980s, on an important family of receptors, known as G-protein-coupled receptors.  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AP Science Writer Malcolm Ritter in New York and AP writers Amanda Kwan in Phoenix, Jack Jones in Columbia, South Carolina, and Danica Kirka in London contributed to this report.  **News-Leader** *Daily circulation: 18,339*  **2 US scientists win Nobel chemistry prize**  STOCKHOLM (AP) — Two American researchers won the Nobel Prize in chemistry Wednesday for studies of protein receptors that let body cells sense and respond to outside signals like danger or the flavor of food. Such studies are key for developing better drugs.  The Royal Swedish Academy of Sciences said Robert Lefkowitz and Brian Kobilka had made groundbreaking discoveries, mainly in the 1980s, on an important family of receptors, known as G-protein-coupled receptors.  About half of all medications act on these receptors, including beta blockers and antihistamines, so learning about them will help scientists to come up with better drugs.The human body has about 1,000 kinds of such receptors, structures on the surface of cells, which let the body respond to a wide variety of chemical signals, like adrenaline. Some receptors are in the nose, tongue and eyes, and let us sense smells, tastes and light.  "They work as a gateway to the cell," Lefkowitz told a news conference in Stockholm by phone. "As a result they are crucial ... to regulate almost every known physiological process with humans."  Lefkowitz, 69, is an investigator at the Howard Hughes Medical Institute and professor at Duke University Medical Center in Durham, North Carolina.  Kobilka, 57, worked for Lefkowitz at Duke before transferring to Stanford University School of Medicine in California, where he is now a professor.  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The awards are always handed out on Dec. 10, the anniversary of Nobel's death in 1896.  **Times-Union** *230,000 unique monthly visitors* **Albany Prize winner honored with Nobel**  **For 2nd time this week, honoree a dual winner, this time in chemistry**  **Times Union http://analytics.apnewsregistry.com/analytics/v2/image.svc/albanytimes/RWS/timesunion.com/CVI/3/CAI/3937539/E/prod/AT/A**[**Copyright 2012 Times Union. All rights reserved. This material may not be published, broadcast, rewritten or redistributed.**](http://www.timesunion.com/local/article/Albany-Prize-winner-honored-with-Nobel-3937539.php#license-507c6c611faa6)  **Staff and wire reports**  STOCKHOLM — For the second time this week, an Albany Prize winner was honored with a Nobel Prize. On Wednesday, the [Royal Swedish Academy of Sciences](http://www.timesunion.com/?controllerName=search&action=search&channel=local&search=1&inlineLink=1&query=%22Royal+Swedish+Academy+of+Sciences%22) named [Brian Kobilka](http://www.timesunion.com/?controllerName=search&action=search&channel=local&search=1&inlineLink=1&query=%22Brian+Kobilka%22) and Dr. [Robert Lefkowitz](http://www.timesunion.com/?controllerName=search&action=search&channel=local&search=1&inlineLink=1&query=%22Robert+Lefkowitz%22), who received the Albany Prize in 2007, the winners of the Nobel Prize in chemistry for their studies of protein receptors that let body cells sense and respond to outside signals like danger or the flavor of food.  The prize committee said the pair made groundbreaking discoveries, mainly in the 1980s, on an important family of receptors known as G-protein-coupled receptors. About half of all medications act on these receptors,  including beta blockers and antihistamines, so learning about them will help scientists create better drugs.  Earlier this week, stem-cell pioneer Dr. [Shinya Yamanaka](http://www.timesunion.com/?controllerName=search&action=search&channel=local&search=1&inlineLink=1&query=%22Shinya+Yamanaka%22) of [Kyoto University](http://www.timesunion.com/?controllerName=search&action=search&channel=local&search=1&inlineLink=1&query=%22Kyoto+University%22) in Japan was named one of two winners of this year's Nobel Prize in medicine. Yamanaka won the Albany Prize last year.  Lefkowitz is the fifth Nobel Prize winner who previously won an [Albany Medical Center](http://www.timesunion.com/?controllerName=search&action=search&channel=local&search=1&inlineLink=1&query=%22Albany+Medical+Center%22) Prize in Medicine and Biomedical Research. In addition to Yamanaka, the others are [Elizabeth Blackburn](http://www.timesunion.com/?controllerName=search&action=search&channel=local&search=1&inlineLink=1&query=%22Elizabeth+Blackburn%22), Dr. [Bruce Beutler](http://www.timesunion.com/?controllerName=search&action=search&channel=local&search=1&inlineLink=1&query=%22Bruce+Beutler%22) and the late Dr. [Ralph Steinman](http://www.timesunion.com/?controllerName=search&action=search&channel=local&search=1&inlineLink=1&query=%22Ralph+Steinman%22).  The $500,000 Albany Prize is the largest award in medicine and science in the United States. In total, 21 researchers have been recipients of the award since its inception in 2001.  "We are proud to be among those who have honored Dr. Lefkowitz for his transformational work, and we join in celebrating his well-deserved honors," said [James J. Barba](http://www.timesunion.com/?controllerName=search&action=search&channel=local&search=1&inlineLink=1&query=%22James+J.+Barba%22), president and CEO of Albany Medical Center and chairman of the [Albany Prize National Selection Committee](http://www.timesunion.com/?controllerName=search&action=search&channel=local&search=1&inlineLink=1&query=%22Albany+Prize+National+Selection+Committee%22). "His work has had profound impact on the development of new medications for so many people."  The human body has about 1,000 kinds of the protein receptors discovered by Lefkowitz and Kobilka. The structures sit on the surface of cells and allow the body to respond to a wide variety of chemical signals, like adrenaline. Some receptors are in the nose, tongue and eyes, and let us sense smells, tastes and light.  "They work as a gateway to the cell," Lefkowitz told a news conference in Stockholm by phone. "As a result they are crucial ... to regulate almost every known physiological process with humans."  Lefkowitz, 69, is an investigator at the [Howard Hughes Medical Institute](http://www.timesunion.com/?controllerName=search&action=search&channel=local&search=1&inlineLink=1&query=%22Howard+Hughes+Medical+Institute%22) and professor at [Duke University Medical Center](http://www.timesunion.com/?controllerName=search&action=search&channel=local&search=1&inlineLink=1&query=%22Duke+University+Medical+Center%22) in Durham, N.C. Kobilka, 57, worked for Lefkowitz at Duke before transferring to [Stanford University School of Medicine](http://www.timesunion.com/?controllerName=search&action=search&channel=local&search=1&inlineLink=1&query=%22Stanford+University+School+of+Medicine%22) in California, where he is now a professor.  Lefkowitz said he was fast asleep when the [Nobel committee](http://www.timesunion.com/?controllerName=search&action=search&channel=local&search=1&inlineLink=1&query=%22Nobel+committee%22) called, but he didn't hear it because he was wearing earplugs. So his wife picked up the phone.  "She said, 'There's a call here for you from Stockholm,' " Lefkowitz told [The Associated Press](http://www.timesunion.com/?controllerName=search&action=search&channel=local&search=1&inlineLink=1&query=%22The+Associated+Press%22). "I knew they ain't calling to find out what the weather is like in Durham today."  He said he didn't have an "inkling" that he was being considered. "Initially, I expected I'd have this huge burst of excitement. But I didn't. I was comfortably numb," Lefkowitz said.  Kobilka said he found out about 2:30 a.m., after the Nobel committee called his home twice. 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Kobilka and his team realized that there is a whole family of receptors that look alike — a family that is now called G-protein-coupled receptors.  In 2011, Kobilka achieved another breakthrough when his team captured an image of the receptor for adrenaline at the moment when it is activated by a hormone and sends a signal into the cell. The academy called the image "a molecular masterpiece."  The award is "fantastic recognition for helping us further understand the intricate details of biochemical systems in our bodies," said [Bassam Z. Shakhashiri](http://www.timesunion.com/?controllerName=search&action=search&channel=local&search=1&inlineLink=1&query=%22Bassam+Z.+Shakhashiri%22), president of the [American Chemical Society](http://www.timesunion.com/?controllerName=search&action=search&channel=local&search=1&inlineLink=1&query=%22American+Chemical+Society%22).  "They both have made great contributions to our understanding of health and disease," Shakhashiri said. "This is going to help us a great deal to develop new pharmaceuticals, new medicines for combating disease."  Drugs such as beta blockers, antihistamines and various psychiatric medicines have been around for some time, but before Lefkowitz and Kobilka's discoveries, their impact on the human body wasn't fully understood, said [Sven Lidin](http://www.timesunion.com/?controllerName=search&action=search&channel=local&search=1&inlineLink=1&query=%22Sven+Lidin%22), chairman of the prize committee.  AP Science Writer [Malcolm Ritter](http://www.timesunion.com/?controllerName=search&action=search&channel=local&search=1&inlineLink=1&query=%22Malcolm+Ritter%22) and AP writers [Amanda Kwan](http://www.timesunion.com/?controllerName=search&action=search&channel=local&search=1&inlineLink=1&query=%22Amanda+Kwan%22) in Phoenix, [Jack Jones](http://www.timesunion.com/?controllerName=search&action=search&channel=local&search=1&inlineLink=1&query=%22Jack+Jones%22) in Columbia, S.C., and Danica Kirka in London, and [Times Union](http://www.timesunion.com/?controllerName=search&action=search&channel=local&search=1&inlineLink=1&query=%22Times+Union%22) writer [Cathleen F. Crowley](http://www.timesunion.com/?controllerName=search&action=search&channel=local&search=1&inlineLink=1&query=%22Cathleen+F.+Crowley%22) contributed.  **Following are screen shots of the top online news stories:**  ***Z:\Releases 10-12\Nobel shots for Bassam\New York Times.JPG***          **Z:\Releases 10-12\Nobel shots for Bassam\Wash Post.JPG**      Z:\Releases 10-12\Nobel shots for Bassam\USA Today.JPG      Z:\Releases 10-12\Nobel shots for Bassam\Wall Street Journal.JPG              ***Z:\Releases 10-12\Nobel shots for Bassam\NBC TV News.JPG***    ***Z:\Releases 10-12\Nobel shots for Bassam\UPI.JPG***    ***Z:\Releases 10-12\Nobel shots for Bassam\The Scientist.JPG***  ***Z:\Releases 10-12\Nobel shots for Bassam\SF Chronicle.JPG***  ***Z:\Releases 10-12\Nobel shots for Bassam\Times-Union.JPG***  ***Z:\Releases 10-12\Nobel shots for Bassam\The Guardian.JPG***  ***Z:\Releases 10-12\Nobel shots for Bassam\Star Tribune.JPG***  ***Z:\Releases 10-12\Nobel shots for Bassam\Red Orbit.JPG***  ***Z:\Releases 10-12\Nobel shots for Bassam\NY Daily News.JPG***  ***Z:\Releases 10-12\Nobel shots for Bassam\Global News.JPG***  ***Z:\Releases 10-12\Nobel shots for Bassam\News-Leader.JPG***  ***Z:\Releases 10-12\Nobel shots for Bassam\Oregon Live.JPG***  ***Z:\Releases 10-12\Nobel shots for Bassam\CNN.JPG***  ***Z:\Releases 10-12\Nobel shots for Bassam\Daily Mail.JPG***  ***Z:\Releases 10-12\Nobel shots for Bassam\Charlotte Observer.JPG***  ***Z:\Releases 10-12\Nobel shots for Bassam\CBS News.JPG***  ***Z:\Releases 10-12\Nobel shots for Bassam\CBC News.JPG***  ***Z:\Releases 10-12\Nobel shots for Bassam\India Today.JPG***  ***Z:\Releases 10-12\Nobel shots for Bassam\The Globe and Mail.JPG*** |