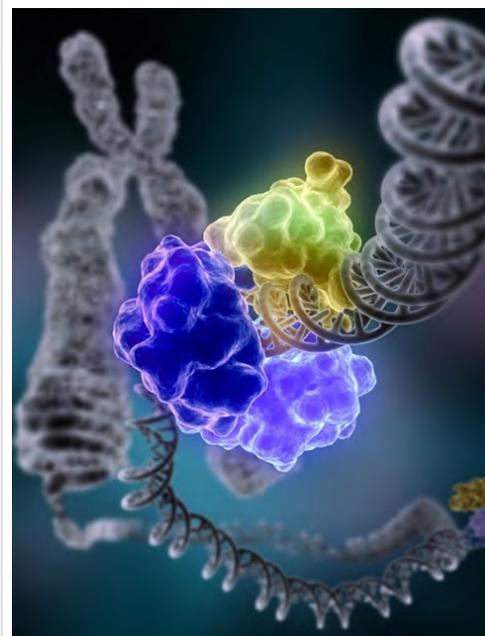




The National Institute of General Medical Sciences (NIGMS) has a strong track record of funding scientists who receive a Nobel Prize.

Since its creation in 1962, NIGMS has supported the work of 89 Nobel laureates—43 in physiology or medicine and 46 in chemistry. These investigators perform cutting-edge basic research that is the foundation for understanding normal life processes and disease. Among their discoveries are:

- Translating the genetic code of DNA and explaining how it functions in the production of proteins in the cell.  
*Robert W. Holley and H. Gobind Khorana (shared with Marshall W. Nirenberg)*
- Defining the internal organization of cells using electron microscopy and other techniques. This laid the foundation for understanding key cellular pathways and processes.  
*George E. Palade and Christian de Duve (shared with Albert Claude)*
- Finding that RNA can act as a catalyst to control and direct cellular functions.  
*Thomas Cech and Sidney Altman*
- Discovering restriction enzymes, which cut DNA at precise locations. This is a cornerstone of recombinant DNA technology—joining pieces of DNA from different sources.  
*Hamilton O. Smith and Daniel Nathans (shared with Werner Arber)*
- Identifying proteins that trigger a cell's response to outside signals. These are involved in normal activities as well as diseases such as cancer, cholera, and diabetes.  
*Alfred G. Gilman (shared with Martin Rodbell)*



Credit: Tom Ellenberger, Washington University School of Medicine in St. Louis, and Dave Gohara, Saint Louis University School of Medicine.

These and other important breakthroughs in chemistry and biology often lead to more focused research that, years later, leads to important medical advances or products such as medicines or biotechnology tools.

## Recent Nobel Laureates Supported by NIGMS

Name	Nobel Prize	Official Citation
Frances H. Arnold & George P. Smith	Chemistry 2018	For the directed evolution of enzymes and for the phage display of peptides and antibodies
Joachim Frank	Chemistry 2017	For developing cryo-electron microscopy for the high-resolution structure determination of biomolecules in solution
Jeffrey C. Hall, Michael Rosbash, & Michael W. Young	Physiology or Medicine 2017	For their discoveries of molecular mechanisms controlling the circadian rhythm

## Recent Nobel Laureates Supported by NIGMS (Continued)

Name	Nobel Prize	Official Citation
Paul Modrich & Aziz Sançar	Chemistry 2015	For mechanistic studies of DNA repair
William E. Moerner	Chemistry 2014	For the development of super-resolved fluorescence microscopy
Martin Karplus, Michael Levitt, & Arieh Warshel	Chemistry 2013	For the development of multiscale models for complex chemical systems
James E. Rothman & Randy W. Schekman	Physiology or Medicine 2013	For their discoveries of machinery regulating vesicle traffic, a major transport system in our cells
Brian K. Kobilka	Chemistry 2012	For studies of G-protein-coupled receptors

[Full list of NIGMS-supported Nobel Prize winners](#)

[Crossword Puzzle: Test Your Nobel Knowledge](#)

### Nobel Quick Facts



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The Nobel Prize was created by Swedish inventor Alfred Nobel. The international award has been given yearly since 1901 for achievements in physics, chemistry, physiology or medicine, literature, and peace. Another category, economics, was added by the Nobel Foundation in 1968. Winners receive their awards on December 10, the anniversary of Nobel's death. For more facts about the Nobel Prize, visit <https://www.nobelprize.org/>.

### Related Information

#### NIGMS Resource on 2018 Nobel Prizes

*Biomedical Beat* Blog Post on [Bacteriophages](#)

#### Other Resources

[NIH Grantees Win 2018 Nobel Prize in Chemistry](#)

[The Nobel Prize in Chemistry 2018](#)

*NIGMS is a part of the National Institutes of Health that supports basic research to increase our understanding of biological processes and lay the foundation for advances in disease diagnosis, treatment, and prevention. For more information on the Institute's research and training programs, visit <https://www.nigms.nih.gov>.*

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