

## Nobel predictions: introducing the 2005 Thomson Scientific Laureates

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*In anticipation of the announcement of the 2005 Nobel Prize winners this October, Thomson Scientific has named the **2005 Thomson Scientific Laureates** — researchers likely to contend for Nobel honors.*

**October 2005 update: We are pleased to congratulate one of our Laureates — Robert H Grubbs — who has been awarded The Nobel Prize in Chemistry, together with Yves Chauvin and Richard R Shrock.**

### Introduction

Each year, data from *ISI Web of Knowledge*<sup>SM</sup> is used to quantitatively determine the most influential researchers in the Nobel categories of chemistry, economics, physiology or medicine, and physics. Because of the total citations to their works, these high-impact researchers are named **Thomson Scientific Laureates** and predicted to be Nobel Prize contenders, either this year or in the near future.

“Citations are an acknowledgement of intellectual debt — a direct demonstration of influence in a given subject area,” said Henry Small, chief scientist of Thomson Scientific. “Researchers who have accumulated such credits from their peers are also often nominated for prizes and other honors, such as the Nobel Prize.”

Thomson Scientific is the only organization to use quantitative data to make regular predictions of Nobel Prize winners. The Thomson Scientific Laureates typically rank among the top one-tenth of one percent (0.1%) of researchers in their fields, based on citations of their published papers over the last two decades.

“Over the past 30 years, our studies have demonstrated a strong relationship between journal article citations and peer esteem, and this is reflected in professional awards like the Nobel Prize,” said Small.

### The selection procedure

To select the 2005 Thomson Scientific Laureates, total citation counts and number of high-impact papers in the Nobel science fields were examined. These data were applied to categories within those fields considered worthy of special recognition by the Nobel Committee. Based on these criteria, three possible winners were selected in each field.

The following lists the 2005 Thomson Scientific Laureates in four Nobel Prize categories:

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**Chemistry**

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***For pioneering research in molecular self-assembly, which promises great advances in the fabrication of nanoscale machinery and microelectronics:***

**J. Fraser Stoddart**

Saul Winstein Professor of Organic Chemistry  
University of California at Los Angeles, Los Angeles, Calif., USA

*and*

**George M. Whitesides**

Mallinckrodt Professor of Chemistry  
Harvard University, Cambridge, Mass., USA

*and*

**Seiji Shinkai**

Department of Chemistry and Biochemistry  
Kyushu University, Graduate School of Engineering, Fukuoka-shi, Fukuoka Prefecture, Japan

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***For research in organic and natural product synthesis, especially for achieving the total synthesis of Taxol<sup>TM</sup> in 1994 and vancomycin in 1998-1999:***

**K.C. Nicolaou**

Chairman, Department of Chemistry  
Aline W. and L.S. Skaggs Professor in Chemical Biology and Darlene Shiley Chair in Chemistry  
The Scripps Research Institute, La Jolla, Calif., USA.  
Professor of Chemistry, University of California, San Diego, San Diego, Calif., USA

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***For breakthrough research in the design and synthesis of complexes with useful catalytic actions, especially in polymerization (the creation of so-called living polymers):***

**Robert H. Grubbs**

Victor and Elizabeth Atkins Professor of Chemistry  
Division of Chemistry and Chemical Engineering  
California Institute of Technology, Pasadena, Calif., USA

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**Economics**

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***For their seminal contributions to understanding the relationship  
of stock returns and business fluctuations:***

**Eugene F. Fama**

Robert R. McCormick Distinguished Service Professor of Finance  
Graduate School of Business  
University of Chicago, Chicago, Ill., USA

*and*

**Kenneth R. French**

Carl E. and Catherine M. Heidt Professor of Finance  
Tuck School of Business, Dartmouth College  
Hanover, N.H., USA

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***For his development of 'new growth theory,' which addresses a fundamental question in economics:  
what sustains economic growth in a world characterized by diminishing returns and scarcity:***

**Paul Michael Romer**

Stanford University Graduate School of Business,  
Hoover Institution, Stanford, CA USA

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***For his pioneering contributions in empirical macroeconomics,  
ranging over many fields, but especially for work in public debt in the 1970s:***

**Robert J. Barro**

Robert C. Waggoner Professor of Economics  
Harvard University, Cambridge, Mass.,  
Senior Fellow of the Hoover Institution  
Stanford, Calif., USA

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**Physiology or Medicine**

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***For the discovery and elucidation of the role of tumor suppressor genes in oncogenesis:***

**Alfred G. Knudson Jr.**

Senior Advisor to the President and Fox Distinguished Scientist  
Fox Chase Cancer Center, Philadelphia, Pa., USA

*and*

**Bert Vogelstein**

Professor of Oncology and Pathology with a Joint Appointment in Molecular Biology and Genetics  
The Sidney Kimmel Comprehensive Cancer Center Johns Hopkins University  
Baltimore, Md., USA,  
Howard Hughes Medical Institute Investigator

*and*

**Robert A. Weinberg**

Daniel K. Ludwig and American Cancer Society Professor for Cancer Research  
MIT, Cambridge, Mass., USA,  
Member, Whitehead Institute, Cambridge, Mass., USA

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***For breakthrough contributions in cell signaling,  
including research on the second messenger inositol triphosphate.***

**Sir Michael J. Berridge, FRS**

Deputy Scientific Director and Head, Molecular Signaling  
The Babraham Institute, Babraham, Cambridge, United Kingdom,  
Honorary Professor of Department of Zoology  
University of Cambridge, Cambridge, United Kingdom

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**Physiology or Medicine (continued)**

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***For contributions to mapping the human genome:***

**Francis S. Collins**

Director, National Human Genome Research Institute  
Senior Investigator, Genome Technology Branch,  
National Institutes of Health, Bethesda, Md., USA

*and*

**Eric S. Lander**

Professor of Biology  
MIT, Cambridge, Mass.,  
Director of the Whitehead Institute/MIT Center for Genome Research  
Whitehead Institute, Cambridge, Mass., USA

*and*

**J. Craig Venter**

President, The Center for Advancement of Genomics  
Institute for Biological Energy Alternatives, and Venter Science Foundation  
Rockville, Md., USA

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**Physics**

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***For contributions in string theory and M theory:***

**Michael B. Green, FRS**

John Humphrey Plummer Professor of Theoretical Physics  
Theoretical High Energy Particle Physics Group  
University of Cambridge, Cambridge, United Kingdom  
*and*

**John H. Schwarz**

Harold Brown Professor of Theoretical Physics  
Division of Physics, Mathematics and Astronomy  
California Institute of Technology, Pasadena, Calif., USA  
*and*

**Edward Witten**

Charles Simonyi Professor, School of Natural Sciences  
Institute for Advanced Study, Princeton, N.J., USA

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***For his invention of the blue laser and blue, green and white light-emitting diodes (LEDs),  
through the use of gallium nitride based semiconductors – a great leap forward  
in data storage technology, lighting devices and other realms:***

**Shuji Nakamura**

Professor, Materials Department  
Director of the Center for Solid State Lighting and Displays  
University of California, Santa Barbara, Calif., USA

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***For outstanding research in correlated-electron oxide materials, including discoveries  
in superconducting compounds, and for work on the phenomenon of giant magnetoresistance:***

**Yoshinori Tokura**

Professor, Department of Applied Physics  
University of Tokyo, Tokyo, Japan

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*Congratulations to all Thomson Scientific laureates for their seminal contributions to scientific research.*