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UC San Diego Cancer Scientist Wins \$3 Million Award

Napoleone Ferrara one of 11 winners of inaugural Breakthrough Prize



Ferrara, MD, PhD

Napoleone Ferrara, MD, PhD, the molecular biologist credited with helping decipher how tumors grow and now senior deputy director for basic sciences at the University of California, San Diego Moores Cancer Center, was today named one of 11 recipients of the inaugural Breakthrough Prize in Life Sciences, which comes with a \$3 million cash award.

The prize is the collaborative creation of Mark Zuckerberg, founder of Facebook, and his wife, Priscilla Chan; Sergey Brin, co-founder of Google and his wife, Anne Wojcicki, founder of the genetics company 23andMe; and Yuri Milner, a Russian businessman and philanthropist who established a similar prize in fundamental physics last year, when \$3 million each was awarded to nine researchers.

The Breakthrough Prize honors life scientists who have ambitiously pushed the boundaries of their disciplines, taken risks and impacted lives and society.

Ferrara, who is also a distinguished professor of pathology in the UC San Diego School of Medicine's Department of Pathology, was recognized for his work identifying the role of the human VEGF gene in promoting angiogenesis – the formation of new blood vessels that can feed tumor growth – and subsequent development of two major monoclonal antibody drugs:

Bevacizumab (marketed as Avastin), which is used to treat multiple forms of cancer, including breast, brain and colorectal, and ranibizumab (marketed as Lucentis), which treats wet age-related macular degeneration, a leading cause of blindness in the elderly.

“Napoleone’s work has profoundly advanced our basic understanding of how cancer develops and grows,” said David Brenner, MD, vice chancellor for Health Sciences and dean of the UC San Diego School of Medicine. “More importantly, he helped create brand new drugs and therapies based upon that research to effectively treat a broad range of cancers and other conditions. He continues with those efforts today, pushing himself and colleagues to find better answers to cancer.”

Ferrara, 56, came to UC San Diego last year after a long career at Genentech, the San Francisco-based biotechnology company where he did much of his ground-breaking work. He said that when Breakthrough Prize Foundation president Arthur D. Levinson, chairman of Apple and a former Genentech chief executive, called to tell him he had won, he was “very much astonished. I didn’t know the award existed.”

“The thing I am most proud of,” said Ferrara, “is that we’ve advanced the understanding of basic mechanisms of cancer and we’ve been able to help people, both in fighting cancer and restoring visual acuity. It’s that kind of work that I’m continuing at Moores Cancer Center, where I’ll be able to work closely with clinicians and develop new clinical trials.”

Scott Lippman, MD, director of the UC San Diego Moores Cancer Center, said the Breakthrough Prize justly recognizes Ferrara’s seminal research and how it “has changed therapy for cancer and eye diseases.”

“His work epitomizes our overall effort at Moores Cancer Center: high-risk, high-gain, high-impact achievement and innovation in taking basic-science discovery to the clinic and transforming cancer care.”

Joining Ferrara among the first winners of the Breakthrough Prize are:

- Cornelia I. Bargmann, Rockefeller University, who studies the nervous system and human behavior
- David Botstein, Princeton University, who uses the human genome to map disease biomarkers
- Lewis C. Cantley, Weill Cornell Medical College, who discovered a family of enzymes related to cell and cancer growth

- Hans Clevers, Hubrecht Institute in the Netherlands, who has parsed how stem cell processes go awry, resulting in cancer
- Eric S. Lander, Harvard University and the Massachusetts Institute of Technology (MIT), a leader in the Human Genome Project
- Titia de Lange, Rockefeller University, who studies the protective tips of chromosomes called telomeres
- Charles L. Sawyer, Memorial Sloan-Kettering Cancer Center, who has investigated the signals that prompt a cell to become cancerous
- Bert Vogelstein, Johns Hopkins University, who developed a model for how colon cancer progresses and discovered a protein that suppresses tumor growth
- Robert A. Weinberg, MIT, who discovered the first human oncogene
- Shinya Yamanaka, Kyoto University and Gladstone Institutes in San Francisco, for his fundamental research of stem cells

The founders of the Breakthrough Prize intend their awards – which will consist of five honorees in subsequent years, each receiving \$3 million – to boost public attention and awareness of the major players and advances in the life sciences.

There are few limitations on who can win: Anyone can be nominated online at the Breakthrough Prize in Life Sciences Foundation's website (www.breakthroughprizeinlifesciences.org). There are no restrictions on age or the number of people who can share the award. The cash prize comes with no constraints on how it can be spent. And individuals can win multiple times. This year's 11 recipients will form a committee to select future winners.

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