Curriculum Vitae Professor Dr Rotem Sorek, Ph.D.

Image: Weizmann Institute of Science

Name: **Rotem Sorek**
Date of Birth: **16 March 1975**

Research interests: Molecular biology, cell biology, phage, phage-bacteria interactions, bacterial immunity, CRISPR-Cas

Rotem Sorek is an Israeli geneticist and molecular biologist. His groundbreaking contributions led to deep understanding of the "immune system" of bacteria. In particular, Sorek has discovered numerous immunity mechanisms that bacteria use to protect themselves against viruses - the so-called phages. Sorek is also credited with the discovery that important components of the human innate immune system have evolved from many bacterial defense systems.

Academic and Professional Career

since 2018	Full Professor, Department of Molecular Genetics, Weizmann Institute of Science, Rehovot, Israel
2014 - 2018	Associate Professor, Weizmann Institute of Science, Rehovot, Israel
2008 - 2014	Senior Scientist, Weizmann Institute of Science, Rehovot, Israel
2007	Ph.D. Human Genetics, Tel Aviv University, Tel Aviv, Israel
2006 - 2008	Post-doctoral Fellow, Lawrence Berkeley National Lab, Berkeley, USA
2002	M.Sc. Genetics, Tel Aviv University, Tel Aviv, Israel
2000 - 2005	Compugen Ltd. Group Leader, Genomic Basic Research, Cholon, Israel
2000	B.Sc. Life Sciences, Tel Aviv University, Tel Aviv, Israel

Functions in Scientific Societies and Committees

since 2020	Member, Editorial Board, Cell

2014 - 2017	Associate Editor, Genome Biology and Evolution
2009 - 2018	Member, Editorial Board, BioEssays

Awards and Honorary Memberships

2023	Max Planck-Humboldt Research Award, Max Planck Society, Munich, Germany and Alexander von Humboldt Foundation, Berlin, Germany
2023	Nakasone Award, Human Frontier Science Program (HFSP), Strasbourg, France
2022	Michael Bruno Memorial Award, Israel Institute for Advanced Studies (IIAS), Jerusalem, Israel
2022	Landau Prize, Mifal Hapais, Tel Aviv, Israel
since 2022	Member, German National Academy of Sciences Leopoldina, Germany
2021	The Andre Deloro Prize for Scientific Research, Weizmann Institute of Science, Rehovot, Israel
2021	Member, American Academy of Microbiology
2021	Rappaport Prize in Biomedical Research, The Bruce and Ruth Rappaport Foundation, Haifa, Israel
2019	Beutler Research Program Award for Excellence in Genomic Medicine, Haifa, Israel
2018	Member, American Academy of Microbiology, USA
2006	Member, European Molecular Biology Organization (EMBO)
2016	Scientific Council Prize, Weizmann Institute of Science, Rehovot, Israel
2015	Member, European Academy of Microbiology
2014	Anniversary Prize, Federation of the European Biochemical Societies (FEBS)
2013	Teva Founders Award for outstanding young scientists in Life Sciences, ISEF Foundation, New York City, USA
2012	Member, Young Israel Academy of Sciences, Israel
2012	The Rubinowitz-Grossman Prize for outstanding young scientists, Israel Society for Microbiology, Israel
2010	Young Investigator, EMBO
2009	Alon Fellowship, Tel Aviv University, Tel Aviv, Israel
2008	Clore Prize, Clore Duffield Foundation, London, UK
2006	The RNA Society/Scaringe Young Scientist Award, The RNA Society, McLean, USA

2005	Fellowship, Intelligent Systems for Molecular Biology (ISMB), Madison, USA
2004	Doctoral Prize, Clore Duffield Foundation, London, UK
2001	National Excellence Award, Israeli House of Representatives, Israel
1999	De-Shalit Foundation Award, Weizmann Institute of Science, Rehovot, Israel

Research Interests

Rotem Sorek is an Israeli geneticist and molecular biologist. His groundbreaking contributions led to better understanding of the “immune system” of bacteria. In particular, Sorek has discovered numerous immunity mechanisms that bacteria use to protect themselves against viruses - the so-called phages. Sorek is also credited with the discovery that important components of the human innate immune system have evolved from many bacterial defense systems.

Rotem Sorek's team deciphered the molecular mechanisms that bacteria use to fight off infection, which are called the bacterial “immune system”. They investigated how bacteria fight against viruses – the so-called phages – that can attack and destroy bacteria. His research led to the realisation that bacteria encode a complex network of over 100 anti-phage immune systems. One of the most significant insights from Sorek's studies is the discovery that key components of the human innate immune system originated in evolution from ancient bacterial systems that protect against phages.Sorek has developed computational and experimental platforms that systematically search for new immune systems in microbial genomes, leading to the discovery of new, widespread multi-gene immune systems. His studies have generated a new field in microbiology that meanwhile involves numerous laboratories worldwide.

One of the most important findings from Sorek's studies is the discovery that key components of the human innate immune system have originated from bacterial defense against phages. Examples include genes with so-called Toll Interleukin Receptor (TIR) domains and the cGAS-STING pathway, which was originally discovered in animals. This provides evidence for a common, ancient ancestry of innate immunity components shared between animals, plants, and bacteria. Sorek's discoveries explained the evolution of the human innate immune system.

Another profound contribution of Sorek is his discovery that viruses can use small-molecule communication to coordinate their infection dynamics. His studies were the first to show that viruses can communicate, and they represent a paradigm shift in virology.