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## Curriculum Vitae Prof. Dr. Helmut Sies



**Name:** Helmut Sies  
**Born:** 28 March 1942

**Helmut Sies is the founder of the concept of ,oxidative stress'. He investigated the molecular basis of actions of oxidants and antioxidants.**

### Academic and Professional Career

- since 2008 Research Professor (Emeritus); Heinrich-Heine-Universität Düsseldorf; Germany
- since 2008 Senior Scientist, Leibniz Research Institute for Environmental Medicine, Düsseldorf, Germany
- 2008 - 2016 Professor of Biology and Biochemistry, College of Science, King Saud University, Riyadh, Saudi Arabia
- 2000 - 2020 Adjunct Professor, University of Southern California, Department of Pharmacology and Pharmaceutical Sciences, Los Angeles, USA
- 1993 Visiting Professor, Heart Research Institute, Sydney, Australia
- 1992 Miller Visiting Professor, University of California, Berkeley, USA
- 1992 Visiting Professor, Università degli Studi di Siena, Siena, Italy
- 1990 Burroughs-Wellcome Visiting Professor of Pharmacology, University of Texas, USA
- 1984 - 1985 Visiting Professor, Department of Biochemistry, University of California, USA
- 1979 - 2008 Full Professor and Chairman, Dept. Physiological Chemistry I, Heinrich-Heine-Universität Düsseldorf, Germany

- 1978 - 1979    Apl. Professor, Dept. Physiological Chemistry, Ludwig-Maximilians-University (LMU) Munich, Germany
- 1974 - 1978    Wissenschaftlicher Rat, Dept. Physiological Chemistry, LMU Munich, Germany
- 1972            Habilitation for Physiological Chemistry and Physical Biochemistry, LMU Munich, Germany
- 1968 - 1974    Assistant, Dept. Physiological Chemistry, LMU Munich, Germany
- 1967            M.D., LMU Munich, Germany
- 1966            Clinical Studies, LMU Munich and Sorbonne Paris, France
- 1963            Preclinical Studies, LMU Munich and University of Tübingen, Germany
- 1961            Studium generale, Leibniz Kolleg, University of Tübingen, Germany

### **Functions in Scientific Societies and Committees (Selection)**

- 2009 - 2011    Vice-President, Council for the Lindau Nobel Laureate Meetings
- 2006            Chair, SFB 503 „Molekulare and zelluläre Mediatoren exogener Noxen“, Deutsche Forschungsgemeinschaft (DFG)
- 2005 - 2011    Member, Kuratorium Nobel Prize Winners Meeting at Lindau
- 2004 - 2008    President, Oxygen Club of California (OCC)
- 2003 - 2005    Vice-President, Union of German Academies of Sciences and Humanities
- 2002 - 2005    President, North Rhine-Westphalian Academy of Sciences
- 2001 - 2002    Member, Review Panel, Royal Society, European Science Foundation (ESF)
- 2000 - 2002    Vice-President, North Rhine-Westphalian Academy of Sciences
- 1998 - 2002    Chairman, Kuratorium des Max-Planck-Instituts für Molekulare Physiologie
- 1998 - 2000    President, International Society for Free Radical Research
- 1998 - 2000    Member, FEBS Publications Committee, Federation of European Biochemical Societies
- 1995 - 1998    Chairperson, Section of Toxicology, International Union of Basic and Clinical Pharmacology (IUPHAR)
- 1991 - 2009    Member, UNESCO Global Network for Molecular and Cell Biology
- 1991 - 1995    Advisory Board, GSF Forschungszentrum für Umwelt und Gesundheit, München
- 1989 - 1990    President, Society for Free Radical Research (SFRR), European Region
- since 1985    Advisory Board, Doktor Robert Pfleger-Stiftung, Bamberg
- 1985 - 2010    Chairman, Krebsforschung International e.V.

Nationale Akademie der Wissenschaften Leopoldina  
[www.leopoldina.org](http://www.leopoldina.org)

- 1984 - 2000 Member, Advisory Committee, Gesellschaft für Biologische Chemie  
 1984 - 1999 Member, Selection Committee, Alexander von Humboldt-Stiftung

### **Honours and Awarded Memberships (Selection)**

- 2021 Fellow of the American Society of Nutrition (ASN)  
 2020 Foreign Member of the Polish Academy of Arts and Sciences  
 2019 Kopernikus Medal, University of Ferrara, Italy  
 2014 Trevor Slater Award, Society for Free Radical Research International, Kyoto  
 2013 Linus Pauling Institute Prize for Health Research  
 2010 Honorary M.D. Degree, Universidad de la Republica, Montevideo, Uruguay  
 since 2001 NFCR Fellow, National Foundation for Cancer Research, Bethesda/ USA  
 since 2001 Fellow, Royal College of Physicians, London (F.R.C.P.)  
 since 2000 Member, German National Academy of Sciences Leopoldina  
 1999 Werner Heisenberg-Medal of the Alexander von Humboldt Foundation  
 since 1996 Corresponding Member, Academy of Medicine Buenos Aires  
 1996 Honorary Ph.D. Degree, University of Buenos Aires, Argentina  
 1994 ISFE-Prize, Internationale Stiftung zur Förderung der Ernährungsforschung und Ernährungsaufklärung  
 since 1991 Member of the North Rhine-Westphalian Academy of Sciences, Humanities and the Arts  
 since 1991 Corresponding Member, Heidelberg Academy of Sciences and Humanities  
 since 1991 Honorary Member, Japanese Society of Vitaminology  
 1990 Claudius-Galenus-Prize  
 since 1988 Honorary Member, American Society for Biochemistry and Molecular Biology (ASBMB)  
 1988 Ernst Jung Prize for Medicine  
 1986 Silver Medal of the Karolinska Institute  
 1985 Distinguished Foreign Scholar, Mid-America State Universities Association (MASUA)  
 1978 FEBS Anniversary Prize, Federation of European Biochemical Societies

## Major Scientific Interests

In 1969, Helmut Sies demonstrated the existence of hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>) as a normal attribute of aerobic life in eukaryotes, by organ spectrophotometry of Catalase Compound I in intact tissue.

In 1985, Helmut Sies founded the concept of „Oxidative Stress“. He investigated the molecular basis of oxidants and antioxidants, and the strategies of antioxidant defense. Singlet molecular oxygen, the electronically excited state of oxygen, was examined in relation to photooxidative stress. The group found that lycopene, a carotenoid, exhibits the highest rate constant for the reaction with singlet oxygen. The investigations led to systemic nutritional photoprotection in humans.

As to antioxidants, there were fundamental studies on glutathione and related enzymology, and on the essential trace element, selenium, as well as the mimic of glutathione peroxidase, ebselen.

Vascular responses to flavanols, e.g. from cocoa, at the endothelium were examined from the molecular basis to the application to health effects in the human.

Cf. “Redox Pioneer: Professor Helmut Sies”, in: Antioxidants & Redox Signaling. 2014/12/20, [online.liebertpub.com/doi/full/10.1089/ars.2014.6037](http://online.liebertpub.com/doi/full/10.1089/ars.2014.6037)