

Professor OLE H PETERSEN CBE MAE ML FRS

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Research Achievements

Petersen pioneered single channel current recordings in epithelial cells, discovering hormone-evoked, messenger-mediated ion channel activation and voltage-activation of epithelial ion channels. This led to the now generally accepted concept of how ion channels control exocrine fluid secretion (Petersen & Maruyama *Nature* 1984 [ISI [WoS] Citation Classic]). He subsequently discovered sub-cellular Ca²⁺ spiking in epithelial cells (Thorn et al *Cell* 1993) and intracellular Ca²⁺ tunnels (Mogami et al *Cell* 1997). He demonstrated the crucial roles of Ca²⁺ release channels and store-operated Ca²⁺ entry in Acute Pancreatitis (Raraty et al *PNAS* 2000; Gerasimenko et al *PNAS* 2009), providing proof-of-principle for Ca²⁺ release activated Ca²⁺ (CRAC) channel blockade as a treatment of severe Acute Pancreatitis (Gerasimenko et al *PNAS* 2013). He later showed that boosting metabolism with galactose protects against Acute Pancreatitis (Peng et al *J Clin Invest* 2018). His recent work has provided evidence for functional interactions between different cell types in the exocrine pancreas that are important for the development of Acute Pancreatitis (Petersen et al *Physiol Rev* 2021).

Honours and Awards

Ole Petersen was elected Fellow of The Royal Society in 2000, Member of the German National Academy of Sciences Leopoldina in 2010 and gave the Leopoldina Lecture in 2012. He is also Member of the Royal Danish Academy of Sciences & Letters and an Honorary Member of the Hungarian Academy of Sciences. He was a Founding Member of Academia Europaea in 1988. He received the Novo Nordisk Foundation's Jacobaeus Prize (1994), the Czech Academy of Sciences' Purkyne Medal (2003) and was appointed Commander of the Order of the British Empire (CBE) for 'Services to Science' by Queen Elizabeth II in 2008. He was awarded The American Physiological Society's Horace W Davenport Distinguished Lectureship and delivered the Award Lecture at Experimental Biology in Boston, USA in 2013. In 2017, he was elected Honorary Member of the German Society for Gastroenterology, Digestive & Metabolic Diseases. The American Physiological Society elected him to give the 2018 Walter B Cannon Memorial Award Lecture, the most prestigious award bestowed by the American Physiological Society, at Experimental Biology in San Diego. He has been awarded Academia Europaea's 2020 Gold Medal and will deliver the Award Lecture at the Academy's 32nd Annual Conference in Barcelona, October 2021.

Principal Positions and Commissions of Trust

Petersen succeeded the Nobel Laureate Sir Martin Evans FRS, as Director of the School of Biosciences at Cardiff University in February 2010, completing his 5-year term in 2015. He is now Professor of Bioscience at Cardiff University. Before joining Cardiff University, he was George Holt Professor of Physiology at the University of Liverpool (successor to Rod Gregory CBE FRS). He chaired the Biological Sciences Panel in the UK Government's 2014 Research Excellence Framework (REF2014) and has been Chair and Deputy Chair of European Research Council (ERC) Starting and Consolidator Grant Evaluation Panels for Physiology, Pathophysiology & Endocrinology (2009-2013). He was Vice-President of the Royal Society (2005-2006) and European Executive Editor of the American Physiological Society's *Physiological Reviews* (2003-2011). Petersen is currently Alternate for the President of Academia Europaea in the European Commission's SAPEA Board (Science Advice for Policy by European Academies) (2016-) and Director of Academia Europaea's Cardiff University Knowledge Hub (2016-). He has recently been appointed Editor-in-Chief of the American Physiological Society's new Open Access journal *Function*, launched in May 2020.

Curriculum Vitae

Professor OLE H PETERSEN CBE MD FRCP FLSW FMedSci MAE ML FRS

School of Biosciences, Cardiff University; e-mail: PetersenOH@cardiff.ac.uk

Nationality

British (originally Danish, born in Copenhagen, naturalized as UK citizen in 1984)

Current positions

Professor at School of Biosciences, Cardiff University, Wales, UK (2010 -)

Academic Director of Academia Europaea's Cardiff University Knowledge Hub (2016 -)

Editor-in-Chief of the American Physiological Society's *Function* (2020 -)

Education/Degrees

Cand. Med. (Laudabilis) (MB ChB) University of Copenhagen, 1969

Authorized Medical Practitioner (Danish State Health Authority) 1969

Dr. med. (MD) University of Copenhagen, 1972, for thesis "Acetylcholine-induced ion transports involved in the formation of saliva"

(Thesis published as Supplement 381 in *Acta physiol scand* [now *Acta Physiologica*] 1972)

Posts held previously

Medical Research Council (MRC) Professor at University of Liverpool and then Cardiff University, 1998 – 2017

George Holt Professor of Physiology, University of Liverpool, England, UK, 1981- 2009

Head (Chairman) of the Department of Physiology, University of Liverpool, England, UK, 1981-1998

Symers Professor of Physiology and Head (Chairman) of the Department of Physiology, University of Dundee, Scotland, UK, 1975-81 (on leave of absence from University of Copenhagen, 1975-78).

Senior Lecturer (Associate Professor), Institute of Medical Physiology, University of Copenhagen, Denmark, 1973-78

Wellcome-Carlsberg Travelling Research Fellow, Department of Pharmacology, University of Cambridge, England, UK, 1971-72 (on leave of absence from University of Copenhagen)

Lecturer (Assistant Professor), Institute of Medical Physiology, University of Copenhagen, 1969-73

Current External Grant Support (as Principal Investigator):

European Commission (Horizon 2020) (1st October 2016 – 31st December 2021): Euro 0.6 million.

Previous External Grant Support (as Principal Investigator):

Medical Research Council Programme Grant (October 1988 – October 2017); total funding (including MRC Professorship (1998 – 2017): >£15 million

Publications:

<https://scholar.google.com/citations?user=6z3BJ0oAAAAJ&hl=en>

Citation Metrics (May, 2021)

Google Scholar: *h*-index: **99**; total citations: 30750

Scopus: *h*-index: **83**; citations without self-citations: 17472

National Award

Queen Elizabeth II's New Year Honours List 2008: Appointed Commander of the Order of the British Empire (CBE) for 'Services to Science'. Award received personally from Queen Elizabeth II, at Buckingham Palace, on 7th May 2008

Elected Fellow (Member) of Academies (Societies) of Science and Medicine

Fellow of The Royal Society (FRS) (elected 2000)

Member of the German National Academy of Sciences Leopoldina (ML) (elected 2010)

Member of the Royal Danish Academy of Sciences and Letters (elected 1988)

Honorary Member of the Hungarian Academy of Sciences (elected 2004)

Member of Academia Europaea (MAE) (Founding Member 1988)

Fellow of the Learned Society of Wales (FLSW) (elected 2011)

Fellow of the Academy of Medical Sciences (FMedSci) (Founding Member 1998)

Fellow of the Royal College of Physicians (FRCP) (elected 2001)

Honorary Member of the German Society for Gastroenterology, Digestive and Metabolic Diseases (elected 2017)

Honorary Member of The Physiological Society (UK) (elected 2015)

Honorary Member of the Hungarian Physiological Society (elected 2002)

Honorary Member of the Polish Physiological Society (elected 1993)

Awards and Major Plenary Keynote Lectures (selection):

Academia Europaea's 2020 Gold Medal Award. Award Lecture to be delivered at the Academy's 32nd Annual Conference in Barcelona, 'Building Bridges III', 20th October 2021

Honorary Professor at Jinan University, Guangzhou, China. A series of 4 lectures delivered at Jinan University's School of Medicine as well as at the University's new South Campus on 27th, 28th and 29th March 2019.

The American Physiological Society's Walter B Cannon Memorial Award Lecturer 2018. Plenary Award Lecture delivered at Experimental Biology (EB) at the San Diego Convention Center, California, USA on 22nd April 2018.

(Published in *Physiological Reviews* 2021, doi: 10.1152/physrev.00003.2021)

Honorary Membership Award Lecture at the 72nd Annual Meeting of the German Society for Gastroenterology, Digestive and Metabolic Diseases ('Viszeralmedizin 2017'), Dresden, Germany, 14th September 2017

Jubilee Lecture, celebrating the 25th Anniversary of the Federation of European Physiological Societies (FEPS), at the 2016 FEPS Congress in Paris, France, 30th June 2016

'World Leader Award' "for his studies on cellular Ca²⁺ signalling processes" at International Symposium on 'Latest Advances in Biomedicine & Interdisciplinary Sciences', Instituto de Investigaciones Cientificas (Indicasat AIP), Panama City, Republic of Panama, 22nd February 2016

Opening Plenary Lecture at the 2013 Annual Congress of the Brazilian Society of Physiology (Sociedade Brasileira de Fisiologia), Ribeirao Preto, Sao Paulo, Brazil, 7th September 2013

Keynote Lecture at the 37th International Congress of Physiological Sciences (IUPS), Birmingham, UK, 23rd July 2013

Honorary President of the 37th International Congress of Physiological Sciences (IUPS), Birmingham, UK, 2013

The American Physiological Society's Horace W Davenport Distinguished Lecture, Experimental Biology (EB) 2013, Boston, Massachusetts, USA, 23rd April 2013

The Leopoldina Lecture at the German National Academy of Sciences Leopoldina, Halle, Germany, 23rd May 2012 (on the eve of the festivities in connection with the formal opening of the Academy's new building).

Lifetime Achievement Award from the European Pancreatic Club. Keynote Award Lecture at the European Pancreatic Club's Annual Meeting, Stockholm, Sweden, 17th June 2010

Plenary Keynote Lecture at Annual Meeting of Korean Physiological Society, Gagneung, South Korea, 30th October 2009

AGA (American Gastroenterological Association) State-of-the-Art Lecture, DDW (Digestive Diseases Week), Chicago, USA, 31st May 2009
(Interview with Ole Petersen published in the DDW (June 2009) issue of *Pancreatology*. Fernandez-Zapico ME (2009) *Pancreatology* 9, 323-326.

Opening Lecture at Beijing Joint Conference of Physiological Sciences 2008, Beijing, China, 20th October 2008

Keynote Lecture at 4th Covian Symposium, University of Sao Paulo, Brazil, 25th May 2008
(Published in *Brazilian Journal of Medical and Biological Research* 42, 9-16, 2009).

Opening Plenary Lecture at Joint Meeting of FEPS, The Physiological Society (UK) and the Slovak Physiological Society, Bratislava, Slovakia, September 2007

Plenary Keynote Lecture at XXXIV Congress of the Spanish Society of Physiological Sciences, Valladolid, Spain, July 2007

The Plenary Keynote Lecture, 82nd Annual Meeting of the Physiological Society of Japan, Sendai, May 2005
(Published in *Cell Calcium* 38, 171-200, 2005)

The First John Young Memorial Lecture (The Keynote Lecture) at Gordon Research Conference on Salivary Glands and Exocrine Secretion, Ventura, California, USA, February 2005

Awarded J.E. Purkyně Honorary Medal for 'Merit in the Biological Sciences' from The Academy of Sciences of the Czech Republic (2003)

The Keynote Lecture, Gordon Research Conference on Calcium Signaling, South Hadley, Massachusetts, USA, July 2003

Visiting Professor, University of Stellenbosch, South Africa (2000)

Dame Honor B. Fell Memorial Lecture (13th March 1996, University of Wales School of Medicine, Cardiff)

NOVO NORDISK Foundation's Jacobaeus Prize 1994 Award Lecture at the Royal Danish Academy of Sciences and Letters, Copenhagen, 3rd November 1994

Awarded the Polish Physiological Society's Czubalsky Medal (1993)

The Physiological Society's 1991 Annual Review Prize Lecture (delivered on 18th July 1991 at The University of Cambridge at the Joint Meeting of the Physiological Society of Japan, the Korean Physiological Society and The Physiological Society (UK))
(Published in *Journal of Physiology* 448, 1-51, 1992)

The 13th Halliburton Lecture, 17th February 1987, King's College, University of London

Morton I. Grossman Memorial Lecture (18th October 1985, Center for Ulcer Research & Education (CURE), University of California, Los Angeles, USA)
(Published in *American Journal of Physiology* 251, G1-G13, 1986)

Awarded Brinch's Prize for 'Important and Original Research on Secretory Processes in Exocrine Glands' (1975, Danish Technical University)

ISI (now Web of Science [WoS]) Citation Classic

Petersen, O.H. Commentary on Petersen and Maruyama, Calcium-activated potassium channels and their role in secretion. *Nature* 307, 693-696, 1984. ISI *Current Contents, Life Sciences* vol. 36, no. 48, p.9, 1993

Current Editorial Work (selection)

Editor-in-Chief, *Function* (American Physiological Society), 2020 -

Past Editorial Work (selection)

Senior Reviews (Executive) Editor, *Journal of Physiology* [2016 -2019]; Consulting Editor [2013 – 2016]

Chair of the European Editorial Committee (Executive Editor, Europe) of the American Physiological Society's *Physiological Reviews* [2003 – 2011] (Member of the European Editorial Committee from 1999)

Member of Editorial Board, *Current Biology* [2002-2017]

Member of Editorial Board, *Physiology* [2010 – 2017]

Membership of International and National (UK) Committees (selection)

Academia Europaea (The European Academy)

Currently: Academic Director of Academia Europaea's Cardiff University Knowledge Hub [2016-]; Vice-President [2015 -] and Chair of Search Committee for next President [2019-2020]. *Previously:* Chair of Nominations Committee [2004- 2014]; Chair of Physiology & Medicine Section [1995 – 2006]

SAPEA (Science Advice for Policy by European Academies)

Member of the SAPEA Board (Alternate for the President of Academia Europaea) [2016-]. Member of The Co-ordination groups established by the Group of Chief Scientific Advisors to the European Commission for the projects on 'Food from the Oceans' [2016-2017], 'Making Sense of Science for Policy under Conditions of Complexity and Uncertainty' [2018 – 2019], 'Sustainable Food Systems' [2019 – 2020] and 'Biodegradability of Plastics in the Open Environment' [2020 – 2021]

American Physiological Society

Editor-in-Chief of the new APS flagship journal *Function*, launched in May 2020

Academy of Medical Sciences (UK)

Springboard Champion for Cardiff University [2015 –]

Past memberships of major international and national committees (selection)

The Royal Society (The UK's National Academy of Science)

Member of Sectional Committee 8 (Anatomy, Physiology & Neurosciences) [2016-2019] and [2011-2013], Member of Wolfson Research Merit Awards Committee [2008-2012], Vice President [2005- 2006], Member of Council [2004 - 2006] and Chair of Sectional Committee 8 [2002 - 2004]

The European Research Council (ERC)

Deputy Chair of ERC Consolidator Grant Panel for Physiology, Pathophysiology & Endocrinology [2013 funding round]. Chair of ERC Starting Grant Panel for Physiology, Pathophysiology & Endocrinology [funding rounds 2009, 2010 and 2011].

The UK Government's Higher Education Funding Council for England (HEFCE): 2014 Research Excellence Framework (REF2014)

Chair of Sub-Panel 5 (Biological Sciences) and Member of Main Panel A (Biomedical and Life Sciences) [2010 – 2015]; Member of Sub-panel 15 (Biomedical Sciences) in RAE2008

The Physiological Society (UK)

Senior Reviews (Executive) Editor of *J Physiol* [2016-2019]; Consulting Editor of *J Physiol* [2013-2016]; Honorary President of the 37th International Congress of Physiological Sciences (IUPS 2013), Birmingham, UK, 2013; President and Chair of Council [2006-2008]; Foreign (International) Secretary [1992-1998]

Learned Society of Wales

Vice-President (Science, Technology & Medicine) [2014 –2018]; Member of Council [2012 - 2018].

Welsh Government

Member of Science Advisory Council for Wales [2010 - 2018]

Academy of Medical Sciences (UK)

Member of Sectional Committee 3 (Anatomy, neurobiology, physiology, and pharmacological sciences) [2012-2014]

International Union of Physiological Sciences (IUPS)

Honorary President of the 37th International Congress of Physiological Sciences, Birmingham, UK, July 2013. Member of IUPS Nominations Committee [2012]. IUPS Secretary General and Ex Officio Member of the Executive Committee and Council [2002 –2010]; Vice Chair of the International Scientific Program Committee (ISPC) for the 35th International Congress of Physiological Sciences, San Diego, California, March/April 2005 and Co-Chair of the ISPC for the 36th International Congress of Physiological Sciences, Kyoto, Japan, July/August 2009.

Max Planck Society

Member of Scientific Advisory Board ('Beirat') at Max Planck Institute for Molecular Physiology, Dortmund, Germany [1995-2007]; Member of 'Kuratorium' and Scientific Advisory Board at Max Planck Institute for Biophysics, Frankfurt am Main [1980-1995]

Federation of European Physiological Societies (FEPS)

President [2001 – 2003]

Post-REF (Research Excellence Framework) Advisor to UK Universities (Life Sciences)

University of Glasgow, June 2015; April 2018
University of Leeds, October 2015; December 2017
University of Oxford, October/November 2016; May 2018

REF Advisor (International)

University of Hong Kong, April 2015; March 2018