

Prof. Jan Erik Siemens, Ph.D. - Curriculum Vitae

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Curriculum Vitae

- 2013-Present Professorship - Department of Pharmacology, Heidelberg University
& Group leader in the Molecular Medicine Partnership Unit (EMBL, Heidelberg)
- 2009-2013 Junior Group Leader at the Max Delbrück Center in Berlin
- 2005-2009 Postdoctoral Fellow
Departments of Physiology and Cellular & Molecular Pharmacology
University of California, San Francisco
Advisor: Prof. Dr. David Julius
- 2004 PhD degree (summa cum laude) in Cellbiology, University of Basel, Switzerland
- 2000-2004 PhD Graduate student
Friedrich-Miescher Institute (FMI) in Basel, Switzerland & The Scripps Research
Institute in San Diego, USA
(Lab relocated to The Scripps Research Institute in 2003)
Advisor: Prof. Dr. Ulrich Müller
- 1999- 2000 Diploma Thesis (Diplom Biochemist)
Institute for Diabetes Research
Eberhard-Karls-University, Tübingen, Germany
Advisor: PD Dr. Reiner Lammers (Director: Dr. Ulrich Haering)
- 1994-1999 Biochemistry undergraduate studies, University of Bochum and University of
Frankfurt a.M.

Fellowships and Awards

- 2018 ERC Consolidator Award (European Research Council)
- 2017 Sir Hans Krebs-Preis (Medizinische Hochschule Hannover)
- 2017 PHOENIX Pharmacy Science Award (Phoenix group)
- 2015 Galenus-von-Pergamon Award (Springer Medizin; patronage: BMBF)
- 2011 ERC Starting Grant (European Research Council)
- 2009 Career Development Award (Human Frontier Science Program - HFSP)
- 2008 Sofja Kovalevskaja Award (Alexander von Humboldt Foundation - BMBF)
- 2008 K99/R00 Pathway to Independence Award (NIH)

2007	Sandler Postdoctoral Research Award
2006	Postdoctoral Fellowship, Human Frontier Science Program Organization (HFSP)
2005	Postdoctoral Fellowship, Swiss National Research Foundation and the Novartis Research Foundation
2004	Most outstanding Ph.D. Thesis-Award selected by the Faculty for Natural Sciences (Philosophisch - Naturwissenschaftliche Fakultät II), University of Basel, Switzerland
2001	Ph.D. fellowship from the Boehringer Ingelheim Fonds, Germany

Coordinating Functions

Since 2019	Dean of Research of the Medical Faculty, Heidelberg University
2016-2019	Member of the selection committee of the CellNetworks postdoctoral fellowship program (http://www.cellnetworks.uni-hd.de/)
Since 2013	Faculty member of the Molecular Medical Partnership Unit (MMPU), a joint research venture between EMBL and the Heidelberg University Clinic (www.embl.de/mmpu/)
Since 2013	Associated faculty member of the “International Graduate School of Molecular & Cellular Biology” (HBIGS - http://www.hbigs.uni-heidelberg.de/)
Since 2013	Reviewer for the Medical Research Council (MRC), UK
2011-2013	Representative of all Junior Group Leaders at the Max-Delbrück Center (MDC), Berlin, Germany
Since 2010	Reviewer of several scientific journals including <i>Nature</i> , <i>Science</i> , <i>New England Journal of Medicine</i> , <i>eLife</i> , <i>Cell Reports</i> , <i>Nature Communications</i> and others.

Fields Of Interest

Sensory neuroscience, temperature and pain sensation, TRP receptors, temperature homeostasis and core body temperature regulation

Selected Presentations at Conferences

2019	Congress of the Asian Physiological Societies (FAOPS) Talk: “TRP Ion Channels – Hypothalamic Temperature Sensors and Guardians of Homeostasis?”
2019	13 th Göttingen Meeting of the German Neuroscience Society Talk: “TRP Ion Channels – Hypothalamic Temperature Sensors and Guardians of Homeostasis?”
2018	Europe Physiology Conference London, UK Keynote lecture: “TRP ion channels – multimodal sensors and guardians of homeostasis”

- 2018 11th FENS Forum of Neuroscience
Talk: “Mechanisms of temperature detection and thermoregulation”
- 2016 International Symposium “Regulation of Cell Functions by Transient Receptor Potential Channels” Herrsching, Germany
Talk: “The Trpm2 ion channel in temperature detection and thermoregulation”
- 2015 5th Humboldt Award Winners’ Forum - “Frontiers in Neuroscience”, Bonn
Talk: “GABA Blocks Pathological but Not Acute TRPV1 Pain Signals
- 2015 TRP 2015 - “The Third Leuven TRP Symposium”, Leuven, Belgium
Talk: “Reverting TRPV1 Hypersensitivity : GABA Puts On The Breaks“
- 2014 Winter Conference on Brain Research, Brides-les-Bains, France
Talk: “TRPV1 Modulation in the Course of Inflammation”
- 2013 Conference “Neural Circuits Underlying Nociception and Pain and Their Plasticity”, Heidelberg, Germany.
Talk: “Modulating Pain Sensitization - Insights from TRPV1 Proteomics”
- 2012 Conference Organizer (together with Gary Lewin, MDC) “Force Transduction and Emerging Ion Channels”, MDC, Berlin.
- 2011 Conference (19^{èmes} Recontres en Toxinologie) “Toxins and Ion Transfer”, Institute Pasteur, Paris
Talk: ”A Bivalent Tarantula Toxin Produces Inflammatory Pain by Targeting the Outer Pore Domain of the TRPV1 Receptor TRPV1”
- 2010 Conference “TRP Ion channels in Health and Disease”, Alicante, Spain
Talk: “Spider Toxins: Pharmacological Tools to Study the Capsaicin Receptor TRPV1”
- 2008 Conference “Molecules and Mechanisms in Sensory Neurobiology”, Berlin Germany
Talk: “TRP ion channels in temperature sensation & inflammation”.
- 2007 Society for Neuroscience Meeting, San Diego, CA
Talk: “TRPM8 is the principal detector for environmental cold”

Peer Reviewed Publications and Preprint Publications (bioRxiv)

A synaptic temperature sensor for body cooling. Gretel B. Kamm, Juan C. Boffi, Kristina Zuza, Sara Nencini, Joaquin Campos, Katrin Schrenk-Siemens, Ivo Sonntag, Burçe Kabaglou, Muad Y. Abd El Hay, Yvonne Schwarz, Anke Tappe-Theodor, Dieter Bruns, Claudio Acuna, Thomas Kuner & **Jan Siemens**. 2021 **Neuron**; 109:3283-3297.e11. doi: 10.1016/j.neuron.2021.10.001.

Astrocytes mediate the effect of oxytocin in the central amygdala on neuronal activity and affective states in rodents. Wahis et al. 2021, **Nature Neuroscience**; 24:529-541. doi: 10.1038/s41593-021-00800-0

HESC-derived sensory neurons reveal an unexpected role for PIEZO2 in nociceptor mechanotransduction. Katrin Schrenk-Siemens, Jörg Pohle, Charlotte Rostock, Muad Abd El Hay, Ruby M. Lam, Marcin Szczot, Shiyong Lu, Alexander T. Chesler & **Jan Siemens**, 2019, **bioRxiv** (<https://doi.org/10.1101/741660>)

Human vs. Mouse Nociceptors - Similarities and Differences.
Charlotte Rostock, Katrin Schrenk-Siemens, Jörg Pohle and **Jan Siemens**
2018, **Neuroscience**, 387, 13-27

Regulation of body weight and energy homeostasis by neuronal cell adhesion molecule 1.
Thomas Rathjen, Xin Yan, Natalia Kononenko, Min-Chi Ku, Kun Song, Leiron Ferrarese, Valentina Tarallo, Dmytro Puchkov, Gaga Kochlamazashvili, Sebastian Brachs, Luis Varela, Klara Szigeti-

Buck, Chun-Xia Yi, Sonia C. Schriever, Sudhir Gopal Tattikota, Anne Sophie Carlo, Mirko Moroni, **Jan Siemens**, Arnd Heuser, Louise van der Weyden, Andreas L. Birkenfeld, Thoralf Niendorf, James F. Poulet, Tamas L. Horvath, Matthias H. Tschöp, Matthias Heinig, Mirko Trajkovski, Volker Haucke, and Matthew N. Poy

2017, **Nature Neuroscience**, 20, 1096-1103

The TRPM2 channel is a hypothalamic heat sensor that limits fever and can drive hypothermia.

Kun Song, Hong Wang, Gretel B Kamm, Jörg Pohle Fernanda C. Reis, Paul Heppenstall, Hagen Wende and **Jan Siemens**

2016, **Science**, 353, 1393-1398.

GABA Blocks Pathological but Not Acute TRPV1 Pain Signals.

Christina Hanack, Mirko Moroni, Wanessa Lima, Hagen Wende, Marieluise Kirchner, Lisa Adelfinger, Katrin Schrenk-Siemens, Anke Tappe-Theodor, Christiane Wetzels, Henning Kuich, Martin Gassmann, Dennis Roggenkamp, Bernhard Bettler, Gary R. Lewin, Matthias Selbach & **Jan Siemens**

2015, **Cell**, 160, 759–770

PIEZO2 is required for mechanotransduction in human stem cell-derived touch receptors.

Katrin Schrenk-Siemens, Hagen Wende, Vincenzo Prato, Kun Song, Charlotte Rostock, Alexander Loewer, Jochen Utikal, Gary Lewin Stefan Lechner & **Jan Siemens**

2015, **Nature Neuroscience**, 18, 10–16

A somatosensory circuit for cooling perception in mice.

Nevena Milenkovic, Wen-Jie Zhao, Jan Walcher, Tobias Albert, **Jan Siemens**, Gary Lewin & James Poulet.

2014, **Nature Neuroscience**, 17, 1560–1566

Proteolytic processing of the protein tyrosine phosphatase alpha extracellular domain is mediated by ADAM17/TACE.

Katja Kapp*, **Jan Siemens***, Hans-Ulrich Häring, Reiner Lammers

2012, **Eur J Cell Biol**, 91, 687-693

*denotes equal contribution

A Bivalent Tarantula Toxin Reveals a Unique Role for the Outer Pore Domain in TRP Channel Gating

Christopher J. Bohlen, Avi Priel, Sharleen Zhou, David King, **Jan Siemens***, and David Julius*

2010, **Cell**, 141, 834-845

*Co-Corresponding Authors

4-Hydroxynonenal, an Endogenous Aldehyde, causes Pain and Neurogenic Inflammation through Activation of the Irritant Receptor, TRPA1.

Marcello Trevisani*, **Jan Siemens***, Serena Materazzi, Diana M. Bautista, Romina Nassini, Barbara Campi, Noritaka Imamachi, Eunice Andrè, Riccardo Patacchini, Graeme S. Cottrell, Raffaele Gatti, Allan I. Basbaum, Nigel W. Bunnett, David Julius and Pierangelo Geppetti

2007, **PNAS**, 104, 13519-13524

*denotes equal contribution

TRPA1 mediates Formalin Induced Pain.

Colleen R. McNamara, Josh Mandel-Brehm, Diana M. Bautista, **Jan Siemens**, Kari L. Deranian, Michael Zhao, Neil J. Hayward, Jayhong A. Chong, David Julius, Magdalene M. Moran, and Christopher M. Fanger

2007, **PNAS**, 104, 13525-13530

The Menthol Receptor TRPM8 is the Principal Detector of Environmental Cold.

Diana M. Bautista*, **Jan Siemens***, Josh Glazer, Pamela R. Tsuruda, Allan I. Basbaum, Cheryl L. Stucky, Sven-Eric Jordt, and David Julius

2007, **Nature**, 448, 204-208

**denotes equal contribution*

Extracellular Domain Splice Variants of a Transforming Protein Tyrosine Phosphatase alpha mutant differentially activate Src-kinase dependent Focus Formation.

Katja Kapp*, **Jan Siemens***, Peter Weyrich, Jörg B. Schulz, Hans-Ulrich Häring, Reiner Lammers
2007, **Genes to Cells**, 12, 63-73

**denotes equal contribution*

Spider Toxins activate the Capsaicin Receptor to produce Inflammatory Pain.

Jan Siemens, Sharleen Zhou, Rebecca Piskorowski, Tetsuro Nikai, Ellen A. Lumpkin, Allan I. Basbaum, David King, David Julius

2006, **Nature**, 444, 208-212

Cadherin 23 is a Component of the Tip Link in Hair Cell Stereocilia.

Jan Siemens, Concepcion Lillo, Rachel A. Dumont, David Williams, Peter Gillespie, and Ulrich Müller

2004, **Nature**, 428, 950-955

Mutations in Cadherin 23 affect Tip Links in Zebrafish Sensory Hair Cells.

Christian Söllner, Gerd-Jörg Rauch, **Jan Siemens**, Robert Geisler, Stephan C. Schuster, the Tübingen 2000 Screen Consortium, Ulrich Müller, & Teresa Nicolson

2004, **Nature**, 428, 955-959

The Usher Syndrome Proteins Cadherin 23 and Harmonin form a Complex by means of PDZ Domain Interactions.

Jan Siemens, Piotr Kazmierczak, Anna Reynolds, Melanie Sticker, Amanda Littlewood-Evans, and Ulrich Mueller

2002, **PNAS**, 99, 14946-14951

Review Publications and Book Chapters

Review Publications and Book Chapters

Cellular populations and thermosensing mechanisms of the hypothalamic thermoregulatory center

Jan Siemens, Gretel B. Kamm

2018, **Pflugers Arch**, 470: 809-822

The TRPM2 channel in temperature detection and thermoregulation

Gretel B. Kamm and **Jan Siemens**

2016, **Temperature**, 4, 1-3

TRP ion channels in thermosensation, thermoregulation and metabolism

Hong Wang and **Jan Siemens**

2015, **Temperature**, 2, 178-187

Modulation of TRP ion channels by venomous toxins.

Jan Siemens and Christina Hanack

2014, **Handb Exp Pharmacol**, 223, 1119-1142.

Sensory transduction, the gateway to perception: mechanisms and pathology

Stefan Lechner, **Jan Siemens**

2011, **Embo Reports**, 12, 292-295

Genes, Deafness, and Balance Disorders

Jan Siemens, Amanda Littlewood-Evans, Mathias Senften, and Ulrich Mueller

2001, **Gene Function & Disease**, 2, 76-82

The Sound of Silence - Diseases that cause Deafness and Disequilibrium

Jan Siemens, Amanda Littlewood-Evans, and Ulrich Mueller

2001, **B.I.F. Futura**, 16, 222-228