The Skin: Our Sensory Organ for Itch, Pain, Touch and Pleasure

October 20 – 24, 2016
Salishan Resort, Gleneden Beach, Oregon, USA

Program Chair
Gil Yosipovitch, MD

Symposium Director
Molly Kulesz-Martin, PhD

POSTERS

**Ehsan Azimi**¹, Vemuri B Reddy¹, Kai-Ting C. Shade², Robert M. Anthony², Sebastien Talbot³, Paula Juliana Seadi Pereira¹⁴, and Ethan A Lerner¹

¹Cutaneous Biology Research Center, Department of Dermatology, and ²Center for Immunology and Inflammatory Diseases, Division of Rheumatology, Allergy, and Immunology, Massachusetts General Hospital and Harvard Medical School, Charlestown, MA, USA; ³FM Kirby Neurobiology Center, Children’s Hospital Boston, Boston, MA; ⁴PUCRS, Programa de Pós-graduação em Biologia Celular e Molecular, Porto Alegre, RS, Brasil

**Dual action of neurokinin-1 antagonists on Mas-related GPCRs**

**Kathie M. Bishop**, Sophie Visonneau, and Dawn McGuire

Tioga Pharmaceuticals, San Diego, CA, USA

**Development of asimadoline, a selective kappa opioid receptor agonist, for the treatment of pruritus**

**Sara Cabrera-Ghayouri** and Eddie Hsia

Biological Sciences, Allergan, Irvine, CA, USA

**Validation of the LABORAS for quantification of scratching behavior in a mouse model of chloroquine induced itch**

Chien-Chang Shen¹, Jason Halladay², Wayne Tseng¹, Don Axworthy³, Kirk Maples², Jake Plattner², Kurt Jarnagin², and Ferda Cevikbas

¹Eurofins Panlabs Taiwan Ltd., Peitou, Taipei, Taiwan; ²Anacor Pharmaceuticals, Inc., Palo Alto, CA, USA; ³Eurofins Panlabs, Inc., St. Charles, MO, USA

**Boron-based PDE4 inhibitors block non-histaminergic itch**
Unexpected cutaneous benefits of pleasant smell: olfactory receptor stimulation promotes human hair growth

Jérémy Chéret¹, Leslie Ponce¹, Marta Bertolini¹,², Teresa Tsai³, Majid Alam¹, Hanns Hatt³, and Ralf Paus¹,⁴
¹Monasterium Laboratory, Münster, Germany; ²Department of Dermatology, University of Münster, Münster, Germany; ³Ruhr-University Bochum, Bochum, Germany; ⁴Dermatology Research Center, University of Manchester, Manchester, UK

Mast cell survival and maturation in human skin are regulated and maintained by sensory nerve fibers

Soha Chhaya¹,², J.D. Houlé¹,², and M.R. Detloff¹,²
¹Department of Neurobiology & Anatomy and ²Spinal Cord Research Center, Drexel University Philadelphia, PA, USA

Exercise-induced changes in the inflammatory environment in the dorsal root ganglia prevent neuropathic pain after spinal cord injury

Rachel Clary¹,², Kara Marshall², and Ellen Lumpkin¹,²,³
¹Program in Neurobiology and Behavior, and Departments of ²Dermatology and ³Physiology and Cellular Biophysics, Columbia University, New York, NY, USA

Functional consequences of neuronal plasticity in Merkel cells and sensory neurons during spontaneous hair cycline

Manouela V. Valtcheva¹,², Judith P. Golden¹, Tayler D. Sheahan¹, Melanie Y. Pullen¹, Bryan A. Copits¹, Sherri K. Vogt¹, Sanjay Jain², Robert W. Gereau, IV¹, and Steve Davidson⁴
¹Washington University Pain Center and Department of Anesthesiology, ²Medical Scientist Training Program, ³Department of Medicine, Renal Division, Washington University School of Medicine, St. Louis, MO, USA; ⁴Pain Research Center, Department of Anesthesiology, University of Cincinnati College of Medicine, Cincinnati, OH, USA

Neurotrophic factors selectively modulate pruriceptive responses in mouse but not human sensory neurons

Christopher R. Donnelly¹, Zhijiang Chen², Alan S. Halim¹, Kuo-Fen Lee², Brian A. Pierchala¹
¹Department of Biologic and Materials Science, University of Michigan School of Dentistry, Ann Arbor, MI, USA; ²Clayton Foundation Laboratories for Peptide Biology, Salk Institute, La Jolla, CA, USA

Establishment of postnatal sensory neuron diversity requires p75 potentiation of Ret signaling

Sarina B. Elmariah, Ehsan Azimi, and Ethan A. Lerner
Cutaneous Biology Research Center, Massachusetts General Hospital, Charlestown, MA, USA

In vivo imaging reveals that neural recruitment precedes the inflammatory infiltrate in a mouse model of atopic dermatitis
Kali Esancy¹, Logan Condon¹, Jing Feng², Corinna Kimball¹, Andrew Curtright¹, Hongzhen Hu², and Ajay Dhaka¹
¹Department of Biological Structure, University of Washington, Seattle, WA, USA; ²Center for the Study of Itch, Washington University in St. Louis School of Medicine, St. Louis, MO, USA

Do fish itch? Investigations into pruritus in the zebrafish

Marlys S. Fassett¹,²,³ and K. Mark Ansel²,³
Departments of ¹Dermatology and ²Microbiology & Immunology and ³the Sandler Asthma Basic Research (SABRe) Center, University of California, San Francisco, San Francisco, CA, USA

Interleukin-31 modulates cutaneous Th2 inflammation

Lilit Garibyan, Emilia Javorsky, Ying Wang, Martin Purschke, Traci Hequn Wang, Conor Evans, and R. Rox Anderson
Wellman Center for Photomedicine, Massachusetts General Hospital, Boston, MA, USA; Department of Dermatology, Harvard Medical School, Boston, MA, USA

Novel and long lasting treatment of cutaneous pain by controlled cooling

Takashi Hashimoto¹,², Takahiro Satoh², and Hiroo Yokozeki¹
¹Department of Dermatology, Graduate School, Tokyo Medical and Dental University, Tokyo, Japan; ²Department of Dermatology, National Defense Medical College, Saitama, Japan

Pruritus in scabies infestation: Implications of Th2 immunity and IL-31

Rose Z. Hill¹, Takeshi Morita¹,², Rachel Brem²,³, and Diana Bautista¹,⁴
¹Department of Molecular & Cell Biology, ³Department of Plant and Microbial Biology, and ⁴Helen Wills Neuroscience Institute University of California, Berkeley, Berkeley, CA, USA; ²Buck Institute for Research on Aging, Novato, CA, USA

Identification of a novel itch pathway: the role of S1PR3 in itch

Steven L. Jacques
Departments of Biomedical Engineering and Dermatology, Oregon Health & Science University, Portland, OR, USA

The thermodynamics of erythema and mild pain in skin

Boyi Liu¹,², Yan Tai², Satyanarayana Achanta², Melanie M. Kaelberer², Ana I. Caceres² and Sven-Eric Jordt²
¹Department of Neurobiology and Acupuncture Research, The Third Clinical Medical College, Zhejiang Chinese Medical University, Hangzhou, PRC; ²Department of Anesthesiology, Duke University School of Medicine, Durham, NC, USA

IL-33/ST2 signaling excites sensory neurons and mediates itch responses in a mouse model of poison ivy contact allergy

Yoko Takata, Mayuko Tahara, Eiji Kiyohara, Hiroyuki Murota, and Ichiro Katayama
Department of Dermatology, Osaka University, Suita, Japan

Exploring pruritogens in cutaneous malignant lymphoma

Melissa LaJevic* and Brian A. Zabel¹
*Stanford University, Stanford, CA, USA; +PAVIR (Palo Alto Veterans Institute for Research), Palo Alto, CA, USA, and Stanford University, Stanford, CA, USA

Role of chemerin in the pathomechanism of psoriasis
Zoe E. Lewis and Henning Holle
*Department of Psychology, University of Hull, Hull, UK*

**Illusory ownership over an artificial arm decreases cowhage, but not histamine induced itch perception in the real arm**

Zoe E. Lewis and Henning Holle
*Department of Psychology, University of Hull, Hull, UK*

**Innocuous temperature change has differing impact on cowhage and histamine induced itch**

Xue-Qing (Helen) Zhang, John Lyga, Christopher J. Wolyniak, and Frank Liebel
*Avon Products Inc., Suffern, NY, USA*

**A comparison study of Different Emulsions in Glycolic Acid Dermal Penetration and Induced Irritation**

Sarah E. Lightfoot Vidal, Rosalyn D. Abbott, and David L. Kaplan
*Department of Biomedical Engineering, Tufts University, Medford, MA USA*

**Innervated, full-thickness, human skin equivalent tissue models**

Thomas M. Magin¹, Andrea Scheffschick¹, Vinod Kumar¹, Matthias Behr¹, Dimitra Kiritsi², Anja Grahnert¹, Melanie Homberg¹, Agnes Schwieger-Briel², Thilo Jakob³, and Leena Bruckner-Tuderman²
¹Institute of Biology, University of Leipzig, Leipzig, Germany; ²Department of Dermatology, Medical Center-University of Freiburg, Freiburg, Germany; ³Department of Dermatology and Allergology, University Medical Center Giessen and Marburg, Justus Liebig University, Giessen, Germany

**Keratin-dependent TSLP expression suggests a link between atopic and blistering skin disease**

Andrew Marshall⁴, Manohar Sharma⁵, Kate Marley⁶, and Francis McGlone⁷
⁴Liverpool John Moores University, Liverpool, UK; ⁵Walton Centre for Neurology and Neurosurgery, Liverpool, UK; ⁶University Hospital Aintree, Liverpool, UK

**Alterations in pruriception and pleasurable touch following spinothalamic tract lesioning in humans**

Saad S. Nagi¹, Andrew Marshall²,³, Adarsh Makdani², Ewa Jarocka¹,⁴, Wonmo Jung¹, Mats Trulsson⁵, Francis O´Neill²,³, Francis McGlone²,³, and Håkan Olausson¹
¹Center for Social and Affective Neuroscience, Linköping University, Linköping, Sweden; ²School of Natural Sciences and Psychology, Liverpool John Moores University, Liverpool, UK; ³Institute of Psychology, Health and Society, University of Liverpool, Liverpool, UK; ⁴Department of Integrative Medical Biology, Umeå University, Umeå, Sweden; ⁵Department of Dental Medicine, Karolinska Institutet, Stockholm, Sweden

**Expansive mechanoreceptors sensitive to skin stroking in humans**

Yukinobu Nakagawa, Hiroyuki Murota, Mayuko Tahara, and Ichiro Katayama
*Department of Dermatology, Graduate School of Medicine, Osaka University, Suita, Japan*

**Comparison of gene expression profiles in keratinocyte irradiated with narrow band UVB and excimer light: implication for the mechanisms of their anti-pruritic effects**

Quinn R. Roth-Carter¹, James J. Lee², Allison D. Fryer³, and David B. Jacoby³
¹Department of Cell and Developmental Biology and ³Division of Pulmonary and Critical Care, Oregon Health & Science University, Portland, OR, USA; ²Department of Biochemistry, Mayo Clinic, Scottsdale, AZ, USA

**Eosinophils increase thymic stromal lymphopoietin expression in keratinocytes**
Charissa Mia D. Salud-Gnilo
MS Epidemiology (Clinical Epidemiology) Program, University of the Philippines Manila; Consultant, Section of Dermatology, Department of Medicine, University of the Philippines – Philippine General Hospital, Manila, Republic of the Philippines

Daily skin-to-skin contact in the neonatal period for the prevention of infantile eczema: a concept paper

Sumaiya Shaikh and David Mahns
School of Medicine, Western Sydney University, Penrith, Australia

Minocycline ameliorates low threshold fibre mediated bilateral tactile and cold allodynia following unilateral nerve injury

Antia E. Veal and Joseph Larkin III
Department of Microbiology and Cell Science, University of Florida, Gainesville, FL, USA

Inhibition of psoriasis through suppressor of cytokine signaling-1 regulation

Gwen Wendelschafer-Crabb¹, A. Loavenbruck¹, S. Foster¹, B. McAdams¹, E. Hurliman², M. Hordinsky², and W.R. Kennedy¹
Departments of ¹Neurology and ²Dermatology, University of Minnesota, Minneapolis, MN, USA

Quantification of neuropeptide-containing nerve endings in skin biopsy

Michellie Young, Donna Lloyd, and Melanie Burke
University of Leeds, Leeds, UK

A putative model for the psychological transmission of itch from non-tactile stimuli