## Montagna Symposium on the Biology of Skin

# 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**

<u>Ehsan Azimi</u><sup>1</sup>, Vemuri B Reddy<sup>1</sup>, Kai-Ting C. Shade<sup>2</sup>, Robert M. Anthony<sup>2</sup>, Sebastien Talbot<sup>3</sup>, Paula Juliana Seadi Pereira<sup>1,4</sup>, and Ethan A Lerner<sup>1</sup>

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

<u>Kathie M. Bishop</u>, 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

<u>Sara Cabrera-Ghayouri</u> 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 Shen<sup>1</sup>, Jason Halladay<sup>2</sup>, Wayne Tseng<sup>1</sup>, Don Axworthy<sup>3</sup>, Kirk Maples<sup>2</sup>, Jake Plattner<sup>2</sup>, Kurt Jarnagin<sup>2</sup>, and Ferda Cevikbas

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Boron-based PDE4 inhibitors block non-histaminergic itch

<u>Jérémy Chéret</u><sup>1</sup>, Leslie Ponce<sup>1</sup>, Marta Bertolini<sup>1,2</sup>, Teresa Tsai<sup>3</sup>, Majid Alam<sup>1</sup>, Hanns Hatt<sup>3</sup>, and Ralf Paus<sup>1,4</sup>
<sup>1</sup>Monasterium Laboratory, Münster, Germany; <sup>2</sup>Department of Dermatology, University of Münster,
Münster, Germany; <sup>3</sup>Ruhr-University Bochum, Bochum, Germany; <sup>4</sup>Dermatology Research Center,
University of Manchester, Manchester, UK

Unexpected cutaneous benefits of pleasant smell: olfactory receptor stimulation promotes human hair growth

<u>Jérémy Chéret</u><sup>1,3</sup>, Leslie Ponce<sup>1,2</sup>, Christelle Le Gall-Ianotto<sup>3</sup>, Laurent Misery<sup>3</sup>, Marta Bertolini<sup>1,2</sup>, Ralf Paus<sup>2,4</sup>

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

Soha Chhaya<sup>1,2</sup>, J.D. Houlé<sup>1,2</sup>, and M.R. Detloff<sup>1,2</sup>

<sup>1</sup>Department of Neurobiology & Anatomy and <sup>2</sup>Spinal 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 Clary<sup>1,2</sup>, Kara Marshall<sup>2</sup>, and Ellen Lumpkin<sup>1,2,3</sup>

<sup>1</sup>Program in Neurobiology and Behavior, and Departments of <sup>2</sup>Dermatology and <sup>3</sup>Physiology 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. Valtcheva<sup>1,2</sup>, Judith P. Golden<sup>1</sup>, Tayler D. Sheahan<sup>1</sup>, Melanie Y. Pullen<sup>1</sup>, Bryan A. Copits<sup>1</sup>, Sherri K. Vogt<sup>1</sup>, Sanjay Jain<sup>3</sup>, Robert W. Gereau, IV<sup>1</sup>, and <u>Steve Davidson</u><sup>4</sup>

<sup>1</sup>Washington University Pain Center and Department of Anesthesiology, <sup>2</sup>Medical Scientist Training Program, <sup>3</sup>Department of Medicine, Renal Division, Washington University School of Medicine, St. Louis, MO, USA; <sup>4</sup>Pain 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

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

<u>Christopher R. Donnelly</u><sup>1</sup>, Zhijiang Chen<sup>2</sup>, Alan S. Halim<sup>1</sup>, Kuo-Fen Lee<sup>2</sup>, Brian A. Pierchala<sup>1</sup>

Department of Biologic and Materials Science, University of Michigan School of Dentistry, Ann Arbor, MI, USA; <sup>2</sup>Clayton 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

<u>Kali Esancy</u><sup>1</sup>, Logan Condon<sup>1</sup>, Jing Feng<sup>2</sup>, Corinna Kimball<sup>1</sup>, Andrew Curtright<sup>1</sup>, Hongzhen Hu<sup>2</sup>, and Ajay Dhaka<sup>1</sup>

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#### Do fish itch? Investigations into pruritus in the zebrafish

Marlys S. Fassett<sup>1,2,3</sup> and K. Mark Ansel<sup>2,3</sup>

Departments of <sup>1</sup>Dermatology and <sup>2</sup>Microbiology & Immunology and <sup>3</sup>the Sandler Asthma Basic Research (SABRe) Center, University of California, San Francisco, San Francisco, CA, USA

#### Interleukin-31 modulates cutaneous Th2 inflammation

<u>Lilit Garibyan</u>, 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 Hashimoto<sup>1,2</sup>, Takahiro Satoh<sup>2</sup>, and Hiroo Yokozeki<sup>1</sup>

<sup>1</sup>Department of Dermatology, Graduate School, Tokyo Medical and Dental University, Tokyo, Japan;

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

Rose Z. Hill<sup>1</sup>, Takeshi Morita<sup>1,2</sup>, Rachel Brem<sup>2,3</sup>, and Diana Bautista<sup>1,4</sup>

<sup>1</sup>Department of Molecular & Cell Biology, <sup>3</sup>Department of Plant and Microbial Biology, and <sup>4</sup>Helen Wills Neuroscience Institute University of California, Berkeley, Berkeley, CA, USA; <sup>2</sup>Buck 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 Liu<sup>1, 2,</sup> , Yan Tai<sup>2</sup>, Satyanarayana Achanta<sup>2</sup>, Melanie M. Kaelberer<sup>2</sup>, Ana I. Caceres<sup>2</sup> and Sven-Eric Jordt<sup>2</sup>

<sup>1</sup>Department of Neurobiology and Acupuncture Research, The Third Clinical Medical College, Zhejiang Chinese Medical University, Hangzhou, PRC; <sup>2</sup>Department 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, <u>Eiji Kiyohara</u>, Hiroyuki Murota, and Ichiro Katayama Department of Dermatology, Osaka University, Suita, Japan

#### Exploring pruritogens in cutaneous malignant lymphoma

Melissa LaJevic\*+ and Brian A. Zabel+

\*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

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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 <u>Frank Liebel</u> 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. Magin<sup>1</sup>, Andrea Scheffschick<sup>1</sup>, Vinod Kumar<sup>1</sup>, Matthias Behr<sup>1</sup>, Dimitra Kiritsi<sup>2</sup>, Anja Grahnert<sup>1</sup>, Melanie Homberg<sup>1</sup>, Agnes Schwieger-Briel<sup>2</sup>, Thilo Jakob<sup>3</sup>, and Leena Bruckner-Tuderman<sup>2</sup>

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

Andrew Marshall<sup>a</sup>, Manohar Sharma<sup>b</sup>, Kate Marley<sup>c</sup>, and Francis McGlone<sup>a</sup>
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Alterations in pruriception and pleasurable touch following spinothalamic tract lesioning in humans

<u>Saad S. Nagi</u><sup>1</sup>, Andrew Marshall<sup>2,3</sup>, Adarsh Makdani<sup>2</sup>, Ewa Jarocka<sup>1,4</sup>, Wonmo Jung<sup>1</sup>, Mats Trulsson<sup>5</sup>, Francis O´Neill<sup>2,3</sup>, Francis McGlone<sup>2,3</sup>, and Håkan Olausson<sup>1</sup>

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Expansive mechanoreceptors sensitive to skin stroking in humans

<u>Yukinobu Nakagawa</u>, 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-Carter<sup>1</sup>, James J. Lee<sup>2</sup>, Allison D. Fryer<sup>3</sup>, and David B. Jacoby<sup>3</sup>

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Eosinophils increase thymic stromal lymphopoietin expression in keratinocytes

#### Charissa Mia D. Salud-Gnilo

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

Sumaiya Shaikh and David Mahns

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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-Crabb<sup>1</sup>, A. Loavenbruck<sup>1</sup>, S. Foster<sup>1</sup>, B. McAdams<sup>1</sup>, E. Hurliman<sup>2</sup>, M. Hordinsky<sup>2</sup>, and W.R. Kennedy<sup>1</sup>

Departments of <sup>1</sup>Neurology and <sup>2</sup>Dermatology, University of Minnesota, Minneapolis, MN, USA **Quantification of neuropeptide-containing nerve endings in skin biopsy** 

<u>Michellie Young</u>, Donna Lloyd, and Melanie Burke *University of Leeds, Leeds, UK* 

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