

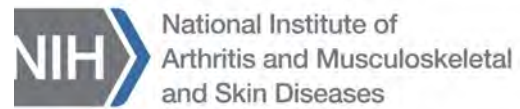
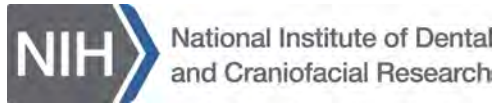
EIGHTH SCIENTIFIC MEETING
OF THE TMJ ASSOCIATION

*How Can Precision Medicine Be Applied to
Temporomandibular Disorders and its Comorbidities?*

Federation of American Societies for Experimental Biology (FASEB)
Bethesda, Maryland
September 11-13, 2016

TMJA

The TMJ Association, Ltd.



The TMJ Association is a national nonprofit 501(c)(3) organization whose mission is to improve the quality of health care and lives of everyone affected by Temporomandibular Disorders.

This project is supported by Grant Number R13DE026363 from the National Institute of Dental and Craniofacial Research.

The theme of The TMJ Association's Eighth Scientific Meeting is how methods of Precision Medicine can improve the treatment of temporomandibular disorders (TMD) and associated comorbid conditions. These conditions include vulvodinia, chronic tension-type and migraine headaches, myalgic encephalomyelitis/chronic fatigue syndrome, fibromyalgia, irritable bowel syndrome, interstitial cystitis/bladder pain syndrome, chronic low back pain and endometriosis. Current diagnostics and treatments do not reflect the current state of science in this field and fall short in meeting the needs of patients. Successful application of Precision Medicine technology to TMD and its comorbidities will enable providers to classify TMD patients into subgroups according to specific diagnostic criteria which will lead to more tailored, safe and effective treatments to relieve patients' pain and suffering.

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How Can Precision Medicine Be Applied to Temporomandibular Disorders and its Comorbidities?

Sunday, September 11, 2016

- 2:00 – 2:30 p.m. **Welcome and remarks**
Terrie Cowley, President and Co-founder, The TMJ Association
Milwaukee, WI
- Allen W. Cowley, Jr., Ph.D.**, Program Committee Chairman, The TMJ Association
and Professor and Chairman, Department of Physiology, Medical College of
Wisconsin, Milwaukee, WI
- National Institutes of Health welcome and remarks**
Lawrence A. Tabak, D.D.S., Ph.D., Principal Deputy Director, Office of the
Director, National Institutes of Health, Bethesda, MD
- Patricia A. Grady, Ph.D., R.N.**, Director, National Institute of Nursing Research
National Institutes of Health, Bethesda, MD
- Session 1: Defining Precision Medicine**
Session Co-Chairs: Christopher Mullins, Ph.D. and William Maixner, Ph.D.
Christopher Mullins, Ph.D., Director of Basic Cell Biology Programs
Division of Kidney, Urologic and Hematologic Diseases, National Institute of
Diabetes and Digestive and Kidney Diseases, National Institutes of Health
Bethesda, MD
- 2:30 – 3:00 p.m. **The U.S. precision medicine initiative**
Eric D. Green, M.D., Ph.D., Director, National Human Genome Research Institute
National Institutes of Health, Bethesda, MD
- 3:00 – 3:30 p.m. **Key issues for advancing precision medicine for TMD and chronic
overlapping pain conditions: Case definitions and phenotypic measures**
William Maixner, D.D.S., Ph.D., Center for Translational Pain Medicine,
Department of Anesthesiology, Duke University School of Medicine, Durham, NC
- 3:30 – 4:00 p.m. **Longitudinal gene-brain mapping to guide diagnosis and treatment of
mechanistically distinct types of chronic pain**
Apkar Vania Apkarian, Ph.D., Department of Physiology and Departments of
Anesthesia and Surgery, Feinberg School of Medicine, Northwestern University
Chicago, IL

- 4:00 – 4:30 p.m. **N-of-1 trials for personalized decision-making**
Christopher H. Schmid, Ph.D., Center for Evidence Based Medicine, Brown University School of Public Health, Providence, RI
- 4:30 – 4:45 p.m. **Break and poster sessions**
- 4:45 – 5:15 p.m. ***In silico* approach to developing TMD-related precision medicine applications: Narrowing the gap between currently available and urgently needed**
Yelizaveta Torosyan, M.D., Ph.D., Division of Epidemiology of the Center for Devices and Radiological Health, Food and Drug Administration, Silver Spring, MD
- 5:15 – 5:45 p.m. **Effective engagement with patient groups around clinical trials**
Jamie Roberts, MPH, MA, CCRP, Clinical Trials Transformation Initiative
Duke Clinical Research Institute, Durham, NC
- 5:45 – 6:15 p.m. **TMD treatment and precision medicine—The past, present and future**
Co-Chairs: Jamie Roberts and Terrie Cowley
Michele Kaseta, Patient Advisory Committee Chair, The TMJ Association
Danica Marinac-Dabic, M.D., Ph.D., Director, Division of Epidemiology of the Center for Devices and Radiological Health, Food and Drug Administration
Silver Spring, MD
Christin Veasley, Director and Co-Founder, Chronic Pain Research Alliance
- 6:15 – 6:45 p.m. **Session discussion and recommendations**
- 6:45 p.m. **Dinner and poster sessions at FASEB**

Monday, September 12, 2016

- 8:00 – 8:15 a.m. **Welcome and remarks**
Martin Frank, Ph.D., Executive Director, American Physiological Society
Bethesda, MD
- National Institutes of Health welcome and remarks**
Stephen I. Katz, M.D., Ph.D., Director, National Institute of Arthritis and Musculoskeletal and Skin Diseases, National Institutes of Health, Bethesda, MD
- Session 2: Examples of Progress in Precision Medicine**
Session Co-Chairs: Lisa Begg, Dr. P.H., R.N. and James Bibb, Ph.D.
- 8:15 – 8:40 a.m. **Precision medicine strategies to selectively alter intracellular signaling mechanisms: A new generation of targets**
James A. Bibb, Ph.D., Departments of Psychiatry and Neurology and Neurotherapeutics, Harold C. Simmons Comprehensive Cancer Center, University of Texas Southwestern Medical Center, Dallas, TX

- 8:40 – 9:05 a.m. Targeting chemokine and protease signaling for the control of neuroinflammation and chronic pain
Ru-Rong Ji, Ph.D., Department of Anesthesiology and Neurobiology
Duke University School of Medicine, Durham, NC
- 9:05 – 9:30 a.m. Human chronic pain conditions: Genome-wide analysis and pathways of vulnerabilities
Luda Diatchenko, M.D., Ph.D., The Alan Edwards Centre for Research on Pain
Faculty of Dentistry, McGill University, Montreal, Quebec, Canada
- 9:30 – 10:00 a.m. Session discussion and recommendations
- 10:00 – 10:15 a.m. Break and poster sessions
- Session 3:** Pharmacogenomics - Models Targeting Human Disease “In a Dish”
Session Co-Chairs: Wen Chen, Ph.D. and John Wikswo, Ph.D.
Wen G. Chen, Ph.D., Program Director, Basic and Mechanistic Research in Complementary and Integrative Health, Division of Extramural Research
National Center for Complementary and Integrative Health, Bethesda, MD
- 10:15 – 10:40 a.m. Intranasal mesenchymal stem cell transplantation for the repair of neuronal damage in chemobrain
Cobi J. Heijnen, Ph.D., Laboratory of Neuroimmunology, Department of Symptom Research, Division of Internal Medicine, The University of Texas MD Anderson Cancer Center, Houston, TX
- 10:40 – 11:05 a.m. Probing the complexities of biology and medicine: Closing the hermeneutic circle with *in vitro* models to study nerve pain and neural responses to pain medication
John P. Wikswo, Ph.D., Department of Biomedical Engineering, Department of Molecular Physiology and Biophysics, Department of Physics and Astronomy, and Vanderbilt Institute for Integrative Biosystems Research and Education, Vanderbilt University, Nashville, TN
- 11:05 – 11:30 a.m. Induced pluripotent stem cells for disease modeling
Ulrich Broeckel, M.D., Department of Pediatrics, Medicine and Physiology
Medical College of Wisconsin, Milwaukee, WI
- 11:30 – 12:00 p.m. Session discussions and recommendations
- 12:00 – 1:10 p.m. Lunch and poster sessions
- 1:10 – 1:15 p.m. Remarks from the Office of Research on Women’s Health
Lisa Begg, Dr. P.H., R.N., Research Program Officer, Office of Research on Women’s Health, National Institutes of Health, Bethesda, MD

Young Investigator Award Presentations

- 1:15 – 1:25 p.m. **A prediction error model of placebo analgesia and its extinction**
Luana Colloca, M.D., Ph.D., Department of Pain Translation Symptom Science
University of Maryland School of Nursing, Baltimore, MD
- 1:25 – 1:35 p.m. **Clinical characteristics of TMD at onset and predictors of persistence:
Preliminary results**
Carolina Beraldo Meloto, D.D.S., Ph.D., The Alan Edwards Centre for Research
on Pain, Faculty of Dentistry, McGill University, Montreal, Quebec, Canada
- 1:35 – 1:45 p.m. **The behavioral and neural effects of multipotent stromal cells in rodent
models of persistent pain**
Ke Ren, Ph.D., Department of Neural and Pain Sciences, School of Dentistry and
Program in Neuroscience, University of Maryland, Baltimore, MD
- 1:45 – 1:55 p.m. **Structural and functional abnormalities in chronic orofacial pain disorders:
A meta-analytic study**
Massieh Moayedi, Ph.D., Faculty of Dentistry, University of Toronto, Toronto,
Ontario, Canada
- 1:55 – 2:05 p.m. **Lack of evidence for ectopic sprouting of genetically labeled A β touch
afferents in inflammatory and neuropathic trigeminal pain**
Yong Chen, Ph.D., Departments of Neurology and Neurobiology, Duke University
Durham, NC
- Session 4: Nervous System and Immune/Inflammatory Interactions**
Session Co-Chairs: Yolanda Vallejo-Estrada, Ph.D. and Howard Gendelman, M.D.
Yolanda F. Vallejo-Estrada, Ph.D., Director, Neuroscience of Orofacial Pain
and Temporomandibular Disorders Program, Integrative Biology and
Infectious Diseases Branch, National Institute of Dental and Craniofacial
Research, National Institutes of Health, Bethesda, MD
- 2:05 – 2:30 p.m. **Sexual dimorphism in microglia-neuron signaling in pain neuroplasticity**
Michael W. Salter, M.D., Ph.D., Program in Neuroscience and Mental Health,
Hospital for Sick Children, Toronto, Ontario, Canada and Department of Physiology
University of Toronto, Toronto, Ontario, Canada
- 2:30 – 2:55 p.m. **Role of the immune system in resolution of pain**
Annamieke Kavelaars, Ph.D., Laboratory of Neuroimmunology
Department of Symptom Research, The University of Texas MD Anderson Cancer
Center, Houston, TX
- 2:55 – 3:10 p.m. **Break and poster sessions**

- 3:10 – 3:35 p.m. **Bridge between neuroimmunity and traumatic brain injury; immunopharmacology approaches for diagnosis/treatment of neurodegenerative diseases**
Howard E. Gendelman, M.D., Department of Pharmacology and Experimental Neuroscience, University of Nebraska Medical Center, Omaha, NE
- 3:35 – 4:00 p.m. **Specification and maturation of nociceptive neurons from human pluripotent stem cells**
Xue-Jun Li, Ph.D., Department of Biomedical Sciences
University of Illinois College of Medicine at Rockford, Rockford, IL, and
Department of Bioengineering, University of Illinois at Chicago, Chicago, IL
- 4:00 – 4:25 p.m. **Pain begets pain: Towards a mechanistic understanding of chronic overlapping pain**
Richard J. Traub, Ph.D., Department of Neural and Pain Sciences
University of Maryland School of Dentistry, Baltimore, MD, and University of Maryland Center to Advance Chronic Pain Research, Baltimore, MD
- 4:25 – 4:50 p.m. **Comparing experimental pain sensitivity and endogenous pain modulatory processes in men and women**
Hailey W. Bulls, M.A., Department of Psychology, University of Alabama at Birmingham, Birmingham, AL
- 4:50 – 5:20 p.m. **Session discussion and recommendations**
- 6:30 p.m. **Young investigators and senior scientists pairing dinner at the Marriott Bethesda**

Tuesday, September 13, 2016

- 8:15 – 8:30 a.m. **National Institutes of Health welcome and remarks**
Martha J. Somerman, D.D.S., Ph.D., Director, National Institute of Dental and Craniofacial Research, National Institutes of Health, Bethesda, MD
- Session 5:** **How an Understanding of Molecular Mechanisms and Model Systems can Guide Precision Medicine in the Field of Chronic Pain**
Session Co-Chairs: Mark Hoon, Ph.D. and Allen W. Cowley, Jr., Ph.D.
- 8:30 – 8:55 a.m. **Epigenetic regulation of neuropathic pain**
Lingli Liang, Ph.D., Department of Anesthesiology, New Jersey Medical School Rutgers, State University of New Jersey, Newark, NJ
- 8:55 – 9:20 a.m. **Exploring the epigenetic mechanisms for individual pain vulnerability**
Zhizhong Z. Pan, Ph.D., Department of Pain Medicine, Division of Anesthesiology and Critical Care, The University of Texas MD Anderson Cancer Center, Houston, TX

- 9:20 – 9:45 a.m. **Peripheral nociceptive inputs**
Mark A. Hoon, Ph.D., Chief, Molecular Genetics Unit, National Institute of Dental and Craniofacial Research, National Institutes of Health, Bethesda, MD
- 9:45 – 10:10 a.m. **Mechanisms underlying the sense of touch in orofacial regions of rodents – Implications for treating and preventing disease states that affect touch sensation, such as TMD**
Jianguo Gu, Ph.D., Department of Anesthesiology and Perioperative Medicine School of Medicine, University of Alabama at Birmingham, Birmingham, AL
- 10:10 – 10:25 a.m. **Break and poster sessions**
- 10:25 – 10:50 a.m. **Exploiting the immune response to illuminate host microbiota interactions**
Noah W. Palm, Ph.D., Human and Translational Immunology Program
Yale University School of Medicine, New Haven, CT
- 10:50 – 11:05 a.m. **Arc of research**
Terrie Cowley, President and Co-Founder, The TMJ Association, Milwaukee, WI
John W. Kusiak, Ph.D., Acting Deputy Director, National Institute of Dental and Craniofacial Research, National Institutes of Health, Bethesda, MD
William Maixner, D.D.S., Ph.D., Center for Translational Pain Medicine, Department of Anesthesiology, Duke University School of Medicine, Durham, NC
- 11:05 – 11:30 a.m. **The impact of genetic testing for pain perception in the clinical management of chronic non-cancer pain**
Ashley Brenton, Ph.D., Associate Director, Research and Development
Proove Biosciences, Inc., Irvine, CA
- 11:30 – 12:00 p.m. **Session discussion and recommendations**
- 12:00 – 1:00 p.m. **Lunch and poster sessions**
- 1:00 – 2:15 p.m. **Consolidation of meeting recommendations and closing remarks**
Session Co-Chairs: Allen W. Cowley, Jr., Ph.D. and John W. Kusiak, Ph.D.