

... Moving TMJ Research into the 21st Century

THE SIXTH SCIENTIFIC MEETING  
OF THE TMJ ASSOCIATION

*Comorbid Chronic Pain Conditions -  
Mechanisms, Diagnosis and Treatments*

Federation of American Societies  
for Experimental Biology (FASEB)  
Bethesda, Maryland  
June 5–7, 2011

**TMJA**  
*The TMJ Association, Ltd.*

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The theme of the sixth scientific meeting builds upon evidence from the five previous meetings demonstrating that Temporomandibular Disorders (TMD) are a complex family of conditions influenced by genetics, sex, environmental and behavioral triggers. These mediate the vulnerability of patients to TMD and typically manifest as more than jaw and muscle pain and jaw dysfunction. The sixth meeting focuses on the pathophysiological processes underlying the chronic pain conditions which co-exist with TMD and constitute Comorbid Chronic Pain Conditions (CCPC). They include chronic fatigue syndrome, chronic headache, endometriosis, fibromyalgia, irritable bowel syndrome, interstitial cystitis and vulvodynia.

## Scientific Meeting Program Committee

*Chairman*

**Allen W. Cowley, Jr., Ph.D.**

Medical College of Wisconsin, Milwaukee, WI

**Karen J. Berkley, Ph.D.**

Florida State University, Tallahassee, FL

**Terrie Cowley**

The TMJ Association, Milwaukee, WI

**Joyce A. DeLeo, Ph.D.**

Dartmouth Medical School, Hanover, NH

**Ronald Dubner, D.D.S., Ph.D.**

University of Maryland Dental School, Baltimore, MD

**Wilfrid Jänig, Dr. Med.**

Christian-Albrechts-Universität zu Kiel, Kiel, Germany

**Richard B. Lipton, M.D.**

Albert Einstein College of Medicine, Bronx, NY

**William Maixner, D.D.S., Ph.D.**

University of North Carolina at Chapel Hill, Chapel Hill, NC

**Emeran A. Mayer, M.D.**

University of California, Los Angeles, Los Angeles, CA

**Christian S. Stohler, D.M.D., Dr. Med. Dent.**

University of Maryland Dental School, Baltimore, MD

**Suzanne D. Vernon, Ph.D.**

The CFIDS Association of America, Charlotte, NC

**John T. Watson, Ph.D.**

University of California, San Diego, La Jolla, CA

# The Sixth Scientific Meeting of The TMJ Association

## Comorbid Chronic Pain Conditions - Mechanisms, Diagnosis and Treatments

Sunday, June 5, 2011

- 3:00 – 3:30 p.m.      **Welcome**  
Terrie Cowley, President and Co-founder, The TMJ Association, Milwaukee, WI
- Martin Frank, Ph.D. Executive Director,  
American Physiological Society, Bethesda, MD
- National Institutes of Health Welcome**  
Story C. Landis, Ph.D., Director, National Institute of Neurological Disorders  
and Stroke, National Institutes of Health, Bethesda, MD
- Vivian W. Pinn, M.D., Director, Office of Research on Women's Health,  
National Institutes of Health, Bethesda, MD
- Lawrence A. Tabak, D.D.S., Ph.D., Principal Deputy Director,  
Office of the Director, National Institutes of Health, Bethesda, MD
- Remarks**  
Allen W. Cowley, Jr., Ph.D., Program Committee Chairman,  
Medical College of Wisconsin, Milwaukee, WI
- 3:30 – 4:05 p.m.      **Association of Central Sensitivity Syndromes with Chronic Diseases Having  
Structural Pathology**  
Muhammad B. Yunus, M.D., University of Illinois College of Medicine at Peoria,  
Peoria, IL
- 4:05 – 4:40 p.m.      **Fundamentals of What We Know and Do Not Know about Comorbid Chronic  
Pain Conditions, Including the Role of the Somatomotor and Autonomic  
Nervous Systems**  
Wilfrid Jänig, Dr. Med., Christian-Albrechts-Universität zu Kiel, Kiel, Germany
- 4:40 – 5:15 p.m.      **Capturing 3D Tissue Complexity In Vitro**  
Linda Griffith, Ph.D., Massachusetts Institute of Technology, Cambridge, MA
- 5:15 – 6:15 p.m.      **Food, Drink and Posters**

6:15 – 6:45 p.m.

**Chronic Pain Research Alliance Round Table**

*Chair: K. Kimberly McCleary, President and CEO,  
The CFIDS Association of America, Charlotte, NC*

**Chronic Fatigue Syndrome**

K. Kimberly McCleary, President and CEO,  
The CFIDS Association of America, Charlotte, NC

**Endometriosis**

Mary Lou Ballweg, President and Executive Director,  
Endometriosis Association, Milwaukee, WI

**Temporomandibular Disorders**

Terrie Cowley, President, The TMJ Association, Milwaukee, WI

**Vulvodynia**

Christin L. Veasley, Executive Director,  
National Vulvodynia Association, Silver Spring, MD

Session 1:

**Epidemiology and Clinical Definition of Comorbid Chronic Pain Conditions**

*Session Co-Chairs: Emily L. Harris, Ph.D., M.P.H., Translational Genetics and Genomics  
Program, National Institute of Dental and Craniofacial Research, National Institutes of Health,  
Bethesda, MD*

*Gary J. Macfarlane, Ph.D., University of Aberdeen, Scotland, United Kingdom*

6:45 – 7:10 p.m.

**The Epidemiology of Comorbid Chronic Pain Conditions**

Gary J. Macfarlane, Ph.D., University of Aberdeen, Scotland, United Kingdom

7:10 – 7:35 p.m.

**Human Genetic Association Studies of Comorbid Chronic Pain Conditions**

Shad B. Smith, Ph.D., University of North Carolina at Chapel Hill, Chapel Hill, NC

7:35 – 8:00 p.m.

**Patterns and Impact of Comorbidity of Headache and Other Chronic Pain  
Conditions in the U.S. General Population**

Tarannum Lateef, M.D., M.Sc., Genetic Epidemiology Research Branch, National  
Institute of Mental Health, National Institutes of Health, Bethesda, MD

**Monday, June 6, 2011**

8:00 – 8:30 a.m.

**National Institutes of Health Welcome and Directives**

Isabel Garcia, D.D.S., M.P.H., Acting Director, National Institute of Dental and  
Craniofacial Research, National Institutes of Health, Bethesda, MD

Barbara M. Alving, M.D., Director, National Center for Research Resources,  
National Institutes of Health, Bethesda, MD

Josephine P. Briggs, M.D., Director, National Center for Complementary and  
Alternative Medicine, National Institutes of Health, Bethesda, MD

Robert H. Carter, M.D., Deputy Director, National Institute of Arthritis and  
Musculoskeletal and Skin Diseases, National Institutes of Health, Bethesda, MD

- Session 2: Translational Comorbid Chronic Pain Conditions Research and Therapeutic Developments - Human and Animal Model Systems**  
*Session Co-Chairs: Andrea Sawczuk, D.D.S., Ph.D., Division of Clinical Research Resources, National Center for Research Resources, National Institutes of Health, Bethesda, MD*  
*Michael W. Salter, M.D., Ph.D., Hospital for Sick Children and University of Toronto Toronto, Ontario, Canada*
- 8:30 – 8:35 a.m. **Clinical and Translational Science Awards Pain Researchers Interest Group**  
Andrea Sawczuk, D.D.S., Ph.D., Division of Clinical Research Resources, National Center for Research Resources, National Institutes of Health Bethesda, MD
- 8:35 – 8:55 a.m. **Chronic Widespread Pain: Models to Mechanisms**  
Jon D. Levine, M.D., Ph.D., University of California, San Francisco, San Francisco, CA
- 8:55 – 9:15 a.m. **Neuronal-Glial Interactions in Pathological Pain**  
Michael W. Salter, M.D., Ph.D., Hospital for Sick Children and University of Toronto, Toronto, Ontario, Canada
- 9:15 – 9:35 a.m. **Molecular and Genetic Analysis of Pain-Sensing Neurons in Dorsal Root Ganglia**  
Xinzhong Dong, Ph.D., Johns Hopkins University of Medicine, Baltimore, MD
- 9:35 – 9:55 a.m. **Neural Mechanisms of Pelvic Visceral Pain, Endometriosis, Cannabinoids and Pelvic Pain Organ Function**  
Karen J. Berkley, Ph.D., Florida State University, Tallahassee, FL
- 9:55 – 10:15 a.m. **Discussion led by Dr. Andrea Sawczuk**
- 10:15 – 10:35 a.m. **Break**
- 10:35 – 10:40 a.m. **National Institutes of Health Pain Consortium**  
John W. Kusiak, Ph.D., Director, Molecular and Cellular Neuroscience Program, National Institute of Dental and Craniofacial Research, National Institutes of Health, Bethesda, MD
- 10:40 – 11:00 a.m. **Epigenetics in Pain and Analgesia – Pharmacogenetics – Implications for Therapeutics**  
Jörn Lötsch, Dr. Med., Goethe-University, Frankfurt am Main, Germany
- 11:00 – 11:20 a.m. **Epigenetic Regulation of Visceral Pain Due to Neonatal Inflammatory Insult**  
Sushil K. Sarna, Ph.D., University of Texas Medical Branch, Galveston, TX
- 11:20 – 11:40 a.m. **Vulvodynia and Comorbid Chronic Pain Conditions – A Population-Based Study**  
Barbara D. Reed, M.D., M.S.P.H., University Michigan, Ann Arbor, MI
- 11:40 – 12:00 p.m. **Discussion led by Dr. Michael Salter**
- 12:00 – 1:15 p.m. **Lunch and Posters**

- Session 3: Experimental Models and Systems Approaches to Address Mechanisms of Chronic Pain and Related Comorbid Conditions**  
*Session Co-chairs: Andrew Greene, Ph.D., Medical College of Wisconsin, Milwaukee, WI  
Douglas A. Lauffenburger, Ph.D., Massachusetts Institute of Technology, Cambridge, MA*
- 1:15 – 1:30 p.m. **Comments**  
Donald M. Birk, Chairman, The TMJ Association, Milwaukee, WI  
Kevin D. Clark, Vice Chair, The TMJ Association, Milwaukee, WI
- 1:30 – 1:50 p.m. **Chronic Clinical Pain Conditions are Distinct and Specifically Interact with the Brain**  
A. Vania Apkarian, Ph.D., Northwestern University, Chicago, IL
- 1:50 – 2:10 p.m. **Primary Afferent Nociceptors and the Circuits That They Engage to Produce Chronic Pain**  
Allan I. Basbaum, Ph.D., University of California, San Francisco, San Francisco, CA
- 2:10 – 2:30 p.m. **Cognitive Ontologies for Neuropsychiatric Phenomics Research**  
Robert M. Bilder, Ph.D., University of California, Los Angeles, Los Angeles, CA
- 2:30 – 2:50 p.m. **Understanding Cell Signaling Dysregulation in Inflammation Contexts: From Qualitative Pathway Maps to Quantitative Network Operations**  
Douglas A. Lauffenburger, Ph.D., Massachusetts Institute of Technology, Cambridge, MA
- 2:50 – 3:10 p.m. **Discussion led by Drs. Andrew Greene and Douglas Lauffenburger**
- 3:10 – 3:30 p.m. **Break**
- Session 4: Approaches and Emerging Findings from Large Cohort Studies - Risk Domains and Determinates of Comorbid Chronic Pain Conditions**  
*Session Chair: Suzanne D. Vernon, Ph.D. Scientific Director,  
The CFIDS Association of America, Charlotte, NC*
- 3:30 – 4:00 p.m. **Unraveling Complex Persistent Pain Conditions**  
William Maixner, D.D.S., Ph.D., University of North Carolina at Chapel Hill, Chapel Hill, NC
- 4:00 – 4:30 p.m. **The Multidisciplinary Approach to the Study of Chronic Pelvic Pain (MAPP) Research Network**  
Emeran A. Mayer, M.D., University of California Los Angeles, Los Angeles, CA
- 4:30 – 5:00 p.m. **Migraine and TMJ Disorders**  
Richard B. Lipton, M.D., Albert Einstein College of Medicine, Bronx, NY
- 5:00 – 5:30 p.m. **Discussion led by Dr. Suzanne Vernon**
- 6:30 p.m. **Dinner at Bethesda Marriott Hotel, 5151 Pooks Hill Road, Bethesda, MD**

Tuesday, June 7, 2011

8:30 – 11:30 a.m.     **Breakout Working Groups**

**Group 1. Epidemiology and Sex Differences in Comorbid Chronic Pain Conditions**

*Co-Chairs: Gary J. Macfarlane, Ph.D., University of Aberdeen, Scotland, United Kingdom  
Emily Harris, Ph.D., Translational Genetics and Genomics Program, National Institute of Dental and Craniofacial Research, National Institutes of Health, Bethesda, MD*

**Group 2. Diagnosis of Comorbid Chronic Pain Conditions: Phenotypes, Genotypes and Biopsychosocial Factors**

*Co-Chairs: Emeran A. Mayer, M.D., University of California Los Angeles, Los Angeles CA  
Michael W. Salter, M.D., Ph.D., Hospital for Sick Children and University of Toronto, Toronto, Ontario, Canada*

**Group 3. Basic and Translational Studies and Animal Models**

*Co-Chairs: Karen J. Berkley, Ph.D., Florida State University, Tallahassee, FL  
Andrew S. Greene, Ph.D., Medical College of Wisconsin, Milwaukee, WI*

**Group 4. Next Generation Therapies for Comorbid Chronic Pain Conditions**

*Co-Chairs: Suzanne D. Vernon, Ph.D., Scientific Director, The CFIDS Association of America, Charlotte, NC  
Linda Griffith, Ph.D., Massachusetts Institute of Technology, Cambridge, MA*

**Groups to Develop Consensus on:**

1. What studies should be conducted to distinguish Comorbid Chronic Pain Conditions (CCPC) from other pain syndromes?
  - a. Criteria needed to establish case definition of CCPC
  - b. The “tools” to assess and diagnose CCPC
2. What research areas are most important for the research community to pursue?
  - a. Best approaches
  - b. Necessary resources
3. What are the best approaches to develop treatment modalities for CCPC?
4. What approaches are necessary to train, foster, and sustain a CCPC research community?
5. What are the high-risk research areas that have the potential to substantially advance our understanding of CCPC?

11:30 – 12:30 a.m.     **Lunch and Poster Session**

12:30 – 2:30 p.m.     **Groups’ Presentations and Recommendations – Discussion and Modifications**

2:30 – 3:00 p.m.     **Overall Summary of Meeting Recommendations and Action Items**

3:00 p.m.     **Closing Remarks/Evaluation  
Remarks**

Drs. Allen W. Cowley, Jr. and John W. Kusiak

“I have been suffering from TMJ symptoms for two years. It has greatly affected my quality of life. It is a constant struggle dealing with pain. I feel alone in this, like I am suffering in silence. Nobody knows...” *Stephanie*

“I am a Fibromyalgia patient with TMJ. I have been suffering with this for years and am very glad to hear about your upcoming conference concerning the overlapping of these conditions. FM and TMJ have been especially traumatic for me as my career was being a bassoonist with The Houston Grand Opera. I have had to retire and am on disability due to these conditions. Please continue to explore the relationships of these diseases to offer some hope to those of us who are so ill. Thank you.” *Marilyn*

“I have just gone through nearly ten years of problems that as of yesterday appear to be mostly related to TMJ. I have had neck, upper back, shoulder, elbow, wrist and hand pain for some years and in the past two years developed severe migraines. For the past eight years I have experienced gradually increasing chronic fatigue symptoms. I was seen by over 20 VA doctors (I am a service-connected, disabled veteran) and about five dentists and no one had any idea what was wrong. My wife decided I was just a malingerer and divorced me, leaving me with very little income and I was forced to move in with my mid-70-year-old parents.” *Ken*

“I had an illness that took three years to diagnose, and in that three years I was in constant pain in the abdominal area. Because of this I was clenching my teeth in order to overcome pain so I could sleep as pain was there all the time. I then had my wisdom teeth removed and 4 surgeries in order to find the reason for my abdominal pain. It was discovered that I had endometriosis around the Pouch of Douglas, which meant that the abdominal region was inflamed all the time. It took one additional surgery to remove the endometriosis. During this time I started getting terrible headaches, sinus problems, popping in the jaw, pain over the eyes, a swollen and throbbing mouth, dizziness (severe), pain around the neck, shoulders and back which would lead to the front, like a heart attack-type pain. I was having trouble swallowing, chewing and basically standing up straight. When I stood up it felt like I was going to pass out. Eventually I was diagnosed with TMJ.” *Katrina*

**The TMJ Association is a national, non-profit organization whose mission is to improve the quality of health care and lives of everyone affected by temporomandibular disorders**