Preface

Patients suffering from temporomandibular joint (TMJ) disorders are a loosely defined group of individuals whose symptoms are characterized by pain, chiefly of musculoskeletal origin, in the head and neck region. In the general population, slightly more women are affected by these disorders than men, but among patients seeking medical attention at primary and even more at tertiary care centers, the overwhelming majority are females of childbearing age. Although the physical attributes appear to be similar between cases in primary and tertiary care settings, often remarkable differences with respect to severity, persistence, and impact exist between these patient populations. Significant case heterogeneity, including comorbid conditions, poses diagnostic difficulty in both research and clinical practice. There is currently no specific treatment for TMJ diseases and disorders. Patients suffering from these musculoskeletal pain conditions are often treated in questionable manners using strategies that have little or no science base.

The Milwaukee-based patient advocacy group, The TMJ Association, a non-profit-making foundation founded in 1986 (www.tmj.org), with co-sponsorship by the National Institutes of Allergy and Infectious Diseases, Child Health and Human Development, Dental and Craniofacial Research, and Neurological Disorders and Stroke, and the Office of Research on Women's Health brought together over 30 scientists to explore and discuss topics relevant to the understanding of craniofacial pain and jaw dysfunction, as manifested in temporomandibular joint diseases and disorders. The Workshop, entitled: 'Moving TMJ Research into the 21st Century' was held at

the Conference Center of the Federation of American Societies of Experimental Biology in Bethesda, Md., May 22–23, 2000. Experts in arthritis, TMJ pathology, bone, joint, and muscle physiology, neurobiology, pain, genetics, endocrinology, immunology, wound healing and tissue engineering presented papers and engaged in working groups, charged to identify the immediate and long-range research needs that will advance the understanding of the etiopathogenesis of TMJ injury and diseases that will ultimately lead to evidence-based treatments for these conditions. Nearly half of the participants work in the head and neck field on subjects directly related to TMJ diseases and disorders, while the other scientists focus on research questions outside of the craniofacial complex. Because of the quality of the papers and the high level of scientific interchange they fostered, all who participated in the first annual meeting of the TMJ Association considered it a success. The goal of the organizers, to get people together and get them exchanging ideas, was met.

After the first day of oral presentations, workshop participants engaged in productive discussions, defining critical future research directions, including the specific obstacles that hinder progress in this field. Participants called for animal, cell culture and computer models to study the intact, injured and diseased TMJ; the development of diagnostic taxonomies based on mechanistic understanding of TMJ pain, inflammation and degeneration; the characterization of the clinical disease spectrum using advanced biotechnologies; the study of the biomechanics of the intact, injured and diseased TMJ; research on the maturation, adaptation, and response to TMJ inju-

ry and disease, including the unique tissue repair problems in TMJ patients. Additional areas of needed research include the screening of existing transgenic models for the presence of TMJ pathology, the exploration of novel reconstruction methodologies, including the potential of protein and gene therapy for TMJ pain and repair.

Papers presented during the first day of the meeting are included in this special issue of *Cells, Tissues, Organs*. The diversity of their topics and their synthetic approach form the type of papers that we hope will become the standard in *Cells, Tissues, Organs*. We thank the authors for their dedication and hard work and hope that this volume will reflect a comprehensive state-of-the-art summary of

basic research related to TMJ diseases and disorders. We are delighted to be able to present this special topics issue, 'New Perspectives on Temporomandibular Disorders', as a complete number of *Cells, Tissues, Organs*. It represents the breadth of science that appears in the journal and, especially, our areas of focus on tissue engineering artificial organs, in vitro systems, and integrative neuroscience. We hope that this issue of the journal will be useful to scientists both in and out of the TMJ field, and to patients and their advocates as well.

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