Tissue Tek Sakura

The critically acclaimed laboratory standard for more than forty years, Methods in Enzymology is one of the most highly respected publications in the field of biochemistry. Since 1955, each volume has been eagerly awaited, frequently consulted, and praised by researchers and reviewers alike. Now with more than 300 volumes (all of them still in print), the series contains much material still relevant today—truly an essential publication for researchers in all fields of life sciences. Basic Principles, Specialized Uses, and Genetic Applications LCM and its application in genomics and proteomics Fluorescence in situ hybridization of LCM isolated nuclei

from paraffin sections Noncontact laser catapulting for the functional genomics and proteomics Use of LCM for clonal analysis, in carcinoma analysis, to assess development, in complex tissue, in pathology, gene discovery, and more

This is the fourth Special Issue in Pharmaceuticals within the last six years dealing with aspects of radiopharmaceutical sciences. It demonstrates the significant interest and increasing relevance to ameliorate nuclear medicine imaging with PET or SPECT, and also radiotherapeutical procedures.Numerous targets and mechanisms have been identified and have been under investigation over the previous years, covering many fields of medical and clinical research. This

development is well illustrated by the articles in the present issue, including 13 original research papers and one review, covering a broad range of actual research topics in the field of radiopharmaceutical sciences.
Immune responses within the brain are still scarcely explored. Nerve tissue damage is accompanied by the activation of glial cells, primarily microglia and astroglia, and such activation is responsible for the release of cytokines and chemokines that maintain the local inflammatory response and actively recruit lymphocytes and monocytes to the damaged areas. Theoretically, these responses are designed to repair the brain damage. However, alterations, or a chronic perpetuation of these

responses may underlie a number of neuro-pathologies. It is thought that each inflammatory scenario within the brain have a specific biochemical footprint characterized by the release of determined cytokines, chemokines and growing factors able to define particular immunological responses. Alongside, glial cells transform their cell body, become larger and develop higher number of branches adopting an active morphological phenotype. These changes are related with the search of interactions with other cells, such as bystander resident cells of the brain parenchyma, but also cells homing from the blood stream. In this process, microglia and astrocytes communicates with other cells by the formation of specific intercellular

connections that are still poorly understood. These interactions are complex and entail the arrangement of cytoskeletal compounds, secretory and phagocytic domains. In this particular crosstalk there is a two-way communication in which glial cells and target cells come together establishing interfaces with specific information exchange. This way, glial cells orchestrate the particular response recruiting cellular subsets within the central nervous system and organizing the resolution of the brain damage. In this Frontiers Research Topic, we compile a selection of articles unfolding diverse aspects of glial-derived inflammation, focused on neurodegenerative diseases and other nervous system disorders, with

special emphasis on microglia/macrophages as leading actors managing neuro-immunity.
A transgenic animal is one that is genetically modified to carry genes from another species. Transgenic species can be raised to carry potentially useful genes from a variety of species. While the topics of genetic engineering and cloning are controversial, the reality is that these technologies offer tremendous benefits to society - from offering a framework for developing and screening medical therapies, to enhancing the safety and nutrition of the food we eat. One potential application of research into transgenic animal technology is the creation of domestic animals genetically designed

to express a certain human disease and therefore serve as models for the study and treatment of human illnesses. Although many mouse models of human diseases are available today, such models in large domestic animals physiologically more similar to humans are sparse and critically needed. Further research in this field will undoubtedly uncover many more direct and indirect benefits of this technology. Transgenic animal technologies and the ability to introduce functional genes into animals have revolutionized our ability to address complex biomedical and biological questions. This well-illustrated handbook covers the technical aspects of gene transfer - from molecular methods to whole

animal considerations - for important laboratory and domestic animal species. It describes methodologies as employed by leading laboratories and is a key resource for researchers, as well as a tool for training technicians and students. This second edition incorporates updates on a variety of genetic engineering technologies ranging from microinjection and ES cell transfer to nuclear transfer in a broad range of animal modeling systems. Contains a comprehensive collection of transgenic animal and gene transfer methods Discusses background and introduction to techniques and animal systems Teaches practical step-by-step protocols New section on analysis Plant Proteomic Research 3.0

Nanomedicine
Systematic Approach to Evaluation of Mouse Mutations
Bone Marrow Adiposity: Establishing Harmonized, Mechanistic and Multidisciplinary Approaches to Reach Clinical Translation
Cell Imaging Techniques

Angiogenesis and lymphangiogenesis have become attractive targets for drug therapy because of their key roles in a broad spectrum of pathological disease states ranging from macular degeneration to tumor growth and metastasis. A substantial increase in the research

effort over the past decade has deepened our understanding of the basic mechanisms underlying angiogenesis and lymphangiogenesis, promoting the development of promising therapeutics for the clinical management of vascular-related diseases. These extraordinary advancements have been built upon a vast array of diverse analytical techniques developed globally throughout the field. Over the years, these methods have evolved to suit the specific needs of

different researchers and experimental scenarios, resulting in a myriad of technical variants of basic assay approaches. "The Textbook of Angiogenesis and Lymphangiogenesis: Methods and Applications" is an up-to-date comprehensive textbook on angiogenesis and lymphangiogenesis techniques and applications. This volume is designed to embody the collective works of experts in the clinical as well as the basic research arenas who have significantly contributed

to the development and application of techniques in all areas of angiogenesis and lymphangiogenesis. Each chapter introduces and discusses one or a group of closely related techniques and convey step-by-step protocol information and detailed technical guidance to the reader. Emphasis has been placed on explanatory illustrations, critical technical steps as well as divulging information on the benefits and caveats of specific practices related to the methods

discussed. This manual is intended to serve as a written guide for both newcomers and established professionals in the field.

The Guide to Investigation of Mouse Pregnancy is the first publication to cover the mouse placenta or the angiogenic tree the mother develops to support the placenta. This much-needed resource covers monitoring of the cardiovascular system, gestational programming of chronic adult disease, epigenetic regulation, gene imprinting, and stem

cells. Offering detailed and integrated information on how drugs, biologics, stress, and manipulations impact pregnancy in the mouse model, this reference highlights techniques used to analyze mouse pregnancy. Joining the ranks of much referenced mouse resources, The Guide to Investigation of Mouse Pregnancy is the only manual providing needed content on pregnancy in animal models for translational medicine and research. Provides instruction on how to

collect pre-clinical data on pregnancy in mouse models for eventual use in human applications Describes the angiogenic tree the mother's uterus develops to support pregnancy and the monitoring of pregnancy-induced cardiovascular changes Educates readers on placental cell lineages, decidual development including immune cells, epigenetic regulation, gene imprinting, stem cells, birth and lactation Discusses how stress, environmental toxicants

and other manipulations impact upon placental function and pregnancy success

This volume provides descriptions of the occurrence of the UPR, methods used to assess it, pharmacological tools and other methodological approaches to analyze its impact on cellular regulation. The authors explain how these methods are able to provide important biological insights. This volume provides descriptions of the occurrence of the UPR, methods used to assess it,

pharmacological tools and other methodological approaches to analyze its impact on cellular regulation. The authors explain how these methods are able to provide important biological insights.

In this book, a select group of researchers has contributed their state-of-the-art methodologies on protein profiling and identification of disease biomarkers in tissues, microdissected cells and body fluids. The book integrates biochemistry, pathology, analytical

technology, bioinformatics, and proteome informatics. Experimental approaches are thoroughly detailed and explained through a step-by-step instructional format that ensures successful results.
Clinical Proteomics
Targets, Tracers and Translation – Novel Radiopharmaceuticals Boost Nuclear Medicine
Arthritis Research
Methods in Bioengineering
Myokines, Adipokines, Cytokines in Muscle Pathophysiology

The number of scientists

and laboratories involved with brain mapping is increasing exponentially; and the second edition of this comprehensive reference has also grown much larger than the first (published in 1996), including, for example, five chapters on structural and functional MRI where the fi This Research Topic is devoted to arm and hand movement in health as well as in several disease conditions. It is a collection of several original research papers and reviews, clinical case studies, hypothesis and theory articles,

opinions, commentaries, and methods papers that cover some important aspects of the topic from distinct scientific perspectives. We invite the readers to appreciate the range in methodologies and experimental designs that together have led to widen our understanding of this especially broad field of research.

Gene therapy is at the forefront of current techniques that aim to re-establish functional connectivity, after an insult to the brain, spinal cord or peripheral nerves. Gene

therapy makes the most of the existing cellular machinery and anatomical networks to facilitate molecular changes in DNA, RNA and proteins aiming to repair these disrupted connections. For instance, gene therapy is currently being used to target genes in conditions including spinal cord injury, amyotrophic lateral sclerosis, spinal muscular atrophy, stroke and multiple sclerosis, amongst others. The various delivery routes include viral-vectors, genetically modified cellular implants, naked

DNA/RNA, liposomes, Cre-Lox recombination, optogenetics and nanoparticles. In particular, gene therapy aims to restore function by augmenting the expression of neuroprotective/axonal growth-promoting neurotrophic factors (e.g., BDNF, CNTF, NGF and GDNF, etc.). Furthermore, the downstream intracellular signalling pathways after receptor activation can also be targeted (e.g., mTor, MAPK, etc.). On the other hand, gene therapy can also be used to downregulate

and/or remove faulty mutated genes, such as those contributing to disease progression or that inhibit axonal regeneration (e.g., SOD-1, TDP-43, Nogo-A, MAG, OmGP, etc.). Depending on the methodology, these genes, for instance, can be silenced, removed or replaced to alleviate the underlying pathology. As such, gene therapy can transform a largely toxic and inhibitory milieu surrounding a neuronal/axonal insult into a growth-permissive environment that will

ultimately aid neuronal survival and functional regeneration. Moreover, gene therapy has the capacity to target non-neuronal cells and can be even used for neuroanatomical tract tracing. Ultimately, the principal outcome of gene therapy is to functionally restore damaged neuronal and/or axonal connections irrespective of the system it is being introduced in to. This Research Topic is devoted to work using gene therapy for the both the central and/or peripheral nervous system.

Cell imaging methodologies have now become essential research tools for a variety of disciplines that traditionally had not relied on them. In Cell Imaging Techniques: Methods and Protocols, distinguished international researchers describe in detail their state-of-the-art methods for the microscopic imaging of cells and molecules. The authors cover a wide spectrum of complementary techniques, including such methods as fluorescence microscopy, electron microscopy, atomic force microscopy, and laser

scanning cytometry. Additional protocols on confocal scanning laser microscopy, quantitative computer-assisted image analysis, laser-capture microdissection, microarray image scanning, near-field scanning optical microscopy, and reflection contrast microscopy round out this eclectic collection of cutting-edge imaging techniques now available. The authors also discuss preparative methods for particles and cells by transmission electron microscopy. The protocols follow the successful

Methods in Molecular Biology series format, each offering step-by-step laboratory instructions, an introduction outlining the principles behind the technique, lists of the necessary equipment and reagents, and tips on troubleshooting and avoiding known pitfalls. Timely and highly practical, Cell Imaging Techniques: Methods and Protocols provides researchers and clinicians with a richly useful guide to selecting and performing the best imaging method from a bewildering variety of

microscopy-based techniques.
Transgenic Animal Technology
Tumor Suppressor Genes
ImmunoPhysics and ImmunoEngineering
Brain Mapping: The Methods
Systems Biology and Bioinformatics in Gastroenterology and Hepatology
This publication describes in detail some animal models of outstanding importance for the study of human neurological diseases. An introductory article provides a definition of animal models, looks at the

history and ethics of their use, and highlights the reasons why animal models are so useful in scientific research. The following chapters present some of the newer models which play a key role in the study of amyotrophic lateral sclerosis, multiple sclerosis, stroke and peripheral neuropathy. Their specific features are detailed in the method section of each paper, and their application to the study of human neurological diseases is discussed in a comprehensive manner, i.e. limits and challenges posed by these

models are evaluated and potential improvements suggested. A valuable single source of information, this book is recommended reading for neuroscientists as well as for neurologists and neurosurgeons interested in preclinical research on human neurological diseases. Microarray technology provides researchers in the life sciences with a revolutionary tool for measuring gene expression. However, this highly developed process involves multiple steps, from sample selection to data analysis,

*each susceptible to potentially costly errors. Without sound quality control, experimental microarrays may produce useless or, even worse, misleading results. Microarray Quality Control provides a comprehensive resource for ensuring quality control in every step of this complex process. From experimental design to data processing, analysis, and interpretation, the emphasis in this text remains on practical advice for each stage of planning and running a microarray study. Chapters cover: * Quality of biological samples * Quality of*

*DNA * Hybridization protocols Scanning * Data acquisition * Image analysis * Data analysis Written for the broad group of workers-biologists, mathematicians, statisticians, engineers, physicians, and computational scientists-involved in microarray studies, Microarray Quality Control features a straightforward style easily accessed by various disciplines. Useful checklists and tips help ensure the integrity of results, and each chapter contains a thorough review of pertinent literature. The only complete, systematic treatment of the*

topic available, Microarray Quality Control offers students and practitioners an invaluable resource for improving experimental quality and efficiency.

Experts from The Jackson Laboratory and around the world provide practical advice on everything from how to establish a colony to where to go for specific mutations. Systematic Approach to Evaluation of Mouse Mutations includes information on medical photography, grafting procedures, how to map the genes and evaluate the special biological characte

The Microwave heating has not only revolutionized the food industry but also has extended its wings widely towards its multidimensional applications. Thus it has opened new vistas of potential research in science and technology. The book is compiled into Seventeen Chapters highlighting different aspects varying from epistemological discussion to applicability of conceptual constructs. The inclusion of discussion on the avenues in the field of Chemistry, Health Infectious Diseases, Immunotherapy, Diagnostics,

Antifibrotics, Toxicology and Gene Medicine
Methods of Adipose Tissue Biology
Breast Cancer Research Protocols
Plasticity and Reconstruction of Neural Network in Brain Injury
3D Tissue Engineering

This volume in the Methods in Enzymology series comprehensively covers Infectious Diseases, Immunotheraphy, Gene Medicine, Diagnostics and Toxicology of Nanomedicine. With an international board of authors, this volume is split into sections that cover subjects such as Nanomedicines in Immunotherapy, Nanomedicine toxicity, and Diagnostic

Nanomedicine. Comprehensively covers infectious diseases, immunotherapy, gene medicine, diagnostics, and toxicology of nanomedicine International board of authors Split into sections that cover subjects such as Nanomedicines in Immunotherapy, Nanomedicine Toxicity, and Diagnostic Nanomedicine This edited book Dengue - Immunopathology and Control Strategies contains eight chapters divided in three sections that underline important aspects of dengue virus, the most prevalent and life-threatening arbovirus in the world, including virus replication cycle and pathology, diagnostic methods, and control. The first section brings knowledge on basic aspects of dengue virus replication which can be associated to its immunopathology. The second section

includes two chapters on dengue diagnosis and emphasizes that in spite of the many scientific efforts, this subject continues to be a drawback in the disease control. Vector-based control strategies are discussed in the third section which also contains a chapter on regulation of dengue vaccines and the experience of Mexico in the implementation of the unique registered dengue vaccine.

Mucosal Immunology, now in its fourth edition, is the only comprehensive reference covering the basic science and clinical manifestations of mucosal immunology. Most infectious agents enter the body through the various mucous membranes, and many common infections take place in or on mucous membranes, making this subject an area of singular importance in the field of immunology. This book

contains new research data, exceptional illustrations, original theory, a new perspective, and excellent organization. It covers immune system topics, such as inductive and effector tissues and cells, and development and physiology of the mucosal barrier; diseases in the digestive system, respiratory tract, and genitourinary tract; and immunodeficiency. The most comprehensive text on mucosal immunology from internationally recognized experts in the field Includes exceptional color illustrations, new research data, original theory and information on all mucosal diseases Contains nine new chapters and an expanded appendix

The authors' results show that ischemia differentially activates endogenous neural precursors

residing in diverse locations of the adult primate central nervous system. A limited endogenous potential for postischemic neuronal repair exists in neocortex and striatum, but not in the hippocampus proper of the adult macaque monkey brain. The presence of putative parenchymal progenitors and of sustained progenitors in germinative centers opens novel possibilities for precursor cell recruitment.

The Guide to Investigation of Mouse Pregnancy

A Laboratory Handbook

Methods and Protocols

The glycinergic system of the CNS of the sea lamprey, Petromyzon marinus. A developmental study and comparison with GABA.

3D Modelling of Mammalian Embryos and Organs

Arthritis Research: Methods and Protocols is a compendium of data pertinent to the methods and protocols that have contributed to recent advances in molecular medicine in general, but to the molecular basis of rheumatic disease in particular. These volumes details novel technologies, some of which are still evolving and whose impacts are yet to be determined. Leaders in the field contribute to cover such exciting and cutting edge topics as imaging and immunohistochemistry, analysis of cartilage and bone catabolism, immunobiology,

and cell trafficking. In Volume 1, authors discuss synovial joint morphology, histopathology, and immunohistochemistry, cartilage matrix and bone biology, and cell trafficking, migration and invasion. Volume 2 is broken up into sections that cover immunobiology and T cells, animal models of arthritis, and applications of new technologies, such as Differential Display Reverse Transcription-Polymerase Chain Reaction (DDRT-PCR), to define novel therapeutic targets. Both volumes combine to produce a concise set of protocols condensing decades of

experience and expertise. Arthritis Research: Methods and Protocols will be a valuable tool for basic research investigators, clinician scientists, pathologists, immunologists, and biochemists looking to stay current in their fields.

The next healthcare revolution will apply regenerative medicines using human cells and tissues. The aim of the regenerative medicine approach is to create biological therapies or substitutes in vitro for the replacement or restoration of tissue function in vivo lost through failure or

disease. However, whilst science has revealed the potential, and early products have shown the power of such therapies, there is an immediate and long-term need for expertise with the necessary skills to face the engineering and life science challenges before the predicted benefits in human healthcare can be realized. Specifically, there is a need for the development of bioprocess technology for the successful transfer of laboratory-based practice of stem cell and tissue culture to the clinic as therapeutics through the application of

engineering principles and practices. This Special Issue of Bioengineering on Stem Cell Bioprocessing and Manufacturing addresses the central role in defining the engineering sciences of cell-based therapies, by bringing together contributions from worldwide experts on stem cell biology and engineering, bioreactor design and bioprocess development, scale-up, and manufacturing of stem cell-based therapies.

Reviews all the known tumor suppressor genes, explains how they work, and describes how they were discovered and

isolated. In many cases, the authors discuss specific genes that are frequently involved in hereditary or sporadic cancers. They also provide a detailed guide to using powerful molecular genetic, cytogenetic, proteomic, and cell biological strategies to discover and isolate novel tumor suppressor genes and their targets. The second volume of this two-volume set, Tumor Suppressor Genes, Volume 2: Regulation, Function, and Medical Applications, shows how to explore the cell biology and biochemical function of such encoded proteins, to study its

physiological role in vivo, and to use information on TSGs to develop diagnostic and therapeutic strategies for cancer.

Tissue engineering is an emerging field that involves the combination of materials, cells, and other signals or growth factors to generate new tissue that can be used to repair or replace damaged tissues due to injury or disease. This groundbreaking volume presents the latest methods and protocols for systematically building tissues in 3D configuration outside the body, as well as providing techniques

that modulate repair and regeneration processes that occur "in situ" (in their natural or original place).
Distribution and Phenotype of Proliferating Cells in the Forebrain of Adult Macaque Monkeys after Transient Global Cerebral Ischemia
Acta Histochemica Et Cytochemica
The Laboratory Mouse
Glial Cells: Managers of Neuro-immunity

Zika Virus Biology, Transmission, and Pathways: The Neuroscience of Zika, Volume One provides a detailed introduction to the

molecular biology of the Zika virus and its features, transmission, and impact on neurological systems. Designed to better readers' understanding of the Zika virus, this volume features chapters on the immune response, molecular mechanisms, and other areas to better understand underlying pathways. This book has applicability for neuroscientists, neurologists, virologists and anyone working to better understand the evolution and pathogenesis of Zika virus-related conditions. Presents the most comprehensive coverage of a broad range of topics related to the neuroscience of Zika, including transmission and virus biology Contains an abstract, key facts, a mini dictionary of terms,

and summary points to aid in understanding in each chapter Features chapters on Zika vectors and fetal imaging Includes coverage of microcephaly and developmental delays and examines Zika outbreaks in Brazil, Puerto Rico and India Discusses unique topics in Zika biology, associated neuro-inflammation, and impacts on neurological systems

Among animals used in research, teaching and testing, mice are now widely recognized as the most important model for human diseases and disorders. They comprise the majority of all experimental mammals and tend to be the model of choice used for research into many diseases/disorders including

cancer, heart disease, asthma, Alzheimer's, Down syndrome, deafness, osteoporosis, obesity, diabetes and even mental health research. Additionally the laboratory mouse continues to play a widely publicized vital role in the human genome project. One of the most time-consuming activities in research laboratories is looking up information specific to the species or strain of animal being used. This book, part of the highly successful Handbook of Experimental Animals series, allows the user quick access to any point of interest on the mouse as an experimental model. * Edited by Hans Hedrich, Hannover Medical School * Comprehensive reference source written by international experts *

Well-illustrated with high quality detailed images * Two-color, user-friendly format combined with color plate sections

This issue of Surgical Pathology Clinics takes a departure from its presentation of Differential Diagnosis, Histopathology, Staging, and Prognosis of tumors in different anatomic sites. This special issue is devoted to topics in pathology informatics as they relate to the practice of surgical pathology. Topics include: Basics of Information Systems (Hardware, Software); Networks, Interfaces and Communications; Databases; Data Representation, Coding and Communication Standards; Laboratory Information Systems; Enhancing and Customizing Laboratory

Information Systems to Improve/Enhance Pathologist Workflow; Laboratory Management and Operations; Specialized Laboratory Information Systems; Middleware and Laboratory Automation; Synoptic Reporting in Anatomical Pathology; Bar Coding and Tracking; Molecular Pathology Informatics; Informatics and Autopsy Pathology; Pathology Informatics and Project Management; Digital Imaging Basics; Use of Digital Images in Clinical Practice; Whole Slide Imaging; Telepathology; Mobile Technologies for the Surgical Pathologist; Image Analysis; Advanced Imaging Techniques; Healthcare Information Systems;

Data Security and Reliability; Role of Informatics in Patient Safety and Quality Assurance; Role of Pathology Informatics in IT Leadership; Selection and Implementation of New Information Systems; Biomedical Informatics and Research Informatics; Training in Pathology Informatics; and Building Tools for the Surgical Pathologist: Next Generation Pathologist. Editor of this issue, Dr Anil Parwani, is Professor of Pathology and Biomedical Informatics and Director of Division of Pathology Informatics. Dr. Parwani is well known as expert in the area of Anatomical Pathology Informatics, which includes design of quality assurance tools, tissue banking

informatics, clinical and research data integration and mining, synoptic reporting in anatomical pathology, clinical applications of whole slide imaging, digital imaging, telepathology, image analysis and lab automation and workflow processes, such as barcoding and voice recognition. Methods of Adipose Tissue Biology is a must-have for anyone interested in obesity or the physiology of white or brown adipose tissues. It contains state-of-the-art methods from researchers who are world leaders in this field. Detailed lab protocols include methods to visualize adipocytes and adipose tissues in humans and experimental models, converting stem cells into white and brown

adipocytes in vitro, evaluating aspects of adipocyte metabolism, inducibly knocking out genes in adipose tissues, and evaluating transcriptional control of adipogenesis on a global scale. The study of adipose tissue goes hand in hand with our global effort to understand and reverse the epidemic of obesity and associated medical complications Contributors include leading researchers who have made tremendous contributions to our ability to investigate white and brown adipose tissues The wide variety of experimental approaches detailed within this volume: including the evaluation of adipose tissue biology at the molecular, biochemical, cellular, tissue, and organismal levels

Zika Virus Biology, Transmission, and Pathways
The Unfolded Protein Response and Cellular Stress
Dengue
Volume 1: The Neuroscience of Zika Virus
New Animal Models of Human Neurological Diseases

The Special Issue "Plant Proteomics 3.0" was conceived in an attempt to address the recent advancements in as well as limitations of current proteomic techniques and their diverse applications to attain new insights into plant molecular responses to various biotic and abiotic stressors and the molecular bases of other

processes. Proteomics' focus is also related to translational purposes, including food traceability and allergen detection. In addition, bioinformatic techniques are needed for more confident identification, quantitation, data analysis and networking, especially with non-model or orphan plants, including medicinal and meditational plants as well as forest tree species. This Special Issue contains 23 articles, including four reviews and 19 original papers.

Leading cancer researchers have assembled the most

significant research protocols used by scientists in breast cancer research today. These step-by-step techniquest can be utilized to accomplish numerous scientific studies in the race to find a cure for breast cancer.
th On behalf of the organizing committee of the 13 International Conference on Biomedical Engineering, I extend our w-mest welcome to you. This series of conference began in 1983 and is jointly organized by the YLL School of Medicine and Faculty of Engineering of the National University of Singapore and the Biomedical Engineering Society (Singapore). First of all, I want to

thank Mr Lim Chuan Poh, Chairman A*STAR who kindly agreed to be our Guest of Honour to give th the Opening Address amidst his busy schedule. I am delighted to report that the 13 ICBME has more than 600 participants from 40 countries. We have received very high quality papers and inevitably we had to turndown some papers. We have invited very prominent speakers and each one is an authority in their field of expertise. I am grateful to each one of them for setting aside their valuable time to participate in this conference. For the first time, the Biomedical

Engineering Society (USA) will be sponsoring two symposia, ie □Drug Delivery S- tems□ and □Systems Biology and Computational Bioengineering□. I am thankful to Prof Tom Skalak for his leadership in this initiative. I would also like to acknowledge the contribution of Prof Takami Yamaguchi for organizing the NUS-Tohoku□s Global COE workshop within this conference. Thanks also to Prof Fritz Bodem for organizing the symposium, □Space Flight Bioengineering□. This year□s conference proceedings will be published by Springer as an IFMBE Proceedings Series.

Arm and Hand Movement: Current Knowledge and Future Perspective
Mucosal Immunology
Laser Capture in Microscopy and Microdissection
Immunopathology and Control Strategies
The Textbook of Angiogenesis and Lymphangiogenesis: Methods and Applications