<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>0800 – 0900</td>
<td>Registration (UTown Auditorium 1 Foyer)</td>
</tr>
<tr>
<td>0900 – 0915</td>
<td>Opening Ceremony (UTown Auditorium 1)</td>
</tr>
</tbody>
</table>
| 0915 – 1000  | Plenary Lecture 1
Mechanisms regulating the invasive migration of cancer cells
Benjamin GEIGER, Weizmann Institute of Science, Israel
Chair: Michael SHEETZ, Mechanobiology Institute, Singapore (UTown Auditorium 1) |
| 1000 – 1030  | Poster Session Coffee Break (Level 2 Terrace)                          |
| 1030 – 1100  | Session 1-1
Actin Cytoskeleton I
Session Chairs:
Peter GUNNING, University of New South Wales, Australia
Yansong MIAO, Nanyang Technological University, Singapore |
| 1030 – 1100  | Session 1-2
Mechanopathology I
Session Chairs:
Linda KENNEY, Mechanobiology Institute, Singapore
Weiqiang CHEN, New York University, USA |
| 1030 – 1100  | Session 1-3
Theory & Simulations
Session Chairs:
Jacques PROST, Institut Curie, France
Sam SAFRAN, Weizmann Institute, Israel |
| 1100 – 1115  | Keynote Lecture
Multiple actin filament populations collaborate to enable exocytosis
Peter GUNNING, University of New South Wales, Australia |
| 1100 – 1115  | Keynote Lecture
Pearling transition mechanics influence force-driven endosomal tubulation during salmonella infection
Linda KENNEY, Mechanobiology Institute, Singapore |
| 1100 – 1115  | Keynote Lecture
Endogenous traction-imbalance of tumor drives the emergence of cancer stem cells
Weiqiang CHEN (Inv)
New York University, USA |
| 1100 – 1115  | Keynote Lecture
Mechanogens: morphogens that induce contractility in cells and cellular assemblies
Sam SAFRAN (Inv)
Weizmann Institute, Israel |
| 1115 – 1130  | The actin branches under force: from cell cortex to durotaxis, and tumor mechanics
Congying WU
Peking University, China |
| 1115 – 1130  | Intrinsically disordered regions of actin binding protein regulate dynamic actin assembly
Yansong MIAO
Nanyang Technological University, Singapore |
| 1115 – 1130  | The Shigella IpaA effector targets talin conformers involved in bacterial capture by filopodia
Guy TRAN VAN NHIEU
CIRB - College de France, France |
| 1130 – 1145  | Intrinsically disordered regions of actin binding protein regulate dynamic actin assembly
Yansong MIAO
Nanyang Technological University, Singapore |
| 1130 – 1145  | mDia1 senses both force and torque during F-actin filament polymerization
Miao YU
Mechanobiology Institute, Singapore |
| 1130 – 1145  | Role of mechanical microenvironment in aggressive nature of relapsed GBM cells post radiotherapy
Pallavi SHIRKE
Indian Institute of Technology, India |
| 1130 – 1145  | The actomyosin cytoskeleton drives spontaneous folding of hydra fragments
XU Xinpeng
Guangdong-Technion Institute of Technology, China |
| 1145 – 1200  | Intrinsically disordered regions of actin binding protein regulate dynamic actin assembly
Yansong MIAO
Nanyang Technological University, Singapore |
| 1145 – 1200  | Force dependence of filopodia adhesion: involvement of myosin II and formins
Naila ALIEVA
Mechanobiology Institute, Singapore |
| 1145 – 1200  | Hepatitis C Virus alters the mechanics of the nuclei by down-regulating Lamin A/C
Sreenath BALAKRISHNAN
Indian Institute of Science, India |
| 1145 – 1200  | Maximal fluctuations of confined actomyosin gels: dynamics of the cell nucleus
Jean-Francois RUPPRECHT
Mechanobiology Institute, Singapore |
| 1200 – 1330  | Poster Session Lunch (Level 2 Terrace)                                  |
### Plenary Lecture 2

**Multiple Mechanosensing and Mechanotransduction steps in Anoikis and Cancer**  
Michael SHEETZ, Mechanobiology Institute, Singapore  
Chair: G.V. SHIVASHANKAR, Mechanobiology Institute, Singapore  
(UTown Auditorium 1)

<table>
<thead>
<tr>
<th>Session 1-4</th>
<th>Session 1-5</th>
<th>Session 1-6</th>
</tr>
</thead>
<tbody>
<tr>
<td>(UTown Auditorium 1)</td>
<td>(Global Learning Room)</td>
<td>(Seminar Rooms 7 &amp; 8)</td>
</tr>
<tr>
<td><strong>Actin Cytoskeleton II</strong></td>
<td><strong>Mechanopathology II</strong></td>
<td><strong>Development</strong></td>
</tr>
</tbody>
</table>
| **Session Chairs:** Alexander BERSHADSKY, Mechanobiology Institute, Singapore  
Gareth JONES, Kings College, London, UK | **Session Chairs:** Guy GENIN, Washington University in St. Louis, USA  
Youhua TAN, The Hong Kong Polytechnic University, Hong Kong | **Session Chairs:** Kenji MATSUNO, Osaka University, Japan  
Yusuke TOYAMA, Mechanobiology Institute, Singapore |

<table>
<thead>
<tr>
<th>1330 – 1415</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Keynote Lecture</strong></td>
</tr>
</tbody>
</table>
| Self-organization of actomyosin cytoskeleton and cell morphogenesis  
Alexander BERSHADSKY  
Mechanobiology Institute, Singapore |

<table>
<thead>
<tr>
<th>1415 – 1430</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Keynote Lecture</strong></td>
</tr>
</tbody>
</table>
| Models of perimembrane mechanics in plant cell mechanobiology  
Guy GENIN (Inv)  
Washington University in St. Louis, USA |

<table>
<thead>
<tr>
<th>1430 – 1445</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Keynote Lecture</strong></td>
</tr>
</tbody>
</table>
| Blood shear stress selects circulating tumour cells with metastatic advantages  
Youhua TAN  
The Hong Kong Polytechnic University, Hong Kong |

<table>
<thead>
<tr>
<th>1445 – 1500</th>
</tr>
</thead>
</table>
| **Talin - a mechanical link and a signalling hub**  
Vesa HYTÖNEN  
University of Tampere, Finland |

<table>
<thead>
<tr>
<th>1500 – 1515</th>
</tr>
</thead>
</table>
| **Fibrosis mechanobiology and its therapeutic implications in cardiovascular disease**  
Guoyou HUANG  
Xi’an Jiaotong University, China |

<table>
<thead>
<tr>
<th>1515 – 1530</th>
</tr>
</thead>
</table>
| **Mechanical Impact of Apoptosis in a Tissue**  
Yusuke TOYAMA  
Mechanobiology Institute, Singapore |

<table>
<thead>
<tr>
<th>1530 – 1545</th>
</tr>
</thead>
</table>
| **Mechanoregulation of integrin-mediated adhesions: Interplay between microtubules and myosin-IIA filaments through GEF-H1 and KANK family proteins**  
Nisha MOHD RAFIQ  
Mechanobiology Institute, Singapore |

<table>
<thead>
<tr>
<th>1545 – 1615</th>
</tr>
</thead>
</table>
| **Poster Session**  
**Coffee Break**  
(Level 2 Terrace) |
<table>
<thead>
<tr>
<th>Time</th>
<th>Session 1-7 (UTown Auditorium 1)</th>
<th>Session 1-8 (Global Learning Room)</th>
<th>Session 1-9 (Seminar Rooms 7 &amp; 8)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1615 – 1745</td>
<td><strong>Keynote Lecture</strong></td>
<td><strong>Keynote Lecture</strong></td>
<td><strong>Role of active stresses in nuclear geometry and chromatin organisation at different scales</strong> Madan RAO (Inv) National Centre for Biological Sciences, India Nuclear Mechanogenomics &amp; Early Disease Diagnosis G.V. SHIVASHANKAR (Inv) Mechanobiology Institute, Singapore</td>
</tr>
<tr>
<td>1615 – 1630</td>
<td><strong>Junctional mechanotransduction: a neighbourhood watch mechanism for epithelial homeostasis?</strong> Alpha YAP The University of Queensland, Australia</td>
<td><strong>How the chemical energy of ATP is transformed into mechanical work by kinesin proteins</strong> Chunguang WANG Tongji University, China</td>
<td><strong>Cell-geometry regulates TNFα-induced genome response</strong> Aninda MITRA Mechanobiology Institute, Singapore</td>
</tr>
<tr>
<td>1630 – 1645</td>
<td><strong>p120ctn is a mechanotransducer that modulates E-Cadherin turnover by mechanical tension</strong> K. Venkatesan IYER Max Planck Institute of Molecular Cell Biology and Genetics, Germany</td>
<td><strong>Thermal control of cellular functions using a nano-heater</strong> Satoshi ARAI Waseda University, Japan</td>
<td><strong>Rupture dynamics and chromatin herniation in deformed nuclei</strong> Dan DEVIRI (Inv) Weizmann Institute, Israel</td>
</tr>
<tr>
<td>1645 – 1700</td>
<td><strong>The mechanotransduction role of cell-cell junction in cell extrusion context - An Alpha-Catenin study</strong> Anh Phuong LE Mechanobiology Institute, Singapore</td>
<td><strong>Application of transfer-matrix calculations to studying DNA behavior and DNA-protein interactions under mechanical constraints</strong> Artem EFREMOV Mechanobiology Institute, Singapore</td>
<td><strong>Mechano-protection by lamin-A against DNA damage as the developing heart stiffens and strengthens</strong> Sangkyun CHO (Inv) University of Pennsylvania, USA</td>
</tr>
<tr>
<td>1700 – 1715</td>
<td><strong>Cell matching during Drosophila embryonic heart formation</strong> Shaobo ZHANG Mechanobiology Institute, Singapore</td>
<td><strong>Mechanical forces of DNA looping and condensation revealed by high-throughput computer simulations and single-molecule experiments</strong> Jejoong YOO Institute for Basic Science, South Korea</td>
<td><strong>Compressive force induces HDAC3 dependent reversible chromatin condensation</strong> Karthik DAMODARAN Mechanobiology Institute, Singapore</td>
</tr>
<tr>
<td>1715 – 1730</td>
<td><strong>Large-scale curvature sensing by directional actin flow drives cellular migration mode switching</strong> Tianchi CHEN Mechanobiology Institute, Singapore</td>
<td><strong>High hydrostatic pressure restores the rhythmical beating motion of paralyzed-flagella mutants of Chlamydomonas</strong> Masayoshi NISHIYAMA Kyoto University, Japan</td>
<td><strong>Mechano-protection by lamin-A against DNA damage as the developing heart stiffens and strengthens</strong> Sangkyun CHO (Inv) University of Pennsylvania, USA</td>
</tr>
<tr>
<td>1730 – 1745</td>
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</tr>
<tr>
<td>1800 – 1900</td>
<td><strong>Welcome Reception</strong> (Level 2 Terrace)</td>
<td></td>
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</tr>
</tbody>
</table>
### Plenary Lecture 3

**Control and self-organization of cell mechanics during tissue morphogenesis**

*Thomas LECUIT, Aix-Marseille Université and CNRS. Collège de France, France*

**Chair:** Virgile VIASNOFF, Mechanobiology Institute, Singapore

(UTown Auditorium 1)

### Poster Session

**Coffee Break**

(Level 2 Terrace)

### Session 2-1

**Mechanotransduction I**

(UTown Auditorium 1)

**Session Chairs:**
- Ben GOULT, University of Kent, UK
- Takeo MATSUMOTO, Nagoya University, Japan

### Session 2-2

**Patterning**

(Global Learning Room)

**Session Chairs:**
- Min WU, Mechanobiology Institute and NUS Centre for Biomimaging Sciences (CBIS), National University of Singapore, Singapore
- Timothy SAUNDERS, Mechanobiology Institute, Singapore

### Session 2-3

**Special Session - Mechanobiology in fibrosis related diseases**

**Organizer:**
Ming-Jer TANG, National Cheng Kung University Medical College, Taiwan

**Session Chairs:**
- Ming-Jer TANG & Yau-Sheng TSAI, National Cheng Kung University Medical College, Taiwan

### Keynote Lecture

**The Talin Code: Deciphering mechanotransduction using structural mechanobiology**

Ben GOULT

University of Kent, UK

### Keynote Lecture

**Information content of intracellular patterns**

Min WU

Mechanobiology Institute, National University of Singapore

### Keynote Lecture

**Mechanobiology of chronic kidney fibrosis**

Ming-Jer TANG

National Cheng Kung University Medical College, Taiwan

### Estimation of shear deformation of glycocalyx layer on vascular endothelial cells in response to fluid flow

Takeo MATSUMOTO (Inv)

Nagoya University, Japan

### Chiral morphogenesis of individual cells and cell groups depends on formin-driven polymerization and alpha-actinin-mediated crosslinking of actin filaments

Yee Han TEE

Mechanobiology Institute, Singapore

### Adipose tissue stiffness in the development of metabolic diseases

Yau-Sheng TSAI (Inv)

National Cheng Kung University Medical College, Taiwan

### Mechanotransduction of blood flow in human monocytes

Sara BARATCHI

RMIT University, Australia

### When the centrosome and the nucleus break up: Nucleus-independent spatial patterning in the syncytial embryo

Jorge DE-CARVALHO

Instituto Gulbenkian de Ciência, Portugal

### PAI-1 Activates Pancreatic Stellate Cells to Increase the Stiffness of Tumour and Determines Early Relapse of Pancreatic Cancer

Hao-Chen WANG

National Cheng Kung University, Taiwan

### Mechanotransmission and mechanosensing of human alpha-actinin 1

Shimin LE

National University of Singapore, Singapore

### Reconstitution of self-organizing PAR polarity circuits

Ziyin HAN

Temasek Life sciences Laboratory, Singapore

### Pathologic Cutaneous Scars and Mechanobiology: Mechanotherapy for keloids and Hypertrophic scars

Rei OGAWA (Inv)

Nippon Medical School, Japan

### Mechano-sensitive interaction between Talin and full-length Vinculin

Yinan WANG

National University of Singapore, Singapore

### Beyond Turing: mechanochemical basis of pattern formation in active biological materials

Tzer Han TAN

MIT Physics of Living System, USA

### Spatial distribution of wound stiffness modulates wound induced hair follicle neogenesis

Hans HARN (Inv)

National Cheng Kung University, Taiwan

### Information content of intracellular patterns

Min WU

Mechanobiology Institute, National University of Singapore

### On the growth and form of the zebrafish Myotome

Timothy SAUNDERS

Mechanobiology Institute, Singapore

### Adipose tissue stiffness in the development of metabolic diseases

Yau-Sheng TSAI (Inv)

National Cheng Kung University Medical College, Taiwan

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MIT Physics of Living System, USA

### Spatial distribution of wound stiffness modulates wound induced hair follicle neogenesis

Hans HARN (Inv)

National Cheng Kung University, Taiwan
1145 – 1300 Poster Session
Lunch
(Level 2 Terrace)

1300 – 1345 Plenary Lecture 4
Unravelling the biomechanical functions of keratin filaments

Birgit LANE, Institute of Medical Biology & Skin Research Institute of Singapore, Singapore

Chair: Min WU, Mechanobiology Institute, Singapore (UTown Auditorium 1)

Session 2-4
(UTown Auditorium 1)

Mechanotransduction II

Session Chairs:
Vivek SHENOY, University of Pennsylvania, USA
K. HSIA, Carnegie Mellon University, USA

Unravelling the biomechanical functions of keratin filaments

Birgit LANE, Institute of Medical Biology & Skin Research Institute of Singapore, Singapore

Chair: Min WU, Mechanobiology Institute, Singapore (UTown Auditorium 1)

Session 2-5
(Global Learning Room)

Geometry and Rigidity Sensing

Session Chairs:
Kristian FRANZE, University of Cambridge, UK
Wenting ZHAO, Nanyang Technological University, Singapore

Poster Session
Lunch
(Level 2 Terrace)

1345 – 1415 Keynote Lecture
Cell-matrix interactions in Fibrosis and cancer: Multiscale mechano-chemical models
Vivek SHENOY
University of Pennsylvania, USA

Keynote Lecture
The mechanical regulation of neuronal development and regeneration
Kristian FRANZE
University of Cambridge, UK

Keynote Lecture
Biomechanical characterization of von Willebrand Factor - a giant plasma protein and flow sensor
Xiaohui (Frank) ZHANG
Lehigh University, USA
Ching-Hwa KIANG (Inv)
Rice University, USA

1415 – 1430 Cell responses to ECM geometry in 2D and 3D culture
K. HSIA (Inv)
Carnegie Mellon University, USA

Nanoscale manipulation of membrane curvatures for subcellular recruitment of endocytic protein machinery in live cells
Wenting ZHAO
Nanyang Technological University, Singapore

Analysing biomolecular and cellular dynamics through single molecule and single cell force studies
Ching-Hwa KIANG (Inv)
Rice University, USA

1430 – 1445 Nanoclusters of integrins organize cell matrix adhesions
Rishita CHANGEDE
Mechanobiology Institute, Singapore

Frustrated differentiation of mesenchymal stem cells induced by normadic migration between stiff and soft region of hydrogel matrix
Satoru KIDOAKI
Kyushu University, Japan

Single molecule mechanics probed by high-speed force spectroscopy
Felix RICO (Inv)
U1006 Inserm & Aix-Marseille University

1445 – 1500 Actomyosin dynamics couples extracellular signals to the mobility and molecular stability of telomeric chromatin
Doorgesh Sharma JOKHUN
Mechanobiology Institute, Singapore

Geometric Confinement of Cells induces nuclear reprogramming
Bibhas ROY
Mechanobiology Institute, Singapore

High-Resolution Cryo-EM structures of actin-bound myosin states reveal the mechanism of myosin force sensing
Michael OSTAP (Inv)
University of Pennsylvania, USA

1500 – 1515 Role of 3D chromatin structure in differential genome regulation
Saradha V. PATHY
Mechanobiology Institute, Singapore

Fixing the faulty rigidity sensing machine
Beverly Bo YANG
Mechanobiology Institute, Singapore

Single molecule force microscopy reveals the unfolding mechanism and landscape of metallothionein
Peng ZHENG (Inv)
Nanjing University, China

1515 – 1545 Poster Session
Coffee Break
(Level 2 Terrace)
<table>
<thead>
<tr>
<th>Time</th>
<th>Session 2-7 (UTown Auditorium 1)</th>
<th>Session 2-8 (Global Learning Room)</th>
<th>Session 2-9 (Seminar Rooms 7 &amp; 8)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1545–1600</td>
<td><strong>Keynote Lecture</strong>&lt;br&gt;Improving AFM reveals a multitude of hidden dynamics in the unfolding of a membrane protein&lt;br&gt;Thomas PERKINS&lt;br&gt;University of Colorado, USA</td>
<td>Biomechanical signaling in the development of Apical poles&lt;br&gt;Virgil VIASNOFF&lt;br&gt;Mechanobiology Institute, Singapore</td>
<td><em>Special Session - Cancer Mechanobiology</em>&lt;br&gt;Organizer:&lt;br&gt;Michael R. KING, Vanderbilt University, USA&lt;br&gt;<strong>Session Chairs:</strong>&lt;br&gt;Michael R. KING, Vanderbilt University, USA&lt;br&gt;Peter Yingxiao WANG, UCSD, USA</td>
</tr>
<tr>
<td>1600–1615</td>
<td><strong>Advanced multimodal microscopy identifies mechanisms of podosome mediated stiffness sensing</strong>&lt;br&gt;Koen VAN DEN DRIES&lt;br&gt;Radbound Institute for Molecular Life Sciences, Netherlands</td>
<td>Cortical forces control clustering of PAR-type polarity regulators in C. elegans embryos&lt;br&gt;Fumio MOTEGI&lt;br&gt;Mechanobiology Institute &amp; Temasek Lifesciences Laboratory, Singapore</td>
<td>Tumor cell extravasation and the role of mechanical interactions&lt;br&gt;Roger KAMM (Inv)&lt;br&gt;Massachusetts Institute of Technology, USA</td>
</tr>
<tr>
<td>1615–1630</td>
<td><strong>Combining super-resolution microscopy and cell stretching: a window for mechano-transduction of focal adhesions</strong>&lt;br&gt;Sophie MASSOU&lt;br&gt;Interdisciplinary Institute for Neurosciences, France</td>
<td>Migration component dynamics and front-rear interplay&lt;br&gt;Kritika SAHNI&lt;br&gt;The Institute of Complex Systems (ICS), Forschungszentrum jülich, Germany</td>
<td><strong>Mechanogenetics for the remote and non-invasive control of cancer immunotherapy</strong>&lt;br&gt;Peter Yingxiao WANG (Inv)&lt;br&gt;University of California, San Diego, USA</td>
</tr>
<tr>
<td>1630–1645</td>
<td><strong>Engineering three-dimensional cellular mechanical environment with magnetic microscale hydrogels</strong>&lt;br&gt;Yuhui Li&lt;br&gt;Xi’an Jiaotong University, China</td>
<td>Apical-basal polarity induced in single hepatocyte by biomimetic surface as a model for studying de novo lumen formation&lt;br&gt;Yue ZHANG&lt;br&gt;Mechanobiology Institute, Singapore</td>
<td><strong>Fluid shear stress resistance in circulating tumor cells</strong>&lt;br&gt;Michael D. HENRY (Inv)&lt;br&gt;University of Iowa, USA</td>
</tr>
<tr>
<td>1645–1700</td>
<td><strong>Mechanisms regulating Actin cortex architecture in embryonic stem cells</strong>&lt;br&gt;Shumin XIA&lt;br&gt;Mechanobiology Institute, Singapore</td>
<td><strong>Mechanosensing via talin rod is indispensable for cell polarization</strong>&lt;br&gt;Rolle RAHIKAINEN&lt;br&gt;University of Tampere, Finland</td>
<td><strong>Regulation of selectin ligands and mechanical properties of breast cancer cells by the epithelial-to-mesenchymal transition</strong>&lt;br&gt;Monica BURDICK (Inv)&lt;br&gt;Ohio University, USA</td>
</tr>
<tr>
<td>1700–1715</td>
<td>Three-dimensional epithelial cell intercalation drives tissue convergent extension&lt;br&gt;Zijun SUN&lt;br&gt;Mechanobiology Institute, Singapore</td>
<td><strong>Mechanical amplification of tumor cell death via tethered polymeric nanoparticles</strong>&lt;br&gt;Michael MITCHELL (Inv)&lt;br&gt;Massachusetts Institute of Technology, USA</td>
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</tr>
</tbody>
</table>
### Plenary Lecture 5

**Molecular mechanisms of microtubule-based control of cell motility**

Anna AKHMANOVA, Utrecht University, Netherlands

Chair: Jie YAN, Mechanobiology Institute, Singapore

(UTown Auditorium 1)

### Poster Session

**Coffee Break**

(Level 2 Terrace)

### Session 3-1

(UTown Auditorium 1)

**Tissue I**

Session Chairs:
- David ELAD, Tel Aviv University, Israel
- Arno GUTLEB, Luxembourg Institute of Science & Technology, Luxembourg

### Session 3-2

(Global Learning Room)

**AMED-REST/PRIME Special Session I - Molecular Mechanisms of Cell Mechano-sensing**

Organizers & Session Chairs:
- Masahiro SOKABE, Nagoya University, Japan
- Kimiko YAMAMOTO, The University of Tokyo, Japan

### Session 3-3

(Seminar Rooms 7 & 8)

**Special Session - Sarcomere-like organization and dynamics in fibroblasts and beating cardiomyocytes**

Organizer:
Sam SAFRAN, Weizmann Institute, Israel

Session Chairs:
- Sam SAFRAN, Weizmann Institute, Israel
- Shelly TZLIL, Technion, Israel

### Keynote Lecture

**Tissue engineered biological barriers for mechanobiology studies**

David ELAD
Tel Aviv University, Israel

### Keynote Lecture

**Endothelial cell mechanosensing via membrane lipids**

Kimiko YAMAMOTO
The University of Tokyo, Japan

### Keynote Lecture

**The role of α-catenin in ECM mechanosensing through sarcomere-like contractile units**

Haguy WOLFENSON (Inv)
Technion - Israel Institute of Technology, Israel

### Keynote Lecture

**Mechanical communication as a noise filter and its role in cardiac arrhythmias and synchronized beating**

Shelly TZLIL (Inv)
Technion - Israel Institute of Technology, Israel

### 3D-in vitro Alveolar models – The future is here!

Arno GUTLEB (Inv)
Luxembourg Institute of Science & Technology, Luxembourg

### Identification and functional analysis of solo, A Rho-GEF involved in mechanotransduction

Kazumasa OHASHI (Inv)
Tohoku University, Japan

### Self-organization and regulation of myosin II filament stacks in non-muscle cells

Shiqiong HU (Inv)
Mechanobiology Institute, Singapore

### Novel Cell Stretching Dish

Qingsen LI
IFOM, Italy

### Mechanical impact of apoptotic cell extrusion in neighbouring tissue

Ying Ming Ivan YOW
Mechanobiology Institute, Singapore

### The actin filament as a tension sensor

Hitoshi TATSUMI (Inv)
Kanazawa Institute of Technology, Japan

### Non-linear dynamics of cardiac cells

Ohad COHEN (Inv)
Weizmann Institute, Israel

### Topological defects in epithelia govern cell death and extrusion

Thuan Beng SAW
Mechanobiology Institute, Singapore

### Mechanoreponse in beating cilia and flagella

Kenjiro YOSHIMURA (Inv)
Shibaura Institute of Technology, Japan

### Adhesion-contraility crosstalk is perturbed in diabetic fibroblasts

Iffat JAHAN
Indian Institute of Technology, India
Acto-myosin driven functional nanoclusters of GPI-APs are generated by integrin receptor signaling.

Satyajit MAYOR, National Centre for Biological Sciences, India

Chair: Timothy SAUNDERS, Mechanobiology Institute, Singapore (UTown Auditorium 1)
<table>
<thead>
<tr>
<th>Time</th>
<th>Session 3-7 (UTown Auditorium 1)</th>
<th>Session 3-8 (Global Learning Room)</th>
<th>Session 3-9 (Seminar Rooms 7 &amp; 8)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1545 – 1615</td>
<td><strong>Keynote Lecture</strong></td>
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</tr>
<tr>
<td></td>
<td>EpCAM ensures correct epithelial cell organization and dynamics through regulation of cell contractility</td>
<td>Engineering cell microenvironment using novel hydrogels for biomedical applications</td>
<td>The M project; Mechanical control of Metabolism, Mitochondria and Muscle</td>
</tr>
<tr>
<td></td>
<td>Delphine DELACOUR, Institut Jacques Monod, France</td>
<td>Feng XU, Xi’an Jiaotong University, China</td>
<td>Toshihiko OGURA, Tohoku University, Japan</td>
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<tr>
<td>1615 – 1630</td>
<td>Airway smooth muscle cells form oriented bands on 3D tubular micropatterns mimicking the ontogenesis of bronchial smooth muscle tissue structures</td>
<td>Mechanical memory in collective cell migration</td>
<td>Unloading induces reactive oxygen species associated signal transduction toward atrophy in skeletal muscle cells</td>
</tr>
<tr>
<td></td>
<td>Linhong DENG (Inv), Institute of Biomedical Engineering &amp; Health Sciences, China</td>
<td>Amit PATHAK (Inv)</td>
<td>Takeshi NIKAWA (Inv)</td>
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<td></td>
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<td>Tohoku University, Japan</td>
</tr>
<tr>
<td>1630 – 1645</td>
<td>Remodeling of adhesion and modulation of mechanical tensile forces during apoptosis in Drosophila epithelium</td>
<td>Three-dimensional single cell active elastography</td>
<td>Unloading induces reactive oxygen species associated signal transduction toward atrophy in skeletal muscle cells</td>
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<td>Xiang TENG, Mechanobiology Institute, Singapore</td>
<td>Farid ALISAFAEI, University of Pennsylvania, USA</td>
<td>Takeshi NIKAWA (Inv)</td>
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<td>Keio University, Japan</td>
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<td>1645 – 1700</td>
<td>Desmosomal coupling influences force-driven tissue dynamics in steady state and apoptotic junctions</td>
<td>Effects of Advanced Glycation End-products on the Mechanobiology of the Intervertebral Disc</td>
<td>Cardiac reprogramming and heart regeneration via mechano-transduction</td>
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<td>Minnah THOMAS, Mechanobiology Institute, Singapore</td>
<td>Simon TANG (Inv)</td>
<td>Masaki IEDA (Inv)</td>
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<td>1700 – 1715</td>
<td>Polarity dynamics of epithelial trains during initiation and maintenance of directed collective cell migration</td>
<td>Mechanisms of Plastic Deformation in Collagen Networks Induced by Cellular Forces</td>
<td>Intravascular pressure restricts angiogenesis through mechanical stretching of endothelial cells</td>
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<td>Shreyansh JAIN, Mechanobiology Institute, Singapore</td>
<td>Vivek SHENOY (Inv), University of Pennsylvania, USA</td>
<td>Shigetomo FUKUHARA (Inv)</td>
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<td>Nippon Medical School, Japan</td>
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**Poster Session**

Coffee Break (Level 2 Terrace)

**Conference Banquet**

Venue: Gardens by the Bay

Sponsored by: Corporate Sponsors
December 14, 2017

0830 – 0915

**Plenary Lecture 7**
*Engineering Microsystems for Quantitative Mechanobiology*

Beth PRUITT, Stanford University, USA

Chair: C.T. LIM, Mechanobiology Institute, Singapore
(UTown Auditorium 1)

0915 – 1000

**Plenary Lecture 8**
*Adherens junction components stabilize the polarity of migrating cells via Myosin-II Regulation*

Masatoshi TAKEICHI, RIKEN Centre for Development Biology, Japan

Chair: Yusuke TOYAMA, Mechanobiology Institute, Singapore
(UTown Auditorium 1)

1000 – 1030

**Poster Session**
*Coffee Break*
(level 2 terrace)

1030 – 1100

**Session 4-1**
(UTown Auditorium 1)

Special Session - Vinculin: a mechanoresponsive component of multiple cell adhesion machineries

Organizers & Session Chairs:
Noriyuki KIOKA, Kyoto University, Japan
Hiroaki HIRATA, Nagoya University, Japan

**Session 4-2**
(Global Learning Room)

Membranes

Session Chairs:
Bianxiao CUI, Stanford University, USA
Xiaohui (Frank) ZHANG, Lehigh University, USA

**Session 4-3**
(Seminar Rooms 7 & 8)

Special Session - Mechanosensitive ion channels

Organizer:
Xiaochuan YAO, Chinese University of Hong Kong, Hong Kong

Session Chairs:
Xiaochuan YAO, Chinese University of Hong Kong, Hong Kong
Jing LI, Guangzhou University of Chinese Medicine, China

1100 – 1115

**Keynote Lecture**
*The role of vinculin in coordinating the adhesion network*

Christoph BALLESTREM
University of Manchester, UK

**Keynote Lecture**
*The role of membrane curvature for mechanosensing at the nano-bio interface*

Bianxiao CUI
Stanford University, USA

**Keynote Lecture**
*Mechanosensitive TRP channels in cardiovascular system*

YAO Xiaochuan
The Chinese University of Hong Kong, Hong Kong

1115 – 1130

**Keynote Lecture**
*Force-dependent binding of vinculin to talin, alpha-catenin, and alpha-actinin 1*

Jie YAN (Inv)
Mechanobiology Institute, Singapore

**Keynote Lecture**
*Force-dependent integrin endocytosis at the podosome*

Cheng-Han YU
University of Hong Kong, Hong Kong

**Keynote Lecture**
*Critical role of Piezo1 in vascular biology*

JING LI (Inv)
Guangzhou University of Chinese Medicine, China

1130 – 1145

**Keynote Lecture**
*Vinculin and vinexin family (SORBS) proteins in mechanosensing and mechanotransduction*

Noriyuki KIOKA (Inv)
Kyoto University, Japan

**Keynote Lecture**
*Interplay between caveolae and junctional mechanics*

Jessica Li Chang TEO
University of Queensland, Australia

**Keynote Lecture**
*Self-organization of clathrin mediated endocytosis into spatiotemporal waves and the onset of cortical patterning*

YANG YANG
Mechanobiology Institute, Singapore

**Keynote Lecture**
*MscL-based ultrasonic control of neural activity*

YUEZHOU LI (Inv)
Zhejiang University, China

1145 – 1200

**Keynote Lecture**
*Nanoscale architecture of cadherin-mediated adhesion*

Cristina BERTOCCCHI (Inv)
Mechanobiology Institute, Singapore

**Keynote Lecture**
*Mechanotransduction of the endothelial glycocalyx mediates nitric oxide production through activation of TRP channels*

Xiaohui (Frank) ZHANG
Lehigh University, USA

**Keynote Lecture**
*Coarse grained molecular dynamics simulation of mammalian mechanosensitive ion channel TRPV2*

KEN TAKAHASHI (Inv)
Okayama University, Japan
<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>1200 – 1230</td>
<td><strong>Special Lecture</strong></td>
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<td>UTown Auditorium 1</td>
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<td>‘Force-from-lipids’ principle of mechanosensing at the membrane interface</td>
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<td>Boris MARTINAC, Victor Chang Cardiac Research Institute, Australia</td>
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<td>Chair: Masahiro SOKABE, Nagoya University, Japan</td>
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<td>1230 – 1300</td>
<td><strong>Poster Awards &amp; Closing Ceremony</strong></td>
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<td>(UTown Auditorium 1)</td>
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<tr>
<td>1300 – 1400</td>
<td><strong>Lunch</strong></td>
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<td>(MBI)</td>
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<td>1400 – 1600</td>
<td><strong>Tour of MBI</strong></td>
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<td>Session</td>
<td>Session Name</td>
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<tr>
<td>1-9</td>
<td>Mechanobiology of nuclear and chromatin deformations: Implications for gene expression</td>
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<td>2-3</td>
<td>Mechanobiology in fibrosis related diseases</td>
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<td>2-6</td>
<td>Single-molecule force spectroscopy, mechanosensing, and immunomechanobiology</td>
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<td>2-9</td>
<td>Cancer Mechanobiology</td>
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<td>3-2</td>
<td>AMED-CREST/PRIME Special Session I - Molecular Mechanisms of Cell Mechanosensing</td>
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<td>3-3</td>
<td>Sarcomere-like organization and dynamics in fibroblasts and beating cardiomyocytes</td>
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<td>3-5</td>
<td>Innovation and new technologies for mechanobiology</td>
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<td>3-6</td>
<td>Diversity of Mechanosensitive Ion Channels in Eukaryotes</td>
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<td>3-8</td>
<td>Cell-ECM Interactions</td>
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<td>3-9</td>
<td>AMED-CREST/PRIME Special Session II - Mechanobiology of muscles and blood vessels</td>
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<td>Vinculin: a mechatonoresponsive component of multiple cell adhesion machineries</td>
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