

Fifth Annual San Antonio Conference on Stem Cell Research & Regenerative Medicine

Conference Program

Thursday, February 7

8:25 - Welcome

8:30 - **Keynote Lecture # 1** – Introduced by Erzsebet Kokovay (UT Health SA)

Shideng Bao (Cleveland Clinic)

Therapeutic Targeting of Glioma Stem Cells and Tumor Pericytes



Shideng Bao, PhD, Director of the Center for Cancer Stem Cell Research, is a Staff (Professor) in the Department of Cancer Biology at Cleveland Clinic Lerner Research Institute. Before he joined Cleveland Clinic, Dr. Bao was an Associate Professor in Departments of Radiation Oncology and Neurosurgery at University of Colorado Denver Health Sciences Center. He did postdoctoral training at Baylor College of Medicine and Duke University Medical Center. He became an Assistant Professor in 2005 at Duke Brain Tumor Center where he started his research program on glioma stem cells (GSCs) in glioblastoma (GBM). Since then, his team made several important contributions in understanding the molecular regulation of the cellular hierarchy and plasticity of GSCs as well as therapeutic

targeting of GSCs: (1) Identified BMX (the Bone Marrow X-linked non-receptor tyrosine kinase) as a unique regulator that mediates hyper-activation of STAT3 in GSCs and demonstrated the BMX-mediated STAT3 activation is required for maintaining the stem cell-like phenotype and tumorigenic potential of GSCs (*Cancer Cell* 19:498, 2011); (2) Discovered that GSCs generate the majority of vascular pericytes to support tumor vasculature and tumor growth in GBM (*Cell* 153:139, 2013); (3) Demonstrated that targeting GSC-derived pericytes disrupts the blood-tumor barrier (BTB) and enhances drug delivery into GBM to improve chemotherapeutic efficacy (*Cell Stem Cell* 21:591, 2017); (4) Revealed that GSCs recruit tumor-associated macrophages (TAMs) through Periostin-mediated signaling to support malignant growth in GBM (*Nat. Cell Biol.* 17:170, 2015); and (5) Found that targeting GSCs through BMX inhibition by ibrutinib potently suppresses tumor growth and effectively synergizes with radiation to improve therapeutic efficacy for GBM (*Sci. Trans. Med.* 10:eahh6818, 2018), which led to an ongoing clinical trial using ibrutinib plus radiation for GBM treatment at Cleveland Clinic (ClinicalTrials.gov # NCT03535350). The goal of his research is to develop novel therapeutic approaches to target cancer stem cells and effectively improve treatment for GBMs and brain metastases of other malignant cancers.

Thursday, February 7 (cont')

SESSION 1 [Session Chair – Sy Griffey, StemBioSys]

9:30 - **Andre Cap** (USA-ISR)

Cellular Therapeutics for the Treatment of Trauma-Related Injuries

9:50 - **Travis Block** (StemBioSys)

Biologically-Relevant Microenvironment Facilitates Phenotype Retention of Human Chondrocytes In Vitro

10:15 - **Becky Cap** – BioBridge Global

10:20 - Coffee break

10:50 - **John McCarrey** (UTSA)

Unique Epigenetic Programming Distinguishes Functional Spermatogonial Stem Cells in the Immature Mouse Testis

11:15 - **Melanie Carless** (Texas Biomed)

Cell-Based Models for Understanding the Role of Hydroxymethylation in Neurodevelopment and Implications for Bipolar Disorder

11:40 - **Lucero Alvarado** (USA-ISR)

Tissue-Specific Response of Mesenchymal Stem Cells to a Lipopolysaccharide Challenge

12:00 - **Eric Brey** – UTSA

12:05 - Lunch (provided)

SESSION 2 [Session Chair – Jenny Hsieh, UTSA]

1:00 - **Stephen Wellinghoff** (SwRI)

Utilizing Electrophoretic Deposition to Make Composites for Dental and Orthopaedic Applications

1:25 - **Erzsebet Kokovay** (UT Health SA)

Vascular Regulation of Adult Neural Stem Cells

Thursday, February 7 (cont')

- 1:50 - **Maryanne Herzig** (USA-ISR)
Bi-Directional Interactions of MSCs and Immune Cells
- 2:10 - **Zane Lybrand** (UTSA)
Pro-Epileptic Neural Stem Cells in the Adult Hippocampus Contribute to Seizure Generation
- 2:35 - **Thomas Orsak** - NortonRoseFulbright
- 2:40 - Coffee break**
- 3:00 - **Radek Dobrowolski** (UT Health SA)
Understanding Molecular Clearance in iPSC-Derived Alzheimer's Disease Neurons
- 3:25 - **David Burmeister** (USA-ISR)
Increased Mitochondrial Respiration and ROS Production from Adipose Derived Stem Cells is Passage Dependent
- 3:45 - **Alvaro Moreira** (UT Health SA)
Intranasal Delivery of Human Umbilical Cord Mesenchymal Stromal Cells Restores Alveolarization and Vascularization in Experimental Bronchopulmonary Dysplasia
- 4:10 - **Xiao-Dong Chen** (StemBioSys & UT Health SA)
"A New Approach that Preserves Islet Function and Reduces Immunogenicity for Transplantation"
- 4:35 - **Nehal Abu-Lail** (UTSA)
The Effects of Nutraceuticals on the Chondrogenesis of Human Chondrocytes Extracted from Osteoarthritic Patients of Varied Age and Gender

5:00 – 7:00 - Poster Session and Networking Reception

Friday, February 8

8:30 - Keynote Lecture # 2 – Introduced by John McCarrey (UTSA)

Joseph Wu (Stanford University School of Medicine)
Stem Cells & Genomics for Precision Medicine



Joseph C. Wu, MD, PhD is Director of the Stanford Cardiovascular Institute and Simon H. Stertzler, MD, Professor of Medicine (Cardiology) and Radiology at the Stanford School of Medicine. Dr. Wu received his MD from Yale University School of Medicine. He trained in internal medicine and cardiology at UCLA followed by a PhD in the Dept of Molecular Pharmacology. His lab works on biological mechanisms of patient-specific and disease-specific induced pluripotent stem cells (iPSCs). The main goals are to (i) understand basic cardiovascular disease mechanisms, (ii) accelerate drug discovery and screening, (iii) develop “clinical trial in a dish” concept, and (iv) implement precision cardiovascular medicine for prevention and treatment of patients. Dr. Wu has received numerous awards, including National Institutes of Health (NIH) Director’s New Innovator Award (2008), NIH Roadmap Transformative Award (2009), American Heart Association (AHA) Innovative Research Award (2009), Presidential Early Career Award for Scientists and Engineers given out by President Obama (2010), AHA Established Investigator Award (2012), Burroughs Wellcome Foundation Innovation in Regulatory Science Award (2015), and AHA Merit Award (2017). He also received the inaugural AHA Joseph A. Vita Award (2015) which is given to an investigator whose body of work published in the last 5 years has had transformative impact on basic, translational, or clinical cardiovascular research. Dr. Wu currently serves on the Scientific Advisory Board for the Keystone Symposia (2014-2020), FDA Cellular, Tissue, and Gene Therapies Advisory Committee (2017-2020), AHA National Board of Directors (2017-2019), Chair of the AHA Basic Cardiovascular Science Council (2018-2020), and Chair of the AHA National Research Committee (2017-2019).

SESSION 3 [Session Chair – Becky Cap, BioBridge Global/GenCure]

9:30 - **De De Gardner** (Texas State University)
Patient Advocate

9:50 - **Luis Rodriguez II** (USA-ISR)
Preconditioning in an Inflammatory Milieu Augments the Immunotherapeutic Function of Mesenchymal Stem Cells

Friday, February 8 (cont')

10:10 - **Ed Davis** – San Antonio Economic Development Corporation
Why the City of San Antonio Supports Regenerative Medicine

10:15 - Coffee break

10:45 - **Shamim Mustafa** (UT Health SA)
Effect of Postnatal Adaptation on Endogenous Lung Mesenchymal Stromal Cells from Preterm Rabbit

11:10 - **Tiziano Barberi** (Texas Biomed)
An In Vitro Model of Skeletal Myogenesis: One Platform for Many Applications

11:35 - **Jian Ling** (SwRI)
A Novel Perfusion-Based Cell Manufacturing Platform for Regenerative Medicine

12:00 – **Byron Hepburn** – UT Health SA

12:05 - Lunch (provided)

SESSION 4 [Session Chair – Erik Weitzel, USA-ISR]

1:00 - **Shanmugasundaram Natesan** (USA-ISR)
Plasma Based Vasculogenic Biomaterial for Improved Burn Wound Regeneration

1:20 - **Chih-Ko Yeh** (UT Health SA)
"Stem Cell-Based Restoration of Salivary Gland Function

1:45 - **Amina Qutub** (UTSA)
Modeling Cell Communication during Tissue Growth & Regeneration

2:10 - **Anand Srinivasan** (USA-ISR)
GCPlus - A Xeno-free Growth Factor Supplement for Cell Expansion

2:30 - **Joe McDonough** – Southwest Research Institute

2:35 - Coffee break

Friday, February 8 (cont')

- 2:45 - **Janet Zoldan** (UT Austin)
Quantifying the Vasculogenic Potential of iPSC-EPs in Collagen Hydrogels
- 3:10 - **Christopher Navara** (UTSA)
Preclinical Modeling of Pluripotent Stem Cell Derived Therapies for Parkinson's
- 3:35 - **Jennifer Donegan** (UT Health SA)
Using Stem Cells to Understand the Pathophysiology and Treatment of Schizophrenia
- 4:00 - **Scott Jones** (GenCure)
MTEC Update - Scaling Cell Therapy for Success
- 4:20 - Conference adjourns**