Fibrosis and Tissue Repair: From Molecules and Mechanics to Therapeutic Approaches (Q6)

Scientific Organizers: Shannon J. Turley and Thomas A. Wynn

Sponsored by Akebia Therapeutics, Genentech, Inc., Merck & Co., Inc., Novartis Institutes for BioMedical Research and Novo Nordisk A/S

Stromal Cells in Immunity and Disease (Q5)

Scientific Organizers: Scott N. Mueller, Jason G. Cyster, Reina E. Mebius and Theresa T. Lu

February 19-23, 2020 • Fairmont Empress Victoria / Victoria Conference Centre • Victoria, BC, Canada

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WEDNESDAY, FEBRUARY 19
Arrival and Registration

THURSDAY, FEBRUARY 20
Welcome and Keynote Session (Joint)
*Scott N. Mueller, University of Melbourne, Australia
*Shannon J. Turley, Genentech, Inc., USA
David A. Brenner, University of California, San Diego, USA
Linking Inflammation and Myofibroblast Activation
Ruslan Medzhitov, HHMI/Yale University School of Medicine, USA
Macrophage-Fibroblast Circuits

Tissue Fibroblasts and Pericytes in Fibrosis (Q6)
*Shannon J. Turley, Genentech, Inc., USA
*Dean Sheppard, University of California, San Francisco, USA
Jonathan M. Kurie, University of Texas MD Anderson Cancer Center, USA
The Fibrotic Tumor Stroma
Yuval Rinkevich, Helmholtz Zentrum München, GmbH, Germany
Two Succeeding Fibroblastic Lineages Drive Dermal Development and the Transition from Regeneration to Scarring
Scott M. Turner, Plant Therapeutics, USA
Identification and Evaluation of Small Molecule Integrin Inhibitors: From Cell Systems to Human Trials
Tatsuya Tsukui, University of California, San Francisco, USA
Short Talk: Collagen-Producing Lung Cell Atlas Identifies Multiple Subsets with Distinct Localization and Relevance to Fibrosis
Dianhua Jiang, Cedars-Sinai Medical Center, USA
Short Talk: Longitudinal Transcriptomics Identifies Fibroblast Subtypes during Lung Development and Fibrosis

Stromal Cells in Lymphoid Tissue Development (Q5)
*Jason G. Cyster, HHMI/University of California, San Francisco, USA
Burkhard Ludewig, Kantonsspital St. Gallen, Switzerland
Fibroblastic Stromal Cells Direct Lymphoid Organ Development and Immune Activation
Reina E. Mebius, Amsterdam UMC-VUmc, Netherlands
Control of the Adaptive Immunity by Lymph Node Stromal Cells
Sanjiv A. Luther, University of Lausanne, Switzerland
Fibroblasts of the Intestinal Lamina Propria are Important Niche Cells Regulating IgA+ Plasma Cell Homeostasis and Function
Mark C. Coles, University of Oxford, UK
Short Talk: B-Cell Zone Reticular Cell Microenvironments Shape Chemotactic Gradient Formation

Anne Chauveau, Oxford University, UK
Short Talk: Perivascular Pathways Direct One-Way Migration of T Cells into Splenic T Zones

Poster Session 1
Workshop 1: Core Mechanisms versus Organ Specific Mediators of Fibrosis (Q6)
*Thirumalai R. Ramalingam, Genentech, Inc., USA
*Karen Piper Hanley, University of Manchester, UK
Daniel Abebayehu, University of Virginia, USA
Inflammatory Cytokines Induce Unique Immuno-Fibroblast Subpopulations Prone to Myofibroblastic Differentiation
Daryle J. DePianto, Genentech, Inc., USA
Molecular Mapping of Epithelial Cell Senescence in IPF
Tien Peng, University of California, San Francisco, USA
Gli1+ Mesenchymal Cells Modulate Epithelial Progenitor Metaplasia in Lung Fibrosis
Lynn M. Williams, Kennedy Institute of Rheumatology, UK
CREBBP/EP300 Regulation of Collagen VI is a Key Determinant of the Myofibroblast Phenotype in Human Fibrosis
Sonia Chothani, Duke-NUS Medical School, Singapore
RNA-Binding Proteins: Drivers of Translational Regulation in Cardiac Fibrosis
Preethi Vijayaraj, University of California, Los Angeles, USA
Fibrotic Lung Disease is Associated with Proliferation and Desquamation of Ciliated Bronchiolar Epithelium
Ahmad N. Nabhan, Genentech, Inc., USA
A Molecular Cell Atlas of the Human Lung from Single Cell RNA Sequencing
Veronica Larcher, Goethe University, Germany
Parallel Lineage Tracing Studies Establish Fibroblasts as the Prevailing in vivo Adipocyte Progenitor

Workshop 1: Stromal Orchestration and Immune Responses (Q5)
*Mandy J. McGeachy, University of Pittsburgh, USA
*Ruth Ganss, Harry Perkins Institute of Medical Research, Australia
Catarina Gago da Graca, Amsterdam UMC - VUMC, Netherlands
Characterization of MHC-II Expressing FRCs in Steady State and Inflammatory Conditions
Ana Martinez-Riaño, Francis Crick Institute, UK
Cellular Dynamics of Follicular Dendritic Cells Control Antigen Presentation during the Humoral Response
Yannick Alexandre, University of Melbourne, Australia
Mesenchymal Stromal Cells Coordinate Protective Adaptive Immune Responses during Viral Infections in the Spleen

* Session Chair † Invited but not yet accepted Program current as of May 30, 2020. Program subject to change. Meal formats are based on meeting venue. For the most up-to-date details, visit https://www.keystonesymposia.org.
**Stromal Cells in Immunity and Disease (Q5)**

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**Joshua D. Brandstadter**, University of Pennsylvania, USA

*Distinct Populations of Fibroblastic Stromal Cells in Spleen and Lymph Nodes Express Individual Notch Ligands and Prime Graft-versus-Host Disease after Bone Marrow Transplantation*

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**Junko Sawada**, Johns Hopkins All Children's Hospital, USA

*TNFa Upregulates R-Ras Expression in High Endothelial Venule and Capillary Endothelium in Lymph Node, Facilitating T Cell Recruitment upon Inflammation*

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**Jennifer Eom**, University of Auckland, New Zealand

*Phenotypically Distinct Fibroblastic Populations in Melanoma-Infiltrated Human Lymph Nodes Provide Unique Microenvironment for T Lymphocytes*

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**Ian Boothby**, University of California, San Francisco, USA

*Neonatal Tregs Suppress the Development of a Stromal Niche for Th2 Cells in Skin*

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**Ari B. Molofsky**, University of California, San Francisco, USA

*Stromal Crosstalk with Type 2 Immunity at Tissue Adventitial Niches*

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**Jeremiah Bernier-Latmani**, University of Lausanne, Switzerland

*Blood Vessel / Telocyte Crosstalk at the Small Intestinal Villus Tip*

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**Matthew B. Buechler**, Genentech, Inc., USA

*Short Talk: Tissue-Specific Programming Determines Tenor of Fibroblast and Mesothelial Cell Plasticity and Activation*

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**Bing Su**, Shanghai JiaoTong University School of Medicine, China

*Short Talk: Map3k2-Regulated Intestinal Stromal Cells Define a Stem Cell Niche via Wnt Agonist R-spondin1*

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**FRIDAY, FEBRUARY 21**

**Advances in Organ Fibrosis (Q6)**

**Cory M. Hogaboam**, Cedars-Sinai Medical Center, USA

*Fatty Acid Oxidation in Tubular Epithelial Cells Regulates Kidney Fibrosis*

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**Ivan O. Rosas**, Baylor College of Medicine, USA

*Insights into the Complexity and Diversity of Cell Populations in IPF and COPD using Single Cell RNA-seq*

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**Neil C. Henderson**, University of Edinburgh, Queen's Medical Research Institute, UK

*Using Single Cell Genomics to Decode the Hepatic Fibrotic Niche*

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**Katalin Susztak**, University of Pennsylvania, USA

*New Mechanisms and Vulnerabilities of Fibrosis*

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**Harry (Hal) C. Dietz**, Johns Hopkins University School of Medicine, USA

*Using Single Cell Genomics to Decode the Hepatic Fibrotic Niche*

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**Ying Wei**, University of California, San Francisco, USA

*Short Talk: Reversal of TGFbeta1-Driven Pro-Fibrotic State in Pulmonary Fibrosis Patients*

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**Satish K. Madala**, Cincinnati Children's Hospital Medical Center, USA

*Short Talk: Transcriptional Regulation of Fibroblast Activation in Severe Fibrotic Lung Disease*

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**Stromal Cell Functions in Primary and Secondary Lymphoid Tissues (Q5)**

**Reina E. Mebius**, Amsterdam UMC-VUmc, Netherlands

*Cell Circuits, B cells, and Systemic Responses to Microbial Infections*

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**João Pereira**, Yale University School of Medicine, USA

*Short Talk: A Unique Inflammatory Stromal Cell Population Associated with NFkappaB Signaling in the Multiple Myeloma Bone Marrow*

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**Madelon M. E. de Jong**, Erasmus MC, Netherlands

*Signaling Pathways in Stromal Cells for Neutrophil Recruitment in Primary and Secondary Lymphoid Tissues in Various States of Inflammation*

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**Shruti Naik**, New York University, USA

*Inflammatory Tuning of Epithelial Stem Cells*
Biology and Fibrosis (Joint)

Workshop 2: Novel Technologies and Models in Stromal Cell Biology and Fibrosis (Joint)

*Lucie Peduto, Institut Pasteur, France
*Michael Underhill, University of British Columbia, Canada
Lee A. Borthwick, Newcastle University, UK
A Bioreactor Technology for Modelling Fibrosis in Human and Rodent Precision-Cut Liver Slices
Michael Jeffrey Podolsky, University of California, San Francisco, USA
Genome-Wide Screens Identify Novel Regulators of Cell-Mediated Collagen Degradation
Maha AlSharqi, McGill University, Canada
Development of CD109-Based Molecules as TGF-Beta Antagonists and Antifibrotic Agents in Scleroderma Fibroblasts
Laura Elisabeth Kähäri, University of Turku, Finland
Targeted Delivery of Antibodies to the Draining Lymph Node through the Subcapsular Sinus Floor
Kristine Lai, Cornell University, USA
ImmuneChip with Stromal-Specific Chemokine Gradient to Capture Germinal Center B Cell Dynamics
Heather J. Faust, Brigham and Women's Hospital, USA
Utilization of 3D Organoids to Study Synovial Fibroblast-Immune Cell Interactions
Anastasia Kousa, Memorial Sloan Kettering Cancer Center, USA
Construction of a Cellular Interactome Across Epithelium, Endothelium, and Mesenchyme During Thymic Injury on a Single Cell Level

Unique Drivers of Inflammation and Fibrosis (Q6)

*Boris Hinz, University of Toronto, Canada
*Maria Trojanowska, Boston University School of Medicine, USA
Anissa A. Widjaja, DUKE-NUS Medical School, Singapore
Hiding in Plain Sight: Interleukin-11 Emerges as a Master Regulator of Fibrosis, Tissue Integrity and Stromal Inflammation
Pilar Alcaide, Tufts University School of Medicine, USA
T Cell Regulation of Cardiac Fibrosis

Jelena Mann, Newcastle University, UK
Epigenetics and Fibrosis
Ning Ding, Genentech, Inc., USA
Short Talk: WISP1 Activates MRTF to Promote the Progression of Established Liver Fibrosis
Akiyoshi Uemura, Nagoya City University, Japan
Short Talk: Activated Microglia Promote Fibrosis in Pericyte-Deficient Retina

Endothelial Cells in Immunity and Disease (Q5)

* Amandla Lund, New York University, USA
Scott N. Mueller, University of Melbourne, Australia
Disentangling the Splenic Stromal Cell Network in Health and Disease
Cornelia Hain, ETH Zürich, Switzerland
Leukocyte Migration through Afferent Lymphatic Vessels
Ulrich H. Von Andrian, Harvard Medical School, USA
Lymphocyte Patrol of Blood Vessel Endothelium
Akira Takeda, University of Turku, Finland
Short Talk: Human Lymphatic Endothelial Heterogeneity in Health and Disease
Madeline Churchill, Oregon Health and Science University, USA
Short Talk: Dermal Lymphatic Capillary ‘Zippering’ Enhances CD8+ T Cell Priming Following Cutaneous Viral Infection

Poster Session 2

SUNDAY, FEBRUARY 23

4:00 – 6:00 p.m.

Stromal Cells in Immunity and Disease (Q5)

* Derek A. Mann, Newcastle University, UK
Thomas A. Wynn, New York University, USA
Targeting Type 1 and Type 2 Fibrosis
Tatiana Kisseeleva, University of California, San Diego, USA
The Role of Mesothelin in the Pathogenesis of Parenchymal Organs
Scott L. Friedman, Icahn School of Medicine at Mount Sinai, USA
Target Selection and Validation for Antifibrotic Therapies in Liver
Christine Kim Garcia, Columbia University Medical Center, USA
Pulmonary Fibrosis: Inherited Susceptibilities and Personalized Prognostics
Jennifer Y. Chen, University of California, San Francisco, USA
Short Talk: Targeting Acid Ceramidase Inhibits YAP/TAZ Mechanosignaling to Ameliorate Fibrosis
Andreas Schlitzer, University of Bonn, Germany
Short Talk: Inflammation Experienced Trem2+ Monocyte-Derived Alveolar Macrophages Control Pulmonary Inflammatory Reactivity and Protect from Lung Fibrosis
Stromal Cells in Cancer and Anti-Tumor Immunity (Q5)

*Déleline Salmon*, Institut Curie and Mount Sinai School of Medicine, France
**Amanda Lund**, New York University, USA
Lymphatic Vessels and the Cancer Immunity Life Cycle
**Anne Fletcher**, Monash University, Australia
Human T Cell Suppression Triggered through Cross-Talk with Cancer-Associated Fibroblasts
**Ruth Ganss**, Harry Perkins Institute of Medical Research, Australia
Stromal Remodeling and Targeting in Cancer
**Jacqui Shields**, University of Cambridge, UK
Beyond the Cancer Cell: Exploring the Tumour Stroma as Immune Modulators

John Andrew Grout, Mount Sinai School of Medicine, USA
Short Talk: Single Cell Transcriptomic Dissection of the Stromal Cell Compartment in Early-Stage Non-Small Cell Lung Carcinoma (NSCLC)
**Anthony B. Rodriguez**, University of Virginia School of Medicine, USA
Short Talk: Tumor-Associated Fibroblasts Act As Surrogate Lymphoid Tissue Organizer Cells That orchestrate Tumor-Associated Tertiary Lymphoid Structure Development

Distinct and Common Mechanisms of Fibrosis Revealed by Different Tissues (Q6)

*Robert V. Martinez*, Pfizer Inc., USA
**Anna Burkart Sadusky**, NIDDK, National Institutes of Health, USA
Mechanisms and Future Clinical Trial Endpoints of Intestinal Fibrosis
**Daniel Tschumperlin**, Mayo Clinic, USA
Targeting YAP/TAZ in Lung and Liver Fibrosis
**Valerie M. Weaver**, University of California, San Francisco, USA
Tissue Tension Induces Matricellular Fibrosis and Tumor Progression in Pancreas
**Tapas Mukherjee**, University of Toronto, Canada
Short Talk: Deciphering the Influence of Crohn’s Disease-Associated Genetic Risk Factor, NOD2 in Intestinal Fibrosis
**Ji Zhang**, Merck & Co., Inc., USA
Short Talk: Molecular Profiling Reveals A Common Metabolic Signature of Tissue Fibrosis

Stroma Cell Contributions During Infection and Inflammation (Q5)

*Sanjiv A. Luther*, University of Lausanne, Switzerland
Melody A. Swartz, University of Chicago, USA
Role of Lymphatic Endothelial Cells in the Regulation of T Cell Memory
**Susan R. Schwab**, New York University School of Medicine, USA
Exit Strategies: S1P Gradients in Inflammation
**Marc Bajénoff**, Centre d'Immunologie Marseille-Luminy, France
Lymphoid Stromal Cells are Essential Components of Macrophage Niches
**Mandy J. McGeachy**, University of Pittsburgh, USA
Short Talk: IL-17 Signals to Lymphoid Stroma to Support Function during Th17 Autoimmune and Th1/CTL Anti-Viral Responses
**David F. Boyd**, St. Jude Children's Research Hospital, USA
Short Talk: Inflammatory Fibroblasts Determine the Outcome of Severe Respiratory Infection in an ADAMTS4-Dependent Manner
**Workshop 3: Moving Anti-Fibrotic Strategies and Targets to the Clinic (Q6)**

- *Edda Fiebiger*, Abbvie, USA
  - Fibroblast Positional Identity Controlled by Inductive Notch Signaling Underlies Pathologic Damage in Inflammatory Arthritis

- *Paul J. Yaworsky*, Mediar Therapeutics, USA
  - Serum Biomarker Responses of Pulmonary Fibrosis Patients after Treatment with the LOXL2/TFGFβ1 Inhibitor EGCG

- *Guiquan Jia*, Genentech, Inc., USA
  - Modulation of a Plasma Cell Signature by Interleukin 6 in Systemic Sclerosis Skin Tissue

- *Juan Juan Marugan*, NCATS, National Institutes of Health, USA
  - ML290 Ameliorates Fibrosis in Multiple in vivo Models

- *Alex Peidl*, Western University, Canada
  - Therapeutic Peptides Based on CCN3 Treat Systemic Sclerosis in a Mouse Model of the Disease

- *Martin Hausmann*, University Hospital Zurich, Switzerland
  - New Therapeutic Approach to Intestinal Fibrosis by Inhibition of pH-Sensing Receptor GPR4-Induced Rho Activation

- *Martin Leduc*, Liminal R&D BioSciences Inc., Canada
  - Fezagepras (PBI-4050) Reduces Pulmonary Fibroblast Activation, Proliferation, and AKT/mTORC/4E-BP1 Signaling

- *Piotr L. Sklepkiwicz*, OncoArendi Therapeutics SA, Poland
  - Chitotriosidase (CHIT1) as a Novel Therapeutic Target in Idiopathic Pulmonary Fibrosis (IPF)

**Workshop 3: Role of Stromal Cells in Inflammation and Anti-Tumor Immunity (Q5)**

- *Viviana Cremasco*, Novartis Institutes for BioMedical Research, USA
  - *Anne Fletcher*, Monash University, Australia
  - *Hung N. Nguyen*, Brigham and Women's Hospital, USA
  - *Fumitaka Mizoguchi*, Tokyo Medical and Dental University, Japan
  - *Maria Steele*, Oregon Health & Science University, USA
  - *Hafsia Munir*, University of Cambridge, UK
  - *Sandra Ring*, Kantonsspital St. Gallen, Switzerland
  - *Laura Donlin*, Hospital for Special Surgery & Weill Cornell Medicine, USA
  - *Elisabetta Dondi*, INSERM, France

**New Directions in Dissecting Stromal Cell Functions (Joint)**

- *Burkhard Ludewig*, Kantonsspital St. Gallen, Switzerland
  - Chronic Lymphocytic Leukemia Nurse-Like Cells are an Alternative Source of CCL21 Homeostatic Chemokine in Disorganized Lymph Nodes

**Meeting Wrap-Up: Outcomes and Future Directions (Joint)**

MONDAY, FEBRUARY 24
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