

ASMB/Vanderbilt 2019 Workshop on Basement Membranes

July 10-12, 2019

Vanderbilt University Medical Center
Nashville, TN

Meeting Chairs: Roy Zent and Jeffrey Miner

All Abstracts Available ONLINE – www.asmb.net.

Wednesday, July 10th

5:00-6:00 pm Registration Open

Location: Light Hall North Lobby

6:00-7:30pm Welcome and Keynote Address

Location: Light Hall 214

Matrix Mechanobiology: The role of matrix stiffening in vascular function

Cynthia Reinhart-King, *Vanderbilt University, Nashville, Tennessee*

7:30pm Welcome Dinner

Location: Light Hall North Lobby

Thursday, July 11th

7:30-8:30 am Networking Breakfast

Location: Light Hall North Lobby

8:30-10:00 am Session I: Innovative Tools for Basement Membranes Research

Location: Light Hall 214

Chair: TBA

8:30 am **Shared mechanisms in adult basement membrane repair and homeostasis**, Andrea Page-McCaw, *Vanderbilt University* Poster #1

9:00 am **Structure-function studies of integrin $\alpha 1\beta 1$** , Kyle L. Brown, *Vanderbilt University Medical Center* Poster #2

9:15 am **TGF-beta regulates collagen posttranslational modifications in a site-specific manner**, Trayambak Basak, *Center for Matrix Biology, Department of Medicine, Division of Nephrology and*

Hypertension, Vanderbilt University Medical Center Poster #3

9:30 am **Linking basement membrane composition with cell morphology**, Rachel Lennon, *Wellcome Centre for Cell-Matrix Research, University of Manchester, Manchester, UK*

10:00-10:30 am Coffee Break

Location: Light Hall North Lobby

10:30-12:00 pm Session II: Biophysics of Basement Membranes

Location: Light Hall 214

Chair: Deborah Fass, Weizmann Institute of Science, Rehovot, Israel

10:30 am **Catalysis of disulfide bond formation downstream of the endoplasmic reticulum is required for extracellular matrix integrity**, Deborah Fass, *Weizmann Institute of Science, Rehovot, Israel*

11:00 am **Elucidating the mechanisms underlying basement membrane flexibility in *C. elegans***, Claire Gianakas, *Duke University* Poster #6

11:15 am **Bipartite recognition of laminin by integrin: mechanism and biological implications**, Kiyotoshi Sekiguchi, *Osaka University, Osaka, Japan* Poster #7

11:45 am **Wrap-up Discussion**

12:00-2:00 pm Poster Session I - Lunch

Location: Light Hall North Lobby

2:00-3:30 pm Session III: Basement Membrane Assembly

Location: Light Hall 214

Chair: José Carlos Pastor-Pareja, Tsinghua University, Beijing, China

- 2:00 pm **Typical and atypical basement membranes in *Drosophila*. What's normal, anyway?**, José Carlos Pastor-Pareja, *Tsinghua University, Beijing, China*
- 2:30 pm **A chloride ring is a dynamic structure mediating the assembly of the collagen IV scaffold**, Sergey Budko, *Vanderbilt University Medical Center* Poster #8
- 2:45 pm **Kinesin-3 and kinesin-1 motors direct the polarized secretion of basement membrane proteins in the *Drosophila* follicular epithelium**, Allison L. Zajac, *University of Chicago*, Poster #9
- 3:00 pm **Organization of the Laminin Polymer Node**, Peter Yurchenco, *Rutgers - Robert W. Johnson Medical School* Poster #10

3:30-4:00 pm Coffee Break

Location: Light Hall North Lobby

4:00-4:30 pm Business Meeting & Travel Award Presentations

Location: Light Hall 214

4:30-6:00 pm Session IV: Diversity of Basement Membranes

Location: Light Hall 214

Chair: Bill Brunken, SUNY Upstate Medical University, Syracuse, New York

- 4:30 pm **Retinal Laminins: A Tale of Two Basement Membranes**, Bill Brunken, *SUNY Upstate Medical University, Syracuse, New York*
- 5:00 pm **Hemicentin 1 assembles into tracks along the extracellular matrix of multiple tissues in mice**, Meei-Hua Lin, *Washington University School of Medicine, St. Louis, Missouri, USA* Poster #11

- 5:15 pm **Investigating basement membrane assembly in patient-derived kidney organoids**, Pinyuan Tian, *University of Manchester* Poster #12

- 5:30 pm **Coordinated Expression of Laminins in Retinal Vascular Basement Membranes**, Jared Watters, *SUNY - Upstate Medical University* Poster #13

- 5:45 pm **β 2- and γ 3-containing laminins regulate axon sorting at the chiasm and innervation of retinorecipient nuclei**, Reyna I. Martínez-De Luna, *Upstate Medical University* Poster #14

7:15 pm Dinner at Bella Napoli (included)

Meet at Light Hall at 7:00pm to walk together to 1200 Villa Place Ste 206, Nashville, TN 37212.

Friday, July 12th

7:30-8:30 am Networking Breakfast

Location: Light Hall North Lobby

8:30-10:00 am Session V: Cell-Basement Membrane Interactions

Location: Light Hall 214

Chair: Lydia Sorokin, University of Muenster, Muenster, Germany

- 8:30 am **The Role of Endothelial Laminins in Vascular Shear Response**, Lydia Sorokin, *University of Muenster, Muenster, Germany*
- 9:00 am **Constitutive Integrin β 1 Signaling Promotes Initiation and Growth of Lung Cancer**, Scott M. Haake, *Vanderbilt University Medical Center* Poster #15
- 9:15 am **LaNt α 31 influences cell adhesion and migration through modulation of laminin organisation and hemidesmosome maturation**, Lee D. Troughton, *University of Liverpool* Poster #16

9:30 am **Fibroblast ablation affects cardiomyocyte calcium handling and contractility via basement membrane disruption**, Jill T. Kuwabara, *University of Hawaii at Manoa*
Poster #17

9:45 am **Laminin interactions with the pancreatic islet protect against cytokine-mediated beta-cell death via down-regulation of protein kinase C delta**, Nikki L. Farnsworth, *Colorado School of Mines, University of Colorado Denver Anschutz Medical Campus* Poster #18

10:00-10:30 am Coffee Break

Location: Light Hall North Lobby

10:30-12:00 pm Session VI: Basement Membranes and Disease

Location: Light Hall 214

Chair: Jeff Miner, Washington University School of Medicine, St. Louis, Missouri

10:30 am **Glomerular basement membrane defects**, Jeff Miner, *Washington University School of Medicine, St. Louis, Missouri*

11:00 am **Identification and characterization of skeletal defects in Col4a1 mutant mice**, Douglas Gould, *University of California San Francisco* Poster #20

11:15 am **Human LAMA5 mutation associated with focal segmental glomerulosclerosis**, Yamato Kikkawa, *Laboratory of Clinical Biochemistry, Tokyo University of Pharmacy and Life Sciences* Poster #21

11:30 am **The minimum prevalence of undiagnosed X-linked and recessive Alport syndrome deduced from likely pathogenic variants in the gnomAD variant database**, Judy Savige, *The University of Melbourne* Poster #22

12:00-2:00 pm Poster Session II - Lunch

Location: Light Hall North Lobby

2:00-3:30 pm Session VII: Therapeutics in Basement Membrane Disease

Location: Light Hall 214

Chair: Markus Ruegg, Biozentrum, The University of Basel, Basel, Switzerland

2:00 pm **Molecular mechanisms involved in MDC1A / LAMA2 muscular dystrophy and development of possible treatment options**, Markus Ruegg, *Biozentrum, The University of Basel, Basel, Switzerland*

2:30 pm **Fused in Sarcoma/Translocated in Liposarcoma (FUS/TLS): a novel regulator of collagen IV production**, Manuel Chiusa, *Vanderbilt University Medical Center* Poster #23

2:45 pm **The laminin-binding integrins regulate cell-cell interactions and the inflammatory status of the kidney collecting duct epithelium via NFκB/E-cadherin pathway**, Eugenia M. Yazlovitskaya, *Vanderbilt University Medical Center* Poster #24

3:00 pm **Material-driven fibronectin assembly rescues matrix defects due to mutations in collagen IV in fibroblasts**, Tom Van Agtmael, *Centre for the Cellular Microenvironment, University of Glasgow, Glasgow, UK* Poster #25

3:30-4:00 pm Coffee Break

Location: Light Hall North Lobby

4:00-5:30 pm Session VIII: Young Investigator Spotlight

Location: Light Hall 214

Chairs: Jeff Miner and Roy Zent

4:00 pm **Identifying variants in basement membrane genes associated with human disease**, Anna S Li, *Wellcome Centre for Cell-Matrix Research, University of Manchester, Manchester, UK* Poster #26

4:15 pm **Effects of pulmonary alveolar epithelial basement membrane proteins on adherence and proliferation of the human fungal pathogen *Cryptococcus neoformans***, Congyue Annie Peng, *Clemson University* Poster #27

4:30 pm **Cytokine-induced ECM alterations in diabetic retinopathy pathogenesis,**
Meredith J. Giblin, *Vanderbilt University*
Poster #28

4:45 pm **β 1 Integrin Regulates Type 2 Alveolar Epithelial Cell Inflammatory Signaling,**
Erin Plosa, *Vanderbilt University* Poster #29

5:00 pm **Super-resolution evaluation of Glomerular Basement Membrane changes in Transplant Glomerulopathy,** Hani Suleiman, *Washington University in Saint Louis* Poster #30

5:15 pm **Diverse roles of laminin- α 5 in stroke pathogenesis,** Yao Yao, *University of Georgia* Poster #31

7:00 pm Closing Dinner (*included*)

Jack's BBQ 416 Broadway, Downtown
Join us at this Nashville institution by taking Lyft (10-15 min. drive). Each participant may use code ASMB2019 for one free ride to or from the restaurant. Code only valid on 7/12 for the ride to/from Jack's BBQ & vicinity.

Many Thanks to ASMB's Sponsors:



Funding for this conference was made possible (in part) by a grant (1R13AR076257-01) from the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS). The views expressed in written conference materials or publications and by speakers and moderators do not necessarily reflect the official policies of the Department of Health and Human Services; nor does mention by trade names, commercial practices, or organizations imply endorsement by the U.S. Government.



We are grateful for the invaluable help of the planning committee. Many thanks to:

Sally Horne-Badovinac, *University of Chicago*
David Sherwood, *Duke University*
Lydia Sorokin, *University of Muenster*
Peter Yurchenco, *Rutgers University*