Lymphatic Forum 2017: Exploring the Lymphatic Continuum
June 8-10, 2017
Northwestern University, Chicago, IL

Meeting Program

Sponsors:

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Lymphatic Education & Research Network

NAVBO
North American Vascular Biology Organization

Organizers:

Guillermo Oliver, Northwestern University
Jan K. Kitajewski, University of Illinois Chicago
Susan Quaggin, Northwestern University
Stanley Rockson, Stanford University
David Zawieja, Texas A&M University
with Co-Organizer: William Repicci, LE&RN
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Thursday June 8th

8:50 am - 9:00am Welcome

9:00 am - 1:00 pm Endothelial Cells and Lymphangiogenesis (Chair: Guillermo Oliver)

9:00 am - 9:30 am Brant Weinstein (NICHD/NIH, Bethesda, MD, USA)
Novel lymphatic-related cells in the brain

9:30 am - 10:00 am Stefan Schulte-Merker (Westfälische Wilhelms-Universität, Münster, Germany)
Intracellular uptake of macromolecules by brain lymphatic endothelial cells

10:00 am - 10:30 am Peter Carmeliet (University of Leuven, Belgium)
Angiogenesis revisited: role and (therapeutic) implications of endothelial metabolism

10:30 am - 11:00 am Coffee Break

11:00 am - 11:30 am Tatiana Petrova (University of Lausanne, Switzerland)
Lymphatics and lymph node development

11:30 am - 12:00 am Taija Makinen (Uppsala University, Sweden)
Mechanisms of sprouting lymphangiogenesis

12:00 pm - 12:30 pm Mark Kahn (University of Pennsylvania, Philadelphia, PA, USA)
Mechanisms of postnatal lymphangiogenesis

12:30 pm - 12.45 pm Short Talk
Zoltan Jakus (Semmelweis University, Budapest, Hungary)
001 - Organ Specific Induction of Lymphatic Growth with Nanoparticle-Encapsulated Nucleoside-Modified VEGFC mRNA (VEGFC mRNA-LNP) Complexes In Vivo

12.45 pm - 1:00 pm Poster Teaser Presentations
Yixin Wang (Karolinska Institutet, Stockholm, Sweden)
T16 - Genetic prevention of PDGFB-dependent mural cell recruitment does not alter lymph vessel identity.

12:48 pm Yael Kenig-Kozlovsky (Northwestern University, Chicago, IL, USA)
T09 - Novel “Hybrid” Vessels in the Renal Vasculature and their Role in Proper Renal development and function
12:51 pm  **Hyun Min Jung** (NICHD/NIH, Bethesda, MD, USA)  
T17 - *Live imaging of the lymphatic vascular network using transgenic zebrafish*

12:54 pm  **Xiaolei Liu** (Northwestern University, Chicago, IL, USA)  
T19 - *Rasip1 is a novel regulator of lymphatic vasculature formation*

12:57 pm  **Ajit Muley** (Columbia University Medical School, New York, NY, USA)  
T37 - *MMP14 suppresses LEC proliferation downstream of ERK activation in lymphatic valve maturation and homeostasis*

1:00 pm - 3:00 pm  **Lunch in the Atrium**

3:00 pm - 6:00 pm  **Lymphatic Physiology and Function (Chair: David Zawieja)**

3:00 pm - 3:30 pm  **Jens Titze** (Vanderbilt University, Nashville, TN, USA)  
*Rethinking osmolyte metabolism in the skin*

3:30 pm - 4:00 pm  **Gwendalyn Randolph** (Washington University in St. Louis, MO, USA)  
*Lymphatics and fat transport*

4:00 pm - 4:30 pm  **Michael Davis** (University of Missouri-Columbia, MO, USA)  
*The initiation, conduction and coordination of lymphatic contractions*

4:30 pm - 5:00 pm  **Joseph Rutkowski** (Texas A&M Health Science Center, College Station, TX, USA)  
*Lymphatic vessel functions in chronic inflammation*

5:00 pm - 5:30 pm  **Joshua Scallan** (University of South Florida, Tampa, FL, USA)  
*Regulation of lymphatic vascular permeability*

5:30 pm - 5:45 pm  **Short talk**  
**Alexandra Magold** (University of Chicago, IL, USA)  
002 - *Primary cilia on lymphatic endothelial cells and their roles in flow sensing*

5:45 pm - 6:00 pm  **Poster Teaser Presentations**

5:45 pm  **Eleftheria Michalaki** (Stanford University, Stanford, CA, USA)  
*T04 - Investigating the effect of spatially varying wall shear stress on lymphatic endothelial cell alignment and transcriptional regulation*

5:48 pm  **Giorgia Ciliberti** (Goethe University Frankfurt, Germany)  
*T36 - The role of polyunsaturated fatty acid - derived epoxides and diols in angiogenesis and lymphangiogenesis*

5:51 pm  **Veronique Angeli** (National University of Singapore)  
*T41 - HDL: a novel modulator of lymphatic transport?*

5:54 pm  **Jorge Castorena-Gonzalez** (University of Missouri-Columbia, MO, USA)  
*T45 - Connexin-45 plays a critical role in the conduction and coordination of spontaneous contractions in collecting lymphatic vessels*

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5:57 pm  Antoine Louveau (University of Virginia, Charlottesville, VA, USA)
T49 - Meningeal lymphatics mediate immune cells/antigen circulation and impact neuroinflammation

6:00 pm  Dinner on your own

7:30 pm - 9:30 pm  Posters in the Atrium – light refreshments will be served

Friday June 9th

9:00 am - 1:00 pm  Lymphatics and Disease I (Chair: Jan Kitajewski)
9:00 am - 9:30 am  Miikka Vikkula (de Duve institute, Université de Louvain, Belgium)
Characterization of genetic heterogeneity of primary lymphedema

9:30 am - 10:00 am  Sahar Mansour (St. George's, University of London, United Kingdom)
Generalized lymphatic dysplasias

10:00 am - 10:30 am  Maxim Itkin (University of Pennsylvania, Philadelphia, PA, USA)
Current status of imaging and interventions in lymphatic flow disorders

10:30 am - 11:00 am  Coffee Break

11:00 am - 11:30 am  Elizabeth Henske (Harvard Medical School, Boston, MA, USA)
Autophagy-dependent metabolic dysregulation in the pathogenesis of lymphangioleiomyomatosis

11:30 am - 12:00 pm  Babak Mehrara (Memorial Sloan-Kettering Cancer Center, New York, USA)
Regulation of lymphatic function in lymphedema

12:00 pm - 12:30 pm  Frank McCormack (University of Cincinnati, OH, USA)
Lymphatic biomarkers in lymphangioleiomyomatosis

12:30 pm - 12:45 pm  Francine Blei (Lenox Hill Hospital, New York, NY, USA)
Clinical Presentation – Lymphatic malformations - clinical correlates to basic research

12:45 pm - 1:00 pm  David Chang (University of Chicago, IL, USA)
Clinical Presentation – Surgical treatment of lymphedema

1:00 pm - 1:20 pm  The NIH and Lymphatic Research
Cheryl Lapham (NIAID) and Patricia Greenwel (NIDDK) will discuss their institutes’ interest in lymphatic research

1:20 pm - 3:00 pm  Lunch in the Atrium

3:00 pm - 6:00 pm  Lymphatics and Disease II (Chair: Miikka Vikkula)

3:00 pm - 3:30 pm  Gou Young Koh (Institute of Basic Science/KAIST, South Korea)
Organ-specific lymphatic remodeling: intestinal lacteal and Schlemm’s canal

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4:00 pm - 4:30 pm  Michael Detmar (ETH Zurich, Switzerland)
Mechanisms of lymphatic vessel-mediated tumor progression

4:30 pm - 5:00 pm  Clinical cases (patients)
Lymphatic Disease: The patients speak for themselves

5:00 pm - 5:30 pm  Stanley Rockson – Clinical Presentation (Stanford University)
Lymphatic disease: State of the art and clinical opportunity

5:30 pm - 5:45 pm  Short talk
Hong Chen (Boston Children’s Hospital, Boston, MA, USA)
003 - Suppression of epsin expression limits VEGFR3 degradation and rescues diabetes triggered impairment of lymphangiogenesis

5:45 pm - 6:00 pm  Poster Teaser Presentations
5:45 pm  Susana Garcia-Silva (Spanish National Cancer Research Center, Madrid, Spain)
F15 - Modulation of the pre-metastatic lymph node niche by melanoma cells through secreted exosomes

5:48 pm  Vincenza Cifarelli (Washington University in St.Louis, USA)
F08 - CD36 deletion causes disruption of intestinal lymphatic integrity and fatty liver in mice

5:51 pm  Steven Proulx (ETH Zurich, Switzerland)
F44 - Outflow of cerebrospinal fluid is lymphatic-specific and reduced in aged mice

5:54 pm  Peter Baluk (University of California, San Francisco, CA, USA)
F22 - Rapamycin induces partial regression of newly formed abnormal lymphatics

5:57 pm  Amy Tian (Stanford University, CA, USA)
F16 - Leukotriene B4 Antagonism Ameliorates Experimental Lymphedema

6:00 pm  Dinner on your own

7:30 pm - 9:30 pm  Posters in the Atrium – light refreshments will be served

Saturday June 10th

9:00 am - 1:00 pm  Novel functional roles of the lymphatic vasculature
(Chair: Stanley Rockson)

9:00 am - 9:30 am  Kari Alitalo (Wihuri Research Institute / University of Helsinki, Finland)
Beyond brain barriers - venting the CNS

9:30 am - 10:00 am  Jonathan Kipnis (University of Virginia, USA)
Meningeal lymphatics in neurological diseases

10:00 am - 10:30 am  Martin Schwartz (Yale School of Medicine, USA)
Fluid shear stress signaling in lymphatic development

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10:30 am - 11:00 am  Coffee Break

11:00 am - 11:30 am  Kathleen Caron (University of North Carolina, USA)
Lymphatic vessels in functionally-specialized vascular beds

11:30 am - 12:00 pm  Helge Wiig (University of Bergen, Norway)
Role of the interstitium and lymphatics in salt-sensitive hypertension

12:00 pm - 12:30 pm  Michael Dellinger (University of Texas Southwestern Medical Center, Dallas, TX, USA)
Vessels and vanishing bones: development and characterization of a mouse model of Gorham-Stout disease

12:30 pm - 12:45 pm  Short talk
Samia Bachmann (ETH Zurich, Switzerland)
004 - Organ-specific regulation of lymphatic vessel function by the autonomic nervous system (also Poster F50)

12:45 pm - 1:00 pm  Nano-Talks
Rebecca Izen (National Institutes of Health, Bethesda, MD, USA)
Characterization of lymphatic vessel development in the central nervous system (Poster T15)

12:50 pm  Joanne Chan (Hampton University, Hampton, VA, USA)
Glycolytic metabolism and VEGFR3 signaling are required for lymphangiogenesis (Poster T14)

12:55 pm  Sawan Kumar Jha (University of Helsinki, Finland)
Mechanisms and Regulations of VEGF-C activation (Poster T30)

1:00 pm - 1:10 pm  Presentation of Travel and Poster Awards

1:10 pm - 3:00 pm  Lunch in the Atrium

3:00 pm - 6:00 pm  Tissue Engineering, Stem Cells and Epigenetics (Chair: Susan Quaggin)

3:00 pm - 3:30 pm  Carrie Shawber (Columbia University, New York, NY, USA)
Lymphatic endothelial progenitors in lymphatic pathologies

3:30 pm - 4:00 pm  Melody Swartz (University of Chicago, IL, USA)
Inflammation-induced lymphangiogenesis: A niche for memory T cells

4:00 pm - 4:30 pm  Philip Marsden (University of Toronto, ON, Canada)
Epigenetics and the endothelium: The role of physical fluid forces

4:30 pm - 5:00 pm  Shahin Raffi (Cornell University, New York, NY, USA)
Sox and Ets factors balance angiocrine function of the endothelium

5:00 pm - 5:30 pm  Ying Zheng (University of Washington, Seattle, WA, USA)
Engineering organ-specific vascular niches

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5:30 pm - 5:45 pm  **Short talk**  
Matthew Menendez (Oklahoma Medical Research Foundation, Oklahoma City, OK, USA)  
005 - Emerging roles of the chromatin-remodeling SWI/SNF ATPase BRG1 in omental lymphatic development (also Poster F49)

5:45 pm - 6:00 pm  **Nano-Talks**  
5:45pm  
Somin Lee (Seoul National University, Seoul, Republic of Korea)  
3D In vitro microfluidic model to reconstitute sprouting lymphangiogenesis (Poster F47)

5:50pm  
Ebba Brakenhielm (Inserm U1096, Rouen University, Rouen, France)  
Therapeutic stimulation of cardiac lymphangiogenesis –protein vs. gene therapy approaches post-MI (Poster F06)

5:55pm  
Witold Kilarski (University of Chicago, IL, USA)  
Local induction of lymphangiogenesis with engineered fibrin-binding VEGF-C promotes wound healing by increasing immune cell trafficking and matrix remodeling (Poster T22)

7:00 pm  **Farewell Dinner in the Atrium**

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