ANGIOMA ALLIANCE

Presents the 14th Annual

CCM SCIENTIFIC MEETING

THE DOUBLETREE BY HILTON HOTEL
SILVER SPRING, MD
NOVEMBER 8-9, 2018
Day 1 | Thursday, November 8th, 2018

7:30  Registration & Continental Breakfast, Connection Room
8:15  Welcome & Opening Remarks, Pinnacle Grand Ballroom

SESSION I – CLINICAL & BIOMARKERS

Moderated by Issam Awad, University of Chicago

8:20  Microbiome Signatures in Cerebral Cavernous Malformations
      Le Shen, University of Chicago

8:40  Spinal Cord Cavernous Malformations in the Familial Cerebral Cavernous Malformations Cohort: High prevalence and positive correlation with brain cavernous malformations
      Marc Mabray, University of New Mexico

9:00  Plasma Biomarkers of Cavernous Angioma with Symptomatic Hemorrhage (CASH)
      Seán Lyne, University of Chicago

9:20  A Multi-Site Validation of MRI Biomarkers of Vascular Leak and Hemorrhage for Forthcoming Clinical Trials
      Nick Hobson, University of Chicago

9:40  Invited talk – FDA perspective for Biomarker Qualification
      Christopher Leptak, Center for Drug Evaluation and Research, FDA

10:10 DISCUSSION

10:30 BREAK

SESSION II – TRANSLATIONAL STUDIES

Moderated by Doug Marchuk, Duke University

10:50  Cerebral Cavernous Malformations Form and Anticoagulant Vascular Domain
      Miguel Alejandro Lopez-Ramirez, University of California San Diego

11:10  A kinase inhibitor inhibits MEKK3-KLF signaling and prevents initiation and progression of cerebral cavernous malformations
      Xiangjian Zhen, Centenary Institute

11:30  A PDCD10 gut-brain axis exacerbates cerebral cavernous malformations
      Alan Tang, University of Pennsylvania

11:50 DISCUSSION

12:15 LUNCH - CONNECTION
**SESSION III – TRANSLATIONAL STUDIES & CLINICAL TRIALS**

Moderated by Rustam Al-Shahi Salman, University of Edinburgh

<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Presenter</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:20</td>
<td>Propranolol Repurposing and High Throughput Screening for treatment of Cerebral Cavernous Malformations</td>
<td>Joppe Oldenburg, Uppsala University</td>
</tr>
<tr>
<td>1:40</td>
<td>VE-cadherin targeted restoration of vascular integrity rescues cerebral cavernous malformation</td>
<td>Jennifer Gamble, Centenary Institute</td>
</tr>
<tr>
<td>2:00</td>
<td>Translation of ROCK2 inhibition to treat cavernous angioma</td>
<td>Lisa McKerracher, BioAxone BioSciences</td>
</tr>
<tr>
<td>2:20</td>
<td>Update on the clinical development for REC-994 (Tempol)</td>
<td>Tim Considine, Recursion Pharmaceuticals</td>
</tr>
<tr>
<td>2:40</td>
<td>Atorvastatin Treatment of Cavernous Angiomas with Symptomatic Hemorrhage Exploratory Proof of Concept (AT CASH EPOC) Trial</td>
<td>Sean Polster, University of Chicago</td>
</tr>
<tr>
<td>3:00</td>
<td>Treat CCM Clinical Trial – A multicenter randomized clinical trial on Propranolol in Cerebral Cavernous Malformation (CCM)</td>
<td>Roberto Latini, Istituto Di Ricerche Farmacologiche Mario Negri</td>
</tr>
<tr>
<td>3:20</td>
<td>DISCUSSION</td>
<td></td>
</tr>
<tr>
<td>3:50</td>
<td>GROUP PHOTO</td>
<td></td>
</tr>
</tbody>
</table>

**POSTER SESSION | DISCOVERY ROOM (4-5:30)**

<table>
<thead>
<tr>
<th>Title</th>
<th>Presenter</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA-1049 for Cavernous Angioma: target engagement and barrier function</td>
<td>Matthew Abbinanti, BioAxone BioSciences</td>
</tr>
<tr>
<td>CCM3, a protein mutated in cerebral cavernous malformation, is a signal transduction adapter</td>
<td>Kento Abe, University of Toronto</td>
</tr>
<tr>
<td>The Effect of Gut Microbiome on Chronic Models of CCM Lesion Formation</td>
<td>Christian Benavides, Duke University Medical Center</td>
</tr>
<tr>
<td>Ponatinib (AP24534) inhibits MEKK3-KLF signaling and prevent the initiation and progression of cerebral cavernous malformations</td>
<td>Jaesung Choi, Centenary Institute</td>
</tr>
<tr>
<td>Posterior Location and Inflammatory Comorbidities Increase Odds of Sporadic, Brain Cavernous Malformation Development</td>
<td>Kelly Flemming, Mayo Clinic</td>
</tr>
</tbody>
</table>
Low fluid shear stress conditions contribute to activation of cerebral cavernous malformation signaling pathways
Jennifer Gamble, Centenary Institute

Investigation of a novel mouse model for Cerebral Cavernous Malformations using Bub 1 b heterozygosity as a genetic sensitizer
Erin Griffin, Duke University Medical Center

Elucidation of mrck-1 pathways in tube development and embryogenesis of Caenorhabditis elegans
Evelyn Popiel, Sickkids

Genetic investigation of five Japanese CCM cases by whole-exome sequencing
Hiroki Hongo, The University of Tokyo

Multiple Bleeds, Lower Cranial Nerve Dysfunction and Gait Dysfunction Predict Lesser Employment Status after Brainstem Cavernous Malformation Diagnosis
Shivram Kumar, Mayo Clinic

Novel Derivatives of Fasudil that Inhibit ROCKII with Enhanced Potency and Kinase Selectivity
Matthew Lee, Cervello Therapeutics

Development of the pectoral fin vasculature in zebrafish embryos
Scott Paulissen, NICHD/NIH

Hemorrhagic Risk Factors in Cerebral Cavernous Malformations
Myranda Robinson, University of New Mexico

Regulation of endocytic trafficking and VEGFR2 receptor availability by a component of the microtubule motor dynein
Amber Stratman, NICHD/NIH

Artificial intelligence-powered drug discovery: using machine learning to identify novel therapeutic targets for CCM
Andrea Taddei, BenevolentAI

Introduction of Ranger Biotechnologies
Christina Udesen, Ranger Biotechnologies

Comorbidities and Cerebral Vascular Burden In Hereditary Hemorrhagic Telangiectasia
Ashley Wegele, University of New Mexico

Cause of Death in Familial Cerebral Cavernous Malformations: An Analysis of Prospective Database
Atif Zafar, University of New Mexico

5:30  BREAK

WELCOME DINNER | MRS. K’S RESTAURANT & CELLAR (7-9 PM)

9201 Colesville Road, Silver Spring, MD
Day 2 | Friday, November 9th, 2018

**CONCURRENT SESSION SCIENTIFIC MEETING & FAMILY CONFERENCE**

7:30  Registration & Continental Breakfast, Connection Room
8:30  Welcome & Introduction, Pinnacle Ballroom

8:40  **PLENARY PRESENTATION**
Rustam Al-Shahi Salman, University of Edinburgh

9:30  **BREAK**

**SESSION IV – VASCULAR SIGNALING STUDIES**
Moderated by Angela Glading, University of Rochester

9:50  *Characterizing the function of RHOA signaling in regulating cranial vascular integrity and development*
Laura Pillay, NICHHD/NIH

10:10 *Moving toward prognostic biomarkers and therapeutic strategies for CCM disease: KRIT1 loss-of-function causes increases in protein S-glutathionylation*
Andrea Perrelli, University of Torino

10:30 *Role for a Hippo-like pathway in Cerebral Cavernous Malformations?*
Amin Ghabrial, Columbia University College of Physicians and Surgeons

10:50 *Investigating the molecular interaction and modulation within CSC complex*
Akhil Padarti, Texas Tech University Health Science Center

11:10 *Novel and known genes elucidated in cerebral cavernous malformation through comparative transcriptomic analysis of multiple model species and human microdissected lesional endothelial cells*
Janne Koskimäki, University of Chicago

11:30  **DISCUSSION**

11:45  **LUNCH - CONNECTION**

**SESSION V – VASCULAR DEVELOPMENT & LESION GENESIS**
Moderated by Angeliki Louvi, Yale University

1:00  *Studying the origin and function of novel brain vascular-associated cells*
Maria Venero Galanternik, NICHHD/NIH

1:20  *MicroRNA-mediated control of developmental lymphangiogenesis*
Hyun Min Jung, NICHHD/NIH
1:40  Understanding the role of CCM3 in endothelial development and disease
Tvisha Misra, Sickkids

2:00  Cerebral Cavernous Malformations Develop through Clonal Expansion of Mutant Endothelial Cells
Matt Detter, Duke University Medical Center

2:20  Cerebral cavernomas arise from clonal expansion of endothelial cells
Matteo Malinverno, IFOM, FIRC Institute of Molecular Oncology Foundation

2:40  DISCUSSION

3:00  CLOSE OF MEETING

Thank you to our sponsors!