2014 Program
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00</td>
<td>Breakfast/Registration</td>
<td>Breakfast is kindly provided by Eton Biosciences</td>
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<tr>
<td>8:30</td>
<td>Mechanotransduction</td>
<td>Talks feature actin bundling, dorsal closure and actin-acrosome attachments</td>
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<tr>
<td>10:00</td>
<td>Morning Poster Session</td>
<td>Coffee and snacks are kindly provided by Olympus.</td>
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<tr>
<td>11:00</td>
<td>Cell Division</td>
<td>Talks feature centrosomes, spindles, kinetochores and a keynote from Daniela Cimini (Virginia Tech)</td>
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<tr>
<td>1:00</td>
<td>Lunch</td>
<td>Lunch is kindly provided Life Technologies</td>
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<tr>
<td>2:00</td>
<td>Cell Migration/Adhesion 1</td>
<td>Talks feature vimentin, collective cell migration lamellipodia orientation</td>
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<tr>
<td>3:00</td>
<td>Afternoon Poster Session</td>
<td>Coffee and snacks are kindly provided by Zeiss.</td>
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<tr>
<td>4:00</td>
<td>Cell Migration/Adhesion 2</td>
<td>Talks feature cilia function, neuronal filopodia and basement membrane adhesion</td>
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<tr>
<td>5:15</td>
<td>Happy Hour</td>
<td>Local brews and wine are kindly provided by Nikon and will be accompanied by sliders from a Korean taco truck</td>
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Mechanotransduction

Opening remarks

Novel actin related protein ACTL7B required for male fertility and acrosome attachment
Tracy Clement, PhD - NIEHS

Identification of the conformational changes in the vinculin tail domain that drive actin bundling
Peter Thompson, PhD - UNC-Chapel Hill

The function of cellular junctions during dorsal closure in Drosophila embryos
Utsun Tulu, PhD - Duke University

Cell mechanotransduction: new tools for molecular insight
INVITED SPEAKER: Richard Superfine, PhD - UNC/NCSU
Role of Separase in Regulation of Membrane Trafficking During Cytokinesis
Xiaofei Bai, Christopher Turpin, Joshua Bembenek - University of Tennessee, Knoxville

Nuclear Mechanics Studies with Combined AFM and Sideways Microscopy

Defining the role of Canoe in apical-basal polarity establishment in early Drosophila embryogenesis
Teresa Bonello, Kaelyn Sumigray, Mark Peifer - UNC-Chapel Hill

Coupling of the Yeast Metabolic Cycle to the Cell Division Cycle
Anthony Burnetti, Nicolas Buchler - Duke University

Afadin and ZO proteins maintain epithelial integrity by regulating actomyosin architecture and tension at the zonula adherens
Wangsun Choi, Jeffrey Hildebrand, Mark Peifer, Alan S. Fanning - UNC-Chapel Hill

Dynamics of basement membrane growth during larval gonad expansion in C. elegans
Matthew R. Clay, Daniel P. Keeley, David R. Sherwood - Duke University

TGF-β regulates LARG and GEF-H1 during EMT to impact stiffening response to force and cell invasion
Chromosomes mis-segregated into micronuclei cause chromosomal instability by further mis-segregating at subsequent mitoses

Bin He, Albert Hinman, Daniela Cimini - Virginia Tech

Investigating mechanisms of spindle positioning by cell-cell signaling

Jennifer Heppert, Bob Goldstein - UNC-Chapel Hill

The XMAP215 family utilizes structurally distinct TOG domains to interact with tubulin and processively promote microtubule polymerization

Howard, A.E., Campbell, J.N., Slep, K.C. - UNC-Chapel Hill

Changes in cell nucleus viscoelasticity in response to DNA damage

Caitlin Hult, Paula Vasquez, Josh Lawrimore, M. Gregory Forest, Kerry Bloom - UNC-Chapel Hill

Mechanisms of ciliary trafficking of kinesin-2 motor KIF17

HL Kee, Dishinger J, Blasius TL, Jenkins P, Hammond JW, Xiao Q, Martens J, Verhey K - University of Richmond

Architecture and Function of the Stu2 Dimerization Domain

Kevin C. Slep, Karen Plevock, Amy E. Howard, Jaime N. Campbell, Rebecca Adikes - UNC-Chapel Hill

The mechanism(s) of fibroblast haptotaxis

Samantha J. King, Sreeja B. Asokan, Congying Wu, Jeremy D. Rotty, Keefe Chan, Irina P. Lebedeva, James E. Bear - UNC-Chapel Hill

Host and bacterial factors mediate cytoskeletal rearrangements at the surface of the Chlamydia trachomatis pathogenic vacuole

Marcela Kokes, Raphael H. Valdivia - Duke University

Identifying vinculin tension dependent protein localization and phosphorylation in focal adhesions

Andrew LaCroix, Brenton Hoffman - Duke University

The centromere is a molecular tension machine


Morphodynamics of T Lymphocyte Migration

Xiaji Liu, Erik S. Welf, Jason M. Haugh - NCSU

Elucidating the role of the exon junction complex in mitosis


Information Theoretic Projection of Cytoskeleton Dynamics onto Surrogate Cellular Motility Models

Sorin Mitran - UNC-Chapel Hill

Design of a fully-functional Escherichia coli FtsZ-YFP

Desmond A. Moore, Harold P. Erickson - Duke University

B-LINK: A hemicentin, integrin and plakin-dependent adhesion system that links adjacent tissues through juxtaposed basement membranes

Meghan Morrissey, David R. Sherwood - Duke University

Mechanisms governing rapid, dynamic changes in cell size and formation of invasive cellular protrusions during C. elegans Anchor Cell Invasion

Kaleb M. Naegeli, David R. Sherwood - Duke University

Pathways of Force Response in Living Cells

Tim O’Brien, Marie Rougie, Yi Wu, Hui Wang, Mihai Azoitei, Onur Dagliyan, Klaus Hahn, Richard Superfine - UNC-Chapel Hill
Cell Division

Seeing is believing: Imaging mitosis in the developing brain
INVITED SPEAKER: Debra Silver, PhD - Duke University

Distinct pools of γ-tubulin regulate centrosome activity during epidermal differentiation
Andrew Muroyama - Duke University

Centrosomes are key components of mitotic spindle assembly and orientation in the symmetric divisions of Drosophila epithelial cells
John S Poulton, PhD - UNC-Chapel Hill

A FRET Biosensor for Tension Within Ndc80 Protein at the Kinetochore-Microtubule Interface
Aussie Suzuki, PhD - UNC-Chapel Hill

From aneuploidy to the mitotic spindle and back
KEYNOTE: Daniela Cimini, PhD - Virginia Tech
Probing the role of a novel TOG family protein in regulating cilia structure and function
Alakananda Das - UNC-Chapel Hill

TRIM9, a neuronally expressed E3 ubiquitin ligase, is a novel regulatory component of the filopodia tip complex
Shalini Menon, PhD - UNC-Chapel Hill

Basolateral Filopodia Lead Collective Migration in Epithelial Cells
David Courson, PhD - UNC-Chapel Hill
Afternoon Posters

Characterization of DTACC Structure and Function
Tanner Fadero, Rebecca Adikes, Jaime Campbell, Kevin Slep - UNC-Chapel Hill

Palladin Regulates both Gene Expression and the Metastasis-Promoting Behavior of Pancreatic Tumor-Associated Fibroblasts
Meredith Owen, Michael Kerber, Austin Cannon, Silvia Goicoechea, Rosa F. Hwang, Hong Jin Kim, Carol A. Otey - UNC-Chapel Hill

A Novel Non-neuronal Role of Acetylcholinesterase in Coordinating Polarized Cell Movements during Gut Morphogenesis
Melissa A. Pickett, Nanette Nascone-Yoder - NCSU

Prolonged neural progenitor prometaphase is a primary driver of microcephaly phenotypes
Louis-Jan Pilaz, John McMahon, Ashley Lennox, Emily Miller, Debra L. Silver - Duke University

MYO19 ensures symmetric partitioning of mitochondria and coupling of mitochondrial segregation to cell division
Omar A. Quintero, Jigna V. Patel, Rachel C. McMullan, Nathaniel L. Armistead, Buzz Baum, Jennifer L. Rohn - University of Richmond

Generating an Asymmetric Ring: The Roles of Anillin and F-actin Alignment
Kathryn Rehain, Jonas Dorn, Li Zhang, Benjamin Lacroix, Amy Maddox - UNC-Chapel Hill
Dissecting kinetochore mechanics by combining laser microsurgery and live cell microscopy
Emanuele Roscioli, Gheorghe Cojoc, Lijuan Zhang, Alfonso Garcia-Ulloa, Gul Civelekoglu-Scholey, Daniela Cimini, Iva Maria Tolic, Juraj Gregan - Virginia Tech

In vivo analysis of kinetochore force generation
Ian Ross, Isabelle Filiatreault, Jonas Dorn, Paul Maddox - UNC-Chapel Hill

Measuring force-dependent vinculin dynamics at focal adhesions
Katheryn E. Rothenberg, Brenton D. Hoffman - Duke University

The endocycle counteracts spindle pole clustering, yielding multipolar aneuploidy during normal Drosophila organ development
Kevin P Schoenfelder, Ruth A. Montague, Sarah V. Paramore, Ashley L. Lennox, Anthony P. Mahowald, Donald T. Fox - Duke University

JAM-A engagement reduces barrier function and supports mechanical forces
David W. Scott, Caitlin Tolbert, Richard Superfine, Keith Burridge - UNC-Chapel Hill

NuMA/microtubule interactions are critical for spindle orientation during asymmetric cell divisions
Lindsey Seldin, Terry Lechler - Duke University

Midbody Lineaging in the C. Elegans Embryo
James Ryan Simmons, Joshua Bembenek - University of Tennessee, Knoxville

Prostaglandins temporally regulate actin remodeling during Drosophila oogenesis

The Role of O-linked N-acetylglucosamine on Vimentin Function
Heather Tarbet, Tim Smith, Alex Broussard, Michael Boyce - Duke University

Modeling the effect of confinement on the mechanics of microtubule protofilaments
Kelly E. Theisen, Neha J. Desai, Allison M. Volski, Ruxandra I. Dima - Duke University

Understanding the regulation of +TIP complexes of microtubules
Kathryn Trogden, Stephen L Rogers - UNC-Chapel Hill

Unraveling the postsynaptic inhibitory proteome in vivo
Akiyoshi Uezu, Adam Swartz, Erik Soderblom, Scott Soderling - Duke University

Measuring mechanical forces across vinculin during epithelial sheet migration
Aarti Urs, Evan Gates, Brenton Hoffman - Duke University

Role of the Ndc80 loop domain and the DNA replication licensing protein Cdt1 in stable kinetochore microtubule attachments

KNL-1 lateral extension shows possible crosslinks between microtubule attachment sites
Xiaohu Wan, Amy Maddox, Paul Maddox, Ted Salmon - UNC-Chapel Hill

Alpha-Actinin Antibody Drives Structural Changes in the Z-band
Lloyd Zhao, Lanette Fee, Sehyang Han, Michael Reedy, Robert Perz-Edwards - Duke University

Optogenetic Control of the Actin Cytoskeleton
Seth P. Zimmerman, Ryan Hallet, Gurkan Guntas Brian Kuhlman, James E. Bear - UNC-Chapel Hill
Cell Migration/Adhesion

F-actin bundles containing fascin-1 direct the initiation and orientation of lamellipodia in migrating fibroblasts
Heath Johnson - NCSU

From Cells to Mice: Vimentin in Lung Cancer
Alessandra Salgueiro - Emory University

B-LINK: a newly identified adhesion system that connects tissues by linking adjacent basement membranes
INVITED SPEAKER: David Sherwood, PhD - Duke University