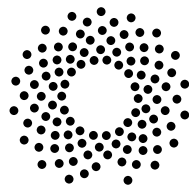


The  
Triangle  
Cytoskeleton  
Meeting



ascb

the american society for cell biology

2014 Program

# SCHEDULE

## SEPTEMBER 12TH @ RTP HEADQUARTERS

12 Davis Drive  
Research Triangle Park, NC 27709

### 8:00 Breakfast/Registration

Breakfast is kindly provided by Eton Biosciences

### 8:30 Mechanotransduction

Talks feature actin bundling, dorsal closure and actin-acrosome attachments

### 10:00 Morning Poster Session

Coffee and snacks are kindly provided by Olympus.

### 11:00 Cell Division

Talks feature centrosomes, spindles, kinetochores and a keynote from **Daniela Cimini (Virginia Tech)**

### 1:00 Lunch

Lunch is kindly provided Life Technologies

### 2:00 Cell Migration/Adhesion 1

Talks feature vimentin, collective cell migration lamellipodia orientation

### 3:00 Afternoon Poster Session

Coffee and snacks are kindly provided by Zeiss.

### 4:00 Cell Migration/Adhesion 2

Talks feature cilia function, neuronal filopodia and basement membrane adhesion

### 5:15 Happy Hour

Local brews and wine are kindly provided by Nikon and will be accompanied by sliders from a Korean taco truck

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## SPONSORS

## MEETING ORGANIZERS

Rebecca Adikes  
Vincent Boudreau  
Carlos Patiño-Descovich  
Karen Plevock  
Kaelyn Sumigray, PhD

With special thanks to:  
Amanda Chang - UNC-Chapel Hill  
Sophia Tintori - UNC-Chapel Hill

# 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

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# Morning Posters

## **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**

Kellie N. Beicker, E. Timothy O'Brien III, Michael R Falvo, Richard Superfine - UNC-Chapel Hill

## **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- $\beta$ regulates LARG and GEF-H1 during EMT to impact stiffening response to force and cell invasion**

Lukas D. Osborne, George Z. Li, Tam How, E. Tim O'Brien III, Gerard C. Blobel, Richard Superfine, Karthikeyan Mythreye - UNC-Chapel Hill

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**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**

[Josh G. Lawrimore](#), Paula A. Vasquez, Michael R. Falvo, Russell M. Taylor II, Leandra Vicci, Belinda Johnson, Elaine Yeh, M. Greg Forest, Kerry Bloom - UNC-Chapel Hill

**Morphodynamics of T Lymphocyte Migration**

[Xiaji Liu](#), Erik S. Welf, Jason M. Haugh - NCSU

**Elucidating the role of the exon junction complex in mitosis**

[Miller, E.E.](#), Pilaz, L.J., Suzuki, O., Salmon, T., Silver, D.L. - Duke University

**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 hemocentin, integrin and plakins-dependent adhesion system that links adjacent tissues through juxtaposed basement membranes**

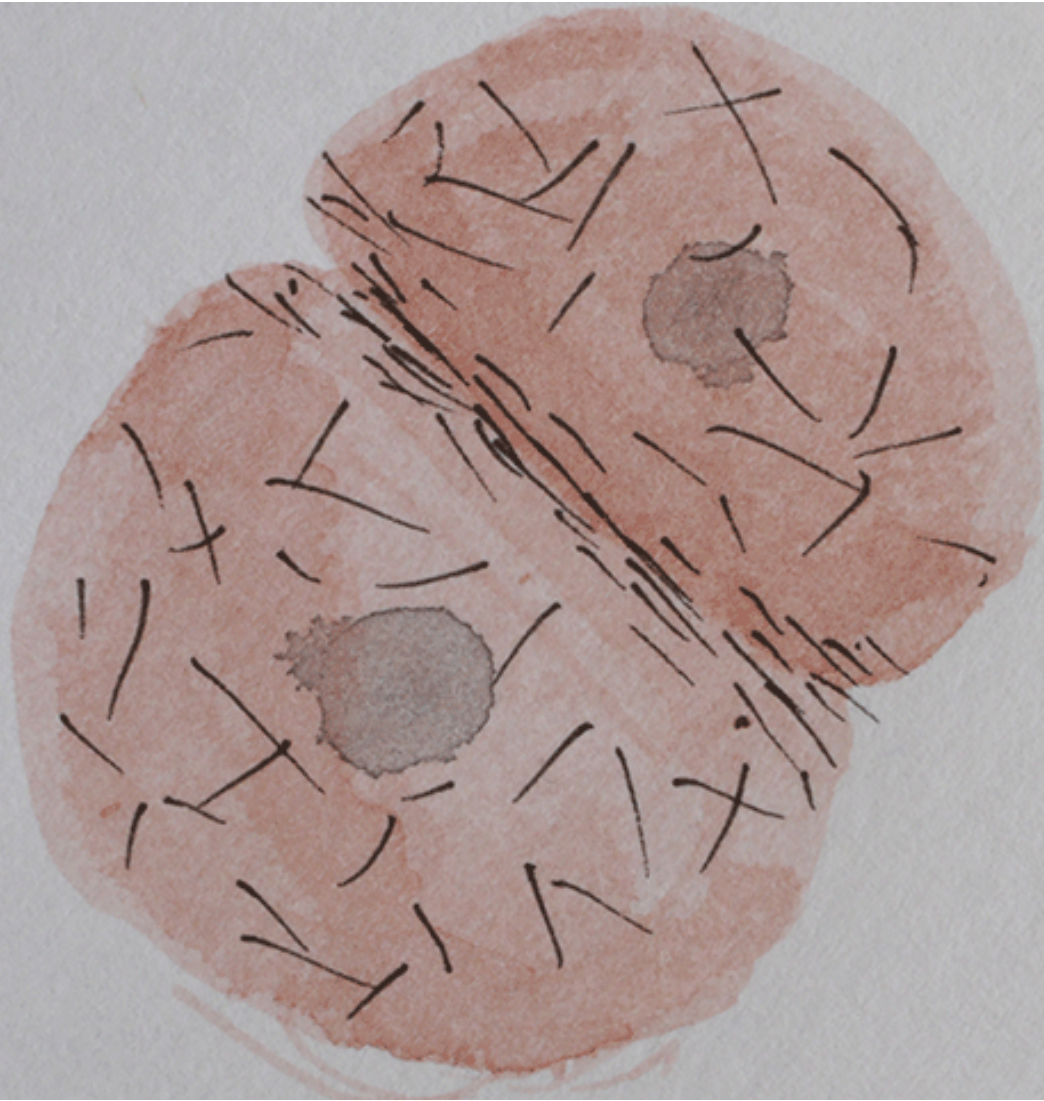
[Meghan Morrissey](#), David R. Sherwood - Duke University

**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  $\gamma$ -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 Kinetochores-Microtubule Interface**

Aussie Suzuki, PhD - UNC-Chapel Hill

**From aneuploidy to the mitotic spindle and back**

KEYNOTE: Daniela Cimini, PhD - Virginia Tech

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# Cell Migration/Adhesion

**Probing the role of a novel TOG family protein in regulating cilia structure and function**

Alakananda Das - UNC-Chapel Hill

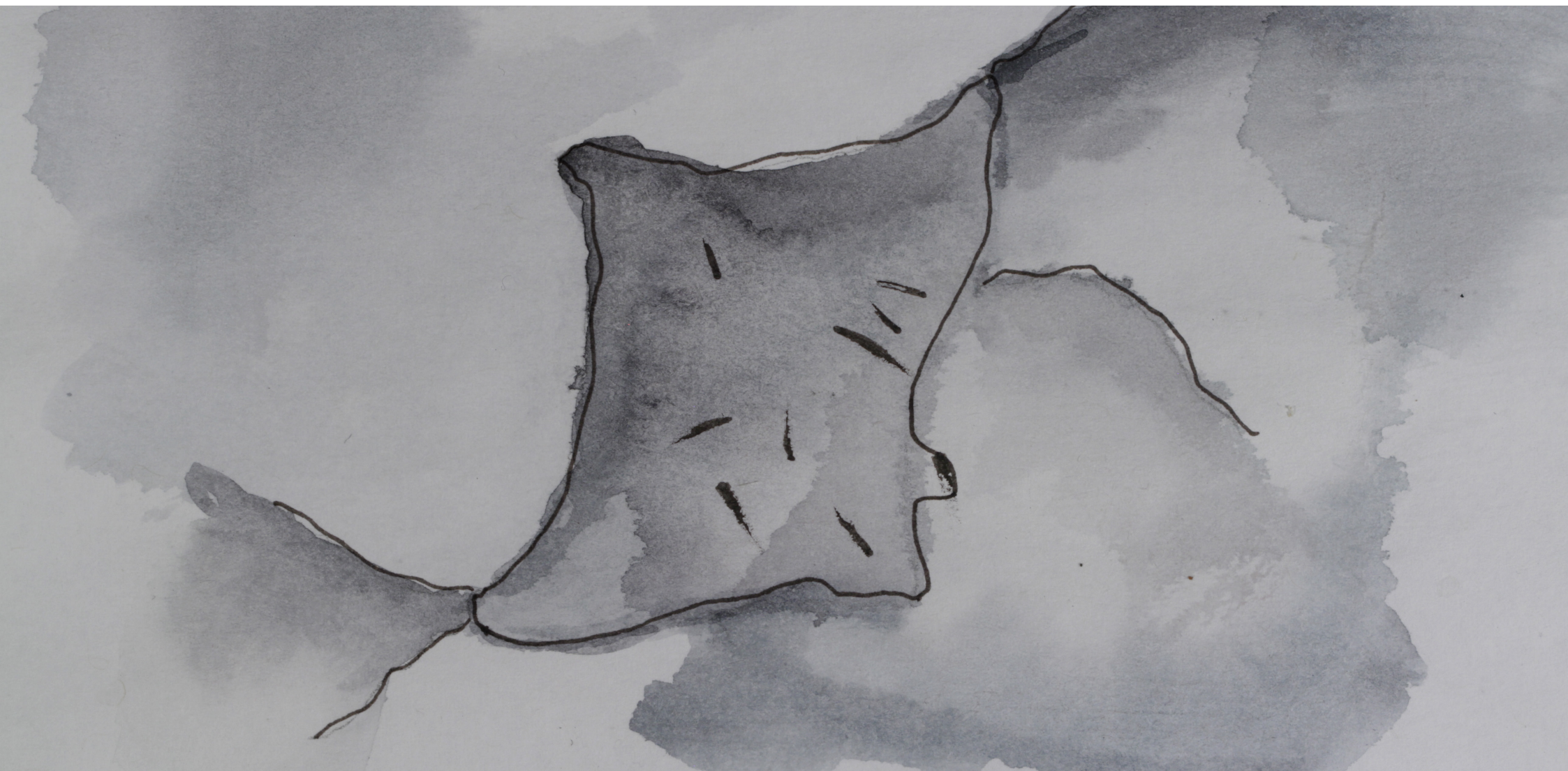
**TRIM9, a neuronally expressed E3 ubiquitin ligase, is a novel regulatory component of the filopodia tip complex**

Shalini Menon, PhD - UNC-Chapel Hill

**Basolateral Filopodia Lead Collective Migration in Epithelial Cells**

David Courson, PhD - UNC-Chapel Hill

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# 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

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**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**

[Spracklen, A.J.](#), Kelsch, D.J., Chen, X., Spracklen, C.N., Tootle, T.L. - UNC-Chapel Hill

**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**

[Dileep Varma](#), Srikripa Chandrasekaran, Lynsie J. R. Sundin, Karen T. Reidy, Xiaohu Wan, Dawn A. D. Chasse, Kathleen R. Nevis, Jennifer G. DeLuca, E. D. Salmon, and Jeanette Gowen Cook - UNC-Chapel Hill

**KNL-1 lateral extension shows possible crosslinks between microtubule attachment sites**

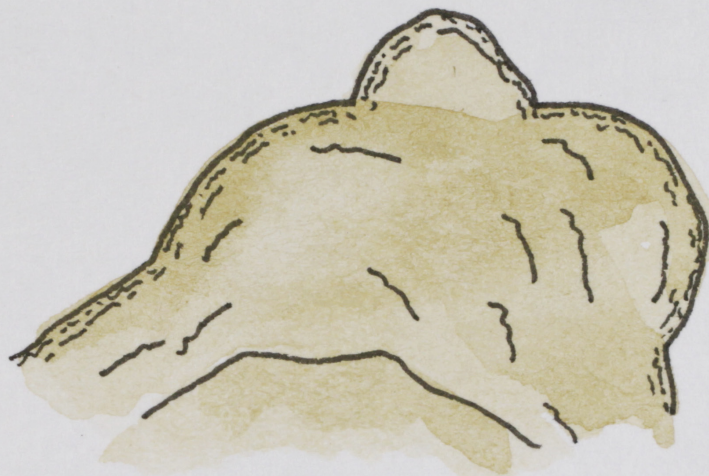
[Xiaohu Wan](#), Amy Maddox, Paul Maddox, Ted Salmon - UNC-Chapel Hill

**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**

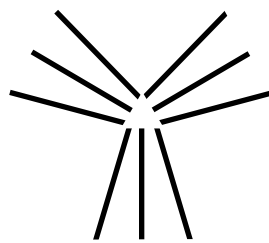
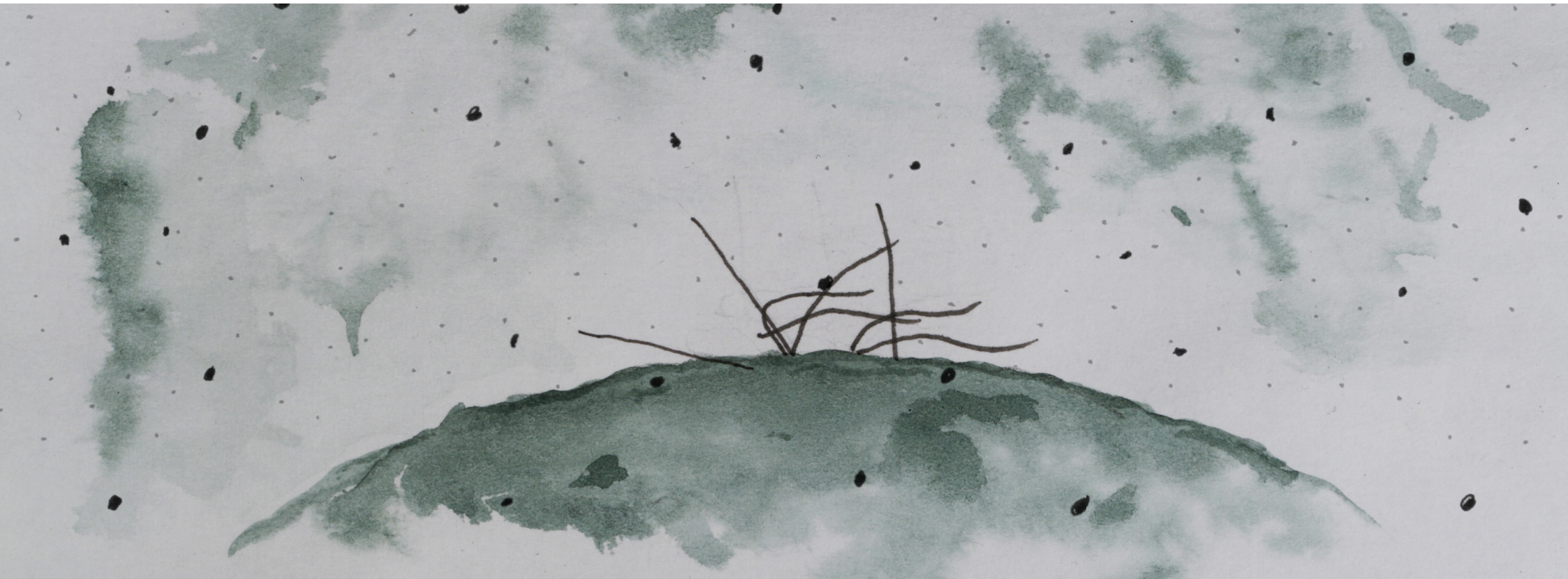
Heath Johnson - NCSU

**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



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