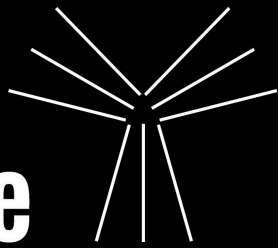


# The Triangle Cytoskeleton Meeting

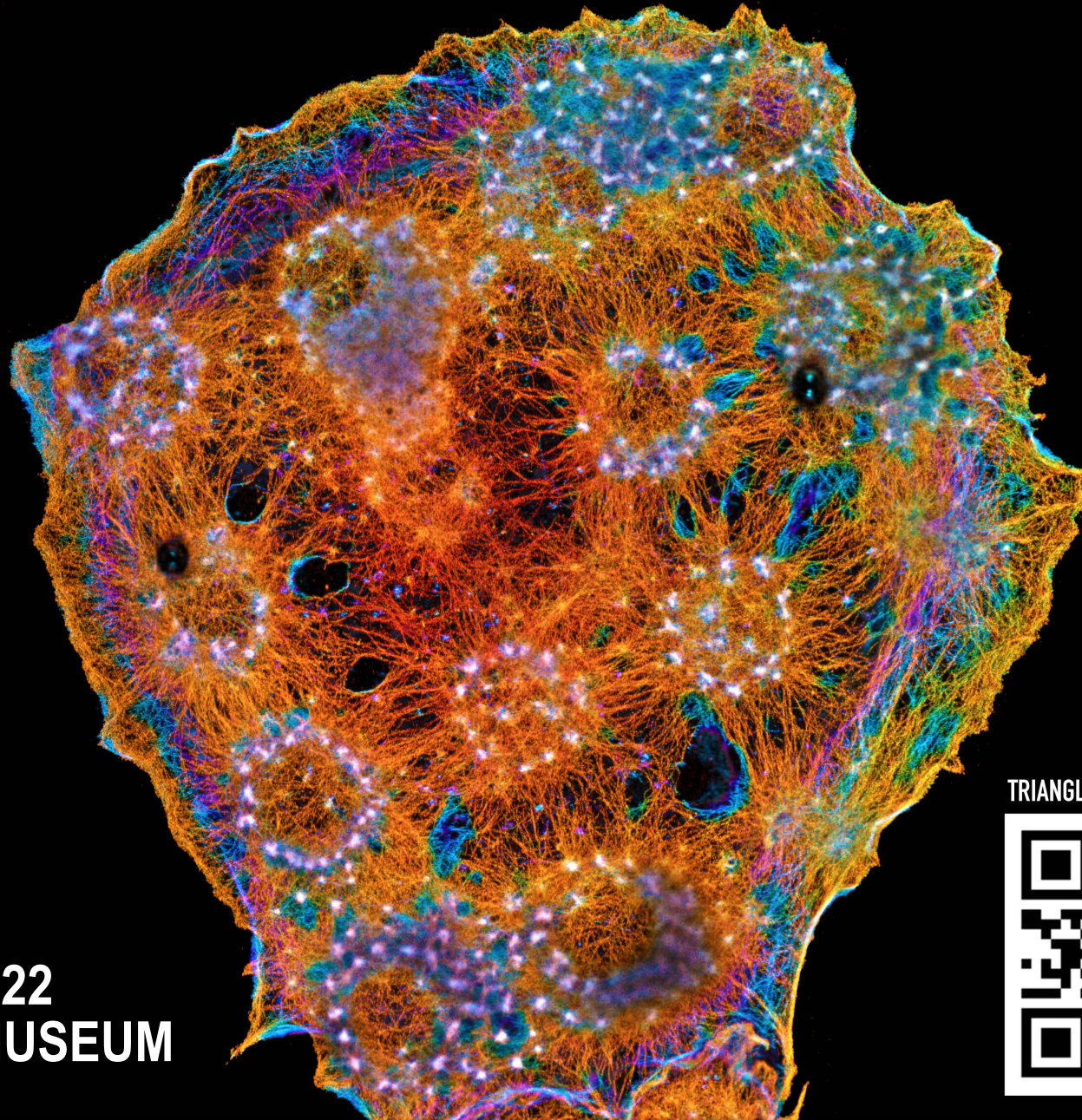


AN ASCB LOCAL MEETING



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SEPTEMBER 19TH, 2022  
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### EVENT ORGANIZERS:

Max Hockenberry  
Ellysa Vogt  
Parsa Zareiesfandabadi  
Cassandra Phillips  
Elizabeth Doherty  
Julia Grzymkowski  
Stephanie Huang

### WITH SPECIAL THANKS TO

Delphine Bull - UNC Chapel Hill  
Robert Duronio, PhD - UNC Chapel Hill  
Sophia Tintori, PhD - New York University



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Cytoskeleton in Division

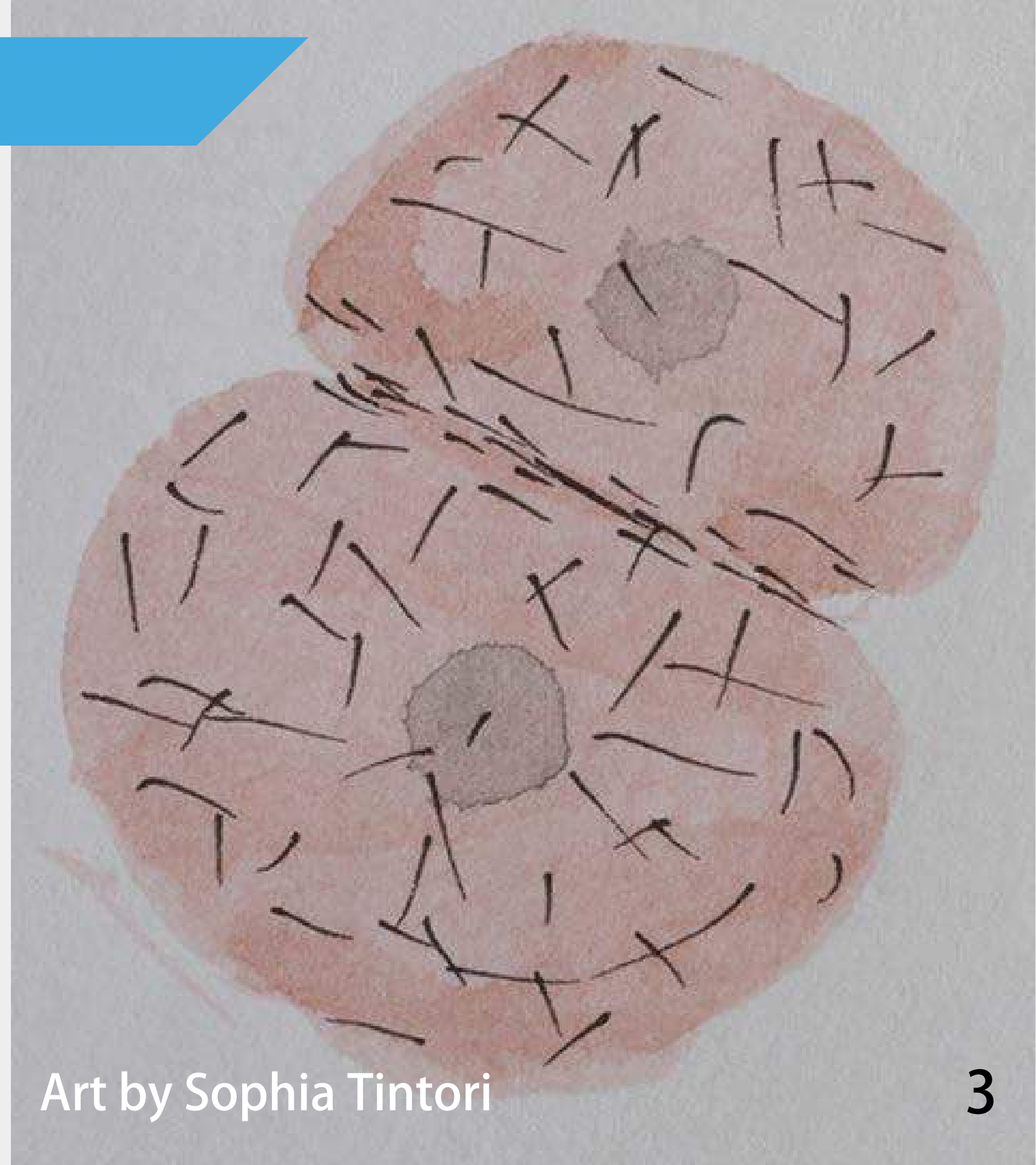
Cytoskeleton in Sensing

Cytoskeleton in Disease

Cytoskeleton in Focus

First Poster Session

Second Poster Session



Art by Sophia Tintori

SCHEDULE  
OVERVIEW

TRIANGLE CYTOSKELETON MEETING SEPTEMBER 19TH, 2022

Check in 09:00 - 09:30

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Introductions and Opening 09:30 - 09:35

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Cytoskeleton in Division 09:35 - 10:35

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Break 10:35 - 10:45

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Cytoskeleton in Sensing 10:45 - 11:45

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First Poster Session 11:45 - 12:30

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Lunch 12:30 - 01:30

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Keynote Speaker 01:30 - 02:00

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Second Poster Session 02:00 - 02:45

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Break 02:45 - 02:50

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Cytoskeleton in Disease 02:50 - 03:50

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Break 03:50 - 04:00

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Cytoskeleton in Focus 04:00 - 05:00

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Closing Statements 05:00 - 05:05

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Happy Hour 05:05 - 06:00

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## Cytoskeleton in Division

- 9:35      Model mitotic spindle and chromosomes as coupled oscillator  
*Jiali Zhu - University of North Carolina Chapel Hill*
- 9:55      Actomyosin contractility in stable and dynamic rings  
*INVITED SPEAKER Amy Maddox - University of North Carolina Chapel Hill*
- 10:15     Green algal septin finds its long-lost family on the chloroplast envelope  
*Samed Delic - Duke University*
- 10:35 - 10:45      Break

## Cytoskeleton in Sensing

10:45 Zyxin and non-muscle myosin are required for single fibroblast durotaxis, but Rho-kinase activity and the Arp2/3 complex are dispensable

*Reem Hakeem - University of North Carolina Chapel Hill*

11:05 Front-rear polarity establishment during bleb-based migration under confinement

*Ankita Jha - National Institutes of Health*

11:05 Regulating filopodia and dendritic spines with nondegradative ubiquitination

*INVITED SPEAKER Stephanie Gupton - University of North Carolina Chapel Hill*

11:45 - 12:30 First Poster Session

## Cytoskeleton in Sensing

12:30 Lunch

01:30 New players in the regulation of non-muscle myosin II  
*KEYNOTE SPEAKER* Derek Applewhite -Reed College

02:00 Second Poster Session

02:45 Break

## Cytoskeleton in Disease

- 02:50 A direct interaction between HIV-1 capsid and dynein is required for HIV-1 retrograde microtubules trafficking  
*Somaye Badiyan - University of Michigan*
- 03:10 Withaferin A interferes with actin polymerization and cytoskeletal reorganization in equine neutrophils  
*Rosemary Bayless - North Carolina State University*
- 03:30 Regulation of human neurofilament-light assembly state by O-GlcNac and potential hypoglycosylation of Charcot-Marie-Tooth disease mutants  
*Duc Huynh - Duke University*
- 03:50 - 04:00 Break



## Cytoskeleton in Focus

04:00 Connectivity and Contraction in Simulated Cytoskeletal Networks

*Michael Norman - North Carolina State University*

04:20 Destructive testing on the cytoskeleton: probing the mechanics of cell division by laser ablation

*INVITED SPEAKER Mary Elting - North Carolina State University*

04:40 Assessing the effects of molecular tension on protein function in cellulose

*INVITED SPEAKER Brent Hoffman - Duke University*

05:00 Closing Remarks

05:05 - 06:00 Happy Hour

# First Poster Session

Metavinculin Specific Insert Provides Protection Against Proteolytic Cleavage Upon Actin Engagement

*Jocelyn Alvarado - UNC Chapel Hill*

B cell intra-cellular signaling in response to immunogens with diverse biophysical properties

*Mihai Azoitei - Duke Human Vaccine Institute*

Balancing spindle and nuclear envelope forces in fission yeast

*Marcus Begley - North Carolina State University*

Post-anaphase microtubule networks and interphase microtubules cooperate to re-center the nucleus after anaphase

*Kimberly Bellingham-Johnstun - North Carolina State University*

Live cell quantification of telomere structure and dynamics in single cells using CRISPR-based imaging

*J. Logan Bowling- North Carolina State University*

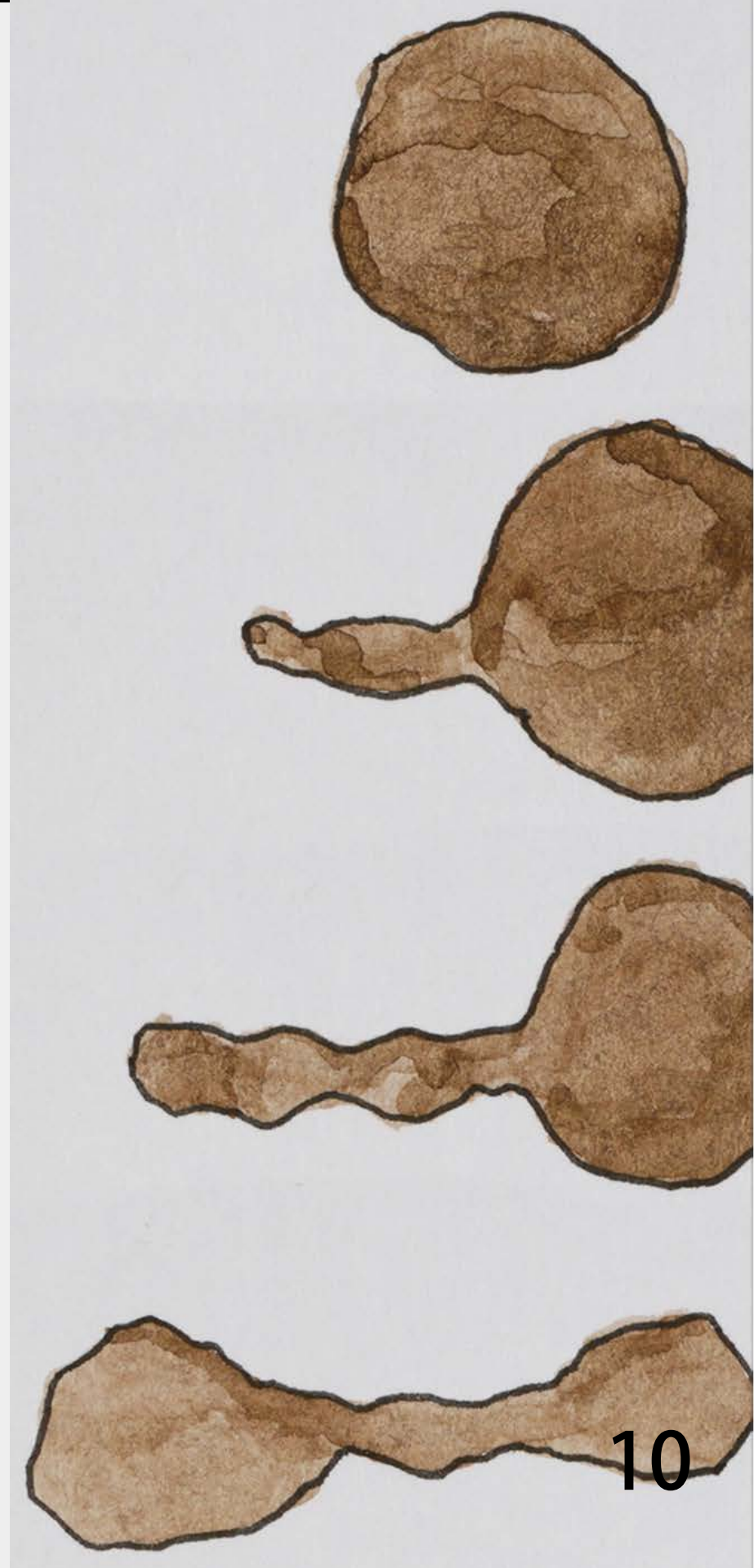
Real-time manipulation of computational models of cytoskeletal processes: A hands-on educational use for Cytosim

*Daniel Cortes - Virginia Tech*

Investigating the Role of Coro1A in Netrin-Mediated Axon Branching

*Elliot Evans -UNC Chapel Hill*

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## First Poster Session

Quantitative image-based drug screen for neurofilament accumulation in Giant Axona Neuropathy (GAN) induced pluripotent stem cell-derived motor neurons (iPSC-MNs)  
*Maryam Faridounnia - UNC Chapel Hill*

Ribonucleoprotein condensates regulate actin network polarization in the filamentous fungus *Ashbya Gossypii*  
*Zach Geisterfer - UNC Chapel Hill*

CENP-A Templates Inner and Outer Kinetochore Architecture in *Xenopus* Egg Extracts  
*Hindol Gupta - NIH/NCI*

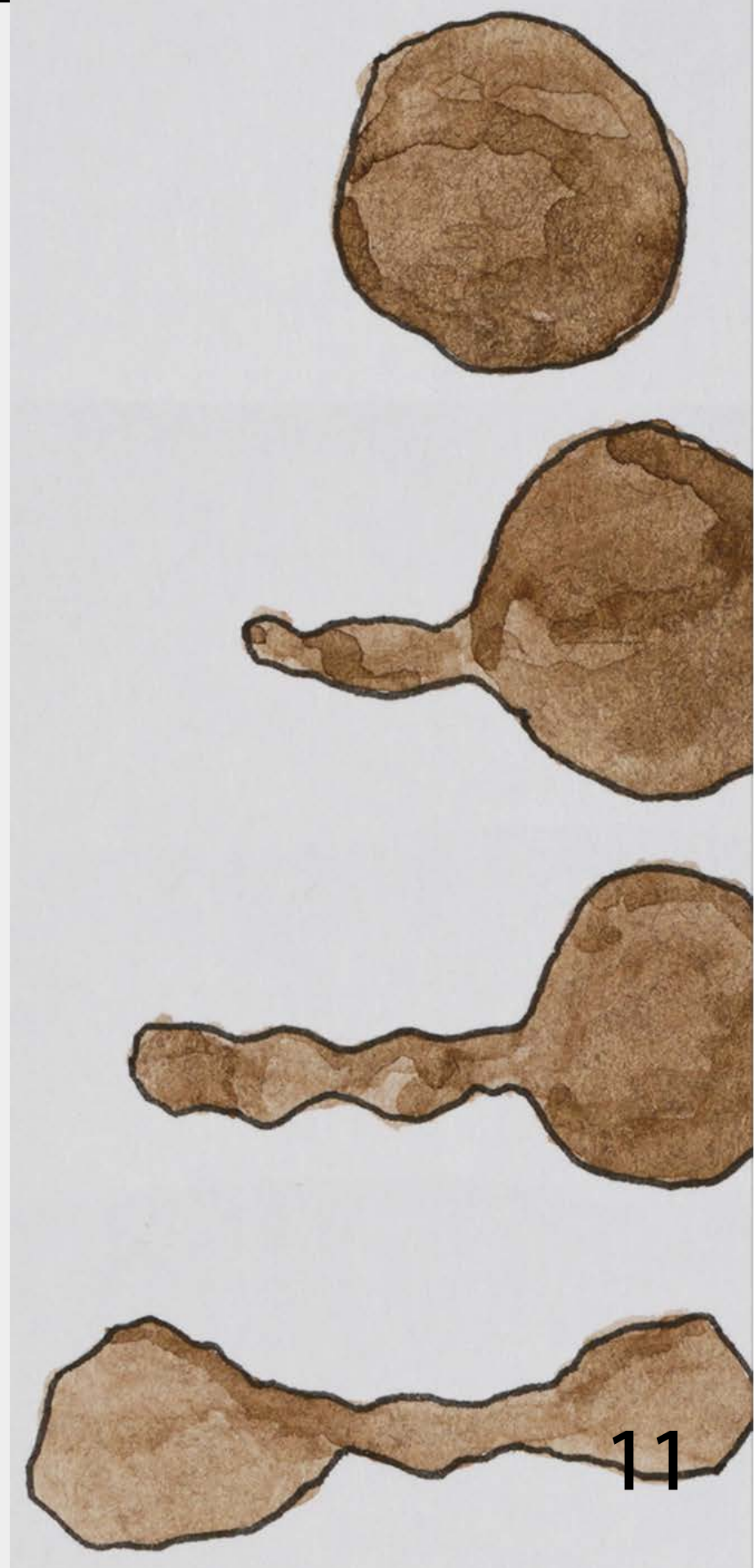
Using a series of canoe alleles to define the function of different protein domains in the developing embryo of *Drosophila melanogaster*  
*Noah Gurley - University of North Carolina at Chapel Hill*

Genetically Encoded Tools for Probing Adhesion within the Cellular Cortex  
*Siyam He- Duke University*

Coro1A role in TRIM67-regulated neuronal morphogenesis  
*Chris Ho - UNC Chapel Hill*

Extreme elastic properties of mechanosensory chordotonal organs in *Drosophila*  
*Xiaoxuan Jian - Duke University*

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# First Poster Session

Metavinculin regulates vinculin-lipid interactions

*Mohammad Ashhar Iqbal Khan - UNC Chapel Hill*

Determining the role of cell adhesions in oriented cell divisions

*Juliet King - UNC Chapel Hill*

A Semideterministic Phase Field Model Predicts Gradient Sensing and Cell Deformation

*Joseph Koelbl - North Carolina State University*

TP53-TAU axis regulates microtubule bundling to control alveolar stem cell mediated regeneration

*Satoshi Konishi - Duke University*

Creating Synthetic Cytoskeletons with Magnetic Tweezers and Light Controlled Protein Networks

*Joseph Lannan - North Carolina State University*

Dynamics at the nanoscale within the constricting contractile ring in fission yeast

*Brie Levesque - North Carolina State University*

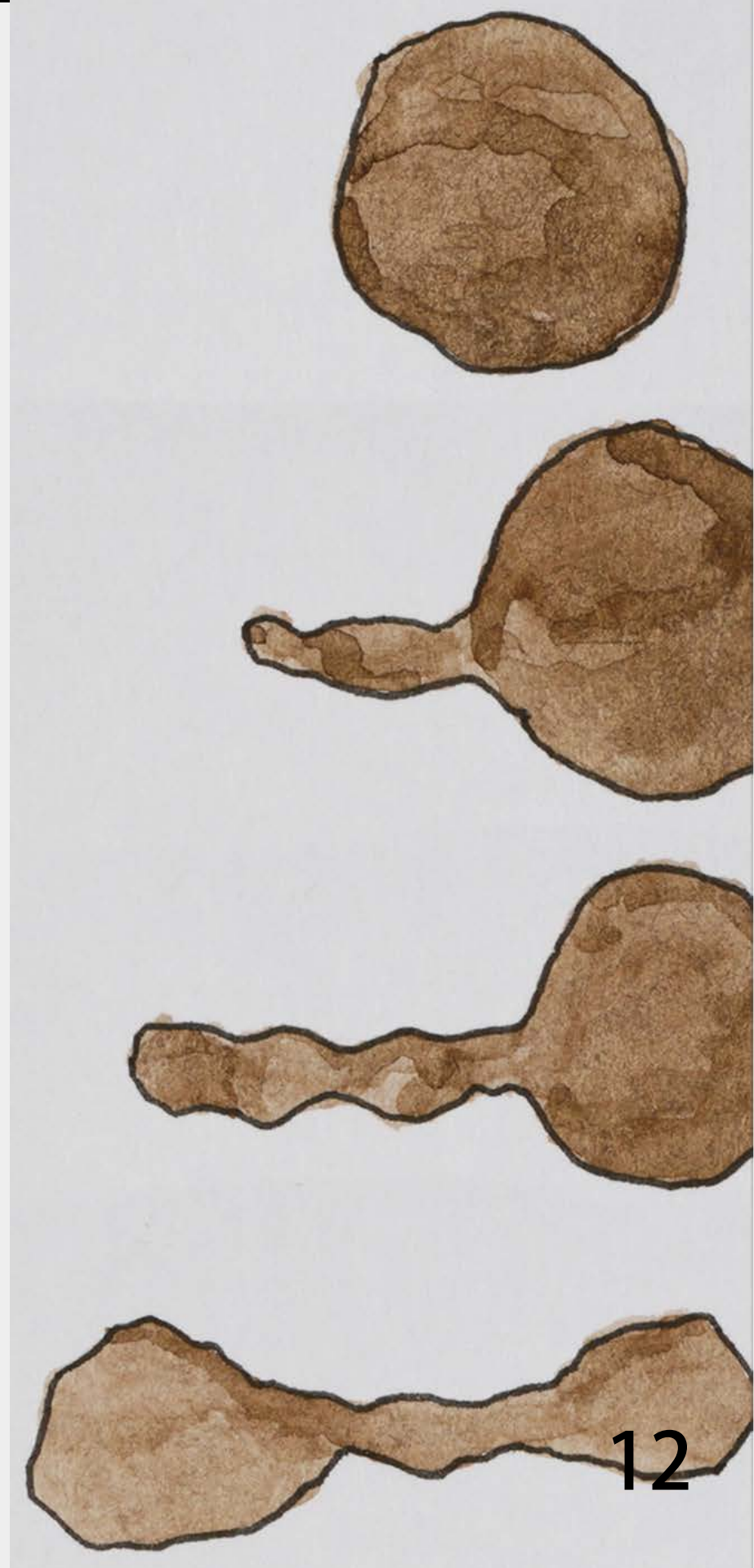
SUP-13/ARRD-15 Controls the Transition of AIP-1 Isoforms in *C. elegans* Body Wall Muscle

*Mario Lewis - Emory University*

*A potential role for cell-death players in leading edge migration of a dramatically growing somatic gonad cell in C. elegans*

*Noor Singh - University of North Carolina Chapel Hill*

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# First Poster Session

Investigating the Molecular Mechanism of the Vinculin-Actin Catch Bond and its Role in Vinculin Function and Single Cell Migration

*Juilee Malavade - Duke University*

Robust mechanism of tension production compensates for increasing the dosage of myosin Myp2 in the cytokinetic contractile ring

*Jessica Martinez-Baird - North Carolina State University*

The E3 ubiquitin ligase TRIM9 regulates actin dynamics and synapse formation

*Laurav McCormick - UNC Chapel Hill*

Actin Filaments Acting As Signal Propagation Pathways in Muscle and Non-Muscle Cells

*Md Mohsin - University of Texas at San Antonio*

Characterization of a novel *Caenorhabditis elegans* tropomyosin isoform with poor actin affinity

*Keita Morisaki - Emory University*

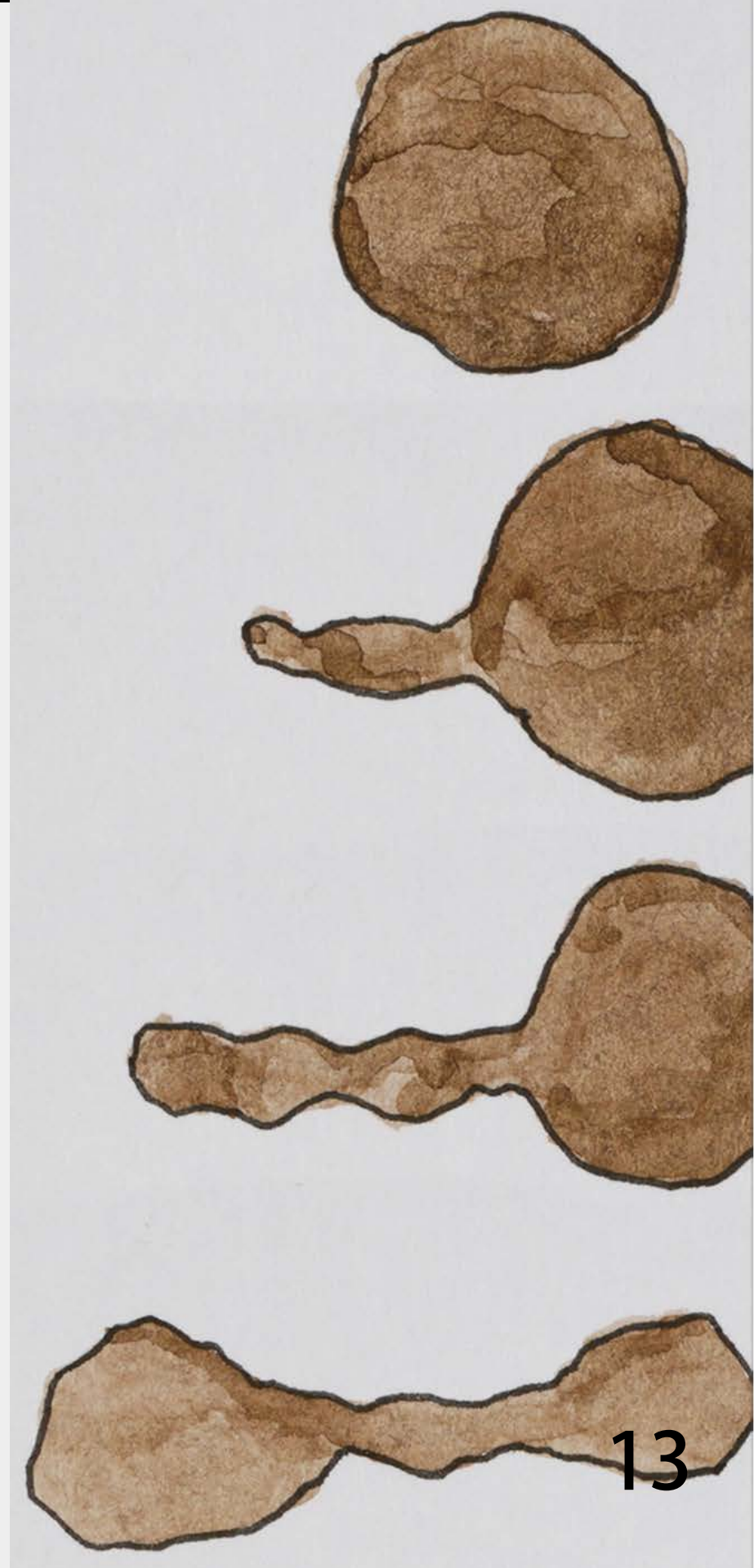
Investigating the role of netrin receptors in TRIM9 and TRIM67 dependent morphogenesis

*Sampada Mutalik - UNC Chapel Hill*

Designing Septin Disease Alleles in *C. elegans*

*Jenna Perry - UNC Chapel Hill*

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## Second Poster Session

Probing the unconventional lifestyle of multi-budding yeast, *Aureobasidium pullulans*

*Claudia Petrucco - Duke University*

Calpain-mediated proteolysis of vimentin filaments is augmented in Giant Axonal Neuropathy (GAN) fibroblasts exposed to hypotonic stress

*Cassandra Phillips - University of North Carolina Chapel Hill*

Organelle contact dysregulation in neurons with familial ALS cytoskeleton mutations

*Shannon Rhoads - University of North Carolina Chapel Hill*

Defining the structure and function of the multivalent protein network at cell-cell adherens junctions during *Drosophila* morphogenesis

*Anja Schmidt - Duke University*

The mitotic kinesin-6 KIF20A is an unconventional transporter and network builder

*Christoph Schmidt - University of North Carolina Chapel Hill*

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*Timothy Curtis Shoyer Jr. - Duke University*

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*Melissa Sican - Duke University*

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## Second Poster Session

Human disease models of reactive astrocytosis and intermediate filament dysregulation due to KLHL16 mutations in giant axonal neuropathy GAN

*Natasha Snider - University of North Carolina Chapel Hill*

Kinetochores and cohesin structure in yeast with 2 or 16 chromosomes

*John Stanton - University of North Carolina Chapel Hill*

Neighbor interactions reinforce polarity for collective epithelial cell migration

*Audrey Williams - University of Chicago*

Defining the roles of the small GTPase Rap1 and its regulator Dizzy in C. elegans regulation and morphogenesis

*Kristi Yow - University of North Carolina Chapel Hill*

Potential role of kinesin-based cargo trafficking in actin-independent cytokinesis in Chlamydomonas

*Yaning Yuan - Duke University*

Utilizing a Structure-Based Kinetic Model of PLC  $\gamma$  to Guide Experimental Dissection of Enzyme Activation Kinetics

*Ravi Appalabhotla - North Carolina State University*

Roles for subcellularly localized Dync1li2 in radial glial progenitors during cortical development

*Camila Manso Musso - Duke University*

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## Second Poster Session

Kinetic model for septin assembly of curvautre sensing

*Wenzheng Shi - UNC Chapel Hill*

Contact Stimulation of Collective Migration as a Novel Driver in Tissue Morphogenesis

*Maik Bischoff - UNC Chapel Hill*

Cyfp2 controls the acoustic startle threshold through Rac1 and FMRP

*Jacob Deslauriers - North Carolina State University*

Translational Regulation by Desmosomes

*Daniel Hlavaty - Duke University*

RNA-binding protein EIF4A3 regulates neurogenesis in mouse and human development

*Bianca Lupan - Duke University*

TRAK proteins encode distinct MIRO-dependent and MIRO-independent mechanisms for associating with the mitochondrial outer membrane, & a newer, nuanced model for MIRO function

*Lili Mitchell - University of Richmond*

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## Second Poster Session

Small cells from Large: a Model of Metastasis Development

*Tim O'Brien- Duke University*

CLASP2 facilitates dynamic actin filament organization along the microtubule lattice

*Nicole Rodgers- Vanderbilt University*

Neuronal Defects Observed in Spastin Loss, modeling AD-HSP, Require the Actin Regulator Pak3 in Subperineural Glia

*Marytha Tan - Duke University*

Understanding how actomyosin dynamics drive apical constriction

*Pu Zhang - UNC Chapel Hill*

A chemical-genetic screen for novel compounds that perturb cytoskeletal function in *Chlamydomonas reinhardtii*

*Manuella R. (Rossie) Clark-Cotton - Stanford University*

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The background is a dark grey watercolor wash. In the center-left, there is a diagram of a cytoskeleton meeting point. It consists of a central vertical line that branches out into several other lines, some horizontal and some diagonal, forming a star-like or network structure. The lines are white and have a slightly irregular, hand-drawn appearance.

# The Triangle Cytoskeleton Meeting

[trianglecytoskeleton.com](http://trianglecytoskeleton.com)

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