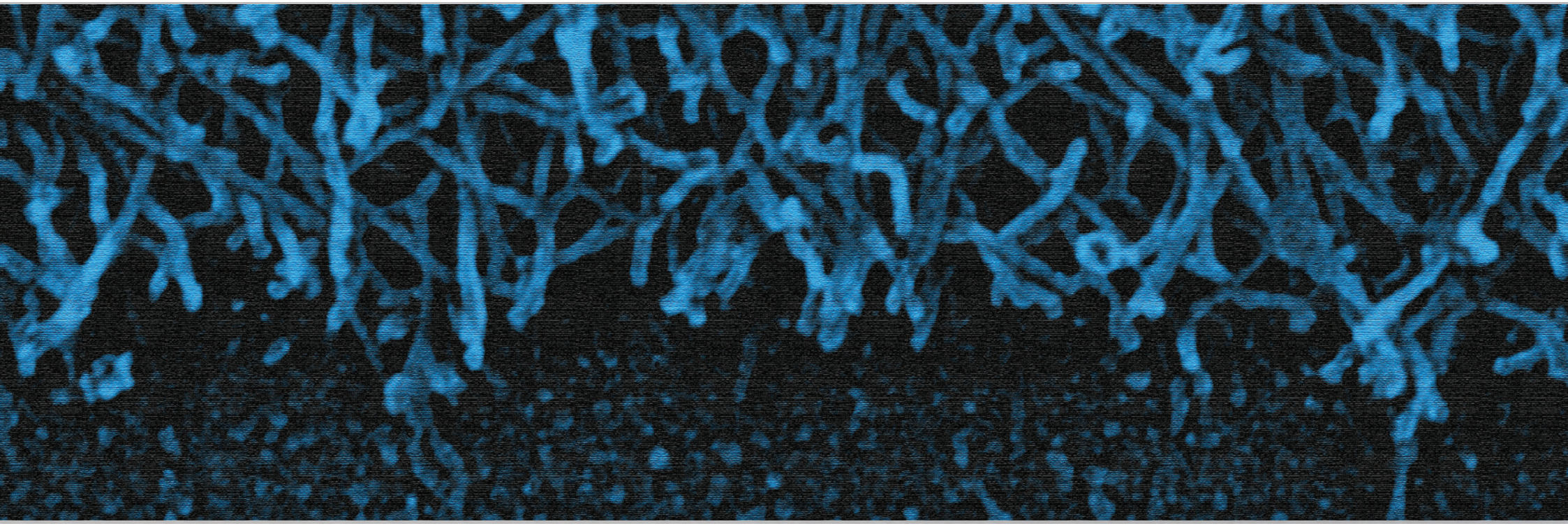

THE TRIANGLE CYTOSKELETON MEETING

SPONSORED BY

Cytoskeleton, Inc.
Helping advance science, one protein at a time.

2016 PROGRAM

SCHEDULE

SEPTEMBER 12TH
@ HAW RIVER BALLROOM

1711 Saxapahaw-Bethlehem Church Rd
Saxapahaw, NC 27340

8:00	Breakfast/Registration
9:00	Cytoskeleton in Development and Disease 1
10:00	Poster Session 1
11:00	Cytoskeleton in Development and Disease 2
11:40	Lunch

Lunch is provided by The Eddy Pub

12:40	Quantitative and Modeling Approaches in Studying the Cytoskeleton 1
1:20	Poster Session 2
2:20	Quantitative and Modeling Approaches in Studying the Cytoskeleton 2
3:10	Poster Session 3
4:10	Quantitative and Modeling Approaches in Studying the Cytoskeleton 3
5:00	Happy Hour

Local brews, wine and snacks will be provided by The Eddy Pub

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MEETING ORGANIZERS

Vincent Boudreau
Tanner Fadero
Dan Keeley
Carlos Patiño-Descovich

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

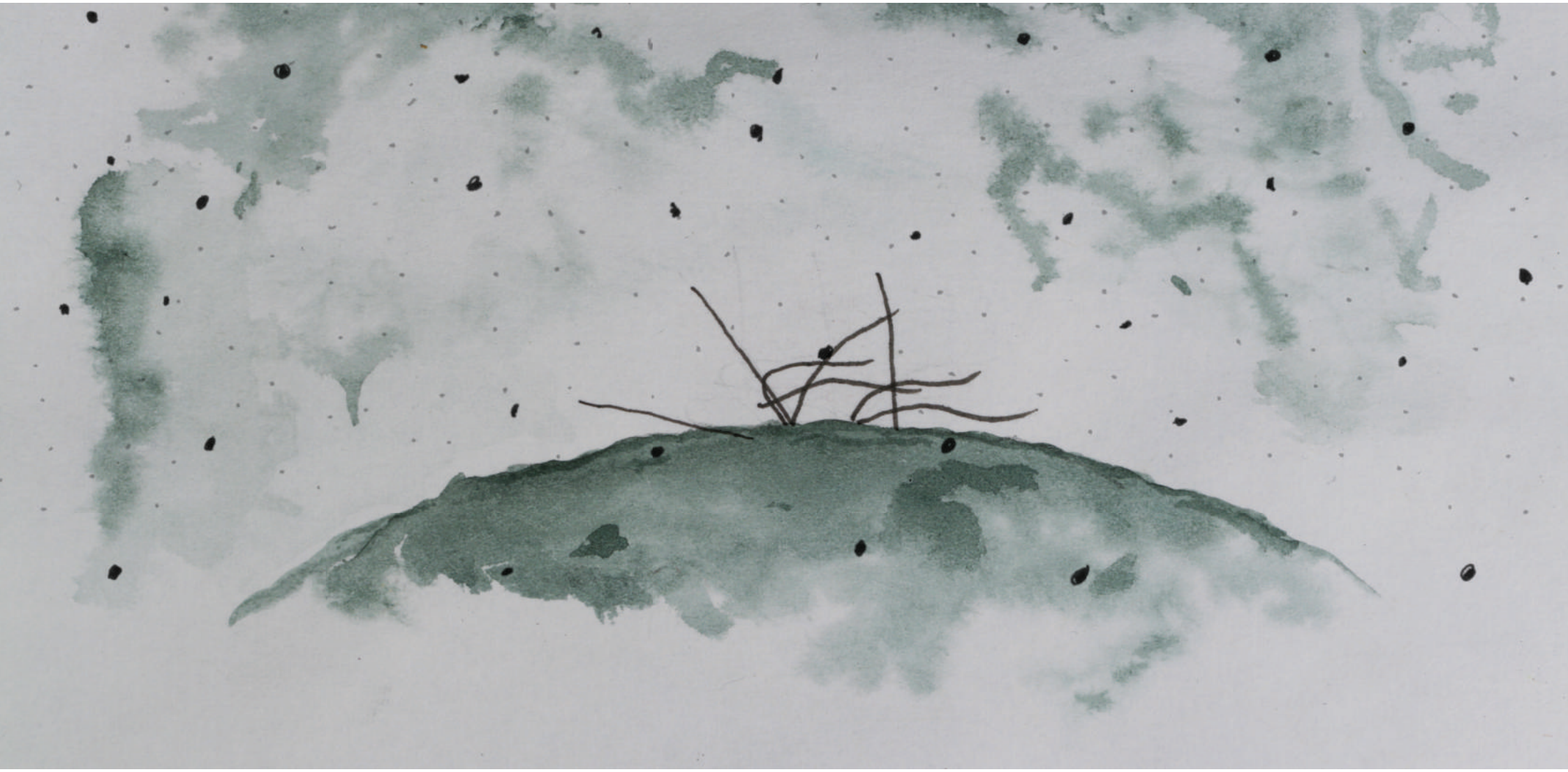
CYTOSKELETON IN DEVELOPMENT AND DISEASE 1

Opening remarks

Centrosome Activity Relies on Structural Rearrangement of Pericentrin
Karen Plevock Haase - UNC-Chapel Hill

The Role of O-linked β-N-acetylglucosamine in Vimentin Functionactin bundling
Heather Tarbet - Duke University

Qualitative, Semi-quantitative, and Quantitative Analysis of Medioapical Actomyosin Arrays: a Driving Force for Development
Regan Moore - Duke University



POSTER SESSION 1

Anti-inflammatory effects of an improved pyrrole-based microtubule-depolymerizing compound on RAW264.7 macrophages

Elizabeth Li, Anna Gonye, Samuel P. Gilmore, John T. Gupton & Krista Fischer-Stenger - University of Richmond

A pyrrole-based microtubule-depolymerizing compound reduces pro-inflammatory signaling in RAW264.7 macrophages

Anna Gonye, Samuel P. Gilmore, Santiago Espinosa de los Reyes, Elizabeth Li, John T. Gupton, Omar Quintero & Krista Fischer-Stenger - University of Richmond

Identify the myosin superfamily and contractile tissues in sponges

Eric Chang, Hill M. & Omar Quintero - University of Richmond

Using Imaging approaches to identify mitochondria-related phenotypes in MYO19 knockdown cells

Jamar Washington, Flores E., Wong C. & Omar Quintero - University of Richmond

Characterization of MYO19 knockdown phenotypes in cultured neurons

Amy Li, Fujita B, Jenci L. Hawthorne, Stephanie Gupton & Omar Quintero - University of Richmond

Engineering Biological Nanostructures
Rachel Andorfer & Joshua Alper - Clemson University

The C-terminal region of Troponin T is an important regulatory element for muscle contraction
Dylan Johnson, William C. Angus & Joseph M. Chalovich - ECU Brody School of Medicine

The role of endothelial MerTK in leukocyte transendothelial migration and the inflammatory response
Yitong Li & Keith Burridge - UNC-Chapel Hill

The nucleus is dispensable for 2-D cell migration and mechanosensing and is important for regulating whole-cell contractility
David M. Graham, Katheryn Rothenberg, Gunes Uzer, Thomas Andersen, Martial Balland, Janet Rubin, Brenton D. Hoffman, James E. Bear & Keith Burridge - UNC-Chapel Hill

Human CLASP2γ suppresses microtubule catastrophe and promotes microtubule rescue in vitro
Beth Lawrence, Kaverina I. & Marija Zanic - Vanderbilt University

Quantification of centromeric protein dynamics during early embryogenesis of C. elegans.
Lydia Smith, Cole Barnhardt & Paul Maddox - UNC-Chapel Hill

Arp2/3 complex disruption in macrophages compromises integrin-dependent processes and leads to hyper-polarization
Jeremy D. Rotty, Hailey E. Brigton, Sreeja B. Asokan, Ning Cheng, Jenny P. Ting & James E. Bear - UNC-Chapel Hill

How is apical constriction triggered? A possible role for afadin.
Mark M. Slabodnick, Sophie Tintori & Bob Goldstein - UNC-Chapel Hill

Role of metavinculin in actin reorganization and force transmission
Hyunna T. Lee, Laura Kim, Peter M. Thompson, Gregory M. Alushin, Keith Burridge & Sharon L. Campbell - UNC-Chapel Hill

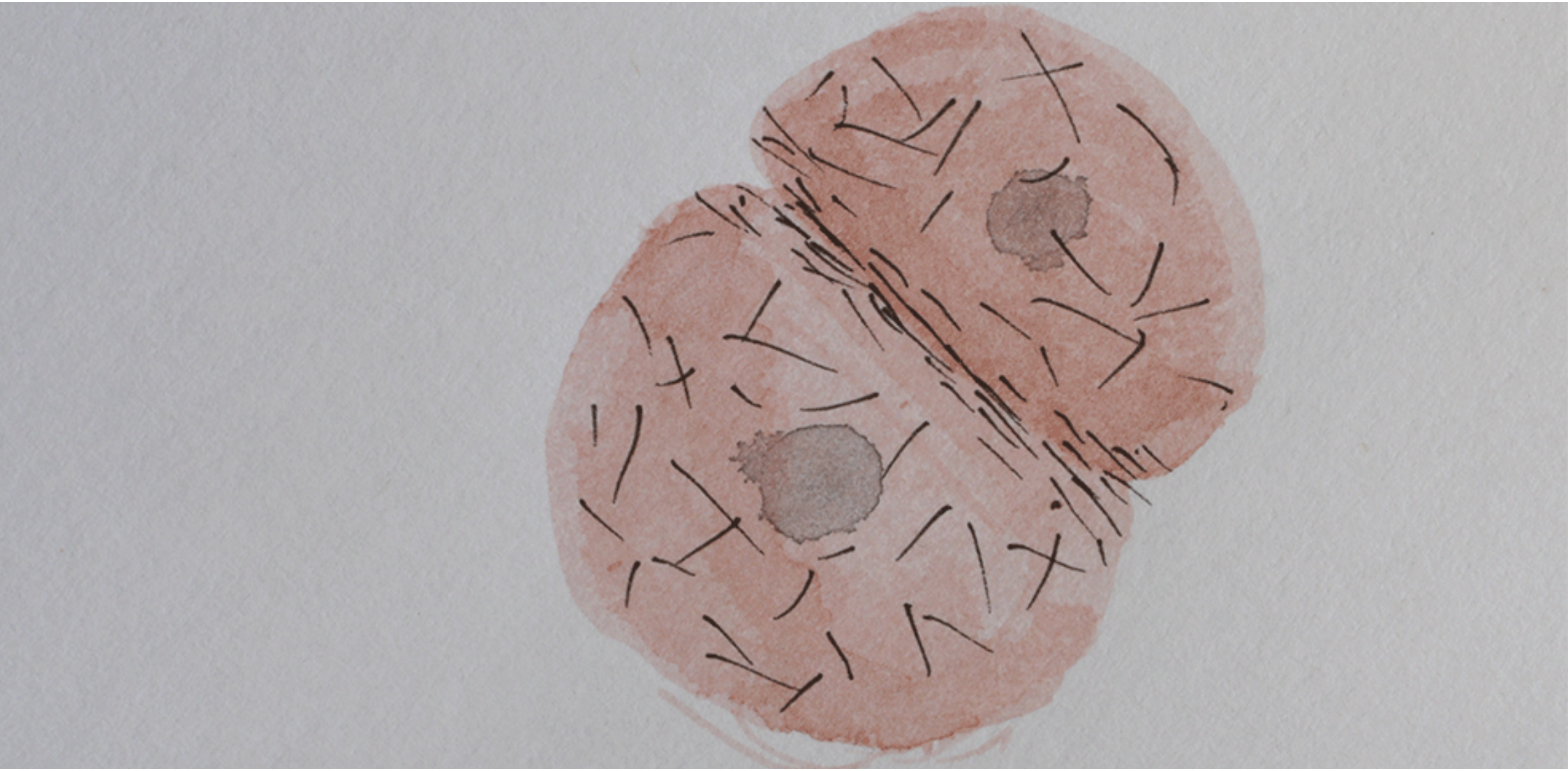
Proteomic Study of DC-SIGN Identifies NPC1 as a potential Dengue Virus Entry Factor
Laurie Betts, Laura Herring, Pratik Patel, Rajendra Raut,Aravinda de Silva, Ken Jacobson & Nancy Thompson - UNC-Chapel Hill

A variation in the cellular mechanics of spermatogenesis supports the evolution of skewed sex ratios
Ethan S. Winter & Diane C. Shakes - **College of William & Mary**

TRIM9-dependent ubiquitination of DCC constrains kinase signaling, exocytosis and axon branching
Cortney Winkle, Shalini Menon, Melissa Plooster, Fabio Urbina, Caroline Monkiewicz, Carey Hanlin & Stephanie Gupton - UNC-Chapel Hill

Mutations in the C. elegans Kelch-like gene spe-26 disrupt the coordination of nuclear and cytoplasmic events during spermatogenesis.
Stephen A. Gurley, Sindhura M. Kolachana, Elena C. Parcell & Diane C. Shakes - **College of William & Mary**

Validation of SpectraMax M2 multimode plate reader for estimating population size in cultures of Tetrahymena pyriformis
Sarah Hagans & Jerilyn Swann - Maryville College



CYTOSKELETON IN DEVELOPMENT AND DISEASE 2

Intestinal Crypt Morphogenesis

Kaelyn Sumigray, PhD - Duke University

How Cells Sense their Shape Using Septins

INVITED SPEAKER: Amy Gladfelter, PhD - UNC-Chapel Hill

Lunch

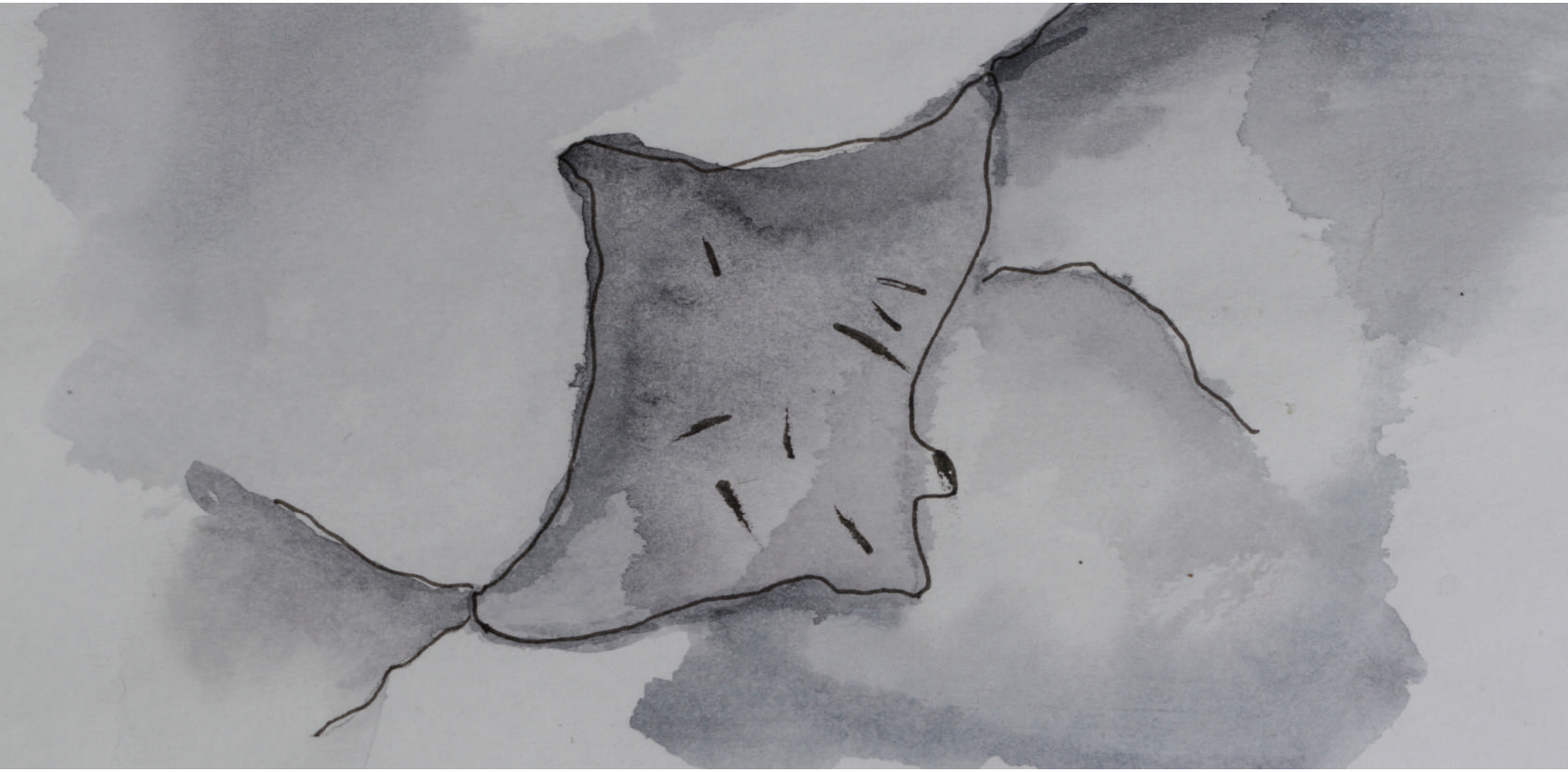
QUANTITATIVE AND MODELING APPROACHES IN STUDYING THE CYTOSKELETON 1

An Optogenetic Approach Reveals an Integrin Mediated Feedback Loop Necessary for Efficient Rac Based Protrusion and Directed Migration

Seth Zimmernan - UNC-Chapel Hill

Visualizing the Effects of Molecular Forces Across Specific Proteins in Living Cells

INVITED SPEAKER: Brenton Hoffman, PhD - Duke University



POSTER SESSION 2

Fluorescent Microscopic Visualization of Phagocytosis in Tetrahymena pyriformis
Shelby Lanz & Jerilyn Swann - Maryville College

Afadin serves dual roles in spindle orientation and cell-cell adheion in epithelial morphogenesis
Kendall J. Lough, Kevin Byrd, Michelle Mac, Danielle Spitzer & Scott E. Williams - UNC-Chapel Hill

Design, Construction and Application of an Ezrin Tension Sensor
Matthew Berginski & Andrew LaCroix - Duke University

Sperm production in the nematode Rhabditis sp. SB347 includes spermatogonia-like spermatocyte precursors
Caitlin McCaig, Xiaoxue Lin, Dr. Diane Shakes - College of William & Mary

Characterization of the Ndc80 Complex in Human Cells
Sarah K. Long, Aussie Suzuki & E. D. Salmon -UNC-Chapel Hill

Using optical tweezers to study dynein-microtubule affinity and motility
Subash Godar, Lin Li, Emil Alexov & Joshua Alper - Clemson University

Metalloproteases from scorpion venomscleave SNARE Proteins

Paul L. Fletcher Jr., Maryann D. Fletcher, Brian M. Martin & Keith R. Weninger - ECU Brody School of Medicine

Defining Canoe/Afadin's Role in Apical-Basal Polarity Establishment in Early Drosophila Development

Kia Z. Perez-Vale, Teresa T. Bonello & Mark A. Peifer - UNC-Chapel Hill

TRIM9 and TRIM67: master regulators of developing and adult-born neurons

Shalini Menon, Emily Cousins, Ben Major & Stephanie Gupton - UNC-Chapel Hill

A proteomic evaluation of desmosomes identifies novel components essential for regulating epidermal integrity

Kwabena Badu-Nkansah, Julie Underwood & Terry Lechler - Duke University

The scaffold protein Canoe and ZO1 protein Polychaetoid help link cell adhesion and the actomyosin cytoskeleton during tissue formation

Lathiena Manning, Mycah Sewell & Mark Peifer - UNC-Chapel Hill

A Genetically-Encoded N-Cadherin Tension Sensor Reveals Localized Tension Associated with Synapse Maturation

Karen A. Newell-Litwa*, Aarti Urs*, Rick Horwitz & Brenton Hoffman - East Carolina University

Meiotic chromosome cohesion promotes germline immortality

Katherine Kretovich Billmyre, Anna-Lisa Doebley, Stephane Flibotte, Matt Simon, Don Moerman & Shawn Ahmed - UNC-Chapel Hill

Reprogrammed Patient Fibroblasts as Novel Tools to Address Rare Diseases Linked to the Intermediate Filament gene family

Rachel A. Battaglia, Raluca Dumitru & Natasha T. Snider - UNC-Chapel Hill

Combined AFM and Vertical Light-Sheet Sideways Microscopy for Living Cell Studies

Kellie N. Beicker, Evan F. Nelsen, E. T. O'Brien, Mike Falvo & Richard Superfine - UNC-Chapel Hill

Kinesin-5 fine-tunes (mitotic) tension at the kinetochore

Katelynn M. Granger, Aussie Suzuki, Benjamin L. Badger, Edward D. Salmon & Kerry Bloom - UNC-Chapel Hill

Exploring Centromeric Epigenetic Regulation in C. elegans

Cole Barnhardt, Ethan Hughes & Lydia Smith - UNC-Chapel Hill

Targeting of a novel phosphorylation site prevents disease mutation-associated aggregation of glial fibrillary acidic protein (GFAP)

Parijat Kabiraj, Kathryn P. Trogden & Natasha T. Snider - UNC-Chapel Hill

Defining the network of proteins driving apical-basal polarity establishment in early Drosophila development

Teresa Bonello & Mark Peifer - UNC-Chapel Hill

QUANTITATIVE AND MODELING APPROACHES IN STUDYING THE CYTOSKELETON 2

Unraveling PAR Polarity Protein Interactions with Single-Cell Biochemistry

Daniel Dickinson, PhD - UNC Chapel Hill

Cell Mechanics, Motility and Shape Determination

KEYNOTE SPEAKER: Julie Theriot, PhD - Stanford University

POSTER SESSION 3

Expression of the Microtubule Binding Domain of Dynein for Characterization using Single Molecule Experiments
Matheu Spencer, Jared Eller & Joshua Alper - Clemson University

Waves of Cdk1 Activity in S-phase Synchronize the Cell Cycle in Drosophila Embryos
Victoria E. Deneke, Anna Melbinger, Massimo Vergassola & Stefano Di Talia - Duke University

Quantitative analysis of histone locus body dynamics and its regulations in the developing Drosophila embryo
Woonyung Hur, Victoria E. Deneke, Robert J. Duronio & Stefano Di Talia - Duke University

Novel Actin Related Protein ACTL7B is Required for Spermatid Morphogenesis, Association of the Cytoskeletal Acroplaxome with the Nuclear Surface, and Male Fertility
Tracy Clement, Chris Geyer, William Willis, Eugenia Goulding & Mitch Eddy - UNC-Chapel Hill

Modeling nucleosomal DNA in living yeast: Investigating how dynamic DNA loops impose constraints on chromosome conformation
Caitlin Hult, David Adalsteinsson, Paula Vasquez, Josh Lawrimore, M. Gregory Forest & Kerry Bloom - UNC-Chapel Hill

The nucleoskeletal protein NuMA regulates 53BP1 dynamics and function in DNA repair
Pierre-Alexandre Vidi, Jing Liu, Naike Salvador-Moreno, Matt Gray, Laurie Parker, Joseph Irudayaraj & Sophie Lelièvre - Wake Forest University School of Medicine

TACC3, a microtubule plus-end tracking protein (+TIP), promotes cell motility during embryonic development
Elizabeth Bearce, Erin Rutherford, Andrew Francl, Leslie Carandang, Claire Stauffer, Matt Evans, Joey Volk & Laura Anne Lowery - Boston College

A Sterile 20 family kinase regulates oogenesis by tuning contractile ring proteins on germline intercellular bridges
Kathryn N Rehain, Andrew Love, Michael E. Werner, Ian MacLeod, John Yates III & Amy S. Maddox - UNC-Chapel Hill

A model for how multiprotein regulatory complexes regulate morphogenesis: Abelson tyrosine kinase, Crk, and embryonic development
Andrew J. Spracklen, Alison N. Bonner & Mark Peifer - UNC-Chapel Hill

Electrostatics involvement in dyneins' binding and stepping on microtubule
Lin Li, Joshua Alper & Emil Alexov - Clemson University

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

MAPs regulate MT dynamics using structurally diverse tubulin-binding domains
Amy E. Byrnes & Kevin C. Slep - UNC-Chapel Hill

The role of vinculin force-activated dynamics in cell migration
Katheryn E. Rothenberg, David W. Scott & Brenton D. Hoffman - Duke University

Cellular and Organismal Function of Myosin-X
Ernest G. Heimsath Jr., Yang-in Yim, Mirna Mustapha, John Hammer & Richard Cheney - UNC-Chapel Hill

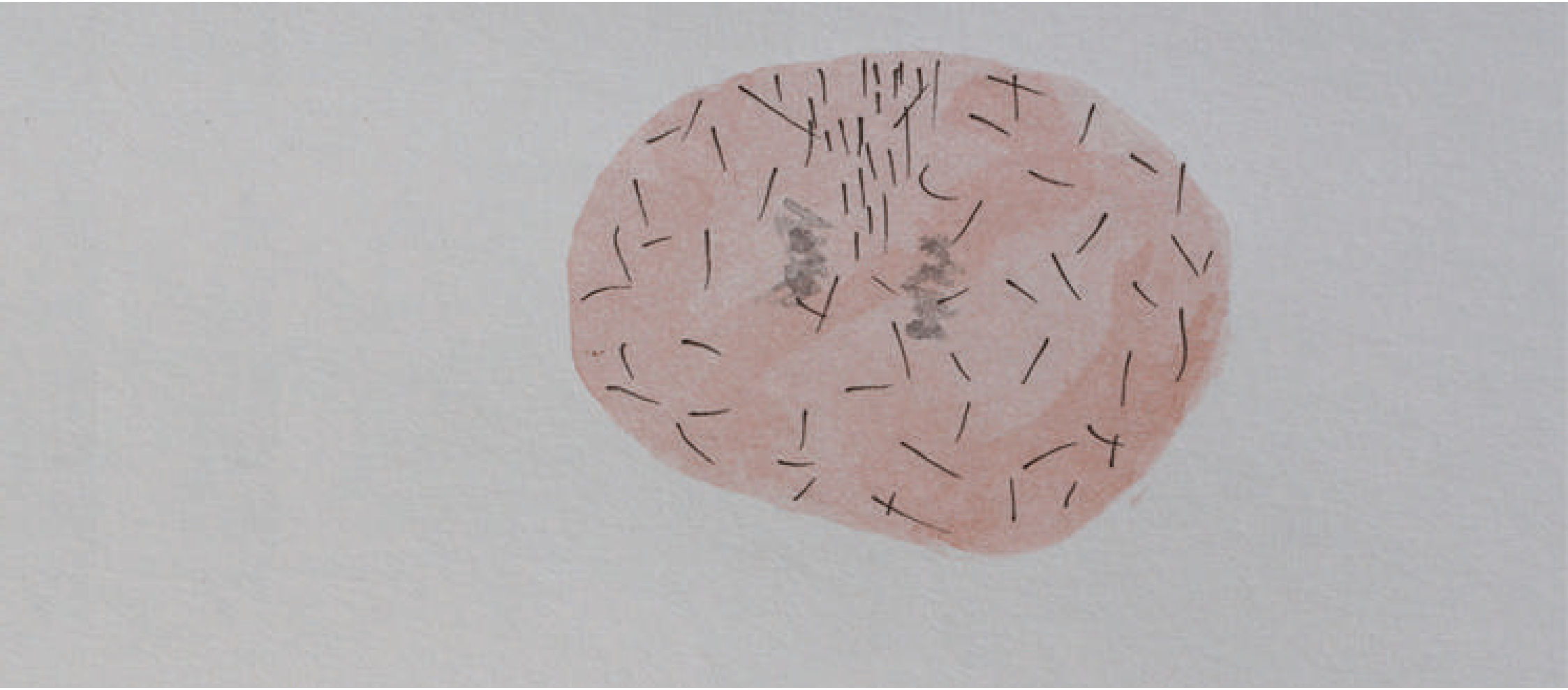
Mechanical and dynamic properties of nonmuscle myosin-2 filaments
Luca Melli, Yasuharu Takagi, Neil Billington & James R. Sellers - NHLBI

Serial intravital imaging of endogenous melanoma reveals plasticity of tumor resistance to trametinib
Hailey E. Brighton, Stephen Angus, Tao Bo, David Darr, Norman E. Sharpless, Gary L. Johnson & James E. Bear - UNC-Chapel Hill

Exploring the Molecular Events that Trigger Cell Shape Change in vivo
Tim Cupp & Bob Goldstein - UNC-Chapel Hill

A monomeric myosin V in fission yeast crosslinks and produces relative sliding of tropomyosin-decorated actin filaments.
Tang Q., Billington N., Krementsova E.B., Bookwalter C.S., Lord M., Sellers J.R. & Trybus K.M. - NIH

The E3 Ubiquitin Ligase TRIM67 Regulates Cytoskeletal Response to Netrin-1
Nicholas P. Boyer, Shalini Menon & Stephanie L. Gupton - UNC-Chapel Hill



QUANTITATIVE AND MODELING APPROACHES IN STUDYING THE CYTOSKELETON 3

Permeabilization Activated Reduction in Fluorescence: A Novel Method to Measure Kinetics of Protein Interactions with Intracellular Structures

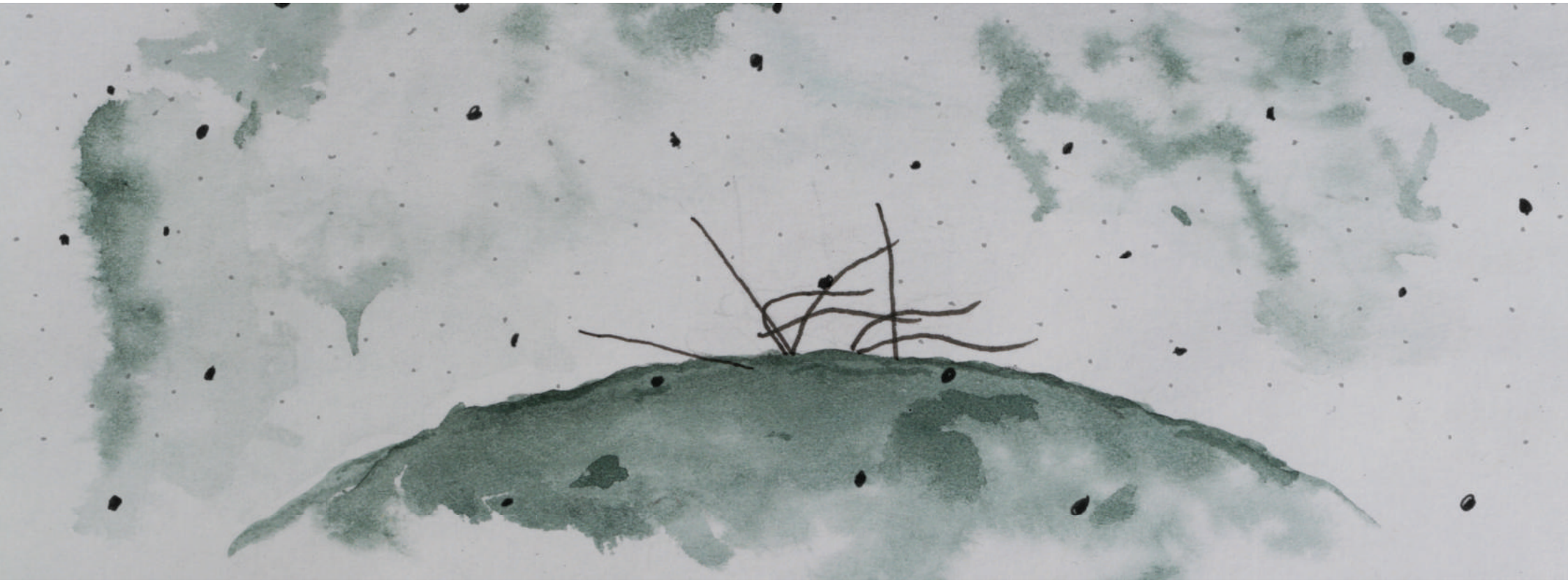
Jenci Hawthorne - University of Richmond

Processive Motility of Multi-Motor Kinesin-14 Teams Underlies Regulation of Microtubule Minus-End Dynamics

Stephen Norris, PhD - Vanderbilt University

Closing remarks + Travel award announcements

Happy hour



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