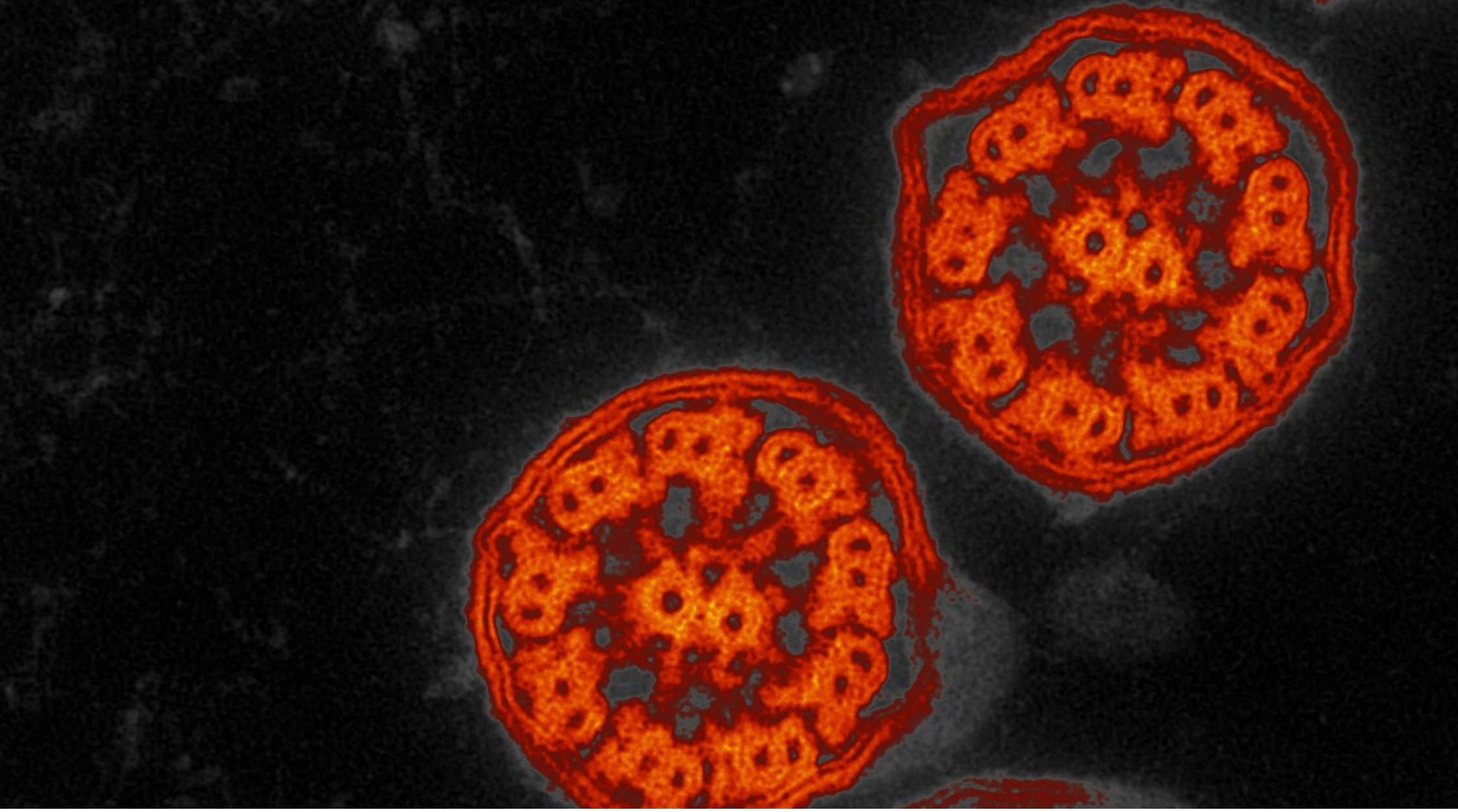

THE TRIANGLE CYTOSKELETON MEETING

ascb
an international forum for cell biology

2018 PROGRAM

SCHEDULE

SEPTEMBER 23RD @ IMBIBE (PRE-MEETING SESSION)

108 Henderson St.
Chapel Hill, NC 27514

6:00PM	Registration
6:30PM	Mary Elting - NCSU
7:00PM	Unsupervised mingling
7:30PM	Sarah Cohen - UNC Chapel Hill
8:00PM	Unsupervised mingling

Local brews and wine
provided by Imbibe

SEPTEMBER 24TH @ HAW RIVER BALLROOM

1711 Saxapahaw-Bethlehem Church Rd
Saxapahaw, NC 27340

8:00AM	Breakfast/Registration
9:00	Cytoskeleton in Development and Disease 1
10:00	Poster Session 1
11:00	Mechanics and Structure of Cytoskeletal Complexes 1
11:40	Lunch

Breakfast and Lunch
catered by The Eddy Pub

12:40	Quantitative and Modeling Approaches in Studying the Cytoskeleton
1:20	Poster Session 2
2:20	Mechanics and Structure of Cytoskeletal Complexes 2
3:10	Poster Session 3
4:10	Cytoskeleton in Development and Disease 2
5:00	Happy Hour

Beer, wine, and snacks
provided by The Eddy Pub

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MEETING ORGANIZERS

Tanner Fadero
Yitong Li
Kira Glynn
Dan Keeley

With special thanks to:
Delphine Bull - UNC-Chapel Hill
Sophia Tintori - UNC-Chapel Hill
Daniel Cortes - UNC-Chapel Hill
Gaia Pigino - MPI-CPG

PRE-MEETING SESSION
PUB-TECH

Registration

Probing the mechanics of spindle microtubule bundles via laser ablation.
INVITED SPEAKER: Mary Elting - NC State University

Applying systems-level spectral imaging and analysis to reveal the organelle interactome.
INVITED SPEAKER: Sarah Cohen - UNC-Chapel Hill

Unsupervised mingling

CYTOSKELETON IN DEVELOPMENT AND DISEASE 1

Opening remarks

Functional crosstalk between phosphorylation and caspase proteolysis underlie aberrant processing of GFAP in Alexander Disease and reveal CK2 as a novel disease target.
Rachel Battaglia, P. Kabiraj, K. Kinghorn, L. Herring, and N. Snider - UNC-Chapel Hill

Pericentriolar Material Restriction to the Proximal End of Centrioles is Regulated by Transcription and is Essential for Spermiogenesis.
Brian J. Galletta, J.M. Ortega, C.J. Fagerstrom, and N.M. Rusan - NIH/NHLBI

Ciliary signaling in human disease: From neurodegeneration to cancer.
INVITED SPEAKER: Sarah Goetz - Duke University

POSTER SESSION 1

Finding a mate: how yeast cells track pheromone gradients.
Katherine Jacobs, S. Ramirez, T. Elston, D. Lew - Duke University

Effects of Microenvironment Stiffness on the DNA Damage Response in Breast Epithelial Cells.
Amanda M. Smelser, H. Rashid, P. Vidi - Wake Forest Baptist Medical Center

Role of metavinculin in actin reorganization and force.
Hyunna T. Lee, M. Sarker, M. Lu, L. Sharek, T. O'Brien, R. Superfine, K. Burridge, and S.L. Campbell - UNC-Chapel Hill

How is apical constriction triggered? Zyxin and the search for the master regulator.
Mark Slabodnick, S. Tintori, T. Cupp, A. Chen, B. Goldstein - UNC Chapel Hill

PPP1R2 has a role in regulating centrosome structure and function within ARPE cells.
Alan-Michael Bresch, R. Wang, A.O. Sperry - East Carolina University

Single Molecule Study Of Axonemal Dynein To Understand Unique Flagellar Bend Propagation In Trypanosoma.
Subash Godar, J. Oristian, A. McKamy, J. Alper - Clemson University

Timecourse of Synapse Development in Human IPSC-derived Neurons.
Adrienne Orbita, B. Kirk, K. Litwa - East Carolina University

Investigation of Force-Induced Nuclear Deformation with AFM and Light Sheet Imaging.
Chad Hobson, E. Nelsen, J. Hsiao, A. Stephens, T. O'Brien, M. Falvo, R. Superfine - UNC-Chapel Hill

dTAT microtubule acetylation mediates cell stiffness.
Megan Kern, M. Falvo, T. O'Brien, R. Superfine, C. Yan, F. Wang, Y. Peng, C.R. Williams, B. Jenkins, J. Wildonger, J.C. Tuthill, Y. Xiang, S.L. Rogers, J.Z. Parrish - UNC-Chapel Hill

VASP ubiquitination regulates actin dynamics and neuronal morphogenesis.
Laura E. McCormick, N.G. Brown, S.L. Gupton - UNC-Chapel Hill

Probing the constriction mechanism of the actomyosin ring in Schizosaccharomyces pombe using laser ablation to relate tension force production of the constricting ring to the molecular organization of proteins within the contractile ring.
Mohamed Moshtohry, C. Laplante, M.W. Elting - North Carolina State University

Elucidating the Role of Securin in Regulating Separase during Cortical Granule Exocytosis.
Christopher Turpin, M. LaForest, L. Uehlein-Klebanow, Q. Caylor, D. Mitchell, J. Bembenek - University of Tennessee-Knoxville

Computational investigation of myosin-XIX structure-function.
Justin Airas, E. Modeste, Y. Ali, O.A. Quintero, C. Parish - University of Richmond

Dynamics of the k-fiber through high-resolution single-molecule speckle fluorescence imaging and mechanical perturbation from laser ablation.
Elizabeth Mae Davis, M.A. Begley, M.W. Elting - North Carolina State University

MYO19 interacts with Miro-family GTPases on the mitochondrial outer membrane.
J.L. Bocanegra, Barbara Fujita, N.R. Melton, J.M. Cowan, E.L. Schinski, T.Y. Tamir, M.B. Major, O.A. Quintero - University of Richmond

Nopo encodes a DNA damage response protein that associates with mitotic spindles and functions in axon guidance.
Ryan S. O'Neill, C.J. Fagerstrom, N.M. Rusan - NIH/NHLBI

Dye-based biosensors for imaging protein activity in living cells.
Nicholas Pinkin, J. Smith, M.J. Kim, K. Hahn - UNC-Chapel Hill

Cytoskeletal Regulation of Neurodevelopment in an hIPSC-derived Autism Model.
Taylor Rudisill, B. Kirk, C. Johnson, A. Orbita, P. Pakala, H. Dar, S. Davis, R. Horwitz, M. McConnell, Karen Litwa - East Carolina University

The Anillin homolog Mid1p is dispensable for cytokinetic node assembly and composition in fission yeast.
Kimberly Bellingham-Johnstun, E. Anders, C. Laplante - North Carolina State University

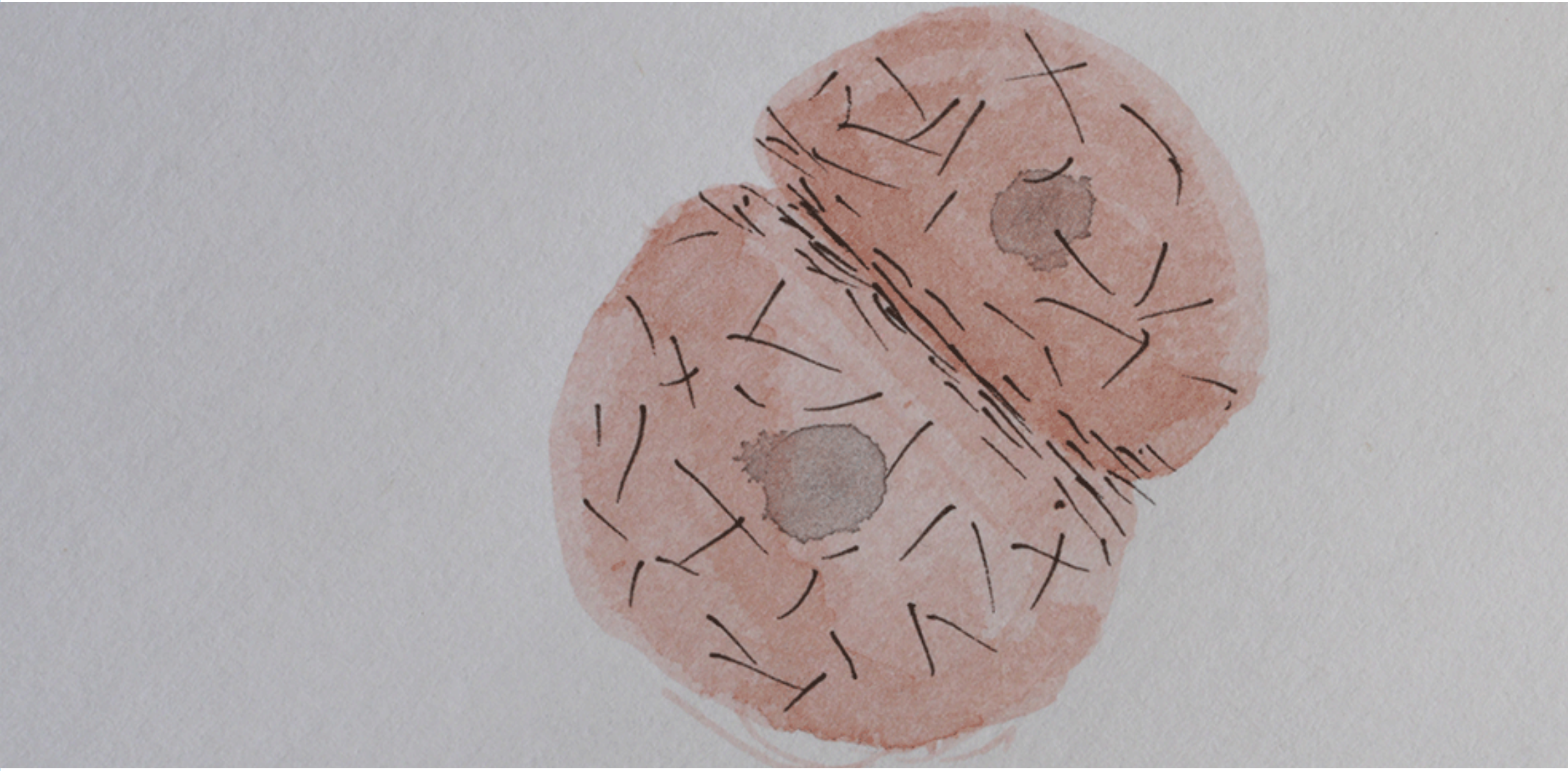
PP2A-SUR6/B55 regulates centrosome positioning during pronuclear migration by mediating Dynein motoring activity.
V. Boudreau, R. Chen, Alan Edwards, M. Sulaiman, P.S. Maddox - UNC-Chapel Hill

HA Regulation of Synapse Development.
Emily Wilson- East Carolina University

Forward Modeling of the Inner Kinetochore.
Ayush Doshi - UNC-Chapel Hill

Transcriptomic analysis of CAD cell differentiation.
C. Cevallos, D. Posfai, Anna Leigh White, J. Feng, A.L. Hill, J.M. Warrick, O.A. Quintero - University of Richmond

Crk adaptor protein containing multiprotein signaling complexes regulate actomyosin-dependent .developmental processes.
Andrew J. Spracklen, A.N. Bonner, E. Thornton-Kolbe, M. Peifer- UNC-Chapel Hill



MECHANICS AND STRUCTURE OF CYTOSKELETAL COMPLEXES 1

Influence of Cortical Microtubules on Cotton Fiber Elongation and Tip Diameter.

Benjamin P. Graham, M.R. Stiff, E.T. Pierce, and C.H. Haigler - North Carolina State University

Canoe feel it? Adherens Junction proteins, tension, and epidermal architecture.

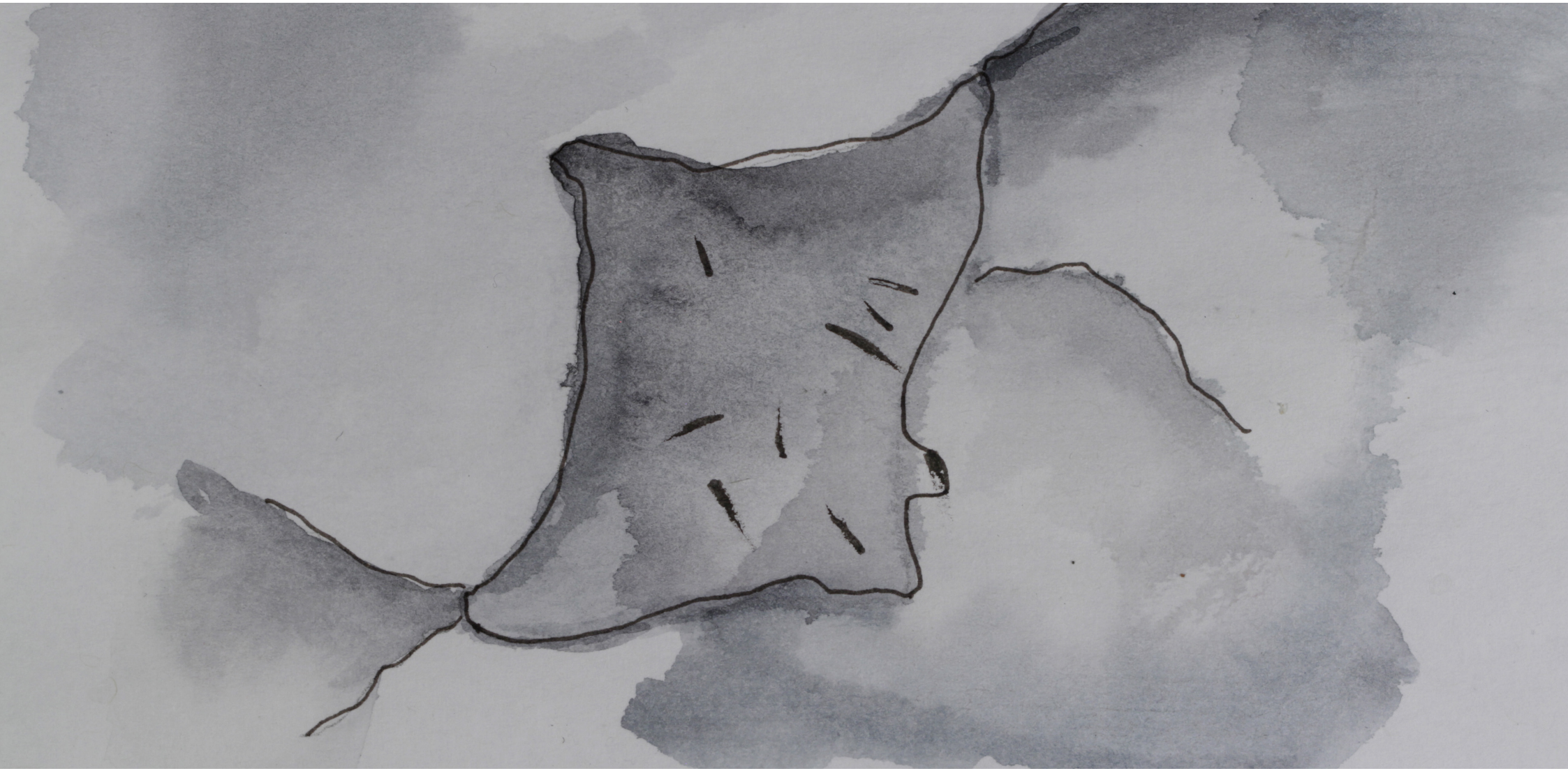
INVITED SPEAKER: Scott Williams - UNC-Chapel Hill

Lunch

QUANTITATIVE AND MODELING APPROACHES IN STUDYING THE CYTOSKELETON

An amphipathic helix enables septins to sense micron-scale membrane curvature.
Kevin Cannon, B. Woods, J. Crutchely, and A. Gladfelter - UNC-Chapel Hill

Modeling directional treadmilling of bacterial cell division protein FtsZ.
Lauren Corbin and H. Erickson - Duke University



POSTER SESSION 2

Integrative Model Predicts Myosin Mechanically Disrupts Positive Feedback Between Adhesions and F-Actin at Leading Edge of Migrating Cells.
Ankit Chandra, J. Haugh - North Carolina State University

A Unifying Theory of Cytoskeleton Contraction.
Julio M Belmonte, M. Leptin, F. Nédélec - North Carolina State University

Site-specific glycosylation regulates the form and function of the intermediate filament cytoskeleton.
Brett M Condon, H.J. Tarbet, L. Dolat, T.J. Smith, E.T. O'Brien III, R.H. Valdivia, M. Boyce - Duke University

The Bardet–Biedl syndrome protein complex is an adapter expanding the cargo range of intraflagellar transport trains for ciliary export.
Peiwei Liu, K.F. Lechtreck - University of Georgia

Force spectroscopy of phagocytosis with 6D light sheet imaging.
Evan Nelsen, C. Hobson, J. Hsiao, M. Falvo, E.T. O'Brien III, K. Hahn, S. Grinstein and R. Superfine - UNC-Chapel Hill

Dynamics of the k-fiber through high-resolution single-molecule speckle fluorescence imaging and mechanical perturbation from laser ablation.
Elizabeth Mae Davis, Marcus A Begley, M.W. Elting - North Carolina State University

Probing mitotic spindle mechanics in S. pombe via perturbation of microtubule crosslinkers and targeted laser ablation.
Parsa Zareiesfandabadi, Ana Sofia Uzsoy, M.W. Elting - North Carolina State University

Proteomic and functional analysis of presynaptic actin regulation during synaptic transmission.
Shataakshi Dube, T. Bradshaw, A. Uezu, E. Soderblom, B. Rácz, S.H. Soderling - Duke University

Investigating the role of the GTP hydrolysis rate in regulation of microtubule stability.
Veronica Farmer, G. Arpag, S. Wang, A. Rahman, M. Zanic - Vanderbilt University

Feedback Loops at the Level of Lipid Metabolism Enhance Sensitivity and Robustness in Models of Chemotactic Gradient Sensing.
Jamie Nosbisch, K. Mohan, T. Elston, J. Bear, J. Haugh - North Carolina State University

Cdc42 GEF, Gef1 coordinates actomyosin ring constriction and septum ingression during cytokinesis.
Udo Onwubiko, B. Wei, P. Mlynarczyk, J. Habiyaremye, A. Clack, S. Abel, M. Das - University of Tennessee-Knoxville

Rap1 acts via multiple mechanisms to position Canoe/Afadin and adherens junctions and mediate apical-basal polarity establishment.
Kia Z. Perez-Vale, T.T. Bonello, M. Peifer - UNC-Chapel Hill

Determining the localization and function of schizophrenia-linked tSNARE1.
Melissa Plooster, G. Rossi, M. Farrell, P. Sullivan, S. Gupton, P. Brennwald - UNC-Chapel Hill

Dynamics and regulation of microtubule minus ends.
Claire Strothman, M. Podolski, N. Rodgers, V. Farmer, G. Arpag, S. Wang, M. Zanic - Vanderbilt University

Modeling cytoskeletal actin by data-driven finite elements.
Brian Adam, S. Mitran - UNC-Chapel Hill

Dynamics of Fat2, Lar, and Sema-5c in a planar signaling system that coordinates migration across an epithelium.
Audrey Williams, S. Horne-Badovinac - University of Chicago

Using Cross-Species Evolutionary Analysis to Identify and Characterize Novel Centrosome Gene Duplications.
Frances C. Welsh, R.S. O'Neill, B.J. Galletta, N.M. Rusan - NIH

Cone myoid elongation involves unidirectional microtubule movement mediated by dynein-1.
Tylor Lewis, M. Zareba, B. Link, J. Besharse - Duke University

Genetic identification of separase regulators in C. elegans.
Michael Melesse, A. Peden, J. Bembenek - University of Tennessee-Knoxville

Aurora B is required for programmed variations of cytokinesis during morphogenesis in the C. elegans embryo.
Xiaofei Bai, P. Lee, C. Chen, J.R. Simmons, B. Nebenfuehr, D. Mitchell, L.R. Klebanow, N. Mattson, C.G.S. Turpin, B. Chen, E. Betzig, Joshua N. Bembenek - University of Tennessee-Knoxville

Molecular genetic analysis of sup-13, an extragenic suppressor of the unc-78 actin-interacting protein 1 gene in C. elegans.
Kanako Ono, S. Iwase, Z. Qin, D. Baillie, and Shoichiro Ono - Emory University

Examination of actomyosin contractile activity in sponges.
Jared Dyke, C. Cotter, A. Hill, M. Hill, O.A. Quintero - University of Richmond

An investigation into the mechanism by which a wave of F-actin propagates through mitochondria.
Jamar Washington, S. Coscia, A.S. Moore, O.A. Quintero, E. Holzbaur - University of Richmond

Defining the network of proteins driving apical-basal polarity establishment.
Teresa Bonello, M. Peifer - UNC-Chapel Hill

MECHANICS AND STRUCTURE OF CYTOSKELETAL COMPLEXES 2

Muscle specific stress fibers give rise to sarcomeres and are mechanistically distinct from stress fibers in non-muscle cells.

Aidan Fenix, M.R. Visetsouk, N. Taneja, A.C. Neininger, R.J. Garde, B. Liu, B.R. Nixon, A.E. Manalo, J.R. Becker, S.W. Crawley, D.M. Bader, M.J. Tyska, Q. Liu, J.H. Gutzman, and D.T. Burnett - Vanderbilt University

Molecular Mechanisms of Microtubule-based Intracellular Transport.

KEYNOTE SPEAKER: Samara Reck-Peterson - UC San Diego & HHMI

POSTER SESSION 3

O-GlcNAcylation of gigaxonin is a candidate regulator of intermediate filament stability.
Po-Han Chen, T. Smith, J. Chi, M. Boyce - Duke University

The Cdc42 GEFs regulate each other to orchestrate Cdc42 activity during cytokinesis and polarized growth.
Brian Hercyk, J. Rich, M. Das - University of Tennessee-Knoxville

FIP Modulates PRC-1/FEO to Ensure Proper Cytokinesis and Ploidy.
Rachel K. Ng, Z.T. Swider, R. Varadarajan, N.M. Rusan - NIH/NHLBI

mRNA transport and local translation regulates radial glial cell branching during brain development.
Louis-Jan Pilaz, K. Joshi, Y. Tsunekawa, P. Vanderhaeghen, F. Polleux, D.L. Silver - Duke University

Dynamic post-transcriptional regulation of centrosome-associated RNA.
Pearl V. Ryder, D.A. Lerit - Emory University

Ndel1 promotes keratin assembly at desmosomes.
Yong-Bae Kim, J. Maycock, Daniel Hlavaty, T. Lechler - Duke University

Actin-myosin Interaction is Regulated by the C-terminus of human cardiac Troponin T.
Dylan Johnson, W. Angus, L. Zhu, J. Chalovich - East Carolina University

Morphogenesis and compartmentalization of the mammalian intestine.
Kaelyn Sumigray, M. Terwilliger, T. Lechler - Duke University

How does the cell cycle control polarization in Saccharomyces cerevisiae?
Kyle Moran, H. Kang, A. Araujo, T. Zyla, D. Tsygankov, D. Lew - Duke University

Uncovering the spindle-orienting function of AGS3 in epidermal morphogenesis.
Carlos Patiño Descovich, K J. Lough, D.C. Spitzer, J. Yom, S.E. Williams - UNC-Chapel Hill

Towards Uncovering N-Cadherin Force Dependent Protein-Protein Interactions.
Ishaan Puranam, B.D. Hoffman - Duke University

Examining Vinculin Load-Dependent Protein Localization to Focal Adhesions.
Arnold Tao, A.S. LaCroix, B.D. Hoffman - Duke University

Developmental Dynamics of Cardiac Pacemaker Cell Cytoarchitecture.
Kandace Thomas, M. Bressan - UNC-Chapel Hill

The tumor suppressor SETD2 functions as a dual regulator of microtubule and kinetochore assembly during mitosis.
Frank M. Mason, Stephen R. Norris, I.Y. Park, C.L. Walker, R. Ohi, W.K. Rathmell - Vanderbilt University Medical Center

Non-canonical roles of the Exon Junction Complex component Eif4a3 during neuronal differentiation
Fernando C. Alsina, B. Lupan, E. Miller, D.L. Silver - Duke University

Mitotic cues ensure that Cdc42-mediated polarized growth at the onset of interphase initiates after completion of cell separation
Julie Rich, A. Russell, E. Mancini, M. Das - University of Tennessee-Knoxville

Sochastic simulation of dynamic Rho-GTPase clustering.
Samuel A. Ramirez, M. Pablo, T.C. Elston - UNC-Chapel Hill

Connection between Electrostatic Interactions and Binding Affinity of Dynein and Microtubules.
Hailey Lovelace, M. Spencer, J. Eller, H. Sanabria, J. Alper - Clemson University

Constructing Neural Circuits: An Integrated Optical Tweezer Microelectrode Array System for Directing the Axonal Cytoskeleton and Modulating Synaptic Strength.
Bradley Scammon, E. Carman, R. Eiman, M. Judge, K. O'Brien, L. Phemister, J. Alper - Clemson University

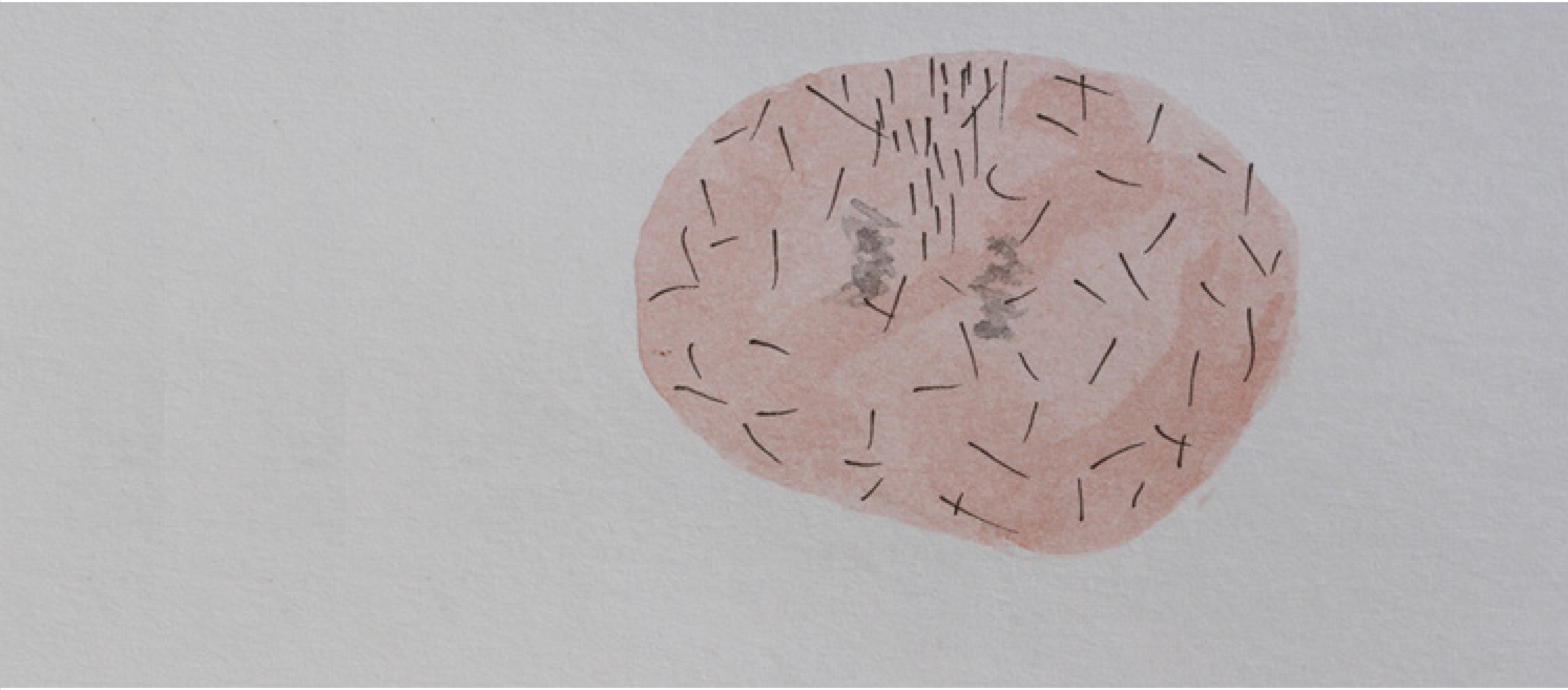
Control of Kinetochore Assembly by the Chromosomal Passenger Complex.
Mary Kate Bonner, J. Haase, H. Halas, J. Swinderman, L. Jenkins, A.E. Kelly - NIH

Agent-based modeling of myosin motor ensembles in dynamic contractile rings.
Daniel Cortes, F. Nédélec, A.S. Maddox - UNC-Chapel Hill

A novel, Afadin-dependent rescue mechanism corrects oblique anaphase division orientation in the embryonic epidermis.
Kendall Lough, K.M. Byrd, C. Patino-Descovich, D.C. Spitzer, A.J. Bergman, S.E. Williams - UNC Chapel Hill

TRIM9 and TRIM67: How do they regulate neuronal morphology?
Shalini Menon, D. Goldfarb, B. Major, S. Gupton - UNC-Chapel Hill

Investigating the Biochemical and Structural Basis of Centrosome Maturation
Samantha L. Smith, B.J. Galletta, K.M. Plevock, R. Varadarajan, A.E. Kelly, N.M. Rusan - NIH/NHLBI



CYTOSKELETON IN DEVELOPMENT AND DISEASE 2

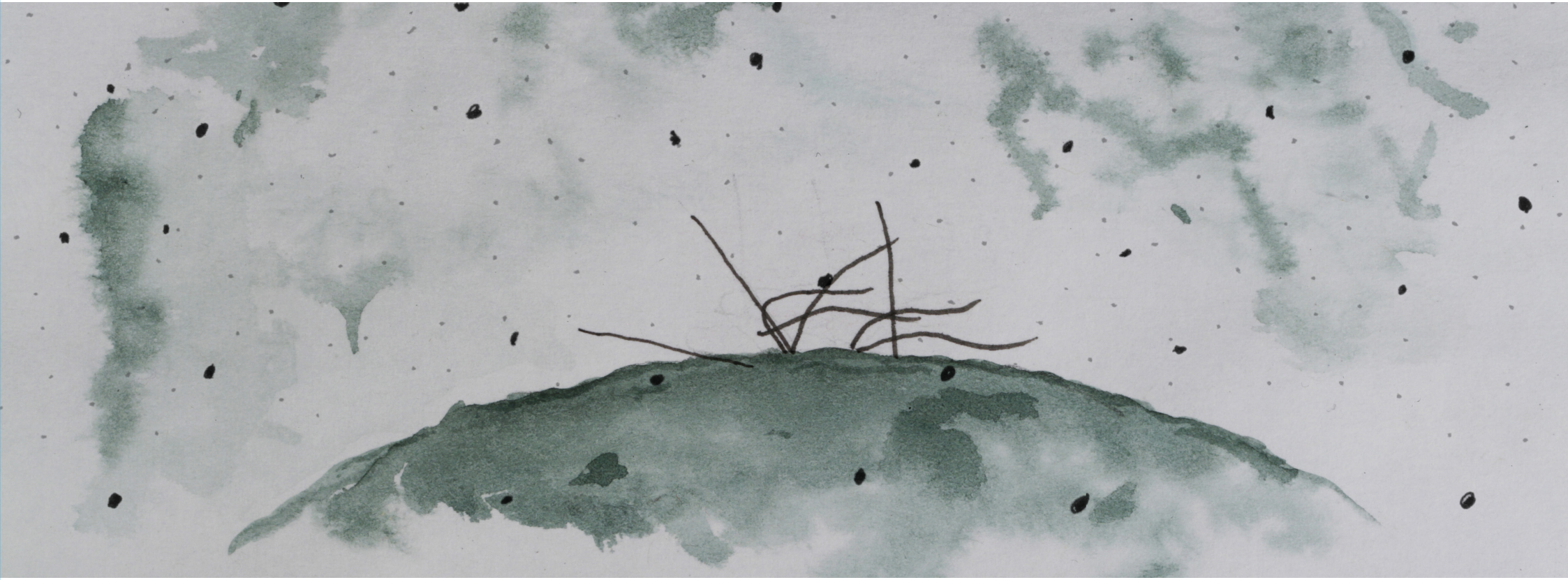
Regulation of Epidermal Development and Morphogenesis by Cytoskeleton in Differentiated Cells

Wenxiu Ning and T. Lechler - Duke University

Spatio-temporal regulation of tissue growth in zebrafish scale regeneration.

Alessandro De Simone, L. Hayden, M. Evanitsky, B. D. Cox, J. Wang, Z. Weishampel, A. Chao, K. D. Poss, and S. Di Talia. - Duke University

Happy Hour



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