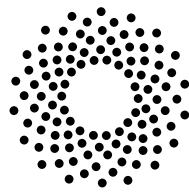


The
Triangle
Cytoskeleton
Meeting



ascb

the american society for cell biology

2015 Program

Schedule

September 21st
@ Haw River Ballroom

1711 Saxapahaw-Bethlehem Church Rd
Saxapahaw, NC 27340

9:00 Breakfast/Registration

9:30 Cytoskeleton in
Development and Disease 1

10:20 Morning Poster Session

11:20 Cytoskeleton in
Development and Disease 2

12:20 Lunch

1:20 Quantitative and Modeling
Approaches in Studying
the Cytoskeleton

3:00 Afternoon Poster Session

4:00 Mechanics and Structure
of Cytoskeletal Complexes

5:30 Happy Hour

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Meeting Organizers

Vincent Boudreau

Dan Keeley

Carlos Patiño Descovich

With special thanks to:

Amanda Chang - UNC Chapel Hill

Sophia Tintori - UNC Chapel Hill

Sponsors

Cytoskeleton in Development and Disease

Indispensable pre-mitotic endocycles promote aneuploidy in the *Drosophila* rectum
Kevin Schoenfelder - Duke University

The Arp2/3 complex is required for integrin-dependent macrophage functions, but is dispensable for Fc-mediated phagocytosis, chemotaxis and in vivo directional migration
Jeremy Rotty, PhD - UNC Chapel Hill

A Novel Non-Neuronal Role of Acetylcholinesterase in Intestinal Development
Melissa Pickett - NCSU

RhoGTPase Regulatory Signatures Define Distinct Stages of Synaptic Development
Karen Litwa, PhD - University of Virginia

Actin Badly - Cytoskeletal Drivers of Neuropsychiatric Disorder
INVITED SPEAKER: Scott Soderling, PhD - Duke University



Morning Posters

Illuminating the regulation of microtubule dynamics through the use of a novel optogenetic tool, SKIP-iLID

Adikes R.C., Hallett R.A., Saway B.F., Kuhlman B. and Slep K.C. - UNC Chapel Hill

Dynamin2 oligomers and cortactin organize dendritic actin filaments by regulating Arp2/3 complex-dependent actin nucleation

Askinazi O.L. and Schafer D.A. - University of Virginia

The Protease Activity of Separase Is Required for Both of Chromosome Segregation and Regulation of Membrane Trafficking During Cytokinesis

Bai X., Mitchell D. and Klebanow L. - University of Tennessee - Knoxville

Myosin 18A and Non-Muscle Myosin 2 Co-assembles with Non-muscle Myosin 2

Beach J.R., Billington N., Heissler S.M., Remmert K., Guzik-Lendrum S., Nagy A., Takagi Y., Shao L., Li D., Yang Y., Zhang Y., Barzik M., Betzig E., Hammer J.A. 3rd and Sellers J.R. - NHLBI/NIH

Interaction of myosin 18A with nonmuscle myosin 2

Billington N., Guzik-Lendrum S., Heissler S., Takagi Y. and Sellers J.R. - NHLBI/NIH

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

Bonello T., Sumigray K. and Peifer M. - UNC Chapel Hill

Afadin controls epithelial homeostasis by balancing contractility at the zonula adherens

Choi W., Fanning A.S. and Peifer M. - UNC Chapel Hill

Global effects from errors at single kinetochores

He B., Roscioli E., Winemiller A., Civelekoglu-Scholey G. and Cimini D. - Virginia Tech

CDC-42 and Rab GDI-1 promote distinct aspects of invadopodia formation during cell invasion in vivo

Clay M.R., Lohmer L.L., Naegeli K.M., Chi Q., Ziel J.W., Hagedorn E.J., Park J.E. and Sherwood D.R. - Duke University

Orphan Actin Related Protein ACTL7B Associates with Tubulin and is Required for Spermatid Morphogenesis and Male Fertility

Clement T., Geyer C., Warren G., Willis W., Goulding E. and Eddy M. - NIEHS

New techniques reveal how *C. difficile* interacts with epithelial cells

Courson D.S., Purcell E.B., Tamayo R. and Cheney R.E. - UNC Chapel Hill

The effect of chondrocyte-specific Arp2/3 loss on murine cartilage function

Diekman B.O., Rotty J.D., Brooks L.J., Loeser R.F., Bear J.E. and Sharpless N.E. - UNC Chapel Hill

Vangl2 acts through Rac 1 to control endodermal cell rearrangements necessary for proper gut morphogenesis

Multivalent Microtubule Recognition by Tubulin Tyrosine Ligase-like Family Glutamylases

Garnham* C.P., Vemu* A., Wilson-Kubalek* E.M., Yu I, Szyk A., Lander G.C., Milligan R.A. and Roll-Mecak A. - NINDS

Assessing Local Mechanically-based Coupling in Cell Migration and Mechanosensitive Signaling

Gates E.M., Urs A. and Hoffman B.D. - Duke University

Tau Tubulin Kinase 2 Controls the Initiation of Mammalian Ciliogenesis

Goetz S.C. and Barrington-Ham C. - Duke University

Cytoskeletal defects in spe-26, a spermatocyte-enriched kelch-like protein in *C. elegans*

Gurley S.A., Uyehara C. and Shakes D.C. - College of William and Mary

The torsinA activator LAP1 is required for retrograde actin flow during rearward nuclear movement in migrating fibroblasts

Harris N.J., Saunders C.A., Willey P.W., McQuown A., Schoehofen A. and Luxton G.W.G. - University of Minnesota

Multiscale Modeling of Wound Healing

Mohan K., Miller C., Nosbisch J., Asokan S., Bear J., Elston T. and Haugh J. - NCSU

Characterization of MYO19 knockdown phenotype in cultured and primary neurons

Hawthorne J., Li A., Gupton S. and Quintero O. - University of Richmond

Apico-basal targeting of Myosin-X

Heimsath E., Raghunathan S., Liu K. and Cheney R. - UNC Chapel Hill

Kinetics and Regulation of *Drosophila* Nonmuscle myosin-2

Heissler S.M., Billington N. and Sellers J.R. - NIH

Myosin II Facilitates Early TCR Triggering in Immunological Synapse

Hong J., Murugesan S. and Hammer J. - NHLBI/NIH

Periodically protruding cells as a model system for amoeboid-like type of motility

Kapustina M. and Jacobson K. - UNC Chapel Hill

Spine Pruning in Frontal Cortex Drives Antipsychotic-sensitive Locomotion via Circuit Control of Striatal Dopamine

Kim I.H., Rossi M., Aryal D., Racz B., Kim N., Uezu A., Wang F., Wetsel W., Weinberg R., Yin H. and Soderling S. - Duke University

Vinculin activation and tension independently regulate changes in focal adhesion composition

LaCroix A.S. and Hoffman B.D. - Duke University

Differential chromatin states can regulate chromosome size scaling

Ladouceur A-M., Smith L., Lawrimore J., Bloom K. and Maddox P.S. - UNC Chapel Hill

ChromoShake: a chromosome dynamics simulator reveals chromatin loops stiffen centromeric chromatin

Lawrimore J., Aicher J.K., Hahn P., Fulp A., Kompa B., Vicci L., Falvo M., Taylor II R.M. and Bloom K. - UNC Chapel Hill

Role of metavinculin in actin reorganization and force transmission

Lee H.T., Kim L., Thompson P.M., Alushin G.M., Burridge K. and Campbell S.L. - UNC Chapel Hill

Linking morphodynamics and directional persistence of T lymphocyte migration

Liu X., Welf E. and Haugh J. - NCSU

Quantitative and Modeling Approaches in Studying the Cytoskeleton

Mathematical models of mechanosensory feedback

Krithika Mohan, PhD - NCSU

Simultaneous imaging of signaling nodes regulating breast cancer cell migration using novel biosensors for Dbl family RhoGEFs and long-wavelength biosensors for Rho family GTPases

Daniel Marston, PhD - UNC Chapel Hill

How DNA loops make tensionation in the symmet

INVITED SPEAKER: Kerry Bloom, PhD - UNC Chapel Hill

Heraclitus and the cytoskeleton: can you study the same actin network twice?

KEYNOTE: Dyche Mullins, PhD - UCSF and HHMI

Afternoon Posters

In vitro study of Non Muscle Myosin II mini-filaments

Melli L., Billington N. and Sellers J.R. - NIH

TRIM9, a brain specific E3 ubiquitin ligase, is a filopodia off-switch

Menon S., Boyer N., Winkle C. and Gupton S. - UNC Chapel Hill

Identifying the functions of NUSAP1 in SUMO-dependent regulation during mitosis

Mills C.A. and Emanuele M.J. - UNC-Chapel Hill

Divergent regulation of distinct γ -tubulin complexes abolishes centrosomal activity during differentiation

Muroyama A., Seldin L. and Lechler T. - Duke University

A formin-dependent mechanism of actin arc formation at the T cell Immune Synapse

Murugesan S., Hong J., Yi J., Li D., Shao L., Wu X., Betzig E. and Hammer J.A. - NIH

Rapid exocytosis of an endolysosome-derived membrane domain forms a polarized invasive protrusion that clears basement membrane during cell invasion

Naegeli K.M., Chi Q. and Sherwood D.R. - Duke University

The role of myosin IIA on GLUT4 vesicular tethering at the plasma membrane in 3T3-L1 adipocytes

Childs R., Silverio D. and Patel Y. - UNC Greensboro

Dynamic transport and translation of mRNAs within neural stem cells during brain development

[Pilaz L.J.](#), Lennox A., Rouanet J. and Silver D.L. - Duke University

Intercellular bridges in the *C. elegans* germline syncytium are regulated by CCM-3 and GCK-1 via ANI-1 anillin

[Rehain K.](#), Love A., McLeod I.X., Yates III J.R. and Maddox A.S. - UNC Chapel Hill

Controlling Cell Shape Affects Load Across Vinculin

[Rothenberg K.E.](#), Neibart S.S., LaCroix A.S. and Hoffman B.D. - Duke University

A novel cell cycle-dependent centrosome scaffold is required for proper early development and animal viability

Lerit D.A., Jordan H.A., Poulton J.S., Fagerstrom C.J., Galletta B.J., Peifer M. and [Rusan N.M.](#) - NHLBI/NIH

Defining the Spatial Organization of Cortical Actomyosin

[Schafer D.A.](#) - University of Virginia

Mechanical signaling in cells growing on different rigidity substrata

[Scott D.W.](#) and Burrridge K. - UNC Chapel Hill

Cytoskeletal defects in spe-26, a spermatocyte-enriched kelch-like protein in *C. elegans*

Gurley S.A., Uyehara C. and [Shakes D.C.](#) - College of William and Mary

A Potential Role for Midbodies in Developing Tissues of *C. elegans*

[Simmons J.R.](#) and Bembenek J. - University of Tennessee - Knoxville

Investigating the mechanisms that regulate apical constriction during *C. elegans* gastrulation

[Slabodnick M.M.](#), Tintori S. and Goldstein B. - UNC Chapel Hill

Mechanical Properties of the Cell Interior by Passive Microrheology

[Smelser A.M.](#), O'Dell A.P., Smyre S., Bonin K., Macosko J.C. and Holzwarth G. - Wake Forest University

Centromeric epigenetic regulation in the developing embryo of *C. elegans*

[Smith L.](#) and Maddox P.S. - UNC Chapel Hill

Keratin intermediate filament cytoskeleton is required for spatial regulation of Rac1 activity in collectively migrating cells

[Sonavane P.](#), Wang C., Dzamba B. and DeSimone D. - University of Virginia

Molecular Basis for Age-Dependent Microtubule Acetylation by Tubulin Acetyltransferase

[Spector J.](#), Szyk A., Deaconescu A.M., Goodman B., Valenstein M.L., Ziolkowska N.E., Kormendi V., Grigorieff N. and Roll-Mecak A. - NIH/NINDS

Opposing roles of actin signaling during the developmental stage of spine formation and maturation

[Spence E.F.](#), Kanak D. and Soderling S. - Duke University

Defining how Abelson tyrosine kinase regulates cell adhesion and actin dynamics during morphogenesis

[Spracklen A.J.](#), Rogers E.M., Bilancia C.G., Sumigray K.D., Allred S.C., Nowotarski S.H., Ritchie B.J. and Peifer M. - UNC Chapel Hill

More DNA More Problems, How the Spindle Interacts with Abnormal Chromosomes

Stormo B. and Fox D. - Duke University

Actin and microtubule dynamics drive enhanced chromatin motion following DNA damage

Barry T., Barry R., Yeh E. and Bloom K. - UNC Chapel Hill

The Role of O-linked N-acetylglucosamine on Vimentin Function

Tarbet H.J., Smith T.J. and Boyce M.S. - Duke University

The effect of reduced MYO19 expression on cellular phenotypes: identifying a role for a mitochondrial motor in cell function

Tow J., Scoratow R. and Quintero O. - University of Richmond

Elucidating the Role of Securin in Regulating Separase Function

Turpin C., LaForest M., Uehlein-Klebanow L., Caylor Q., Mitchell D. and Bembenek J. - University of Tennessee - Knoxville

Vinculin dependent fluidization of junctions during collective migration of epithelial cells

Urs A., Gates E. and Hoffman B. - Duke University

Nuclear envelope mechanosome regulates β catenin nuclear transport

Uzer G., Bas G., Sen B., Xie Z., Thompson W., Styner M. and Rubin J. - UNC Chapel Hill

TGF- β triggers rapid Fibrillogenesis via a novel TGFBR2 dependent fibronectin recycling mechanism

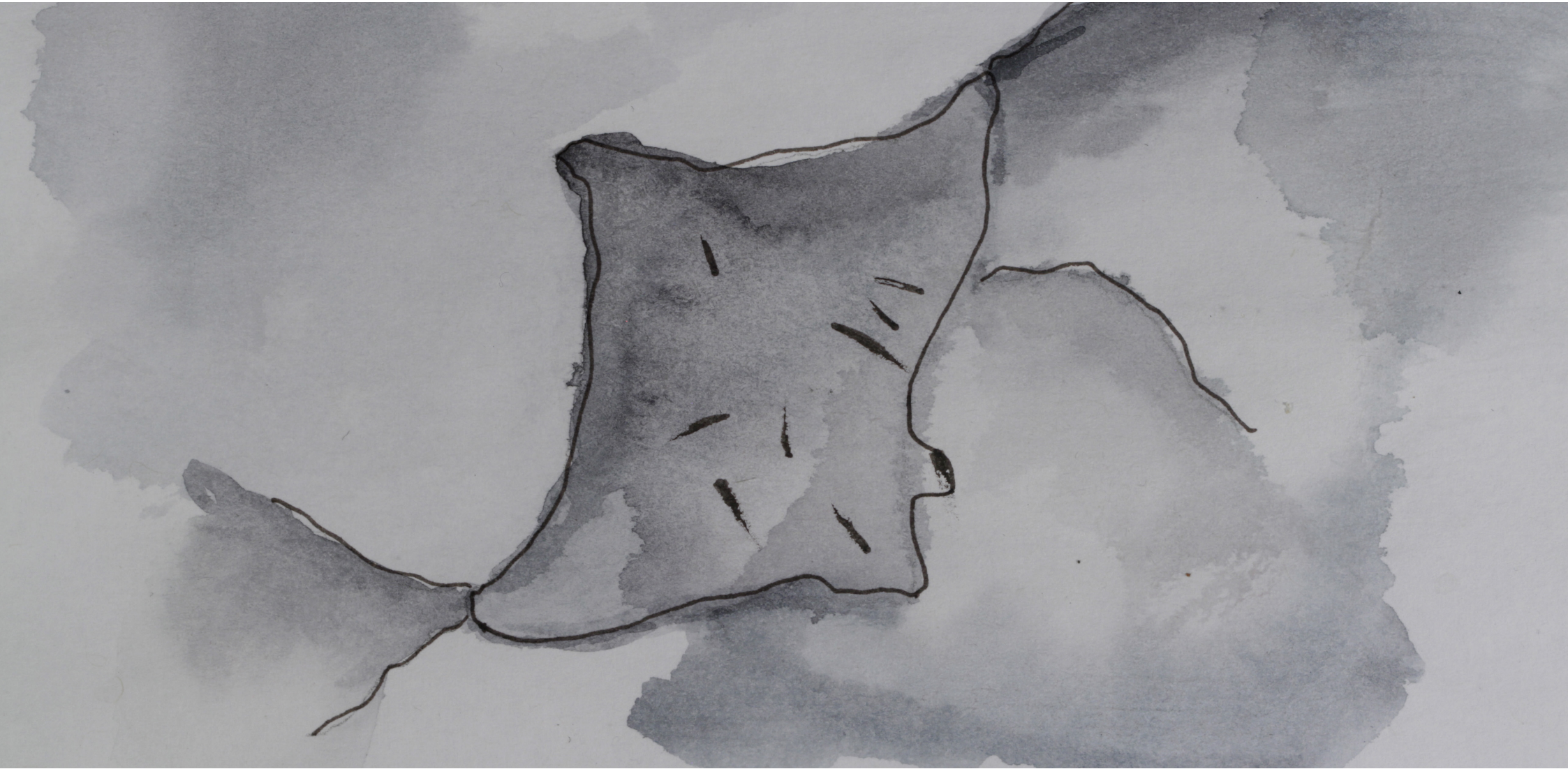
Varadaraj A., Patel P., Snider J., Chanda A. and Myhre K. - University of South Carolina

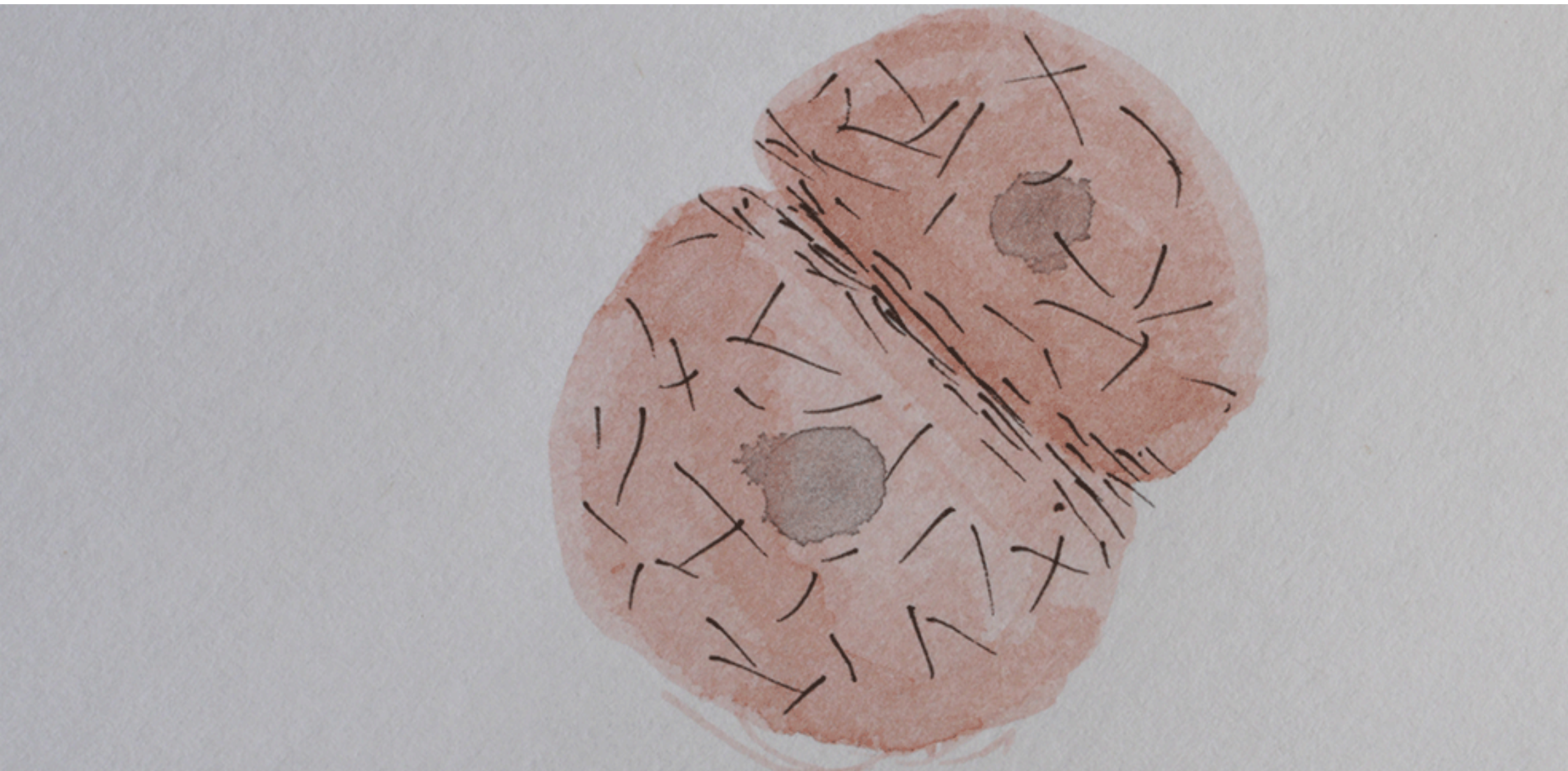
Multivalent Microtubule Recognition by Tubulin Tyrosine Ligase-like Family Glutamylases

Garnham C.P., Vemu A., Wilson-Kubalek E.M., Yu I., Szyk A., Lander G.C., Milligan R.A. and Roll-Mecak A. - NIH

Optogenetic Control of the Actin Cytoskeleton

Zimmerman S., Hallett R., Bear J.E. and Kuhlman B. - UNC Chapel Hill





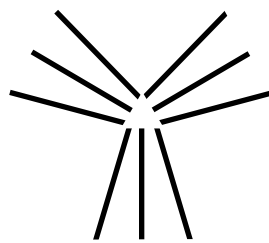
Mechanics and Structure of Cytoskeletal Complexes

Construction and use of an Ezrin tension sensor to measure actin-plasma membrane loading
Matthew Berginski, PhD - Duke University

Genetically separable cytokinetic signaling pathways contribute distinctly to cell shape changes in cytokinesis
Michael Werner, PhD- UNC Chapel Hill

FtsZ Minirings Curvature is the Opposite of Tubulin Rings
Max Housman - Duke University

Vinculin-Actin Interaction: Role in Vinculin Activation, Force Transmission and Focal Adhesion Organization
INVITED SPEAKER: Sharon Campbell, PhD - UNC Chapel Hill



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