

**Jason Stumpff, Ph.D.**  
**CURRICULUM VITAE**

Position: Associate Professor  
Department of Molecular Physiology and Biophysics

Address: HSRF 106  
Department of Molecular Physiology and Biophysics  
The Robert Larner, M.D. College of Medicine  
University of Vermont  
Burlington, VT 05405  
Voice: (802) 656-7849  
email: [jstumpff@med.uvm.edu](mailto:jstumpff@med.uvm.edu)  
website: <http://physioweb.uvm.edu/stumpff-lab/>

**EDUCATION**

<u>Year</u>	<u>Institution</u>	<u>Degree</u>	<u>Area of Degree, Accolades</u>
2004	University of Colorado, Boulder	Ph.D.	Molecular, Cellular, and Developmental Biology
1998	Eckerd College	B.S.	Biology Major, Chemistry Minor, with Highest Honors

**LICENSES, CERTIFICATION**

<u>Years</u>	<u>License/Certification</u>
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**FACULTY POSITIONS HELD**

<u>Years</u>	<u>Institution</u>	<u>Academic Title</u>	<u>Department</u>
2019- present	University of Vermont	Associate Professor	Molecular Physiology and Biophysics
2011-2019	University of Vermont	Assistant Professor	Molecular Physiology and Biophysics

**OTHER POSITIONS AND MAJOR ADMINISTRATIVE POSITIONS HELD**

<u>Years</u>	<u>Location/Program Name</u>	<u>Role</u>
2023-present	University of Vermont Cancer Center	Program Leader
2005-2011	University of Washington, Seattle	Postdoctoral Fellow
1998-2004	University of Colorado, Boulder	Graduate Research Assistant

**HONORS AND AWARDS**

<u>Year</u>	<u>Name of Award</u>
1997	Summer Undergraduate Research Exp Fellowship, Univ. of North Carolina, Chapel Hill

1998	B.S. with Highest Honors in Biology, Eckerd College
2000-2002	NIH Signal Transduction and Cell Cycle Training Grant, Univ of CO
2001	Beverly Sears Award, Univ of CO
2006-2008	NIH Ruth L. Kirschstein National Research Service Award, Postdoctoral Fellowship
2007	First Place Winner, American Society for Cell Biology Imaging Contest
2010	Honorable Mention, American Society for Cell Biology Imaging Contest
2010	Special Fellow Award, Leukemia and Lymphoma Society
2014	Basil O' Connor Starter Scholar Research Award, March of Dimes
2016	Career Catalyst Research Award, Susan G. Komen
2016	Rising Star New Investigator Award, UVM Larner College of Medicine
2021	Mid-Career Investigator Award, UVM Larner College of Medicine

### KEYWORDS/AREAS OF INTEREST

Cell division, mitosis, mitotic spindle, chromosome segregation, cytoskeleton, microtubules, molecular motor proteins, kinesin, aneuploidy, chromosome instability, cancer, triple negative breast cancer

### SUMMARY OF PROFESSIONAL ACTIVITIES- OVERALL

I was recruited to the University of Vermont as a tenure-track Assistant Professor in the Molecular Physiology and Biophysics Department of the College of Medicine through a national search. My appointment began on July 1<sup>st</sup>, 2011, and I was promoted to Associate Professor in July 2019. My professional activities since becoming a faculty member at UVM have targeted a split of 60% research, 25% teaching, and 15% service.

**Research:** My research focuses on understanding chromosome organization and movements during cell division. This work has been funded by nationally competitive grants from private and government sources since my arrival at UVM in 2011. These include awards from the Leukemia and Lymphoma Society, the March of Dimes, Susan G. Komen, and the National Institutes of Health, as well as scientific research agreements with pharmaceutical companies. In addition, I have been awarded several pilot grants from the University of Vermont Cancer Center/Lake Champlain Cancer Research Organization to support new research initiatives. Our work has been published in top journals in the field of cell and developmental biology as primary research papers, reviews, and book chapters.

**Teaching:** My formal teaching at UVM is primarily directed towards graduate and medical students. In 2013, I developed a new graduate-level cell biology course (MPBP 310), which I have directed each time it has been offered. I am also a regular instructor in the Foundations of Clinical Science course for first-year medical students and two core cell biology courses for the CMB PhD program and Medical Masters program (CLBI 301, CLBI 401). I have served as the primary research advisor for 2 postdoctoral fellows, 2 medical fellows, 7 Ph.D. students, and 21 undergraduate students. These focused teaching experiences in the research laboratory setting allow me to guide the career paths of young investigators and are particularly rewarding. A number of my mentees have been awarded competitive research fellowships of their own and have moved on to their positions of choice in research and medicine.

**Service:** I have provided service at the department, college, and university levels at UVM, as well as to research focused organizations outside of UVM. I am a Program Leader of the Cancer Host and Environment Program within the UVM Cancer Center and also chaired the UVM Cancer Center Pilot Grant Review Committee for 2 years. I served as chair of the Admissions and Recruitment Committee for the Cellular, Molecular, and Biomedical Sciences graduate program for 4 years and was a member of the committee for 9 years. I have also served on 6 faculty search committees, one as chair, and have been a dissertation committee member or chair for 26 graduate students at UVM and 5 at other institutions. Outside of UVM, I was a member of the Finance and Audit Committee for the American Society of Cell Biology for 6 years, serve regularly as an ad hoc grant reviewer for the NIH and other funding agencies, was on the scientific organizing committee for an international meeting in 2022-2023, and frequently review manuscripts for leading journals in my field. I have also participated in or led several educational outreach efforts for the local community.

### **SUMMARY OF ACCOMPLISHMENTS**

- Internationally recognized research program focused on understanding how chromosomes are moved and organized during cell division from the single molecule to whole organism level. This work has led to significant advances in our knowledge about mechanisms that preserve genomic integrity and the identification of new molecular targets for cancer therapy. One of these targets, KIF18A, is being pursued by multiple pharmaceutical companies.
- Recipient of 3 nationally competitive research awards: Leukemia and Lymphoma Society Special Fellow Award, March of Dimes Basil O' Connor Starter Scholar Research Award, and Susan G. Komen Career Catalyst Research Award, as well as multiple grants from the National Institutes of Health (NIH)
- Primary mentor for 1 extramural postdoctoral fellowship, 3 extramural graduate fellowships, 2 nationally competitive undergraduate research awards, and 10 locally competitive undergraduate research fellowships.
- Invited speaker at numerous international meetings, regional research meetings, and departmental seminars since 2011
- Ad hoc grant reviewer for the NIH Nuclear and Cytoplasmic Structure and Dynamics (NCSD), Biological Chemistry and Macromolecular Biophysics, and Cell and Developmental Fellowships Study Sections, as well as the French National Research Agency and the Human Frontier Science Program
- Invited reviewer for prominent journals in the fields of cell biology, developmental biology, and biophysics including: Nature, Nature Communications, EMBO Journal, Biophysical Journal, Current Biology, Developmental Cell, The Journal of Cell Biology, The Journal of Cell Science, eLife, Molecular Biology of the Cell, PNAS, and PLOS Genetics.

**PROFESSIONAL SERVICE****DEPARTMENTAL SERVICE**

<b>Years</b>	<b>Department</b>	<b>Committee</b>	<b>Role</b>
2012	MPBP	Graduate Program interviews	Interviewer
2012-2013	MPBP	Education Committee	Member
2013-2017	MPBP	Seminar Committee	Chair
2019-2020	MPBP	Faculty Search Committee	Member
2020-2021	MPBP	Faculty Search Committee	Member
2022-2023	MPBP	Faculty Search Committee	Chair

**COLLEGE SERVICES**

<b>Years</b>	<b>Service Committee</b>	<b>Role</b>
2012-2016	UVM Cancer Center Grand Rounds committee	Ad hoc Reviewer
2012	UVM Cancer Center/LCCRO Scientific Review Committee	Member
2016	Strategic Faculty Committee on the Academic Structure and Funding of Basic Research	Member
2017	Faculty Research Awards ad hoc review group	Ad hoc Reviewer
2017	UVM Cancer Center Director of Major Gifts Search committee	Ad hoc Interviewer
2018-2019	New Research Building Advisory Committee	Member
2018-2021	Faculty Research Awards ad hoc review group	Ad hoc Reviewer
2018-2019	Tenure-track faculty search committee Ob/Gyn Dept	Member
2019-2020	Search Committee for Senior Associate Dean for Medical Education	Member

**MEDICAL CENTER SERVICE- None**

<b>Years</b>	<b>Service Committee</b>	<b>Role</b>

**UNIVERSITY SERVICE**

<b>Years</b>	<b>Service Committee</b>	<b>Role</b>
2012-2013	CMB Faculty Membership Committee	Ad hoc Member
2012-2018	CMB graduate program interviews	Interviewer
2012-2016	Financial and Physical Planning Committee	Member
2013-2016	Budget Advisory Committee to the President	Member
2013	CMB Qualifying Exam Committee	Member
2013-2017	CMB Admissions and Recruitment Committee	Member
2018-2022	CMB Admissions and Recruitment Committee	Chair
2017-2018	Tenure-track faculty search committee Dept of Biology	Member
2017-2019	UVM Postdoctoral Association	Faculty Mentor
2018-2022	CMB Steering Committee	Member
2021-2023	UVM Cancer Center Pilot Grant Review Committee	Chair

2023-present UVM Cancer Center Cancer Host and Environment Program Leader

## GOVERNMENT

<b>Years</b>	<b>Service Committee</b>	<b>Role</b>
2016	NIH Nuclear and Cytoplasmic Structure and Dynamics Study Section	Ad hoc grant reviewer
2016	French National Research Agency	Ad hoc grant reviewer
2020	NIH Biological Chemistry and Macromolecular Biophysics Study Section	Ad hoc grant reviewer
2021	NIH Nuclear and Cytoplasmic Structure and Dynamics Study Section	Ad hoc grant reviewer
2022	NIH Cancer Biology special emphasis panel- ZRG1 OBT-J	Ad hoc grant reviewer
2022	NIH Cell and Developmental Biology study section- F05Q	Ad hoc grant reviewer

## SOCIETY MEMBERSHIPS

<b>Years</b>	<b>Society</b>
1998-2004	Genetics Society of America
2007-2011	American Association for the Advancement of Science
2005-present	American Society for Cell Biology
2011-present	Full Member, University of Vermont Cancer Center

## SERVICE TO PROFESSIONAL ORGANIZATIONS

<b>Years</b>	<b>Service Committee</b>	<b>Role</b>
2014	Human Frontier Science Program	Ad hoc grant reviewer
2016-present	American Society for Cell Biology Finance and Audit Committee	Member
2017	American Society for Cell Biology Career Panel	Member
2021- 2023	Scientific Organization Committee for the 2023 Mitotic Spindle Croatia Meeting	Member
2022	Human Frontier Science Program	Ad hoc grant reviewer

## SERVICE TO PROFESSIONAL PUBLICATIONS

<b>Years</b>	<b>Journal/Publication/Board</b>
2011-present	Scientific journal reviewer <sup>1</sup>
2015-2019	Journal of Cellular Biochemistry Editorial Board
2020-present	Faculty Opinions Faculty Member

<sup>1</sup>Ad hoc reviewer for the following scientific journals: Biophysical Journal, Cell Reports, Current Biology, Developmental Cell, Journal of Cellular Biochemistry, Journal of Cellular Physiology, Journal of Cell Biology, Molecular and Cellular Biology, Molecular Biology of the Cell, Nature, Nature Communications, PLOS One, PLOS Genetics, PNAS

## PUBLIC SERVICE

<b>Years</b>	<b>Service Role</b>	<b>Group Served</b>
2014	Instructor	Harwood High school students
2015	Instructor	Otter Valley High school students
2015	Guest Instructor	Shelburne Community School kindergarten and 2 <sup>nd</sup> grade students
2017	Guest Instructor	Shelburne Community School 4 <sup>th</sup> grade students
2017	Invited Speaker Women's Health and Cancer Conference	Breast cancer patients and survivors
2018	Keynote Speaker Women's Health and Cancer Conference	Breast cancer patients and survivors
2019	Instruction Supervisor for lab research workshop	Otter Valley High school students

### SUMMARY OF SERVICE ACTIVITIES

I have provided academic service at the department, college, and university levels at UVM with an overarching goal of improving the scholarly environment within the academy. My efforts have: (1) enhanced the quality and diversity of graduate students recruited to UVM by the campus-wide Cellular, Molecular, and Biomedical Sciences program; (2) improved the research environment and infrastructure within the Larner College of Medicine (LCOM); (3) recruited new research-focused faculty to UVM within and outside of the LCOM; and (4) brought leaders in the fields of cell biology, biophysics, and cancer biology to UVM to present their research and learn about the discoveries being made by faculty here. I was recently appointed as a co-leader of the Cancer Host and Environment Program within the UVM Cancer Center, where I will have additional opportunities to enhance cancer-related research efforts at UVM.

In addition to my service at UVM, I have also provided service at the national and international levels through grant and manuscript reviews and as a member of the Finance and Audit Committee for the American Society for Cell Biology. I have also participated in or led educational outreach efforts within the local community.

**TEACHING****FORMAL SCHEDULED CLASSES**

Year (semester) <sup>1</sup>	Course Title	Course <sup>2</sup>		Hours <sup>3</sup>	Number of Learners	Learner Level <sup>4</sup>
		R	E			
<b>2023 (S)</b>	Cell and Molecular Biology (CLBI 301)	X		8	51	G
	Cell and Molecular Biology (CLBI 301OL)	X		8	10	G
	Critical Reading and Analysis (CLBI 401)	X		4	16	G
	Undergraduate Research (MPBP 191B)		X	<b>30</b>	1	UG
<b>2022 (F)</b>	VIC- Foundations of Clinical Science	X		3	124	M
	Undergraduate Research (MPBP 191B)		X	<b>30</b>	1	UG
<b>2022 (S)</b>	Cell and Molecular Biology (CLBI 301)	X		10	58	G
	Critical Reading and Analysis (CLBI 401)	X		6	19	G
	Undergraduate Research (MPBP 191B)		X	<b>30</b>	3	UG
<b>2021 (F)</b>	VIC- Foundations of Clinical Science	X		3	124	M
	Undergraduate Research (MPBP 191B)		X	<b>30</b>	2	UG
	Molecular Control of the Cell (MPBP 310)		X	<b>5</b>	5	G
<b>2021 (S)</b>	Cell and Molecular Biology (CLBI 301)	X		10	43	G
	Critical Reading and Analysis (CLBI 401)	X		6	7	G
	Independent Study (MPBP 392)		X	<b>15</b>	1	G
	Undergraduate Research (MPBP 191B)		X	<b>30</b>	2	UG
<b>2020 (F)</b>	VIC- Foundations of Clinical Science	X		3	124	M
	Undergraduate Research (MPBP 191A)		X	<b>30</b>	3	UG
<b>2020 (S)</b>	Cell and Molecular Biology (CLBI 301)	X		10	52	G
	Critical Reading and Analysis (CLBI 401)	X		6	21	G
	Critical Reading in MPBP (MPBP 303)		X	2	5	G
	Undergraduate Research (MPBP 191B)		X	<b>30</b>	2	UG
<b>2019 (F)</b>	VIC- Foundations of Clinical Science	X		3	124	M
	Undergraduate Research (MPBP 191A)		X	<b>30</b>	3	UG
<b>2019 (S)</b>	Cell and Molecular Biology (CLBI 301)	X		3.75	40	G
	Critical Reading and Analysis (CLBI 401)	X		2	7	G
	Undergraduate Research (MPBP 191B)		X	<b>30</b>	3	UG
<b>2018 (F)</b>	VIC- Foundations of Clinical Science	X		2	120	M
	VIC- Foundations of Clinical Science- small group	X		12	10	M
	Molecular Control of the Cell (MPBP 310)		X	<b>11</b>	9	G
	Undergraduate Research (MPBP 191A)		X	<b>30</b>	3	UG
<b>2018 (S)</b>	Critical Reading and Analysis (CLBI 401)	X		2	8	G
	Cell and Molecular Biology (CLBI 301)	X		3.75	48	G
	Critical Reading in MPBP (MPBP 303)		X	2	2	G
	Undergraduate Research (MPBP 191B)		X	<b>30</b>	3	UG
<b>2017 (F)</b>	VIC - Foundations of Clinical Science	X		3	120	M
	VIC- Foundations of Clinical Science- small group	X		10	10	M
	Undergraduate Research (MPBP 191A)		X	<b>30</b>	3	UG
<b>2017 (S)</b>	Undergraduate Research (MPBP 191B)		X	<b>30</b>	3	UG
<b>2016 (F)</b>	VIC - Foundations of Clinical Science	X		3	120	M
	VIC- Foundations of Clinical Science- small group	X		17	10	M
	Molecular Control of the Cell (MPBP 310)		X	<b>25</b>	9	G
	Undergraduate Research (MPBP 191A)		X	<b>45</b>	4	UG
	Cell and Molecular Biology (CLBI 301)	X		3.75	48	G
<b>2016 (S)</b>	Undergraduate Research (MPBP 191B)		X	<b>30</b>	3	UG
<b>2015 (F)</b>	VIC - Foundations of Clinical Science	X		3	120	M
	VIC- Foundations of Clinical Science- small group	X		12	10	M
	Undergraduate Research (MPBP 191A)		X	<b>25</b>	2	UG

	Cell and Molecular Biology (CLBI 301)	X		3	18	G
<b>2015 (S)</b>	Cell and Molecular Biology (CLBI 301)	X		3	17	G
	Honors: Biochemistry (HON 276)		X	30	1	UG
	Undergraduate Research (MLSR 293)		X	15	1	UG
	Undergraduate Research (BIOC 192)		X	15	1	UG
<b>2014 (F)</b>	VIC - Foundations of Clinical Science	X		3	116	M
	VIC- Foundations of Clinical Science- small group	X		4	10	M
	Molecular Control of the Cell (MPBP 310)		X	<b>16</b>	5	G
	Honors: Biochemistry (HON 276)		X	30	1	UG
	Undergraduate Research (MLSR 293)		X	15	1	UG
	Undergraduate Research (BIOC 191)		X	15	1	UG
<b>2014 (S)</b>	Special Topics in Molecular Genetics	X		1	~10	G
	Honors: Biology (HON 209)		X	30	1	UG
	Advanced Undergraduate Research (BSCI 298)		X	15	1	UG
<b>2013 (F)</b>	VIC - Foundations of Clinical Science	X		1.5	116	M
	Cell and Molecular Biology (CLBI 301)	X		3	18	G
	Molecular Control of the Cell (MPBP 310)		X	<b>10</b>	11	G
	Honors: Biology (HON 208)		X	30	1	UG
<b>2012 (F)</b>	Cell and Molecular Biology (CLBI 301)	X		3	~20	G
	Critical Reading in MPBP (MPBP 303)		X	3	3	G
<b>2011 (S)</b>	Critical Reading in MPBP (MPBP 303)		X	3	3	G

<sup>1</sup>F- fall semester; S- spring semester; <sup>2</sup>R-required; E-elective; <sup>3</sup>Hours in bold indicate courses for which Dr. Stumpff was Course Director. Note that only student contact hours are reported. Class preparation, grading, and director effort hours are not included in the reported time. <sup>4</sup>UG-Undegraduate; G-graduate; M-Medical.

### CURRICULUM DEVELOPMENT

To fill a need for an advanced cell biology class in the CMB graduate program, I designed a new course (MPBP 310: Molecular Control of the Cell) to complement the introductory cell biology course that all CMB students are required to take (CLBI 301). MPBP 310 focuses on examining fundamental molecular mechanisms that underlie a broad range of cellular processes. The material for the course comes almost exclusively from primary literature, and the course involves a mixture of lectures and group discussions. Instead of attempting to cover as many cellular processes as possible, this course offers an in-depth view of a few fundamental cellular processes. The emphasis is to examine molecular mechanisms that control essential biological functions at various scales ranging from single molecules to the intracellular and intercellular signaling pathways that coordinate macromolecular functions. How these mechanisms are applied during a range of other cellular functions is then discussed. Students are evaluated in this course based on take-home exams that assess application of the material covered during class, as well as their presentations of primary literature during class. The goal of these assessments is to develop the students' critical thinking and presentation skills. MPBP 310 addresses a gap that existed in the cell biology curriculum for the CMB graduate program. Similarly, in 2016, I co-developed a primary literature-discussion based cell biology course called CLBI 401 to complement the lecture-based CLBI 301. The goal of this course is to provide first-year PhD students exposure to experimental methods and logic related to topics being covered in CLBI 301.

### POSTGRADUATE AND OTHER COURSES

(see table above)

### PREDOCTORAL STUDENTS SUPERVISED OR MENTORED

Years	Role	Student's Name	Program	Current Position
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2023-present	Dissertation Advisor	Anna Belongia	CMB	n/a
2023-present	Dissertation Advisor	Amila Semic	CMB	n/a
2022-present	Dissertation Advisor	Sarah-Catherine Paschall	CMB	n/a
2019-present	Dissertation Advisor	Katie Queen	CMB	n/a
2017-2022	Dissertation Advisor	Alex Thompson	CMB	Postdoc, Univ of Colorado
2016-2021	Dissertation Advisor	Leslie Sepaniac	CMB	Postdoc, Univ of Wisconsin
2013-2018	Dissertation Advisor	Haein Kim	CMB	Associate, JDRF T1D Fund

### GRADUATE ROTATION STUDENTS MENTORED

<b>Years</b>	<b>Role</b>	<b>Student Name</b>	<b>Program</b>
2022-2023	Laboratory Rotation Advisor	Amila Semic	CMB
2022	Laboratory Rotation Advisor	Anna Belongia	CMB
2022	Laboratory Rotation Advisor	Allison Racela	CMB
2021-2022	Laboratory Rotation Advisor	Sarah-Catherine Paschall	CMB
2020	Laboratory Rotation Advisor	Randi Gravelle	CMB
2018-2019	Laboratory Rotation Advisor	Katie Queen	CMB
2017	Laboratory Rotation Advisor	Scott Vanson	CMB
2016-2017	Laboratory Rotation Advisor	Alex Thompson	CMB
2016	Laboratory Rotation Advisor	Kathryn Svec	CMB
2015-2016	Laboratory Rotation Advisor	Christopher Villa	CMB
2015	Laboratory Rotation Advisor	Leslie Sepaniac	CMB
2013	Laboratory Rotation Advisor	Joseph Clayton	CMB
2012-2013	Laboratory Rotation Advisor	Haein Kim	CMB
2012	Laboratory Rotation Advisor	Joyce Thompson	CMB

### UNDERGRADUATE STUDENTS SUPERVISED OR MENTORED

<b>Years</b>	<b>Role</b>	<b>Student Name</b>	<b>Major</b>	<b>Current Position</b>
2023	Summer Undergraduate Research Student	Maxine Robinson*	Engineering Physics (Delaware St.)	n/a
2023-present	Undergraduate Research Advisor	Petra Kapsalis*	MMG	n/a
2022-2023	Laboratory Work Study Mentor	Ryder McLaughlin	Biology	n/a

2021-2023	Honors Thesis Advisor	Olivia Budington*	Biology	Medical Assistant, VT
2021-2022	Laboratory Work Study Mentor	Kira Fisher	MMG	Research Technician, UVM (Stumpff Lab)
2021-2022	Undergraduate Research Advisor	Noah Arons	Animal Science	Vet Student, Univ of Glasgow
2019-2022	Honors Thesis Advisor	Hannah Poquette*	Biochemistry	Technician, Green Mountain Antibodies
2019- 2020	Laboratory Work Study Mentor	Jade Rigout	Bioengineering	Senior Consultant, Praecipio Consulting
2018-2021	Undergraduate Research Advisor	Sarah Stevens	Undecided	Certified Nursing Assistant
2018- 2019	Honors Thesis Advisor	Kyra Fryling	MMG	Technician, Harvard (Yonatan Grad lab)
2017-2018	Laboratory Work Study Mentor	Thea Pappas	Neuroscience	Undergrad, UVM
2017-2018	Undergraduate Research Advisor	Sarah Vandal*	Neurosc (Colby)	PhD student, Dartmouth College
2016-2019	Honors Thesis Advisor	Carolyn Marquis*	MMG	Medical Student, Brown University
2016-2019	Undergraduate Research Advisor	Christopher Kruglik	Biochemistry	Medical student, UVM
2016-2018	Honors Thesis Advisor	Lisa Wood*	MMG	PhD student, Cancer Biology, CU Denver
2016-2017	Undergraduate Research Advisor	Jillian Kelly	Med Lab Science	Clinical lab tech
2014-2017	Honors Thesis Advisor	Dana Messinger*	Med Lab Science	PhD student, Cancer Biology, Univ of Michigan
2014-2015	Honors Thesis Advisor	Julia Torvi*	Biochemistry	PhD student, Biophysics, UC Berkeley
2014	Undergraduate Research Advisor	Cooper Pearson	Biology	Proj analyst, United Health Group
2013-2014	Honors Thesis Advisor	Samantha Bissonette	Biology	Medical Resident, Dartmouth
2012-2016	Laboratory Work Study Mentor	Sean Lenahan	Biochemistry	PhD student, CMB, UVM

\*Students awarded competitive summer research fellowships under Dr. Stumpff's mentorship.

**CURRENT DISSERTATION/THESIS COMMITTEE MEMBERSHIP at UVM**

<b>Years</b>	<b>Role</b>	<b>Student Name</b>	<b>Program</b>
2022-present	Masters Thesis Committee Member	Phoebe Cousens	Biology
2022-present	Dissertation Committee Member	Erin Gaston	CMB
2022-present	Dissertation Committee Member	Allison Morrissey	CMB
2019-present	Dissertation Committee Member	Frances Male	CMB
2017-present	Dissertaton Committee Member	Mingu Kang	CMB

**COMPLETED GRADUATE DISSERTATION/THESIS COMMITTEES at UVM**

<b>Years</b>	<b>Role</b>	<b>Student Name</b>	<b>Program</b>
2017-2022	Dissertaton Committee Member	Inessa Manuelyan	CMB
2018-2022	Dissertation Committee Member	Rachel Stadler	CMB
2018-2022	Dissertaton Committee Member	Kathryn Svec	CMB
2018-2022	Dissertaton Committee Member	Alisa Cario	CMB
2018-2022	Dissertaton Committee Member	Scott Vanson	CMB
2017-2022	Dissertaton Committee Member	Sierra Bruno	CMB
2017-2020	Dissertaton Committee Member	Dominique Lessard	CMB
2016-2019	Dissertation Committee Chair	Riley St. Clair	NGP
2015-2019	Dissertation Committee Member	Blas Guigni	CMB
2017-2018	Dissertaton Committee Member	Hannah Naughton	CMB
2013-2018	Dissertation Committee Member	Jamie Stern	CMB
2015-2018	Dissertation Committee Member	Rehan Ali	NGP
2013-2017	Dissertation Committee Member	Benjamin King	CMB
2016	Dissertation Committee Chair	Alden Clements	Chemistry
2015-2017	Dissertation Committee Member	Miranda Redmond	CMB
2015	Dissertation Committee Chair	Shruthi Krishnamurthy	MMG
2014-2016	Dissertation Committee Chair	Ryan Joy	Biology
2013-2016	Dissertation Committee Member	Joe Clayton	CMB
2013-2014	Dissertation Committee Member	Laura Director	CMB
2012-2017	Dissertation Committee Member	Luther Pollard	CMB
2012-2016	Dissertation Committee Member	Greg Hoeplich	MPBP
2012-2014	Dissertation Committee Member	Andrew McKenzie	Pharmacology

GRADUATE STUDENT DISSERTATION/THESIS COMMITTEES OUTSIDE UVM

<b>Years</b>	<b>Role</b>	<b>Student Name</b>	<b>Institution</b>
2023-present	Dissertation Committee Member	Leela Biswas	MD/PhD at Rutgers Univ
2020	Dissertation Committee Member	Ryan Quinton	Boston Univ
2019	Dissertation Committee Member	Conrad Hall	McGill Univ
2018	Dissertation Committee Member	Kelly Salmon	Dartmouth
2014	Dissertation Committee Member	Marianna Kleyman	Dartmouth
2013	Dissertation Committee Member	David Bing	Laurentian Univ

POSTDOCTORAL FELLOWS AND RESIDENTS DIRECTLY SUPERVISED OR MENTORED

<b>Years</b>	<b>Role</b>	<b>Fellow's Name</b>	<b>Ph.D./M.D Institution</b>	<b>Current Position</b>
2022-present	Fellowship Research Advisor	Carleigh Nesbit, M.D.	University of New England	N/A
2020-2022	Postdoctoral Advisor	Katherine Schutt, Ph.D.	Dartmouth College	Scientist at Synthego
2018-2020	Fellowship Research Advisor	Jessica Ryniec, M.D.	Georgetown	Physician at private fertility clinic in Boston
2014-2019	Postdoctoral Advisor	Heidi Malaby, Ph.D.	UMass Med	Scientific Writer/Grant Specialist, UVM

INFORMAL TEACHING- NoneFACULTY MENTORED

<b>Dates</b>	<b>Name</b>	<b>Position while Mentored</b>	<b>Faculty Role</b>	<b>Current Position</b>
<b>2021-present</b>	John Salogiannis, PhD	Assistant Professor	Faculty Mentor	Assistant Professor
<b>2020-present</b>	Nimrat Chatterjee, Ph.D.	Assistant Professor	Faculty Mentor	Assistant Professor
<b>2019-present</b>	Masayo Koide, Ph.D.	Assistant Professor	Faculty Mentor	Assistant Professor
<b>2016-2019</b>	Michael Previs, Ph.D.	Assistant Professor	Faculty Mentor	Assistant Professor

OTHER VISITING FACULTY SUPERVISED- NoneTEACHING AIDS- None

TEACHING AWARDS AND NOMINATIONS- NoneSUMMARY OF TEACHING ACTIVITIES

As a member of the Molecular Physiology and Biophysics department, I am expected to contribute to the graduate and medical education missions of the College of Medicine. I have made significant contributions to graduate teaching both in the classroom and as a member of dissertation committees. I have a strong background in cell biology and identified a significant need for an advanced cell biology course in the Cellular, Molecular and Biomedical sciences interdisciplinary graduate program. I developed the syllabus for this course (MPBP 310: Molecular Control of the Cell) and worked with the CMB Education Committee to get it approved as an elective for Ph.D. students in the CMB program. I direct and teach a significant portion of this course, and it has been well received by students. In addition, I teach approximately one-third of the introductory cell biology course for the CMB and Medical Masters programs (CLBI 301) and helped develop a complementary course for the PhD students that focuses on primary literature (CLBI 401).

In fall of 2013, I began teaching first-year medical students through the Vermont Integrated Curriculum Cell and Molecular Biology course, which has since changed its name to Foundations of Medicine and then Foundations of Clinical Science. Over the last 10 years, I have worked to improve my teaching skills in this course, which typically has 124 students. To that end, I have invited senior faculty to attend my lectures and provide critical feedback. By incorporating the suggestions of these mentors, my ability to communicate the material to a diverse set of students has improved.

While it is not required, I have additionally been involved in undergraduate teaching via mentoring students conducting independent research projects in my lab. I view active laboratory research as a key strength that can be leveraged to recruit top flight undergraduate students to the University of Vermont. Thus, I have actively worked to provide research opportunities to undergraduates within my research program and offer an undergraduate course in independent research (MPBP 191). Since the fall of 2013, I have had one to four undergraduate students working in my lab for credit each semester (total of 21 students). 8 of these students have successfully completed honors thesis projects, and 10 have won competitive fellowships to support full time research in my lab during the summer. While one-on-one teaching in the lab requires a considerable level of effort per student, I believe these opportunities significantly enhance the educational experience of science majors.

RESEARCH AND SCHOLARLY ACTIVITIES

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RESEARCH AWARDS AND GRANTS**Ongoing Research Support**

R35GM144133 (Stumpff, PI)

02/01/22-01/31/27

NIH/ NIGMS

\$276,000 direct/ year

“Mechanisms of microtubule motors and chromosome segregation”

The primary goal of this project is to determine the molecular mechanisms utilized by kinesin motor proteins to control mitotic spindle function.

Role: PI (35%)

Scientific Research Agreement (Stumpff, PI) 05/15/22-05/14/24  
 Aperion Therapeutics \$388,560 direct total

“Investigating potential anti-cancer drugs”

The primary goal of this project is to investigate small molecule inhibitors for their ability to limit tumor cell proliferation.

Role: PI (10%)

R01GM130556 (Rosenfeld, Stumpff, Muretta, Gross, MPIs) 03/15/19-01/31/23  
 NIH/NIGMS \$91,000 direct/year

Currently in NCE

“Tuning mitotic kinesins through motor domain post-translational modifications”

The primary goal of this project is to understand how the post-translational modification of mitotic kinesins affects their activity and function from the single molecule to whole cell scale.

Role: MPI (10% effort)

### Completed Research Support

Administrative Supplement for R35GM144133 07/01/22-06/30/23  
 NIGMS \$250,000 direct/year

This award provided funds to purchase a ring TIRF microscope.

Scientific Research Agreement (Stumpff, PI) 07/01/22-04/30/23  
 Volastra Therapeutics \$30,000 direct total

“Single molecule investigation of anti-kinesin drugs”

The primary goal of this project is to investigate the effects of small molecule inhibitors on kinesin function in single molecule assays.

Role: PI (5%)

R01GM121491 (Stumpff, PI) 09/05/17-06/30/22  
 NIH/NIGMS \$200,000 direct/year

“Spatial and temporal control of mitotic chromosome movements”

The goal of this project is to determine the mechanisms underlying mechanical control of chromosome alignment in normal cells.

Role: PI (30% effort)

Scientific Research Agreement (Stumpff, PI) 07/01/21-06/30/22  
 Aperion Therapeutics \$27,120 direct total

“Investigating potential anti-cancer drugs”

The primary goal of this project is to test small molecule inhibitors for their ability to limit tumor cell proliferation.

Role: PI (2% effort)

UVMCC Pilot Award (Stumpff, MPI) 07/01/20-06/30/21  
 University of Vermont Cancer Center \$50,000 direct/ year

“Investigating the impact of micronuclei on genomic stability of primary tumor cells”

The primary goal of this project is to determine whether micronuclei alter genomic stability in vivo.

Role: MPI (5% effort)

Administrative Supplement for R01GM121491 (Stumpff, PI) 07/01/19-06/30/20

NIH/NIGMS

\$200,000 direct/year

This award provided funds to purchase an advanced microscopy system for live cell imaging.

Administrative Supplement for R01GM121491 (Stumpff, PI)

07/01/18-06/30/19

NIH/NIGMS

\$50,805 direct/year

This award provided funds to purchase an automated microscopy system.

CCR16377648 Career Catalyst Research Grant (Stumpff, PI)

09/14/16-09/13/20

Susan G Komen

\$120,000 direct/ year

“A Novel Strategy for Anti-mitotic Therapy in Breast Cancer”

The primary goal of this project is to determine the suitability of nonessential mitotic proteins as therapeutics for triple negative breast cancers.

Role: PI (5% effort)

VCC/ LCCRO Pilot Award (Stumpff, Howe, Co-PIs)

05/01/17-04/30/18

Vermont Cancer Center/ LCCRO

\$65,000 direct

“A mechanistic study of kinesin function during triple negative breast cancer cell migration”

The primary goal of this pilot project was to determine the mechanistic contribution of KIF18A to the migration of triple negative breast cancer cells.

Role: PI (10% effort)

VCC/ LCCRO Pilot Award (Stumpff, Howe, Anker, Co-PIs)

07/01/15-06/30/16

Vermont Cancer Center/ LCCRO

\$50,000 direct

“Investigating Kif18A as a Therapeutic Target for Cancer”

The primary goal of this project was to determine the suitability of Kif18A and non-essential mitotic proteins as anti-cancer targets and radiosensitizers for colon and breast cancer.

Role: PI (10% effort)

ACS Institutional Research Grant (Stumpff, Anker Co-PIs)

06/01/15-05/31/16

The American Cancer Society

\$30,000 direct

“Investigating Kif18A as a Therapeutic Target for Colorectal Cancer”

The primary goal of this project was to determine the suitability of Kif18A and non-essential mitotic proteins as anti-cancer targets and radiosensitizers.

Role: PI (10% effort)

Basil O'Connor Starter Scholar Research Award (Stumpff, PI)

02/01/14-01/31/16

The March of Dimes Foundation

\$75,000 total/ year

“Mechanical Control of Chromosome Geometry”

The primary goal of this project was to determine the mechanical mechanisms that control the orientation of paired chromosomes during cell division and promote their equal distribution.

Role: PI (30% effort)

VCC/ LCCRO Program Award (Stumpff, Tang Co-PIs)

12/15/13-12/14/14

Vermont Cancer Center/ LCCRO

\$25,000 direct

“Mapping the Effects of Mitotic Chromosome Organization on Interphase Genomic Architecture”

The primary goal of this one year pilot award was to investigate the effects of mitotic chromosome alignment defects, caused by loss of Kif18A function, on chromosome segregation accuracy and the 3D organization of the interphase genome.

Role: PI (10% effort)

Special Fellow Award (Stumpff, PI) 07/01/10-06/30/13  
 Leukemia and Lymphoma Society \$65,000 direct/ year  
 “Regulation of Mitosis by the Shwachman-Bodian-Diamond Syndrome Protein”

The primary goal of this project was to investigate the functions of SBDS in promoting successful mitotic cell division.

Role: PI (45% effort)

Individual NRSA Postdoctoral Fellowship (Stumpff, PI) 09/16/06-09/15/08  
 NIH/NIGMS \$60,000 direct/ year  
 “Kinesin-regulated microtubule dynamics”

This project involved investigation of Kif18A’s function during mitosis and led to the discovery that it is a key regulator of chromosome movements and alignment.

Role: PI (100% effort)

### **Primary Mentor for External Fellowships**

NSF Graduate Research Fellowship (Queen, PI) 09/01/20-08/31/23  
 National Science Foundation ~\$40,000 direct/year  
 “Regulation of kinesin by post-translational modifications during mitosis”

This competitive fellowship supported the stipend and tuition of Katie Queen, a Ph.D. student in Dr. Stumpff’s laboratory. The primary goal of the project was to determine how post-translational modifications within the enzymatic region of KIF18A regulate its mitotic functions.

Role: Mentor

F31 AR074887 (Thompson, PI) 07/01/19-06/30/22  
 NIH/ NIAMS \$32,745 direct/ year  
 “Molecular etiology of Spondyloepimetaphyseal dysplasia with joint laxity, leptodactylic type”

This competitive, NIH funded fellowship supported the stipend and tuition of Alex Thompson, a Ph.D. student in Dr. Stumpff’s laboratory. The primary goal of the project was to determine how mutations in KIF22 cause bone development defects.

Role: Mentor

VTSGC Graduate Fellowship (Sepaniac, PI) 07/01/17-05/31/21  
 Vermont Space Grant Consortium ~\$35,000 direct/ year  
 “Mechanisms of micronuclear envelope rupture”

This competitive, NASA funded fellowship supported the stipend and tuition of Leslie Sepaniac, a Ph.D. student in Dr. Stumpff’s laboratory. The primary goal of the project was to determine how micronuclei impact the genomic stability of human cells.

Role: Mentor

CA160988 Horizon Award (Malaby, PI) 09/01/17-08/30/19  
 Department of Defense, Peer Reviewed Cancer Research Program ~\$60,000 direct/ year  
 “Mechanisms of selective susceptibility to inhibition of a cytoskeletal regulator in colorectal cancer cells”

This nationally competitive fellowship supported the research efforts and career development of Dr. Heidi Malaby, a postdoctoral fellow in Dr. Stumpff’s laboratory. The project aimed to understand the dependence of colorectal cancer cell division and migration on the kinesin-like motor protein KIF18A.



Role: Mentor

**Pending** – None

**Selected Unfunded Grant Submissions-** None

## SCHOLARSHIP

**Peer Reviewed Publications- *H-Factor=22; Total Citations >1800***

### Original Research

1. Su TT, Walker J, and Stumpff J (2000). Activating the DNA damage checkpoint in a developmental context. *Curr Biol* 10:119-126. PMID: 10679321.
2. Stumpff J, Duncan T, Homola E, Campbell SD, and Su TT (2004). *Drosophila* Wee1 kinase regulates Cdk1 and mitotic entry during embryogenesis. *Curr Biol* 14:2143-2148, PMID: PMC3242732. (F1000)
3. Stumpff J, Kellogg D, Krohne K, and Su TT (2005). *Drosophila* Wee1 interacts with the  $\gamma$ TURC and is required for proper mitotic spindle morphogenesis and positioning. *Curr Biol* 15:1525-1534, PMID: PMC3242738.
4. Stumpff J, von Dassow G, Wagenbach M, Asbury C and Wordeman L (2008). The kinesin-8 motor Kif18A suppresses kinetochore movements to control mitotic chromosome alignment. *Dev Cell* 14:252-262, PMID: PMC2267861. (F1000)
5. Garcia K, Stumpff J, Duncan T and Su TT (2009) Tyrosines in the Kinesin-5 Head Domain are necessary for phosphorylation by Wee1 and for mitotic spindle integrity. *Curr Biol* 19:1-7, PMID: PMC2762001.
6. Mattison CP, Stumpff J, Wordeman L and Winey M (2011). Mip1 associates with both the Mps1 kinase and actin, and is required for cell cortex stability and anaphase spindle positioning. *Cell Cycle* 10:783-793, PMID: PMC3100791. (featured on journal **cover**)
7. Stumpff J\*, Du Y\*, English CA, Wagenbach M, Hyman AA, Asbury CL, Wordeman L and Ohi R (2011). A tethering mechanism controls the processivity and kinetochore-microtubule plus-end enrichment of the kinesin-8 Kif18A. *Mol Cell* 43:764-775, PMID: PMC3172727. (\*equal contribution) (F1000)
8. Stumpff J\*, Wagenbach M, Franck A, Asbury CL and Wordeman L\* (2012). Kif18A and chromokinesins confine centromere movements via microtubule growth suppression and spatial control of kinetochore tension. *Dev Cell* 22: 1017-1029, PMID: PMC3356572. (\*co-corresponding authors)
9. Cunniff B, Benson K, Stumpff J, Newick K, Held P, Taatjes D, Joseph J, Kalyanaraman B, Heintz NH (2013) Mitochondrial-targeted nitroxides disrupt mitochondrial architecture and inhibit expression of peroxiredoxin 3 and FOXM1 in malignant mesothelioma cells. *J Cell Physiol* 228:835-845. PMID: PMC3928986.
10. Cunniff B, Snider GW, Fredette N, Stumpff J, Hondal RJ and Heintz NH (2014). Resolution of oxidative stress by thioredoxin reductase: Cysteine versus selenocysteine. *Redox Biol.* 2:475-484. PMID: PMC3949094.

11. Kim H, Fonseca C and Stumpff J (2014). A unique kinesin-8 surface loop provides specificity for chromosome alignment. *Mol Biol Cell* 21: 3319-3329. PMID: 25208566.
12. Czechanski A, Kim H, Byers C, Greenstein I, Stumpff J\*, and Reinholdt LG\* (2015). Kif18a is specifically required for mitotic progression during germ development. *Dev Biol.* 402: 253-262. PMCID PMC4450139 (\*co-corresponding authors)
13. Zhou J, Chan J, Lambele M, Yusufzai T, Stumpff J, Opresko PL, Thali M, and Wallace SS (2017). NEIL3 repairs telomere damage during S phase to secure chromosome segregation at mitosis. *Cell Reports.* 20:2044-2056. PMID: 28854357.
14. Muretta JM\*, Reddy BJN\*, Scarbelli G\*, Thompson AF\*, Jariwala S, Major J, Venere M, Rich JN, Willard B, Thomas DD, Stumpff J, Grant BJ, Gross SP, and Rosenfeld SS (2018). A post-translational modification of Eg5 that enhances its mechano-chemical coupling and alters its mitotic function. *PNAS.* 115:E1779-E1788 (\*equal contribution) PMCID: PMC5828613
15. Tracy K, Tye C, Ghule P, Malaby H, Stumpff J, Stein J, Stein G, and Lian J (2018). Mitotically associated long non-coding RNA MANCR affects genomic stability and cell division in aggressive breast cancer. *Mol Cancer Res.* 16(4): 587-598. PMCID: PMC5882506
16. Malaby HLH, Lessard DV, Berger CL, and Stumpff J (2019). KIF18A's neck linker permits navigation of microtubule-bound obstacles within the mitotic spindle. *LSA.* 2019, 2:e201800169. PMCID: PMC6337737
17. Malaby HLH, Dumas M, Ohi R, and Stumpff J (2019). Kinesin binding protein ensures accurate chromosome segregation by buffering Kif18A and Kif15. *JCB* 218: 1218-1234, PMCID: PMC6446846 (\*co-corresponding authors).
18. Fonseca CL, Malaby HLH, Sepaniac LA, Martin W, Byers C, Czechanski A, Messinger D, Tang ME, Ohi R, Reinholdt LG, and Stumpff J (2019). Mitotic chromosome alignment ensures mitotic fidelity by promoting interchromosomal compaction during anaphase. *JCB* 218: 1148-1163, PMCID: PMC6446859 (\*co-corresponding authors)
  - This work was highlighted in Orr B and Maiato H. (2019). No chromosome left behind: The importance of metaphase alignment for mitotic fidelity. *JCB* 218: 1086-1088, PMCID: PMC6446845.
19. Bodrug T, Wilson-Kubalek EM, Nithianantham S, Thompson AF, Alfieri A, Gaska I, Major J, Debs G, Inagaki S, Gutierrez P, Gheber L, McKenney RJ, Sindelar CV, Milligan R, Stumpff J, Rosenfeld SS, Forth ST, and Al-Bassam J (2020). The kinesin-5 tail domain directly modulates the mechanochemical cycle of the motor domain for anti-parallel microtubule sliding. *eLife* 9:e511131. PMCID: PMC7015671.
20. Cohen-Sharir Y, McFarland JM, Abdusamad M, Marquis C, Tang H, Ippolito MR, Bernhard SV, Laue K, Malaby HLH, Jones A, Kazachkova M, Lyons N, Nagaraja A, Bass AJ, Beroukhim R, Santaguida S, Stumpff J, Golub TR, Storchova Z, and Ben-David U. (2021). Selective vulnerability of aneuploid human cancer cells to inhibition of the spindle assembly checkpoint. *Nature* 590: 486-491. PMCID: PMC8262644
21. Marquis C, Fonseca CL, Queen KA, Wood L, Vandal SE, Malaby HLH, Clayton JE, and Stumpff J. (2021). Chromosomally unstable tumor cells specifically require KIF18A for proliferation. *Nat Comm.* 12: 1213. PMCID: PMC7900194

22. Sepaniac LA, Martin W, Dionne LA, Stearns TM, Reinholdt LG\*, and Stumpff J\* (2021) Micronuclei in Kif18a mutant mice form stable micronuclear envelopes and do not promote tumorigenesis. *JCB* 220 (11). PMID: PMC8441830 (\*co-corresponding authors)
23. Solon AL\*, Tan Z\*, Schutt KL, Jepsen L, Haynes SE, Nesivizhskii AI, Sept D, Stumpff J, Ohi R, and Cianfrocco MA. (2021) Kinesin-binding protein remodels the kinesin motor to prevent microtubule-binding. *Science Advances* 7(47). PMID: PMC8604404 (\*equal contribution).
24. Thompson AF, Blackburn PR, Babovic-Vuksanovic D, Lian JB, Klee EW, and Stumpff JK. (2022) Pathogenic mutations in the chromokinesin KIF22 disrupt anaphase chromosome segregation. *Elife* 11 (e78653). PMID: 35730929.

### Preprints/ in Review

1. Day CA, Grigore F, Hakkim FL, Langfald A, Fadness S, Schwab P, Sepaniac S, Stumpff J, Daniels DJ, Vaughan KT, Robinson JP, and Hinchcliffe EH. (2022) The histone H3.3 K27M mutation found in diffuse midline gliomas coordinately disrupts adjacent H3.3 Ser31 phosphorylation and the fidelity of chromosome segregations. bioRxiv doi: <https://doi.org/10.1101/2022.05.27.493485>
2. Queen, KA, Cario, A, Berger CL, and Stumpff J. (2023) Modification of the neck linker of KIF18A alters microtubule subpopulation preference. bioRxiv doi: doi: <https://doi.org/10.1101/2023.05.02.539080>
3. Phillips AF, Zhang R, Jaffe M, Schulz R, Verma A, Feinberg T, Arensman M, Chiu A, Letso R, Bosco N, Carty MC, Bettigole S, Andreu C, Drutman S, Queen KA, Racela AR, Stumpff J, Su M, Cogan D, Eng CH. (2023) Targeting chromosomally unstable tumors with a selective KIF18A inhibitor. (Revision under review)

### **Non-Peer Reviewed Publications**

#### Review Articles–

1. O'Farrell, P, Stumpff, J, and Su, TT 2004. Embryonic Cleavage Cycles: How is a mouse like a fly? *Current Biology* 14: R35-R45 (2004).
2. Su, TT and Stumpff, J (2004). Promiscuity Rules? The dispensability of Cyclin E and Cdk2. *Science STKE* 224: pe11
3. Stumpff, J and Wordeman, L (2007). Chromosome Congression: The Kinesin-8 step path to alignment. *Current Biology* 17, R326-328.
4. Stumpff, J and Asbury, C (2008). Chromosome bi-orientation: Euclidian euploidy. *Current Biology* 18, R81-R83.
5. Wordeman, L and Stumpff, J (2009). Microtubule Length Control, a Team Sport? *Developmental Cell* 17, 437-438
6. Stumpff J (2012) Measuring microtubule thickness: an exercise in cooperativity. *Dev Cell* 23: 1-2. PMID: 22814594.

7. Stumpff J, Ghule PN, Shimamura A, Stein JL, and Greenblatt M (2014) Spindle microtubule dysfunction and cancer predisposition. *J Cell Physiol*. 229:1881-1883. PMID: PMC4149604.
8. Bissonette S and Stumpff J (2014). Quantifying mitotic chromosome dynamics and positioning. *J Cell Physiol* 229:1301-1305, PMID: 24683081. (featured on journal **cover**)
9. Malaby HLH and Stumpff J (2014). Microtubule recognition: A curvy attraction. *Curr Biol* 24: R998-R1000. PMID: 25442855.

#### Books and Chapters—

1. J. Stumpff, J. Cooper, S. Domnitz, K. Rankin, M. Wagenbach, L. Wordeman. (2007). *In vitro and in vivo analysis of microtubule destabilizing kinesins* In A.O. Sperry (Ed.), Methods in Molecular Biology: Molecular Motors. Totowa, NJ: Humana Press Inc.
2. Fonseca C and Stumpff J (2016). *Quantification of mitotic chromosome alignment*. In Chang P and Ohi R (Ed.) The Mitotic Spindle: Methods and Protocols. Totowa, NJ: Humana Press Inc.
3. Thompson AF, Vandal S, Stumpff J. (2022). *Quantifying changes in chromosome position to access chromokinesin activity*. In Hinchcliffe EH (Ed.), Mitosis: Methods and Protocols. New York, NY: Springer Science + Business Media, LLC.

#### Other Scholarly Publications—

##### **Abstracts (2011-2019)**

1. Thompson, A.F.\*, Blackburn, P.R., Wagenbach, M., Wordeman, L., Lian, J.B., Klee, E.W., and Stumpff, J.K. Mutations in the chromokinesin KIF22 disrupt mitotic chromosome segregation and cause skeletal dysplasia. **2019**. Motile and Contractile Systems Gordon Research Conference, Colby-Sawyer College, NH.
2. Sepaniac, L.,\* Martin, W., Reinholdt, L.G., and Stumpff, J. Micronuclei resulting from different insults, differentially impact genomic stability. **2019** EMBO Chromosome Segregation and Aneuploidy Workshop, Cascais, Portugal.
3. Malaby, H.L.H.\*, Lessard, D.V., Berger, C.L., and Stumpff, J. Where the K-fiber ends: The importance of Kif18A neck linker length for mitotic localization. **2018**. Gordon Research Conference Cytoskeletal Motors, Mt. Snow, VT.
4. Thompson, A.F.\*, Vandal, S.E., Blackburn, P.R., Wagenbach, M., Wordeman, L., Lian, J.B., Klee, E.W. and Stumpff, J.K. **2018**. Mutations in the motor and coiled-coil domains of the chromokinesin KIF22 cause skeletal dysplasia. **2018**. Cytoskeletal Motors Gordon Research Conference, West Dover, VT.
5. Sepaniac, L.,\* Reinholdt, L.G., and Stumpff, J. Different mechanisms of micronucleus formation and impact to genomic stability. **2018**. New England Genome Instability and Cancer Conference, Worcester Polytechnic Institute, Worcester, MA.
6. Thompson, A.F.\*, Muretta, J.M., Reddy, B.J.N., Scarabelli, G., Jariwala, S., Major, J., Venere, M., Rich, J.N., Willard, B., Thomas, D.D., Stumpff, J.K., Grant, B.J., Gross, S.P. and Rosenfeld, S.S. Effects of post-translational modification on the mitotic kinesin Eg5. **2018**. New England Genome Instability and Cancer Conference, Worcester, MA.

7. Thompson, A.F.\*, Muretta, J.M., Reddy, B.J.N., Scarabelli, G., Jariwala, S., Major, J., Venere, M., Rich, J.N., Willard, B., Thomas, D.D., Stumpff, J.K., Grant, B.J., Gross, S.P. and Rosenfeld, S.S. Effects of post-translational modification on the mitotic kinesin Eg5. **2018**. Boston Area Mitosis and Meiosis Meeting, Cambridge, MA.
8. Sepaniac, L.,\* Reinholdt, L.G., and Stumpff, J. Different mechanisms of micronucleus formation and impact to genomic stability. **2018**. University of Vermont Cancer Center Clinical and Translational Research Symposium, University of Vermont Medical Center, Burlington, VT.
9. Sepaniac, L.,\* Reinholdt, L.G., and Stumpff, J. Different mechanisms of micronucleus formation and impact to genomic stability. **2018**. National Council of Space Grant Director's Spring Meeting, Crystal City, VA.
10. Clayton, J.\*, Fonseca, C., Marquis, C. Wood, L., Anker, C., Howe, A., and Stumpff, J. Investigating mitotic kinesins as therapeutic targets for triple negative breast cancer. **2017**. American Society for Cell Biology (ASCB) Annual Meeting, Philadelphia, PA.
11. Malaby, H.L.H.\*, Dumas, M., Ohi, R., and Stumpff, J. Kinesin binding protein is an inhibitory regulator of the mitotic kinesins Kif18A and Kif15. **2017**. American Society for Cell Biology (ASCB) Annual Meeting, Philadelphia, PA.
12. Thompson, A.F.\*, Muretta, J.M., Reddy, B.J.N., Scarabelli, G., Jariwala, S., Major, J., Venere, M., Rich, J.N., Willard, B., Thomas, D.D., Stumpff, J.K., Grant, B.J., Gross, S.P. and Rosenfeld, S.S. Effects of post-translational modification on the mitotic kinesin Eg5. **2017**. American Society for Cell Biology/European Molecular Biology Organization Annual Meeting, Philadelphia, PA.
13. Sepaniac, L.,\* Reinholdt, L.G., and Stumpff, J. Different mechanisms of micronucleus formation and impact to genomic stability. **2017**. American Society for Cell Biology Annual Conference, Philadelphia, PA.
14. Marquis, C., Fonseca, C., Wood, L., Anker, C., Wood, M., Clayton, J., Stumpff, J. Exploring New Therapeutic Strategies for Triple Negative Breast Cancer. **2017**. Women's Health and Cancer Conference, Sheraton Burlington Hotel & Conference Center, VT.
15. Sepaniac, L.,\* Reinholdt, L.G., and Stumpff, J. Different mechanisms of micronucleus formation and impact to genomic stability. **2017**. Human and Mammalian Genetics and Genomics Symposium: 58<sup>th</sup> Annual McKusick Short Course, The Jackson Laboratory, Bar Harbor, ME.
16. Kim, H.\* and Stumpff, J. Kif18A coordinates the alignment and attachment of chromosomes during cell division. **2017**. Motile and Contractile Systems, Gordon Research Conference, Colby-Sawyer College, NH.
17. Martin, W., Thompson, A.F.\*, Byers, C., Stumpff, J.K. and Reinholdt, L.G. A potential role for the kinetochore protein kinetochore-associated 1 (KNTC1) in ciliary signaling. **2017**. Motile and Contractile Systems Gordon Research Conference, Colby-Sawyer College, NH.
18. Sepaniac, L.,\* Reinholdt, L.G., and Stumpff, J. Different mechanisms of micronucleus formation and impact to genomic stability. **2017**. LXXXII Cold Spring Harbor Symposium: Chromosome Segregation and Structure, Cold Spring Harbor Laboratory, Cold Spring Harbor, NY.

19. Malaby, H.L.H.\* and Stumpff, J. Where the K-fiber ends: Elucidating the mechanism of Kif18A localization in mitosis. **2017**. Boston Area Mitosis and Meiosis (BAMM) Annual Meeting, Whitehead Institute, Boston, MA.
20. Sepaniac, L.,\* Reinholdt, L.G., and Stumpff, J. Different mechanisms of micronucleus formation and impact to genomic stability. **2017**. Boston Area Mitosis and Meiosis Meeting, Whitehead Institute for Biomedical Research, Cambridge, MA.
21. Sepaniac, L.,\* Fonseca, C. and Stumpff, J. Centering the Genome: Why do chromosomes line up at the spindle equator? **2017**. Chromosome and Cytoskeleton Dynamics Conference, University of Massachusetts, Amherst, MA.
22. Kim, H.\* and Stumpff, J. Kif18A coordinates chromosome alignment and attachment of chromosomes during cell division. **2016**. American Society for Cell Biology Annual meeting, San Francisco, CA. (Oral presentation)
23. Sepaniac, L.,\* Reinholdt, L.G., and Stumpff, J. Different mechanisms of micronucleus formation and impact to genomic stability. **2016**. New England Nuclear Envelope Meeting, Yale University, New Haven, CT.
24. Malaby, H.\* and Stumpff, J. Where the K-fiber ends: Elucidating the mechanisms that spatially confine chromosomes in mitosis **2016**. Molecular Motors Gordon Conference, Mt. Snow, VT
25. Kim, H.\* , Fonseca, C., Czechanski, A., Byers, C., Greenstein, I., Reinholdt, L., and Stumpff, J. Temporally coordinating chromosome alignment with stabilization of kinetochore-microtubule attachments. **2016**. Boston Area Mitosis and Meiosis meeting. Whitehead Institute, Boston, MA.
26. Malaby, H.\* and Stumpff, J. Where the K-fiber ends: Elucidating the mechanisms that spatially confine chromosomes in mitosis **2016**. Boston Area Mitosis and Meiosis meeting. Whitehead Institute, Boston, MA.
27. Fonseca, C., Messinger, D., Tang, M., Reinholdt, L. and Stumpff, J.\*. Centering the genome: Why do mitotic chromosomes line up at the spindle equator? **2015**. Chromosome Dynamics Gordon Research Conference, Waterville Valley, NH.
28. Malaby, H.\* and Stumpff, J. Chromosome corralling: Elucidating the mechanisms that spatially confine chromosomes in mitosis. **2015**. Motile and Contractile Systems, Gordon Research Conference, Colby-Sawyer College, NH.
29. Kim, H.\* , Fonseca C., Czechanski, A., Byers, C., Greenstein, I., Reinholdt, LG. and Stumpff, J. Kinesin-like motors Kif18A and Kid modulate kinetochore-microtubule attachments. **2015**. Boston Area Mitosis and Meiosis meeting, Boston, MA.
30. Fonseca, C.\* , Messinger, D., Tang, M., Reinholdt, L. and Stumpff, J. Mitotic chromosome alignment is dispensable for accurate segregation. **2015**. Boston Area Mitosis and Meiosis meeting, Boston, MA.
31. Malaby, H.\* and Stumpff, J. Chromosome corralling: Elucidating the mechanisms that spatially confine chromosomes in mitosis. **2015**. Boston Area Mitosis and Meiosis meeting, Boston, MA.
32. Fonseca, C., Messinger, D., Tang, M., Reinholdt, L. and Stumpff, J.\* Mitotic chromosome alignment is dispensable for accurate segregation. **2014**. ASCB annual meeting. Philadelphia, PA.

33. Kim, H.\*, Fonseca, C., Czechanski, A., Byers, C., Greenstein, I., Reinholdt, LG. and Stumpff, J. Kif18A stabilizes kinetochore-microtubule attachments. **2014**. ASCB annual meeting. Philadelphia, PA.
34. Fonseca, C.\* and Stumpff, J. Chromosome alignment is not required for accurate segregation. **2014**. Boston Area Mitosis and Meiosis meeting, Boston, MA.
35. Kim, H.\* , Greenstein, I., Reinholdt, LG. and Stumpff, J. Mutations in R308 of Kif18A cause primordial germ cell depletion in mice. **2014**. Boston Area Mitosis and Meiosis meeting, Boston, MA.
36. Kim, H., Fonseca, C. and Stumpff, J.\* Molecular control of microtubule length within the spindle. **2013**. ASCB annual meeting, New Orleans, LA.
37. Kim, H., Fonseca, C. and Stumpff, J.\* Molecular control of kinetochore-microtubule length. **2013**. Motile and Contractile Systems, Gordon Research Conference, Colby-Sawyer College, NH.
38. Kim, H.\* , Greenstein, I., Reinholdt, LG. and Stumpff, J. Mutations in R308 of Kif18A cause primordial germ cell depletion in mice. **2013**. Motile and Contractile Systems, Gordon Research Conference, Colby-Sawyer College, NH.
39. Fonseca, C. and Stumpff, J.\* Molecular control of spindle microtubule lengths. **2012**. ASCB annual meeting, San Francisco, CA.
40. Stumpff, J.\* , Fonseca, C., Thompson, J., M. Wagenbach and Wordeman, L. Mitotic chromosome alignment is antagonistically controlled by two microtubule growth suppressing kinesins. **2012**. FASEB Mitosis and Spindle Function Conference, Steamboat Springs, CO.
41. Du, Y.\* , Stumpff, J.\*, English, C., Maliga, Z., Wagenbach, M., Asbury, C., Wordeman, L. and Ohi, R. A tethering mechanism controls the processivity and kinetochore-microtubule plus-end enrichment of the kinesin-8 Kif18A. **2011**. ASCB annual meeting, Denver, CO.
42. Stumpff, J.\*, M. Wagenbach, G. Franck, A., Huseby, C., Asbury, C. and Wordeman, L. Kif18A and chromokinesins use microtubule growth suppression and spatial control of kinetochore tension to align chromosomes. **2011**. Motile and Contractile Systems, Gordon Research Conference, Colby-Sawyer College, NH.

\* indicates primary presenter

#### **Patents Issued or Pending-**

U.S. Provisional Patent Application Serial No. 63/022,885, filed May 11, 2020

A Treatment Approach Involving KIF18A Inhibition for Chromosomally Unstable Tumors

Inventor: Jason Stumpff

PCT Application No. PCT/US2021/031761, filed May 11, 2021

A Treatment Approach Involving KIF18A Inhibition for Chromosomally Unstable Tumors

Inventor: Jason Stumpff

**Other Creative Activities-** None

**Quality Improvement and Patient Safety Activities-** None

## SUMMARY OF SCHOLARLY ACTIVITIES

My laboratory uses advanced microscopy techniques to investigate the mechanisms that move and organize chromosomes during cell division and determine how these functions preserve genomic integrity. Abnormal control of chromosome movements leads to chromosome segregation errors and the production of aneuploid cells, i.e. cells with the wrong number of chromosomes. Aneuploidy is implicated in the initiation and development of cancer, is a leading cause of human miscarriages, and underlies monosomy and trisomy syndromes (e.g. Turner's syndrome, Down's syndrome, Edward's syndrome and Patau syndrome). Thus, elucidating the mechanisms that control chromosome movements during cell division is an important step towards understanding the molecular basis of a wide range of human health disorders and identifying novel treatment targets.

My laboratory is currently investigating how molecular motor proteins contribute to mitotic chromosome organization and segregation. We have been particularly interested in understanding how the structures of molecular motors are tuned for specific cellular functions and in determining the basis of cell and tissue specific requirements for motor proteins that have direct links to human disease. These studies have led to identification of disease mechanisms and therapeutic targets in recent years. For example, our body of work on the mitotic motor protein KIF18A has contributed to development of anti-KIF18A drugs that are being clinically tested as treatments for aggressive cancers.

## INVITED PRESENTATIONS

### **Regional**

1. 2019 Northeast Genomic Instability Conference, UVM, Burlington, VT
2. 2018 Women's Health and Cancer Conference, Burlington, VT (keynote speaker)
3. 2017 Women's Health and Cancer Conference, Burlington, VT
4. 2017 Northeast Genomic Instability Conference, Dartmouth College, Hanover, NH
5. 2017 ASCB Chromosome and Cytoskeletal Dynamics Meeting, UMass, Amherst, MA
6. 2016 Northeast Genomic Instability Conference, University of Vermont, Burlington, VT
7. 2016 Boston Area Mitosis and Meiosis Meeting, Whitehead Institute, Boston, MA
8. 2015 NE Regional Chromosome Pairing Conf, Harvard Medical School, Boston, MA
9. 2014 NE Regional Chromosome Pairing Conf, Harvard Medical School, Boston, MA
10. 2014 Boston Area Mitosis and Meiosis Meeting, Whitehead Institute, Boston, MA
11. 2013 NE Regional Chromosome Pairing Conference, Dartmouth College, Hanover, NH
12. 2012 Leukemia and Lymphoma Society Special Presentation, Poughkeepsie, NY
13. 2012 Chromosome Pairing Conference, Dartmouth University, Hanover, NH
14. 2012 Northeast Genomic Instability Conference, University of Vermont, Burlington, VT
15. 2011 Clinical and Translational Research Symp, University of Vermont, Burlington, VT

### **Departmental Seminars**

1. 2023 Cell Biology and Anatomy, McGill University, Montreal, Canada
2. 2023 Institute for Research in Cancer and Immunology, Montreal, Canada
3. 2022 Medicine Grand Rounds, Univ of Vermont, Burlington, VT
4. 2022 Cell and Developmental Biology, Univ of Michigan, Ann Arbor, MI
5. 2022 Hematology and Oncology Grand Rounds, Univ of Vermont, Burlington, VT
6. 2022 Cell and Developmental Biology, Northwestern University, Chicago, IL



7. 2021 Department of Biology, University of Konstanz, Konstanz, Germany
8. 2021 Virginia Tech Life Science Seminar, Virginia Tech, Blacksburg, VA
9. 2021 Firestone Medical Research Building Campaign Committee, Burlington, VT
10. 2020 Dept of Molecular, Cellular, and Developmental Biology, Univ of CO, Boulder, CO
11. 2019 Dept of Microbiology and Molecular Genetics, Univ of Vermont, Burlington, VT
12. 2019 Department of Plant Biology, University of Vermont, Burlington, VT
13. 2019 Department of Biology, University of Vermont, Burlington, VT
14. 2018 Department of Molecular Biology, University of Wyoming, Laramie, WY
15. 2017 UVM Cancer Center Advisory Board, University of Vermont, Burlington, VT
16. 2017 OBGYN Annual Retreat, University of Vermont, Burlington, VT
17. 2017 Department of Biological Sciences, Rensselaer Polytechnic Institute, Troy, NY
18. 2017 Dept of Biology and Biotechnology, Worcester Polytechnic Inst, Worcester, MA
19. 2016 Dept of Cell and Developmental Biology, University of Colorado, Denver, CO
20. 2016 Department of Biochemistry, Colorado State University, Fort Collins, CO
21. 2015 Dept of Biochemistry, University of Vermont, Burlington, VT
22. 2014 OBGYN Annual Retreat, University of Vermont, Burlington, VT
23. 2014 Department of Biochemistry Seminar, Dartmouth College, Hanover, NH
24. 2014 Vermont Cancer Center Seminar, University of Vermont, Burlington, VT
25. 2013 Department of Biology, University of Vermont, Burlington, VT
26. 2013 The Jackson Laboratory Seminar Series, The Jackson Laboratory, Bar Harbor, ME
27. 2013 Department of Biology, Bowdoin College, New Brunswick, ME
28. 2012 Vermont Cancer Center Grand Rounds, University of Vermont, Burlington, VT
29. 2012 Environmental Pathology Seminar Series, University of Vermont, Burlington, VT
30. 2012 Dept of Microbiology and Molecular Genetics, Univ of Vermont, Burlington, VT
31. 2011 Department of Pharmacology, University of Vermont, Burlington, VT
32. 2010 Molecular Physiology and Biophysics Dept, Univ of Vermont, Burlington, VT
33. 2009 Patton Symposium, University of Washington
34. 2004 Department of Embryology, Carnegie Institute of Washington
35. 2004 Department of Physiology and Biophysics, University of Washington
36. 2004 Department of Cellular and Molecular Medicine, UCSD

### **International**

1. 2023 Mitotic Spindle: From Living and Synthetic Systems to Theory, Dubrovnik, Croatia
2. 2022 FASEB Consequences of Aneuploidy Meeting, Southbridge, MA
3. 2019 American Society for Cell Biology, Washington DC
4. 2019 Mitotic Spindle: From Living and Synthetic Systems to Theory, Split, Croatia
5. 2017 American Society for Cell Biology, Philadelphia, PA
6. 2016 Muscle and Molecular Motors Gordon Conference, Mt. Snow, VT
7. 2015 Dynamic Kinetochores Workshop, Copenhagen, Denmark
8. 2014 American Society for Cell Biology Annual Meeting, Philadelphia, PA
9. 2014 Molecular Motors Gordon Research Conference, Mt. Snow, VT
10. 2013 American Society for Cell Biology Annual Meeting, New Orleans, MS
11. 2013 The Dynamic Kinetochores Workshop. Porto, Portugal
12. 2007 FASEB Mitosis and Spindle Function meeting