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Positions & Appointments

2018- Present Faculty Member, Graduate program in Neuroscience, University of Washington, Seattle

2017- Present Faculty Member, Graduate program in Molecular and Cellular Biology, University of Washington, Seattle

2016 - Present Assistant Professor, Department of Biology, University of Washington, Seattle, USA

2011-2016: Assistant Professor (SNSF), non-tenure track, Biozentrum, University of Basel, Switzerland

Education/Training

Education

2004 PhD, Department of Cell Biology, Biozentrum, University of Basel, Switzerland (Advisor: Dr. Markus Affolter)

2000 M.S., Department of Cell Biology, Biozentrum, University of Basel, Switzerland (Advisor: Dr. Markus Affolter)

Advanced training

2006-2011 Postdoctoral fellow, Institute of Molecular Biology and Neuroscience, Eugene, Oregon, USA (Advisor: Dr. Chris Doe, HHMI Investigator).
Spindle orientation and cleavage furrow positioning in asymmetrically dividing neural stem cells in Drosophila.

2005 Postdoctoral fellow, Department of Cell Biology, Biozentrum, University of Basel, Switzerland (Advisor: Dr. Markus Affolter)
Studying Fibroblast growth factor (FGF) mediated cell migration in Drosophila air sacs.

2001-2004 Doctoral student, Department of Cell Biology, Biozentrum, University of Basel, Switzerland (Advisor: Dr. Markus Affolter)
Studying Fibroblast growth factor (FGF) mediated cell migration in Drosophila air sacs.

Publications

Primary research articles; peer-reviewed

Pham T., Monnard A., Lee N., Lund E., Helenius J., Mueller D., Cabernard C. (2018). Spatiotemporally controlled Myosin relocalization and internal pressure causes biased cortical extension to generate sibling cell size asymmetry. *In preparation*.

Gallaud E., Nair A., Monnard A., Singh P., Pham T., Salvador Garcia D., Ferrand A., Cabernard C. (2018). Centrosome asymmetry switch in fly neural stem cells.
ttps://www.biorxiv.org/content/early/2018/01/17/249375; In revision

Roubinet C., Tsankova A., Pham T., Monnard A., Caussinus E., Affolter M., Cabernard C. (2017). Spatio-temporally separated cortical flows and spindle geometry establish physical asymmetry in fly neural stem cells. **Nature Communications;** 2017; 8(1):1383.

Tsankova A., Pham T., Garcia D.S., Otte F., Cabernard C. (2017). Cell cycle and polarity cues regulate biased Myosin activity and dynamics via *Drosophila* Rho kinase/Drok and Protein Kinase N/Pkn during asymmetric cell division. **Dev Cell**. 24, 143-155

Montembault E., Claverie M-Ch., Bouit L., Landmann C., Tsankova A., Cabernard C., Rouyou A. (2017). Myosin efflux promotes adaptive cell elongation to coordinate chromosome segregation with cell cleavage. **Nature Communications***;* 23;8(1):326

Nair A., Singh P., Garcia D.S., Crespo D.R., Egger B., Cabernard C. (2016). The microcephaly-associated gene WDR62 is required to maintain centrosome asymmetry in Drosophila neuroblasts.
Cell Reports; 2016 Feb 9;14(5):1100-13

Chen JV, Kao LR, Jana SC, Sivan-Loukianova E, Mendonça S, Cabrera OA, Singh P, Cabernard C, Eberl DF, Bettencourt-Dias M, Megraw TL. (2015). Rootletin organizes the ciliary rootlet to achieve neuron sensory function in Drosophila. **J Cell Biol**. 2015 Oct 26;211(2):435-53.

Roth M., Roubinet C.*, Ifflaender N.*, Ferrand A., Cabernard C. (2015). Asymmetrically dividing *Drosophila* neuroblasts utilize two spatially and temporally independent cytokinesis pathways.
Nature Communications 6:6551. * equal contribution

Singh P., Ramdas Nair A., Cabernard C. (2014). The Centriolar Protein Bld10/Cep135 Is Required to Establish Centrosome Asymmetry in Drosophila Neuroblasts. **Current Biology** 24(13), 1548–1555.

Connell M, Cabernard C, Ricketson D, Doe CQ, Prehoda KE. (2011). Asymmetric cortical extension shifts cleavage furrow position in *Drosophila* neuroblasts. **Molecular Biology of the Cell**: 22(22):4220-6

Cabernard C, Prehoda KE & Doe CQ. (2010). A spindle-independent cleavage furrow positioning pathway. **Nature** 467, 91-94.

Callan MA, Cabernard C, Heck J, Luois S, Doe CQ and Zarnescu DC. (2010): Fragile X Protein Controls Neural Stem Cell Proliferation in the *Drosophila* Brain. **Hum Mol Genet**: 19(15):3068-79

Cabernard C and Doe CQ. (2009). Apical/basal spindle orientation is required for neuroblast homeostasis and neuronal differentiation in Drosophila. **Dev Cell** 17: 134-41.

Chanut-Delalande H, Jung AC, Lin L, Baer MM, Bilstein A, Cabernard C, Leptin M, Affolter M. (2007). A genetic mosaic analysis with a repressible cell marker screen to identify genes involved in tracheal cell migration during Drosophila air sac morphogenesis. **Genetics** 176: 2177-87

Lee CY*, Andersen RO*, Cabernard C, Manning L, Tran KD, Lanskey MJ, Bashirullah A, Doe CQ. (2006). Drosophila Aurora-A kinase inhibits neuroblast self-renewal by regulating aPKC/Numb cortical polarity and spindle orientation. **Genes Dev** 20: 3464-3474
* equal contribution

Siller KH, Cabernard C, Doe CQ. (2006). The NuMA-related Mud protein binds Pins and regulates spindle orientation in Drosophila neuroblasts. **Nature Cell Biology** 8: 594-600

Cabernard C and Affolter M. (2005). Distinct Roles for Two Receptor Tyrosine Kinases in Epithelial Branching Morphogenesis in Drosophila. **Dev Cell** 9: 831-842

Ebner A, Cabernard C, Affolter M and Merabet S. (2005). Recognition of distinct target sites by a unique Labial/Extradenticle/Homothorax complex. **Development** 132: 1591-1600

Reviews, book chapters, commentaries

Canman JC. & Cabernard C. (2018). Mechanics of cell division and cytokinesis. ASCB Annual Meeting Highlights. **Mol Biol Cell.** 15;29(6):685-686.

Gallaud E., Pham T., Cabernard C. (2017) Drosophila melanogaster Neuroblasts: A Model for Asymmetric Stem Cell Divisions. Invited chapter for the book "Asymmetric Cell Division in Development, Differentiation and Cancer". **Results and Problems in Cell Differentiation**; 61:183-210

Cabernard C. (2017). Sibling cell size matters. **eLife 6,** e24038 (2017).

Roubinet C. & Cabernard C. (2014). Control of asymmetric cell division. Invited review. **Current Opinion in Cell Biology** 31**,** 84–91.

Cabernard C, Doe CQ. (2013). Live imaging of neuroblast lineages within intact larval brains in Drosophila. **Cold Spring Harb Protoc**. 2013(10):970-7.

Cabernard C. (2012). Cytokinesis during *Drosophila* development (2012). **Cytoskeleton**; 69(10):791-809.

Singh P & Cabernard C. (2012). Neurogenesis: premature mitotic entry lets cleavage planes take off! Invited review. **Current Biology** 22(1):R25-8.

Gillies TE & Cabernard C. (2011). Cell division orientation in animals. Invited review. **Current Biology** 21: R599-R609.

Cabernard C and Doe CQ. (2010). Live imaging of neuroblast lineages within intact larval brains in *Drosophila*. Invited chapter for the book "**Imaging in Developmental Biology: A Laboratory Manual**", CSHL press.

Cabernard C and Doe CQ. (2007). Stem cell self-renewal: centrosomes on the move. Review. **Current Biology** 17: R465-7

Cabernard C, Neumann M and Affolter M. (2004). Cellular and molecular mechanisms involved in branching morphogenesis of the Drosophila tracheal system. **J Appl Physiol** 97: 2347-53

Fellowships & Awards

2016 EMBO Young Investigator award.

2011 American Heart Association (AHA) pacific mountain postdoctoral fellowship;
1 year extension. *Partly returned*.

2010 Travel grant from the *Swiss Foundation for Excellence and Talent in Biomedical Research*.

2009-2011 American Heart Association (AHA) pacific mountain postdoctoral fellowship

2006-2009 Swiss National Science Foundation (SNSF) postdoctoral fellowship

Research funding

2018 – 2022 National Institute of Health (NIH): 1R01GM126029-01
Cabernard C (PI) | 01/01/18-12/31/22 | $1,501,750
Cellular and molecular mechanisms underlying the formation of sibling cell size asymmetry;
Role: PI

2017 – 2020 American Cancer Society (ACS): 130285-RSG-16-253-01-CSM
Cabernard C (PI) | 01/01/17-12/31/20 | 791,712
Cell fusion as a mechanism for tumorigenesis; Role: PI

2015 – 2018 Systems X; 51PHP0_157299
Cabernard C (PI) | 01/01/15-12/31/18 | ~$210,000
Systematic characterization of the cell biological and mechanical properties of asymmetrically dividing Drosophila neuroblasts; Role: PI

2015 – 2017 Swiss National Science foundation (SNSF); PP00P3_159318
Cabernard C (PI)| 08/01/15-07/31/17 | ~$740,000
Cellular and molecular mechanism of asymmetric stem cell division II; Role: PI

2014 – 2017 Worldwide Cancer Research (formerly Association for International Cancer Research; AICR): 14-0236
Cabernard C (PI) | 07/01/14-06/30/17 | ~$313,000
The role of the small GTPase RhoA during asymmetric cell division and cancer; Role: PI

2015 – 2017 Swiss National Science foundation (SNSF); PP00P3_133658
Cabernard C (PI)| 08/01/11-07/31/15 | ~$1,690,000
Cellular and molecular mechanism of asymmetric stem cell division; Role: PI

2013 – 2014 Novartis Foundation for Biological Research
Cabernard C (PI) | 01/01/13-12/31/13 | ~$48,500
Drosophila melanogaster as a model to study microcephaly, a rare neurodevelopmental disease; Role: PI

2011 – 2012 Forschungsfonds grant, University of Basel
Cabernard C (PI) | 01/01/11-12/31/11 | ~$53,000

Collaborative Research Infrastructure Funding

2017-2018 National Institute of Health (NIH): 1S10OD021490-01A1
Wordeman L (PI) | $778,509
Deltavision OMX BLAZE 3D Structured Illumination Microscope" (1S10OD021490-
Instrumentation grant to support high resolution microscopy capabilities in the Biology Imaging Facility; Role: major user.

2014 - 2015 Swiss National Science foundation (SNSF); 316030_157700
Affolter M (PI). Other applicants: Clemens Cabernard, Oliver Biehlmaier, Peter Scheiffele, Erich Nigg | 12/01/14 - 11/3/15 | ~$434,000
Instrumentation grant to support *Lightsheet microscopy;* Role: co-PI

Invited/selected talks & presentations

2018 Hong Kong University of Science and Technology; *invited talk*
UW Pharmacology; *invited talk*
59th Annual Drosophila Research Conference, Philadelphia; *selected talk*
EMBO Workshop: Molecular and Developmental Biology of Drosophila, Crete, *invited talk*
EMBO symposium: Tissue Self-Organisation: Challenging the Systems, Heidelberg; *selected talk*
UW Neuroscience program; *invited talk*

2017 50th Annual Northwest Developmental Biology Meeting; Friday Harbor; *invited talk*

2016 Friday Harbor labs, Friday Harbor; *invited talk*
Institute Marie Curie, Paris; *invited talk*
IRB Barcelona; *invited talk*
EMBO YIP meeting, Heidelberg; *invited talk*

2015 University of Rennes; *invited talk*
Annual meeting of the Basel Stem Cell Network (SSCN); *invited talk*
University of Toulouse; *invited talk*
FASEB meeting; Mitosis: Spindle Assembly and Function; Big Sky, Montana, USA; *invited talk*

2014 28th Annual French Drosophila Conference; *invited talk*
Gordon Research Conference; Cell Polarity; *selected talk*
55th Annual Drosophila Research Conference, San Diego. Centrosome workshop; *invited talk*
Institute of Molecular Life Sciences, Zurich*; invited talk*
University of Geneva; *invited talk*
University of Fribourg*; invited talk*

2013 EMBO workshop; Drosophila Cell Division Cycle; *selected talk*

2012 Annual meeting of the Swiss Stem Cell Network (SSCN); *invited talk*
Institute for Molecular Biotechnology (IMPA) Vienna; *invited talk*

2011 University of Freiburg (Germany): joint lecture series SFB 592 "Signaling Mechanisms in Embryogenesis and Organogenesis"; *Invited talk*
Max Planck Institute of Molecular Cell Biology and Genetics; *Invited talk*
Webinar panelist: "Stem Cell Imaging: Tips, Tricks & Best Practices"*; invited by Science magazine*
Seeing is Believing: Advances in Live Imaging; University of Oregon. *Invited talk*

2010 University of Fribourg (Switzerland); *Invited talk*

ETH Zurich, Institute of Biochemistry; *Invited talk*
University of Arizona, MCB seminar series; *Invited talk*

2009 Stem Cell Biology conference (Cold Spring Harbor laboratories, NY, USA); *selected talk*

2008 Northwest Developmental Biology conference (Friday Harbor, WA, USA); *selected talk*

Teaching Experience

WQ2018 Biol406: The molecular cell biology of neural stem cells. Authentic research experience lab class.

FQ2017 Biol355: Foundations in Cell Biology; co-instructor (w/ Linda Martin-Morris)

SQ2017 Biol406: The molecular cell biology of neural stem cells. Authentic research experience lab class.

2016 Participation in the Cell Biology Blockkurs (4 days), Biozentrum, University of Basel.

2015 Guest lecturer in the lecture series "Mechanisms of Development", Biozentrum, University of Basel.

2015 Participation in the Cell Biology Blockkurs (3 days), Biozentrum, University of Basel..

2014 Participation in the Cell Biology Blockkurs (3 days), Biozentrum, University of Basel..

2013 Guest lecturer in the lecture series "Mechanisms of Development", Biozentrum, University of Basel.

2013 Co-organizer of the Stem Cell Blockkurs, Biozentrum, University of Basel.

2012 Lecturer in the Stem Cell Blockkurs, Biozentrum, University of Basel.

2011 Guest lecturer in the lecture series "Mechanisms of Development", Biozentrum, University of Basel.

2010 Guest lecturer in Brad Davidson's Cell systems course (MCB, 572) at the University of Arizona.

2010 Guest lecturing in Chris Doe's Cell Biology class (BI 322, Cell Biology) at the University of Oregon.

Services to the scientific community

Meetings organized or co-organized:

2019 co-organizer of the EMBO conference Drosophila cell cycle control; Bordeaux, France
2017 co-chair of the ASCB minisymposium on Cell Division, Cell Cycle and Cell Death
2014 Basel Fly Club
2014 Basel Stem Cell Meeting – Stem Cells in Development and Disease
2014 1st Tri-Regional Stem Cell and Developmental Biology meeting

Peer reviewing

<u>Scientific articles:</u>

Nature Cell Biology, eLife, Nature Communications, Neural Development, Developmental Cell, Journal of Cell Biology, Current Biology, Development, Molecular Biology of the Cell, EMBO reports.

Grants

Swiss National Science Foundation (SNSF), National Science Foundation (NSF), European Research Council (ERC), The Welcome Trust (UK funding agency), Agence Nationale de la Recherche (ANR; French funding agency), U.S.-Israel Binational Science Foundation (BSF), The Netherlands Organization for Scientific Research (NWO), MindTheGap (European funding agency), Worldwide Cancer Research (formerly AICR; international foundation), Research Royalty fund.

UW service

Committee work

2017 - present	Graduate/Postdoc program Committee; member
2016 - 2017	Department of Biology seminar series committee; co-chair
2016	Working Group on Strategic Faculty Hiring; member

Graduate student committees

2017 – present	Maddy Hewitt; MCB program; PI: Raible
2017 – present	Saige Malingen; Biology; PI: Daniel
2017	Rachel Dam; MCB program; PI: Berg
2016	Arida Dhanaswar; Biology; PI: Wakimoto