

## **Curriculum Vita: George von Dassow**

Present address:

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born November 15 1971 in Seattle, Washington, United States

### **Education & professional experience**

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| 1990–1992    | Undergraduate study in biochemistry and molecular biology at the University of Washington; research supervised by D. Kimelman on molecular biology of mesoderm induction in <i>Xenopus</i>   |
| 1992–2000    | PhD in the Dept. of Zoology, Univ. Washington with G. M. Odell; cytoskeletal dynamics during nuclear migration in <i>Drosophila</i> , cytokinesis in echinoderm embryos, and computer models of developmental patterning by gene networks. Thesis title: How Dynamic Networks Animate Living Embryos |
| 1993–1997    | NSF Pre-doctoral fellow  |
| 2000–2003    | Post-doctoral fellow at the Friday Harbor Labs, in the Dept. of Zoology, Univ. Washington with G. M. Odell and V. E. Foe investigating cytokinesis and cell shape change in marine invertebrate embryos  |
| 2002–2007    | Senior Research Associate and co-founder, Center for Cell Dynamics at Friday Harbor Labs   |
| 2007-2009    | Research Assistant Professor, Department of Biology, University of Washington, with the Center for Cell Dynamics at Friday Harbor Labs   |
| 2008-present | Visiting Assistant Professor, Oregon Institute of Marine Biology, and Faculty Fellow in the Department of Biology, University of Oregon  |

### **Research interests**

Mechanisms of mitosis and cytokinesis in embryonic cells; adaptations of cell cleavage in embryos; cytoskeletal dynamics during development; mitotic spindle assembly and chromosome dynamics; development of methods for live labeling and confocal microscopy in marine invertebrate embryos; comparative embryology of marine invertebrates

### **Publications**

G. von Dassow (2009) Concurrent cues for cytokinetic furrow induction in animal cells. **Trends Cell Biology** **19**: 165-73

- V. E. Foe and G. von Dassow (2008) Stable and dynamic microtubules coordinately shape the myosin activation zone during cytokinetic furrow formation. **J. Cell Biology** **183**: 457-70
- A. L. Miller, G. von Dassow, and W. M. Bement (2008) Control of the cytokinetic apparatus by flux of the Rho GTPases. **Biochem. Soc. Trans.** **36**: 378-80.
- J. Stumpff, G. von Dassow, M. Wagenbach, C. Asbury, and L. Wordeman (2008) The kinesin-8 motor Kif18A suppresses kinetochore movements to control mitotic chromosome alignment. **Dev Cell** **14**: 252-62.
- J. K. Baruni, E. M. Munro, and G. von Dassow (2008) Cytokinetic furrow induction in toroidal, binucleate, and anucleate *C. elegans* embryonic cells. **J. Cell Science** **121**: 306-16.
- L. Wordeman, M. Wagenbach, and G. von Dassow (2007) MCAK facilitates chromosome movement by promoting kinetochore microtubule turnover. **J. Cell Biology** **179**: 869-79.
- B. Burkel, G. von Dassow, and W. M. Bement (2007) Simple, versatile probes for actin filaments. **Cell Motility and the Cytoskeleton** **64**: 822-32.
- W. M. Bement, A. L. Miller, and G. von Dassow (2006) Rho GTPase activity zones and transient contractile arrays. **Bioessays** **28**: 983-93.
- G. von Dassow and W. M. Bement (2005) A ring-like template for abscission. **Dev. Cell** **9**: 578-80.
- W. M. Bement, H. A. Benink, and G. von Dassow (2005) A microtubule-dependent zone of active RhoA during cleavage plane specification. **J. Cell Biology** **170**: 91-101.
- A. T. Moore, K. E. Rankin, G. von Dassow, L. Peris, M. Wagenbach, Y. Ovechkina, A. Andrieux, D. Job, and L. Wordeman (2005) MCAK associates with the tips of polymerizing microtubules. **J. Cell Biology** **169**: 391-7.
- L. Strickland, G. von Dassow, J. Ellenberg, V. E. Foe, P. Lenart, and D. Burgess (2004) Light Microscopy of Echinoderm Embryos. **Methods Cell Biology** **74**: 371-409.
- J. A. de Visser, J. Hermisson, G. P. Wagner, L. Ancel Meyers, H. Bagheri-Chaichian, J. L. Blanchard, L. Chao, J. M. Cheverud, S. F. Elena, W. Fontana, G. Gibson, T. F. Hansen, D. Krakauer, R. C. Lewontin, C. Ofria, S. H. Rice, G. von Dassow, A. Wagner, and M. C. Whitlock (2003) Perspective: Evolution and detection of genetic robustness. **Evolution** **5**: 1959-72.
- G. von Dassow and E. Meir (2003) Exploring modularity with dynamical models of gene networks. *In* Modularity in Development and Evolution, G. Schlosser and G. P. Wagner, eds., University of Chicago Press.
- G. von Dassow and G. M. Odell (2002) Architecture and constraints of the *Drosophila* segment polarity module: robust spatial patterning emerges from intertwined cell state switches. **J. Exp. Zoology (Mol. Dev. Evol.)** **294**: 179-215.
- E. Meir, E. M. Munro, G. M. Odell, and G. von Dassow (2002) Ingenu: a versatile tool for reconstituting genetic networks, with examples from the segment polarity network. **J. Exp. Zoology (Mol. Dev. Evol.)** **294**: 216-51.
- E. Meir, G. von Dassow, E. M. Munro, and G. M. Odell (2002) Robustness, flexibility, and the role of lateral inhibition in the neurogenic network. **Current Biology** **12**: 778-86.
- G. von Dassow, E. Meir, E. M. Munro, and G. M. Odell (2000) The segment polarity network is a robust developmental module. **Nature** **406**: 188-92.
- G. von Dassow and E. M. Munro (1999) Modularity in animal development and evolution: elements of a conceptual framework for EvoDevo. **J. Exp. Zoology (Mol. Dev. Evol.)** **285**: 307-25.

- J. E. Schmidt, G. von Dassow, and D. Kimelman (1996), Regulation of dorsal-ventral patterning: the ventralizing effects of the novel *Xenopus* homeobox gene *Vox*. **Development** **122**: 1711-21.
- L. C. Pedersen, V. C. Yee, G. von Dassow, M. Hazeghazam, G. R. Reeck, R. E. Stenkamp, D. C. Teller (1994) The corn inhibitor of blood coagulation factor XIIa. Crystallization and preliminary crystallographic analysis. **J. Mol. Biology** **236**: 385-7.
- G. von Dassow and G. Schubiger (1994) How an actin network might cause fountain streaming and nuclear migration in the syncytial *Drosophila* embryo. **J. Cell Biology** **127**: 1637-53.
- G. von Dassow, J. E. Schmidt, and D. Kimelman (1993) Induction of the *Xenopus* organizer: expression and regulation of *Xnot*, a novel FGF and Activin-regulated homeo box gene. **Genes Dev.** **7**: 355-66.

### **Teaching experience**

- Instructor, 10-week graduate seminar in scientific image processing, Winter term 2009 at Oregon Institute of Marine Biology.
- Instructor, with S. A. Maslakova, of five-week graduate course "Comparative Embryology of Marine Invertebrates", Summer term 2007 at Friday Harbor Laboratories.
- Instructor, with E. M. Munro and G. M. Odell, of ten-week research apprenticeship course, "Gene Network Dynamics and Cell Behavior", Fall term 2005 at Friday Harbor Laboratories.
- Instructor, with R. R. Strathmann and J. Dallman, of five-week graduate course "Comparative Invertebrate Embryology", Summer term 2005 at Friday Harbor Laboratories.
- Instructor, with S. A. Stricker, of five-week graduate course "Comparative Invertebrate Embryology", Summer term 2004 at Friday Harbor Laboratories.
- Instructor, with E. M. Munro and G. M. Odell, of ten-week research apprenticeship course, "Gene Network Dynamics and Cell Behavior", Fall term 2003 at Friday Harbor Laboratories.
- Instructor, with R. R. Strathmann, of five-week graduate course "Comparative Embryology of Marine Invertebrates", Summer term 2003 at Friday Harbor Laboratories.
- Instructor, with B. J. Swalla, of five-week graduate course "Comparative Invertebrate Embryology", Summer term 2002 at Friday Harbor Laboratories.
- Instructor and Organizer of NSF-funded short course "Evolvability of Developmental Mechanisms", August 2000 at Friday Harbor Laboratories.
- Teaching assistant for "Comparative Invertebrate Embryology" at Friday Harbor Laboratories, Summer 1998 and 1999.
- Teaching assistant at the University of Washington for Zoology 455: Developmental Biology (Winter 1994), Biology 202: Introductory Biology - Development and Physiology (Winter 1995), Biology 401: Cell Biology (Fall 1996), Biology 203: Introductory Biology - Plant Biology, Ecology, and Evolution (Fall, 1998).

### **Other activities**

- Co-organizer for 2004 symposium with B. J. Swalla and others entitled "Comparative Developmental Biology: Insights into Embryos, Cells, and Evolution" in celebration of Friday Harbor Labs' centennial, held at UW Friday Harbor Labs

Organized 2003 workshop/symposium with E. M. Munro and Clare Waterman-Storer entitled "Cytomechanical Modules" sponsored by the Center for Cell Dynamics and held at UW Friday Harbor Labs.

Co-developer of Ingeneue (and auxiliary software) – computer methods and software for modeling complex epigenetic processes, with E. Meir, E. M. Munro, and G. M. Odell.

Organized 2000 NSF–sponsored workshop/short course entitled "Evolvability of Developmental Mechanisms" held at UW Friday Harbor Labs.

Organized 1997 workshop/symposium with E. M. Munro and Dr. Evelyn Fox Keller entitled "Modularity in Animal Form and Development" held at UW Friday Harbor Labs.

### **Selected invited presentations**

*Induction of the cleavage furrow in animal embryos: how do astral microtubules convey positional information?* Seminar at the Sars Centre, Bergen, Norway in May 2009.

Invited participant and presenter in the NSF Biology Directorate's Theoretical Biology Workshop, Washington, DC in September 2006.

*How Rho activity couples microtubule dynamics to cytokinetic furrowing in urchin embryonic cells.* Seminar in the Dept. of Biology, University of Virginia, September 2005.

*How animal cells position the cytokinetic furrow: microtubule-dependent activation of Rho.* Seminar at the Oregon Institute of Marine Biology, May 2005.

*Evolutionary design of developmental patterning mechanisms,* at the symposium "The Shape of Things to Come: Systems Biology and Morphogenesis" held at the FASEB meeting in Washington, DC in April 2004.

*Genetic networks as evolved devices,* at the first Genetics and Genomics Student Symposium "Complex Regulation Across Species Boundaries" held at Harvard University, US, October 2002.

*How computer models of gene networks might help biologists "fill in the holes" and bridge developmental genetics to evolutionary theory.* Seminar in Biology Department, Florida State University, Tallahassee, FL, October 2001.

*Reconstituting gene networks on computers: functional behaviors emerge from conspiracies of parts,* at the meeting "Developmental Basis of Evolutionary Change" held at the University of Chicago, US, October 2001.

*Models of modules: putting the molecular parts together into genetic devices,* in the workshop "Vertical Integration in Biology: From Molecules to Organisms" held at the Isaac Newton Institute for Mathematical Sciences, Cambridge, UK, September 2001.

*Conspiracy Theory: using models to explore how dynamic networks animate cells,* at the 1st International MTBio workshop on "Function and Regulation of Cellular Systems: Experiments and Models" held at the Max Planck Institut für Physik Komplexer Systeme, Dresden, Germany, June 2001.

*Computational models of developmental modules.* Seminar in the Biology Department, University of Texas, Austin, TX, February 2001.

## **References**

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