

---

## BIOGRAPHICAL SKETCH

---

NAME Kathryn V. Anderson	POSITION TITLE Chair, Developmental Biology Program Sloan-Kettering Institute for Cancer Research		
eRA COMMONS USER NAME KVAnderson			
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE	YEAR(s)	FIELD OF STUDY
University of California, Berkeley	BA	1973	Biochemistry
Stanford University	MS	1975	Neurosciences
University of California, Los Angeles	Ph.D.	1980	Biology
Max Planck Institut, Tübingen, Germany	Postdoctoral	1981-4	Devt. Genetics

### A. Positions and Honors.

#### Professional Experience

1985-1990	Assistant Professor, Dept of Molecular and Cell Biology, U. C. Berkeley
1990-1993	Associate Professor, Dept of Molecular and Cell Biology, U. C. Berkeley
1993-1996	Professor, Dept Of Molecular And Cell Biology, U. C. Berkeley
1996-2002	Member, Molecular Biology Program, Sloan-Kettering Institute
1996-	Professor, Graduate School of Medical Sciences, Cornell University
2002-	Member, Developmental Biology Program, Sloan-Kettering Institute
2002-	Chair, Developmental Biology Program, Sloan-Kettering Institute
1999-2003	Member, Genetics Study Section, NIH
2003-2005	Member, Damon Runyon Scholar Panel
2003-2007	Member, Searle Scholar Advisory Panel

#### Honors and Awards

1973	Phi Beta Kappa
1985-1990	Presidential Young Investigator, National Science Foundation
1991-1996	Faculty Awards for Women, National Science Foundation
1995	Fellow, American Association for the Advancement of Science
1996	Fellow, American Academy of Arts and Sciences
1998-99	President, Society for Developmental Biology
2002	Member, National Academy of Sciences
2003	Enid A. Haupt Chair in Developmental Biology
2008	NIH MERIT Award
2008	Member, Institute of Medicine

### B. Selected Publications

Anderson, K.V. and Nüsslein-Volhard, C. (1984) Information for the dorsal-ventral pattern of the *Drosophila* embryo is stored as maternal mRNA. *Nature* 311: 223-227.

Anderson, K.V., Jürgens, G. and Nüsslein-Volhard, C. (1985) Establishment of dorsal-ventral polarity in the *Drosophila* embryo: genetic studies on the role of the *Toll* gene product. *Cell* 42: 779-789.

Hashimoto, C., Hudson, K.L. and Anderson, K.V. (1988) The *Toll* gene of *Drosophila*, required for dorsal-ventral embryonic polarity, appears to encode a transmembrane protein. *Cell* 52: 269-279.

Hashimoto, C., Gerttula, S. and Anderson, K.V. (1991) Plasma membrane localization of the *Toll* protein in the syncytial *Drosophila* embryo: importance of transmembrane signaling for dorsal-ventral pattern formation. *Development* 111: 1021-1028.

- Schneider, D., Hudson, K.L., Lin, T.-Y. and Anderson, K.V. (1991). Dominant and recessive mutations define functional domains of *Toll*, a transmembrane protein required for dorsal-ventral polarity in the *Drosophila* embryo. *Genes & Devt.* 5: 797-807.
- Ferguson, E. L. and Anderson, K. V. (1992) *decapentaplegic* acts as a morphogen to organize dorsal-ventral pattern in the *Drosophila* embryo. *Cell* 71: 451-461.
- Morisato, D. and Anderson, K. V. (1994) The *spätzle* gene encodes a component of the extracellular signaling pathway establishing the dorsal-ventral pattern of the *Drosophila* embryo. *Cell* 76: 677-688.
- Belvin, M. P., Jin, Y. and Anderson, K. V. (1995) Cactus protein degradation mediates *Drosophila* dorsal-ventral signaling. *Genes & Devt.* 9: 783-793.
- Belvin, M. P. and Anderson, K. V. (1996) A conserved signaling pathway: The *Drosophila* Toll-Dorsal Pathway. *Ann. Rev. Cell and Dev. Biol.* 12: 343-416.
- Wu, L. P. and Anderson, K. V. (1998) Regulated nuclear import of Rel proteins in the *Drosophila* immune response. *Nature* 392: 93-97.
- Kasarskis, A., Manova, K. and Anderson, K. V. (1998) A phenotype-based screen for ENU-induced embryonic lethal mutations in the mouse. *Proc. Natl. Acad. Sci. USA* 95: 7485-7490.
- Eggenchwiler, J. T., Espinoza, E. and Anderson, K. V. (2001) Rab23 is an essential negative regulator of the mouse Sonic hedgehog signaling pathway. *Nature* 412: 194-198.
- Caspary, T., García-García, M. J., Huangfu, D., Eggenchwiler, J. T., Wyler, M. R., Rakeman, A. S., Alcorn, H. L. and Anderson, K. (2002) Mouse *Dispatched homolog1* is required for long-range but not juxtacrine Hh signaling. *Curr. Biol.* 12: 1628-1632.
- Bernstein, E., Kim, S. Y., Carmell, M. A., Murchison, E. P., Alcorn, H., Li, M. Z., Mills, A. A., Elledge, S. J., Anderson, K. V. and Hannon, G. J. (2003) Dicer is essential for mouse development. *Nat. Genet.* 35: 215-217.
- García-García, M. J. and Anderson, K. V. (2003) Essential role of glycosaminoglycans in Fgf signaling during mouse gastrulation. *Cell* 114: 727-737.
- Huangfu, D., Liu, A., Rakeman, A. S., Murcia, N. S., Niswander, L. and Anderson, K. V. (2003) Hedgehog signalling in the mouse requires intraflagellar transport proteins. *Nature* 426: 83-87.
- Merrill, B. J., Pasolli, H. A., Polak, L., Rendl, M., Garcia-Garcia, M. J., Anderson, K. V., and Fuchs, E. (2004) Tcf3: a transcriptional regulator of axis induction in the early embryo. *Development* 131: 263-274.
- Bulgakov, O. V., Eggenchwiler, J. T., Hong, D.-H., Anderson, K. V. and Li, T. (2004) FKBP8 is a negative regulator of mouse sonic hedgehog signaling in neural tissues *Development* 131: 2149-2159.
- García-García, M. J., Eggenchwiler, J. T., Caspary, T., Alcorn, H. L., Wyler, M. R., Huangfu, D., Rakeman, A. S., Lee, J. D., Feinberg, E. H, Timmer, J. R. and Anderson, K. V. (2005) Analysis of Mouse Embryonic Patterning and Morphogenesis by Forward Genetics. *Proc. Natl. Acad. Sci. USA.* 102: 5913-5919.
- Huangfu, D. and Anderson, K. V. (2005) Cilia and Hedgehog responsiveness in the mouse. *Proc. Natl. Acad. Sci. USA* 102: 11325-11330.
- Timmer, J. R., Mak, T. W., Manova, K., Anderson, K. V. and Niswander, L. (2005) Tissue morphogenesis and vascular stability require the Frem2 protein, product of the mouse myelencephalic blebs gene. *Proc. Natl. Acad. Sci. USA.* 102: 11746-11750.
- Huangfu, D. and Anderson, K. V. (2006) Signaling from Smo to Ci/Gli: conservation and divergence of Hedgehog pathways from *Drosophila* to vertebrates. *Development* 133: 3-14.
- Shapiro, R. S. and Anderson, K. V. (2006) *Drosophila* Ik2, a member of the IκB kinase family, is required for mRNA localization during oogenesis. *Development* 133: 1467-1475.

Eggenschwiler, J. T., Bulgakov, O. V., Qin, J., Li, T., Anderson, K. V. (2006) Mouse Rab23 regulates Hedgehog signaling from Smoothed to Gli proteins. *Dev. Biol.* 290: 1-12.

Rakeman, A. S. and Anderson, K. V. (2006) Axis specification and morphogenesis in the mouse embryo require Nap1, a regulator of WAVE-mediated actin branching. *Development* 133: 3075-3083.

Scholey, J. M. and Anderson, K. V. (2006) Intraflagellar transport and cilium-based signaling. *Cell* 125: 439-442.

Zohn, I. E., Li, Y., Skolnik, E. Y., Anderson, K. V., Han, J. and Niswander, L. (2006) p38 and a p38-interacting protein are critical for downregulation of E-cadherin during mouse gastrulation. *Cell* 125: 957-969.

Weatherbee, S. D., Anderson, K. V. and Niswander, L. A. (2006) LDL-receptor-related protein 4 is critical for formation of the neuromuscular junction. *Development* 133: 4993-5000.

Kim, T.-H., Goodman, J., Anderson, K. V. and Niswander, L. (2007) Phactr4 Regulates Neural Tube and Optic Fissure Closure by Controlling PP1-, Rb-, and E2F1-Regulated Cell-Cycle Progression. *Dev. Cell* 13: 87-102.

Lee, J. D., Silva-Gagliardi, N. F., Tepass, U., McGlade, C. J. and Anderson, K. V. (2007) The FERM protein Epb4.115 is required for organization of the neural plate and the epithelial-mesenchymal transition at the primitive streak of the mouse embryo. *Development*, 134: 2007-2016.

Caspary, T., Larkins, C. E. and Anderson, K. V. (2007) The graded response to Sonic Hedgehog depends on cilia architecture. *Dev. Cell*, 12: 767-778.

Zohn, I. E., Hill, J., Anderson, K. V. and Niswander, L. (2007) The *Hectd1* ubiquitin ligase is required for development of the cephalic mesenchyme and placenta. *Dev. Biol.*, 306: 208-221.

Eggenschwiler, J. T. and Anderson, K. V. (2007) Cilia and developmental signaling. (2007) *Ann Rev. Cell Dev. Biol.* 23: 345-373.

Ocbina, P. J. R. and Anderson, K. V. (2008) Intraflagellar Transport, Cilia and Mammalian Hedgehog Signaling: Analysis in Mouse Embryonic Fibroblasts. *Dev. Dyn.* 237: 2030-2038.

Lupu, F., Alves, A., Anderson, K., Doye, V. and Lacy, E. (2008) Nuclear pore composition regulates neural stem/progenitor cell differentiation in the mouse embryo. *Dev Cell* 14: 831-842.

Lee, J. D. and Anderson, K. V. (2008) Morphogenesis of the node and notochord: the cellular basis for the establishment and maintenance of left-right asymmetry in the mouse. *Dev. Dyn.* 237: 3464-3476.

García-García, M. J., Shibata, M. and Anderson, K. V. (2008) Chato, a KRAB Zinc Finger Protein, Regulates Convergent Extension in the Mouse Embryo. *Development* 135: 3053-3062.

## **C. Research Support**

### ACTIVE

2 R01 NS44385 (Anderson) 8/1/07 - 6/30/12

NIH

*Genetic Analysis of Mouse Nervous System Development*

5 R01 HD035455 (Anderson) 7/1/1998 - 6/30/2013

NIH/NICHHD

*Isolation of novel mutations affecting the mouse embryo*

Project ALS (Anderson) 10/1/2007 - 9/30/2009

*Identification of novel genes that control motor neuron development in the mouse*

5 P30 CA08748 (Varmus)

NIH/NCI

*Cancer Center Support Grant*

### PENDING

R01 NS44385 (Anderson) Administrative Supplement (NOT-OD-09-056)

NIH

*Genetic Analysis of Mouse Nervous System Development*

1 S10 RR 027763-01 (Hadjantonakis) 4/1/2010 - 3/31/2011

NIH

*Zeiss LSM710 Laser Scanning Confocal System for Live Imaging Embryonic Morphogenesis*

Co-PIs: A.-K. Hadjantonakis, K.V. Anderson and M.K. Baylies