Stanford

William Talbot

Mary and Dr. Salim Shelby Professor

Developmental Biology

Bio

ACADEMIC APPOINTMENTS

- Professor, Developmental Biology
- Member, Bio-X
- Member, Maternal & Child Health Research Institute (MCHRI)
- Member, Wu Tsai Neurosciences Institute

ADMINISTRATIVE APPOINTMENTS

- Bing Director of the Program in Human Biology, Stanford University, (2025-2028)
- Senior Associate Dean for Graduate Education and Postdoctoral Affairs, Stanford University School of Medicine, (2015-2020)
- Chair, Department of Developmental Biology, Stanford University, (2012-2015)

HONORS AND AWARDS

- Pew Scholars Award in the Biomedical Sciences, Pew Charitable Trusts (1998-2002)
- Rita Allen Foundation Scholars Award, Rita Allen Foundation (2002-2004)
- Fellow, American Association for the Advancement of Science (2014)
- Catherine R. Kennedy and Daniel L. Grossman Fellow in Human Biology, Stanford University (2014-Present)
- Award for Excellence in Faculty Advising in Human Biology, Stanford University (2017)
- Kenneth M. Cuthbertson Award for Contributions to Stanford University, Stanford University (2020)
- George Streisinger Award, International Zebrafish Society (2025)

PROFESSIONAL EDUCATION

- Ph.D., Stanford University , Biochemistry (1993)
- B.S., University of Florida , Microbiology (1987)

LINKS

- Talbot Lab Site: http://talbotlab.stanford.edu/

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Our research focuses on the development and function of glial cells in the vertebrate nervous system. Glia are non-neuronal cells with many essential functions, ranging from forming the myelin sheath to defending the brain against infection.

One of our goals is to use genetic approaches in zebrafish to discover new genes with essential functions in the glial cells that form the myelin sheath, which allows for rapid axonal conduction in vertebrates. Disruption of myelin underlies important human diseases, including Multiple Sclerosis and peripheral neuropathies. The formation of myelin, which involves reciprocal signaling between neurons and glial cells, a dramatic morphological transformation of the glial cells, and organization of the axon into different specialized domains, is fascinating but nonetheless poorly understood.

In genetic screens, we have identified mutations in more than 15 different genes that have specific functions in the development of myelinated axons. Among these are a novel G-protein coupled receptor that instructs Schwann cells to make myelin in peripheral nerves, receptors that control migration of glial cells along growing axons, a kinesin motor protein that is essential for mRNA localization and normal membrane compaction in myelinating oligodendrocytes, and a transcription factor that regulates the migration of the cells that form myelin in the brain and spinal cord.

Another goal of our research is to identify new genes that regulate microglia, which are specialized macrophages that are dedicated to the immune defense of the brain. Microglia also have critical roles in regulating synaptic connectivity and engulfing dead neurons to maintain homeostasis in the brain. Microglial dysfunction has been implicated a wide array of disorders, including autism and Alzheimer disease.

Starting with screens for mutants with abnormal microglia, we have identified novel genes regulate microglial development and function. Examples include a NOD-like receptor that suppresses inappropriate inflammation, a phosphate exporter that functions specifically in microglia and other tissue macrophages, and a regulator of lysosomal action that allows microglia to digest material that they engulf.

These projects provide new insights into glial cell development and function, generate new animal models of human disease, define pathways that may be disrupted in disease, and may provide new avenues toward therapies for diseases of glia.

Teaching

COURSES

2025-26

- Cell and Developmental Biology: HUMBIO 3A (Win)
- Genetics, Molecular Biology and Evolution: HUMBIO 2A (Aut)
- Human Biology Practicum: HUMBIO 191 (Aut, Win, Spr, Sum)

2024-25

- Cell and Developmental Biology: HUMBIO 3A (Win)
- Genetics, Molecular Biology and Evolution: HUMBIO 2A (Aut)

2023-24

- Genetics, Molecular Biology and Evolution: HUMBIO 2A (Aut)

2022-23

- Genetics, Evolution, and Ecology: HUMBIO 2A (Aut)

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Colette Benko, Zoya Gauhar, Rayyan Jokhai, Austin Katzer, Kamsi Nwangwu

Doctoral Dissertation Advisor (AC)

Andrea Navarrete Vargas

GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Developmental Biology (Phd Program)

Publications

PUBLICATIONS

- **Unmyelinated sensory neurons use Neuregulin signals to promote myelination of interneurons in the CNS.** *Cell reports*
  Lysko, D. E., Talbot, W. S.
  2022; 41 (7): 111669
- **A lysosomal regulatory circuit essential for the development and function of microglia.** *Science advances*
  Iyer, H., Shen, K., Meireles, A. M., Talbot, W. S.
  2022; 8 (35): eabp8321
- **The Lysosomal Transcription Factor TFEB Represses Myelination Downstream of the Rag-Ragulator Complex.** *Developmental cell*
  Meireles, A. M., Shen, K., Zoupi, L., Iyer, H., Bouchard, E. L., Williams, A., Talbot, W. S.
  2018; 47 (3): 319
- **Oligodendrocyte development and myelin sheath formation are regulated by the antagonistic interaction between the Rag-Ragulator complex and TFEB.** *Glia*
  Bouchard, E. L., Meireles, A. M., Talbot, W. S.
  2023
- **Promoting validation and cross-phylogenetic integration in model organism research.** *Disease models & mechanisms*
  Cheng, K. C., Burdine, R. D., Dickinson, M. E., Ekker, S. C., Lin, A. Y., Lloyd, K. C., Lutz, C. M., MacRae, C. A., Morrison, J. H., O'Connor, D. H., Postlethwait, J. H., Rogers, C. D., Sanchez, et al
  2022; 15 (9)
- **A cAMP Sensor Based on Ligand-Dependent Protein Stabilization.** *ACS chemical biology*
  Sidoli, M., Chen, L., Lu, A. J., Wandless, T. J., Talbot, W. S.
  2022
- **Partial loss-of-function variant in neuregulin 1 identified in family with heritable peripheral neuropathy.** *Human mutation*
  Lysko, D. E., Meireles, A. M., Folland, C., McNamara, E., Laing, N. G., Lamont, P. J., Ravenscroft, G., Talbot, W. S.
  2022
- **Basic science under threat: Lessons from the Skirball Institute.** *Cell*
  Sfeir, A., Fishell, G., Schier, A. F., Dustin, M. L., Gan, W. B., Joyner, A., Lehmann, R., Ron, D., Roth, D., Talbot, W. S., Yelon, D., Zychlinsky, A.
  2022; 185 (5): 755-758
- **Characterization of mouse Bmp5 regulatory injury element in zebrafish wound models.** *Bone*
  Heller, I. S., Guenther, C. A., Meireles, A. M., Talbot, W. S., Kingsley, D. M.
  2021: 116263
- **Myelination induces axonal hotspots of synaptic vesicle fusion that promote sheath growth.** *Current biology : CB*
  Almeida, R. G., Williamson, J. M., Madden, M. E., Early, J. J., Voas, M. G., Talbot, W. S., Bianco, I. H., Lyons, D. A.
  2021
- **The lysosomal GPCR-like protein GPR137B regulates Rag and mTORC1 localization and activity** *NATURE CELL BIOLOGY*
  Gan, L., Seki, A., Shen, K., Iyer, H., Han, K., Hayer, A., Wollman, R., Ge, X., Lin, J. R., Dey, G., Talbot, W. S., Meyer, T.
  2019; 21 (5): 614-+
- **The lysosomal GPCR-like protein GPR137B regulates Rag and mTORC1 localization and activity.** *Nature cell biology*
  Gan, L. n., Seki, A. n., Shen, K. n., Iyer, H. n., Han, K. n., Hayer, A. n., Wollman, R. n., Ge, X. n., Lin, J. R., Dey, G. n., Talbot, W. S., Meyer, T. n.
  2019

- **The Lysosomal Transcription Factor TFEB Represses Myelination Downstream of the Rag-Ragulator Complex** *DEVELOPMENTAL CELL*
  Meireles, A. M., Shen, K., Zoupi, L., Lyer, H., Bouchard, E. L., Williams, A., Talbot, W. S.
  2018; 47 (3): 319-+
- **Non-nuclear Pool of Splicing Factor SFPQ Regulates Axonal Transcripts Required for Normal Motor Development** *NEURON*
  Thomas-Jinu, S., Gordon, P. M., Fielding, T., Taylor, R., Smith, B. N., Snowden, V., Blanc, E., Vance, C., Topp, S., Wong, C., Bielen, H., Williams, K. L., McCann, et al
  2017; 94 (2): 322-?
- **Interactions between mural cells and endothelial cells stabilize the developing zebrafish dorsal aorta** *DEVELOPMENT*
  Stratman, A. N., Pezoa, S. A., Farrelly, O. M., Castranova, D., Dye, L. E., Butler, M. G., Sidik, H., Talbot, W. S., Weinstein, B. M.
  2017; 144 (1): 115-127
- **Mapping the Pairwise Choices Leading from Pluripotency to Human Bone, Heart, and Other Mesoderm Cell Types** *CELL*
  Loh, K. M., Chen, A., Koh, P. W., Deng, T. Z., Sinha, R., Tsai, J. M., Barkal, A. A., Shen, K. Y., Jain, R., Morganti, R. M., Shyh-Chang, N., Fernhoff, N. B., George, et al
  2016; 166 (2): 451-467
- **Individual Neuronal Subtypes Exhibit Diversity in CNS Myelination Mediated by Synaptic Vesicle Release** *CURRENT BIOLOGY*
  Koudelka, S., Voas, M. G., Almeida, R. G., Baraban, M., Soetaert, J., Meyer, M. P., Talbot, W. S., Lyons, D. A.
  2016; 26 (11): 1447-1455
- **The Rag-Ragulator Complex Regulates Lysosome Function and Phagocytic Flux in Microglia.** *Cell reports*
  Shen, K., Sidik, H., Talbot, W. S.
  2016; 14 (3): 547-559
- **A zinc finger protein that regulates oligodendrocyte specification, migration and myelination in zebrafish** *DEVELOPMENT*
  Sidik, H., Talbot, W. S.
  2015; 142 (23): 4119-4128
- **Autosomal recessive mutations of GPR126 are responsible for severe Arthrogryposis multiplex congenita**
  Ravenscroft, G., Nolen, F., Rajagopalan, S., Meireles, A., Paavola, K., Gaillard, D., Alanio, E., Buckland, M., Arbuckle, S., Krivanek, M., Maluenda, J., Pannell, S., Gooding, et al
  PERGAMON-ELSEVIER SCIENCE LTD.2015: S186
- **Mutations of GPR126 Are Responsible for Severe Arthrogryposis Multiplex Congenita** *AMERICAN JOURNAL OF HUMAN GENETICS*
  Ravenscroft, G., Nolent, F., Rajagopalan, S., Meireles, A. M., Paavola, K. J., Gaillard, D., Alanio, E., Buckland, M., Arbuckle, S., Krivanek, M., Maluenda, J., Pannell, S., Gooding, et al
  2015; 96 (6): 955-961
- **Glial Cell Development and Function in Zebrafish** *COLD SPRING HARBOR PERSPECTIVES IN BIOLOGY*
  Lyons, D. A., Talbot, W. S.
  2015; 7 (2)
- **Differential Requirement for irf8 in Formation of Embryonic and Adult Macrophages in Zebrafish.** *PloS one*
  Shiau, C. E., Kaufman, Z., Meireles, A. M., Talbot, W. S.
  2015; 10 (1)
- **Unique function of Kinesin Kif5A in localization of mitochondria in axons.** *journal of neuroscience*
  Campbell, P. D., Shen, K., Sapio, M. R., Glenn, T. D., Talbot, W. S., Marlow, F. L.
  2014; 34 (44): 14717-14732
- **The Phosphate Exporter xpr1b Is Required for Differentiation of Tissue-Resident Macrophages** *CELL REPORTS*
  Meireles, A. M., Shiau, C. E., Guenther, C. A., Sidik, H., Kingsley, D. M., Talbot, W. S.
  2014; 8 (6): 1659-1667
- **The phosphate exporter xpr1b is required for differentiation of tissue-resident macrophages.** *Cell reports*
  Meireles, A. M., Shiau, C. E., Guenther, C. A., Sidik, H., Kingsley, D. M., Talbot, W. S.
  2014; 8 (6): 1659-1667

- **Type IV collagen is an activating ligand for the adhesion G protein-coupled receptor GPR126.** *Science signaling*
  Paavola, K. J., Sidik, H., Zuchero, J. B., Eckart, M., Talbot, W. S.
  2014; 7 (338): ra76-?
- **Glial cell development and function in zebrafish.** *Cold Spring Harbor perspectives in biology*
  Lyons, D. A., Talbot, W. S.
  2014; 7 (2)
- **Signals regulating myelination in peripheral nerves and the Schwann cell response to injury.** *Current opinion in neurobiology*
  Glenn, T. D., Talbot, W. S.
  2013; 23 (6): 1041-1048
- **An Anti-inflammatory NOD-like Receptor Is Required for Microglia Development** *CELL REPORTS*
  Shiau, C. E., Monk, K. R., Joo, W., Talbot, W. S.
  2013; 5 (5): 1342-1352
- **notch3 is essential for oligodendrocyte development and vascular integrity in zebrafish** *DISEASE MODELS & MECHANISMS*
  Zaucker, A., Mercurio, S., Sternheim, N., Talbot, W. S., Marlow, F. L.
  2013; 6 (5): 1246-1259
- **Analysis of Gpr126 function defines distinct mechanisms controlling the initiation and maturation of myelin** *DEVELOPMENT*
  Glenn, T. D., Talbot, W. S.
  2013; 140 (15): 3167-3175
- **Can't wait to myelinate.** *Developmental cell*
  Glenn, T. D., Talbot, W. S.
  2013; 25 (6): 549-550
- **Mutation of sec63 in zebrafish causes defects in myelinated axons and liver pathology** *DISEASE MODELS & MECHANISMS*
  Monk, K. R., Voas, M. G., Franzini-Armstrong, C., Hakkinen, I. S., Talbot, W. S.
  2013; 6 (1): 135-145
- **Scube/You activity mediates release of dually lipid-modified Hedgehog signal in soluble form** *GENES & DEVELOPMENT*
  Creanga, A., Glenn, T. D., Mann, R. K., Saunders, A. M., Talbot, W. S., Beachy, P. A.
  2012; 26 (12): 1312-1325
- **Neuronal Neuregulin 1 type III directs Schwann cell migration** *DEVELOPMENT*
  Perlin, J. R., Lush, M. E., Stephens, W. Z., Piotrowski, T., Talbot, W. S.
  2011; 138 (21): 4639-4648
- **ErbB Signaling Has a Role in Radial Sorting Independent of Schwann Cell Number** *GLIA*
  Raphael, A. R., Lyons, D. A., Talbot, W. S.
  2011; 59 (7): 1047-1055
- **Gpr126 is essential for peripheral nerve development and myelination in mammals** *DEVELOPMENT*
  Monk, K. R., Oshima, K., Joers, S., Heller, S., Talbot, W. S.
  2011; 138 (13): 2673-2680
- **Schwann cell spectrins modulate peripheral nerve myelination** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
  Susuki, K., Raphael, A. R., Ogawa, Y., Stankewich, M. C., Peles, E., Talbot, W. S., Rasband, M. N.
  2011; 108 (19): 8009-8014
- **Schwann cells reposition a peripheral nerve to isolate it from postembryonic remodeling of its targets** *DEVELOPMENT*
  Raphael, A. R., Perlin, J. R., Talbot, W. S.
  2010; 137 (21): 3643-3649
- **Schwann Cells Inhibit Ectopic Clustering of Axonal Sodium Channels** *JOURNAL OF NEUROSCIENCE*
  Voas, M. G., Glenn, T. D., Raphael, A. R., Talbot, W. S.
  2009; 29 (46): 14408-14414

- **Genetic dissection of myellinated axons in zebrafish** *CURRENT OPINION IN NEUROBIOLOGY*
  Monk, K. R., Talbot, W. S.
  2009; 19 (5): 486-490
- **A G Protein-Coupled Receptor Is Essential for Schwann Cells to Initiate Myelination** *SCIENCE*
  Monk, K. R., Naylor, S. G., Glenn, T. D., Mercurio, S., Perlin, J. R., Dominguez, C., Moens, C. B., Talbot, W. S.
  2009; 325 (5946): 1402-1405
- **Kif1b is essential for mRNA localization in oligodendrocytes and development of myelinated axons** *NATURE GENETICS*
  Lyons, D. A., Naylor, S. G., Scholze, A., Talbot, W. S.
  2009; 41 (7): 854-U121
- **Axonal domains: Role for paranodal junction in node of Ranvier assembly** *CURRENT BIOLOGY*
  Lyons, D. A., Talbot, W. S.
  2008; 18 (18): R876-R879
- **The ATPase-dependent chaperoning activity of Hsp90a regulates thick filament formation and integration during skeletal muscle myofibrillogenesis** *DEVELOPMENT*
  Hawkins, T. A., Haramis, A., Etard, C., Prodromou, C., Vaughan, C. K., Ashworth, R., Ray, S., Behra, M., Holder, N., Talbot, W. S., Pearl, L. H., Strahle, U., Wilson, et al
  2008; 135 (6): 1147-1156
- **KBP is essential for axonal structure, outgrowth and maintenance in zebrafish, providing insight into the cellular basis of Goldberg-Shprintzen syndrome** *DEVELOPMENT*
  Lyons, D. A., Naylor, S. G., Mercurio, S., Dominguez, C., Talbot, W. S.
  2008; 135 (3): 599-608
- **Laminin alpha 5 is essential for the formation of the zebrafish fins** *DEVELOPMENTAL BIOLOGY*
  Webb, A. E., Sanderford, J., Frank, D., Talbot, W. S., Driever, W., Kimelman, D.
  2007; 311 (2): 369-382
- **Zebrafish bmp4 functions during late gastrulation to specify ventroposterior cell fates** *DEVELOPMENTAL BIOLOGY*
  Stickney, H. L., Imai, Y., Draper, B., Moens, C., Talbot, W. S.
  2007; 310 (1): 71-84
- **Signals on the move: chemokine receptors and organogenesis in zebrafish.** *Science's STKE : signal transduction knowledge environment*
  Perlin, J. R., Talbot, W. S.
  2007; 2007 (400): pe45-?
- **Putting the glue in glia: Necls mediate Schwann cell-axon adhesion** *JOURNAL OF CELL BIOLOGY*
  Perlin, J. R., Talbot, W. S.
  2007; 178 (5): 721-723
- **alpha II-spectrin is essential for assembly of the nodes of Ranvier in myelinated axons** *CURRENT BIOLOGY*
  Voas, M. G., Lyons, D. A., Naylor, S. G., Arana, N., Rasband, M. N., Talbot, W. S.
  2007; 17 (6): 562-568
- **A genetic screen identifies genes essential for development of myelinated axons in zebrafish** *DEVELOPMENTAL BIOLOGY*
  Pogoda, H., Sternheim, N., Lyons, D. A., Diamond, B., Hawkins, T. A., Woods, I. G., Bhatt, D. H., Franzini-Armstrong, C., Dominguez, C., Arana, N., Jacobs, J., Nix, R., Fetcho, et al
  2006; 298 (1): 118-131
- **nsf is essential for organization of myelinated axons in zebrafish** *CURRENT BIOLOGY*
  Woods, I. G., Lyons, D. A., Voas, M. G., Pogoda, H. M., Talbot, W. S.
  2006; 16 (7): 636-648
- **Essential and opposing roles of zebrafish beta-catenins in the formation of dorsal axial structures and neurectoderm** *DEVELOPMENT*
  Bellipanni, G., Varga, M. T., Maegawa, S., Imai, Y., Kelly, C., Myers, A. P., Chu, F., Talbot, W. S., Weinberg, E. S.
  2006; 133 (7): 1299-1309

- **lessen encodes a zebrafish trap100 required for enteric nervous system development** *DEVELOPMENT*
  Pietsch, J., Delalande, J. M., Jakaitis, B., Stensby, J. D., Dohle, S., Talbot, W. S., Raible, D. W., Shepherd, I. T.
  2006; 133 (3): 395-406
- **The zebrafish gene map defines ancestral vertebrate chromosomes** *GENOME RESEARCH*
  Woods, I. G., Wilson, C., Friedlander, B., Chang, P., Reyes, D. K., Nix, R., Kelly, P. D., Chu, F., Postlethwait, J. H., Talbot, W. S.
  2005; 15 (9): 1307-1314
- **erbb3 and erbb2 are essential for Schwann cell migration and myelination in zebrafish** *CURRENT BIOLOGY*
  Lyons, D. A., Pogoda, H. M., Voas, M. G., Woods, I. G., Diamond, B., Nix, R., Arana, N., Jacobs, J., Talbot, W. S.
  2005; 15 (6): 513-524
- **The you gene encodes an EGF-CUB protein essential for hedgehog signaling in zebrafish** *PLOS BIOLOGY*
  Woods, I. G., Talbot, W. S.
  2005; 3 (3): 476-487
- **Monorail/Foxa2 regulates floorplate differentiation and specification of oligodendrocytes, serotonergic raphe neurones and cranial motoneurones** *DEVELOPMENT*
  Norton, W. H., Mangoli, M., Lele, Z., Pogoda, H. M., Diamond, B., Mercurio, S., Russell, C., Teraoka, H., Stickney, H. L., Rauch, G. J., HEISENBERG, C. P., Houart, C., Schilling, et al
  2005; 132 (4): 645-658
- **Molecular genetics of axis formation in zebrafish** *ANNUAL REVIEW OF GENETICS*
  Schier, A. F., Talbot, W. S.
  2005; 39: 561-613
- **Axon sorting in the optic tract requires HSPG synthesis by ext2 (dackel) and extl3 (boxer)** *NEURON*
  Lee, J. S., von der Hardt, S., Rusch, M. A., Stringer, S. E., Stickney, H. L., Talbot, W. S., Geisler, R., Nusslein-Volhard, C., Selleck, S. B., Chien, C. B., Roehl, H.
  2004; 44 (6): 947-960
- **The role of the zebrafish nodal-related genes squint and cyclops in patterning of mesendoderm** *DEVELOPMENT*
  Dougan, S. T., Warga, R. M., Kane, D. A., Schier, A. F., Talbot, W. S.
  2003; 130 (9): 1837-1851
- **Genetic analysis of zebrafish gli1 and gli2 reveals divergent requirements for gli genes in vertebrate development** *DEVELOPMENT*
  Karlstrom, R. O., Tyurina, O. V., Kawakami, A., Nishioka, N., Talbot, W. S., SASAKI, H., Schier, A. F.
  2003; 130 (8): 1549-1564
- **Zebrafish comparative genomics and the origins of vertebrate chromosomes** *GENOME RESEARCH*
  Postlethwait, J. H., Woods, I. G., Ngo-Hazelett, P., Yan, Y. L., Kelly, P. D., Chu, F., Huang, H., Hill-Force, A., Talbot, W. S.
  2000; 10 (12): 1890-1902
- **fast1 is required for the development of dorsal axial structures in zebrafish** *CURRENT BIOLOGY*
  Sirotkin, H. I., GATES, M. A., Kelly, P. D., Schier, A. F., Talbot, W. S.
  2000; 10 (17): 1051-1054
- **Bozozok and squint act in parallel to specify dorsal mesoderm and anterior neuroectoderm in zebrafish** *DEVELOPMENT*
  Sirotkin, H. I., Dougan, S. T., Schier, A. F., Talbot, W. S.
  2000; 127 (12): 2583-2592
- **The role of one-eyed pinhead and nodal signaling in left-right axis determination**
  Burdine, R. D., Gritsman, K., Corrales, J., Talbot, W. S., Schier, A. F.
  ACADEMIC PRESS INC.2000: 262
- **Analysis of chromosomal rearrangements induced by postmeiotic mutagenesis with ethylnitrosourea in zebrafish** *GENETICS*
  Imai, Y., Feldman, B., Schier, A. F., Talbot, W. S.
  2000; 155 (1): 261-272
- **Genetic linkage mapping of zebrafish genes and ESTs** *GENOME RESEARCH*

Kelly, P. D., Chu, F., Woods, I. G., Ngo-Hazelett, P., Cardozo, T., Huang, H., Kimm, F., Liao, L. Y., Yan, Y. L., Zhou, Y. Y., Johnson, S. L., Abagyan, R., Schier, et al
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- **Nodal signaling patterns the organizer** *DEVELOPMENT*
  Gritsman, K., Talbot, W. S., Schier, A. F.
  2000; 127 (5): 921-932

- **The EGF-CFC protein one-eyed pinhead is essential for nodal signaling** *CELL*
  Gritsman, K., Zhang, J. J., Cheng, S., Heckscher, E., Talbot, W. S., Schier, A. F.
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- **A genetic linkage map for zebrafish: Comparative analysis and localization of genes and expressed sequences** *GENOME RESEARCH*
  GATES, M. A., Kim, L., Egan, E. S., Cardozo, T., Sirotkin, H. I., Dougan, S. T., Lashkari, D., Abagyan, R., Schier, A. F., Talbot, W. S.
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- **The zebrafish bozozok locus encodes Dharma, a homeodomain protein essential for induction of gastrula organizer and dorsoanterior embryonic structures** *DEVELOPMENT*
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- **Positional cloning of mutated zebrafish genes** *METHODS IN CELL BIOLOGY, VOL 60*
  Talbot, W. S., Schier, A. F.
  1999; 60: 259-286

- **Zebrafish organizer development and germ-layer formation require nodal-related signals** *NATURE*
  Feldman, B., GATES, M. A., Egan, E. S., Dougan, S. T., Rennebeck, G., Sirotkin, H. I., Schier, A. F., Talbot, W. S.
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- **The zebrafish organizer** *CURRENT OPINION IN GENETICS & DEVELOPMENT*
  Schier, A. F., Talbot, W. S.
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- **Mutant rescue by BAC clone injection in zebrafish** *GENOMICS*
  Yan, Y. L., Talbot, W. S., Egan, E. S., Postlethwait, J. H.
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- **The cloche and spadetail genes differentially affect hematopoiesis and vasculogenesis** *DEVELOPMENTAL BIOLOGY*
  Thompson, M. A., Ransom, D. G., Pratt, S. J., MacLennan, H., Kieran, M. W., Detrich, H. W., Vail, B., Huber, T. L., Paw, B., Brownlie, A. J., Oates, A. C., Fritz, A., GATES, et al
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- **Positional cloning identifies zebrafish one-eyed pinhead as a permissive EGF-related ligand required during gastrulation** *CELL*
  Zhang, J. J., Talbot, W. S., Schier, A. F.
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- **Genetic analysis of chromosomal rearrangements in the cyclops region of the zebrafish genome** *GENETICS*
  Talbot, W. S., Egan, E. S., GATES, M. A., Walker, C., Ullmann, B., Neuhauss, S. C., Kimmel, C. B., Postlethwait, J. H.
  1998; 148 (1): 373-380

- **Genetic interactions in zebrafish midline development** *DEVELOPMENTAL BIOLOGY*
  Halpern, M. E., Hatta, K., Amacher, S. L., Talbot, W. S., Yan, Y. L., Thisse, B., Thisse, C., Postlethwait, J. H., Kimmel, C. B.
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