CURRICULUM VITAE

Name: **Thomas Friedrich Schilling**

Position: Professor and Chair
Department of Developmental and Cell Biology
School of Biological Sciences

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EDUCATION:

1981-85	Davidson College, Davidson, NC	B.S.	Biology
1985-87	University of Michigan, Ann Arbor, MI	M.S.	Neuroscience
1988-93	University of Oregon, Eugene, OR	Ph.D.	Neuroscience

RESEARCH TRAINING AND APPOINTMENTS:

1985-87	University of Michigan, Ann Arbor Dept. of Biology, lab of Prof. R. Glenn Northcutt	Ph.D. Student
1988-93	University of Oregon, Eugene Institute of Neuroscience, lab of Prof. Charles B. Kimmel	Ph.D. Student
1994-98	Imperial Cancer Research Fund, London Molecular Embryology, lab of Prof. Philip W. Ingham	Postdoctoral Fellow
1998-99	University College London Dept. of Anatomy and Developmental Biology, sponsored by Prof. Nigel Holder	Senior Research Fellow
1999-2005	University of California, Irvine Dept. of Developmental and Cell Biology	Assistant Professor
2005-2008	University of California, Irvine	Associate Professor
2008-present	University of California, Irvine	Professor
2014-present	University of California, Irvine	Department Chair

1999-present	Member, UCI Developmental Biology Center
2001-present	Member, UCI Cancer Center
2006-present	Member, UCI Center for Complex Biological Systems
2006-present	Member, UCI Center for Mathematical and Computational Biology

HONORS AND AWARDS:

2001-2005	Pew Scholarship in the Biomedical Sciences
2012	Fellow of the American Association for the Advancement of Science (AAAS)
1987-93	Neuroscience and Genetics Training Fellowships (NIH)
1994	EMBO Short Term Postdoctoral Fellowship (lab of C. Nusslein-Volhard)

1994-95	Imperial Cancer Research Fund (ICRF) Postdoctoral Fellowship
1995-97	Human Frontiers Science Program (HFSP) Postdoctoral Fellowship
1998-2002	Medical Research Council (MRC) Career Development Fellowship
1998-2002	Wellcome Trust Research Career Development Fellowship
2001-2007	March of Dimes Research Grants
2001-present	NIH R01, R21, P01, U01 and P50 Research Grants

KEYWORDS/AREAS OF INTEREST:

Developmental genetics, vertebrate embryology, skeletal biology, craniofacial syndromes, zebrafish, neuroscience, neural development, steroid hormones

Our laboratory uses genetics and molecular biology to study pattern formation in the zebrafish embryo. The rapid development and simple anatomy of this teleost embryo, together with recently developed techniques for reverse genetics and a nearly complete genome sequence, make zebrafish a powerful molecular genetic system for studying the mechanisms of development. We are interested in how gene functions translate into cell behaviours and the formation of tissues and organs. We focus on two main areas:
1) Neural crest specification and formation of the craniofacial skeleton,
2) Cell interactions and formation of the anterior-posterior axis of the nervous system.

MAJOR RESEARCH GRANTS (LAST 3 YEARS):

Craniofacial cartilage development:

"Role and regulation of cartilage polarity in craniofacial morphogenesis"
Principal Investigator: Thomas Schilling — Agency: NIH NIDCR
Type: R01 DE13828 — Period: 2017 - 2022

"The role of the Fat pathway in cartilage pattern and polarity in zebrafish"
Principal Investigator: Thomas Schilling — Agency: NIH NIDCR
Type: R01 DE13828 — Period: 2012 – 2017

"Roles of cell polarity and cilia in cartilage patterning in the craniofacial skeleton"
Principal Investigator: Daniel Dranow (Schilling postdoc) — Agency: NIH NIDCR
Type: F32 DE27623 — Period: 2017 - 2020

Tendon developmental genetics:

"Regulation of morphogenesis and extracellular matrix assembly at the myotendinous junction"
Principal Investigator: Thomas Schilling — Agency: NIH NIAMS
Type: R01 AR67797 — Period: 2016 - 2021

"Regulation of extracellular matrix assembly at the myotendinous junction"
Principal Investigator: Thomas Schilling — Agency: NIH NIAMS
Type: R21 AR62792 — Period: 2013 - 2015

Craniofacial systems biology:

"Defining an integrated signaling network that patterns the craniofacial skeleton"
Co-PIs: David Clouthier and Thomas Schilling — Agency: NIH NICHD
Type: R01 HD073182 — Period: 2014 – 2019

Morphogen systems biology:

"Stochastic dynamics and noise control in patterning systems"
Co-PIs: Qing Nie and Thomas Schilling — Agency: NIH NIGMS
Type: R01 GM107264 — Period: 2014 – 2018

"Systems biology of morphogenesis and spatial information flow"
Principal Investigator: Arthur Lander — Agency: NIH NIGMS
Type: P50 GM76516 — Period: 2007 - 2017

Lens physiology:

"Structure and function of lens channels"
Principal Investigator: James Hall — Agency: NIH NEI
Type: R01 EY05661 — Period: 2014 – 2018

Craniofacial lymphatic development:

"Stop or go? Unraveling the mechanisms behind lymphatic vessel patterning"
Principle Investigator: Jonathan Astin — Agency: Royal Soc of New Zealand
Type: Marsden Fund 16-UOA-054 — Period: 2017 - 2020

Cornelia de Lange syndrome:

"Vertebrate animal models of Cornelia de Lange syndrome"
Principal Investigator: Ian Krantz — Agency: NIH NICHD
Type: P01HD052860 — Period: 2011 – 2015

PROFESSIONAL ACTIVITIES

PROFESSIONAL ORGANIZATIONS:

Memberships

1988-1993	Society for Neuroscience
1994-2000	British Society for Developmental Biology
2002-2011	American Association of Anatomists
2002-present	Society for Comparative and Integrative Biology
2007-present	Society for Craniofacial Genetics and Developmental Biology
2008-present	American Society for Cell Biology
2012-present	American Association for the Advancement of Science (fellow)
2000-present	Society for Developmental Biology (on Board of Directors 2007-2013)
2016-present	International Zebrafish Society (IZFS)
2018-present	Association for Research in Vision and Ophthalmology (ARVO)

Service to Professional Organizations

2006	Society for Comparative and Integrative Biology

	Co-Organizer of Satellite Conference entitled "Zebrafish in a Comparative Context" held in Orlando, Florida (Jan. 2006)
2007	Society for Developmental Biology Co-Organizer of West Coast Regional Meeting in Asilomar (Mar. 2007)
2007-present	Society for Developmental Biology Board of Directors – West Coast Regional Representative (June 2007 – June 2013) Reviewer of applications for Paul D Henion Ph.D Student Travel Award (2015-present)
2008	Society for Comparative and Integrative Biology Co-Organizer of Satellite Conference entitled "Vertebrate Head Segmentation in a Modern Evo-Devo Context" held in San Antonio, Texas (Jan. 2008)
2014	Co-Organizer of Intl Zebrafish Dev Genet Meeting in Madison, WI (June, 2014)
2016	Co-Organizer of Southern California Zebrafish Meeting at UCI (Sept. 2016)
2017-present	Advisory Board, Strategic Conference for Zebrafish Investigators
2018	Abstract Reviewer, Intl Zebrafish Dev Genet Meeting in Madison, WI (June, 2018)

SERVICE TO PROFESSIONAL PUBLICATIONS:

2001	Co-Editor of Special Issue	Phil. Trans. of the Royal Society of London
2000-2007	Editorial Board	Journal of Experimental Zoology: - Molecular and Developmental Evolution
2002-2007	Receiving Editor	Journal of Anatomy
2004-2012	Editorial Board	Developmental Dynamics
2008-2009	Guest Editor	Integrative and Comparative Biology
2005-present	Section Editor in Dev Biol	Biology Image Library, BioMed Central
2011-present	Editorial Board	Developmental Biology
2011-present	Editorial Board	Frontiers in Craniofacial Biology
2016	Guest Editor	Proc. of the Natl. Acad. Sci., USA
2018	Commentary on 3 Science papers	Nature – News and Views

1999-present Referee for 78 journals, including:
American Journal of Human Genetics, Anatomical Record, Biochemica Biophysica Acta, Bioessays, Biology Open, Biotechniques, BioMedCentral (BMC) Biology, BMC Developmental Biology, BMC Evolutionary Biology, BMC Genomics, BMC Veterinary Research, IBMS BoneKEy, Cell, Cell Adhesion and Migration, Cell Death and Differentiation, Current Biology, Development, Developmental Biology, Developmental Dynamics, Disease Models, eLife, Endocrinology, EvoDevo, Evolution and Development, FASEB Journal, FEBS Letters, Frontiers in Cell and Developmental Biology, Frontiers in Craniofacial Biology, G3, Gene, Genes and Development, Genes and Nutrition, Genesis, Genome Biology, Human Molecular Genetics, Integrative and Comparative Biology, International Journal of Nanomedicine, Investigative Opthalmology and Visual Science (IOVS), Journal of Anatomy, Journal of Applied Ichthyology**,** Journal of Biology, Journal of Biological Chemistry, Journal of Biotechnology, Journal of Cardiovascular Disease and Development, Journal of Cell Biology, Journal of Comparative Neurology, Journal of Dental Research, Journal of Experimental Zoology (JEZ), JEZ:Molecular and Developmental Evolution, Journal of Genetics and Development, Journal of Veterinary Science and Animal Husbandry, Journal of Visualized Experiments (JoVE), Mechanisms of Development, Molecular and Cellular Neuroscience, Molecular Biology and Evolution, Molecular Biology of the Cell, Molecular Human Reproduction, Nature, Nature Cell Biology, Nature Communications**,** Nature Genetics, Nature Methods, Nature Reviews Genetics, Neuron, Philosophical Transactions of the Royal Society, PLoS Biology, PLoS Genetics**,** PLoS ONE, Proceedings of the National Acadamy of Sciences USA, Proceedings of the Royal Society, Science, Science of Nature, Scientific Reports, Skeletal Muscle, Trends in Genetics, Tropical Zoology, Zebrafish, Zoological Science

INVITED PRESENTATIONS:

INTERNATIONAL

2012
Asia Pacific Developmental Biology Conference - Taipei, Taiwan (10/2012)
Institute of Molecular and Cell Biology – A*STAR, Singapore (10/2012)

2013
Australia/New Zealand Zebrafish Meeting – Queenstown, New Zealand (02/2013)
University of Otago, Zebrafish Workshop – Dunedin, New Zealand (02/2013)
University of Otago, Dept of Pathology – Dunedin, New Zealand (03/2013)
University of Otago, Medical Forum – Dunedin, New Zealand (03/2013)
University of Auckland, Dept of – Auckland, New Zealand (03/2013)
Gordon Conference on Myogenesis – Il Ciocco, Barga, Italy (07/2013)
European Zebrafish Development and Genetics Meeting – Barcelona, Spain (07/2013)

2015
Integrated Aspects of Musculoskeletal Development – Ein Gedi, Israel (01/2015)

2018
Gordon Conference on Craniofacial Development – Il Ciocco, Barga, Italy (02/2018)

NATIONAL

2012
Gordon Conference on Craniofacial Development – Ventura, CA (03/2012)
Bi-annual Meeting on Zebrafish Dev. and Genetics – Madison, WI (session chair - 06/2012)
Society for Craniofacial Genetics and Dev Biol Meeting – San Francisco, CA (11/2012)

2013
Bi-Annual Strategic Conference of Zebrafish Investigators Meeting – Asilomar, CA (01/2013)
University of California, Irvine (Dept. of Ecology and Evolution – 05/2013)
Albert Einstein College of Medicine, Bronx, NY (Dept. of Dev and Mol Biol – 10/2013)

2014
Cincinnati Children's Hospital – Cincinnati, OH (Developmental Biology Div – 03/2014)
Bi-annual Meeting on Zebrafish Dev. and Genetics – Madison, WI (organizer - 06/2014)
Yale University – New Haven, CN (Dept of Mol, Cell and Dev Biol – 10/2014)
Society for Craniofacial Genetics and Dev Biol Meeting – San Francisco, CA (11/2014)

2015
Bi-Annual Strategic Conference of Zebrafish Investigators Meeting – Asilomar, CA (01/2015)
Northwest Regional Society for Dev Biol Meeting – Friday Harbor, WA (keynote – 03/2015)
Duke University – Durham, NC (Dept of Cell Biology - 03/2015)
Charles Kimmel Symposium, University of Oregon – Eugene, OR (Inst Neuroscience - 06/2015)
Gordon Conference on Neural Crest and Placodes – Boston, MA (07/2015)
FishBone Workshop, Society for Bone and Mineral Research (keynote) – Seattle, WA (11/2015)

2016
Gordon Conference on Craniofacial Development – Ventura, CA (03/2016)
Minority Science Program – UC Irvine (05/2016)
Society for Craniofacial Genetics and Dev Biol Meeting (keynote) – Boston, MA (08/2016)

Society for Developmental Biology – Boston, MA (08/2016)
University of Southern California – Los Angeles, CA (Cell Mol Biol – 11/2016)
Stowers Institute for Medical Research – Kansas City, MO (11/2016)

2017
Bi-Annual Strategic Conference of Zebrafish Investigators Meeting – Asilomar, CA (01/2017)
Gordon Conference on Neural Crest and Placodes – Ventura, CA (02/2017)
Society for Craniofacial Genetics and Developmental Biology – Minneapolis, MN (07/2017)
Society for Developmental Biology – Minneapolis, MN (07/2017)

2018
Bi-annual Meeting on Zebrafish Dev. and Genetics – Madison, WI (06/2018)
Society for Developmental Biology – Portland, OR (07/2018)
Course Instructor, Woods Hole Zebrafish Course – Woods Hole, MA (08/2018)

GOVERNMENT AND OTHER PROFESSIONAL SERVICE

REVIEW BOARDS FOR FUNDING AGENCIES

1999-2000	Human Frontiers Science Program	Grant Reviews
2000	British Arthritis Foundation	Grant Reviews
2000	King's College Internal Fellowship	Grant Reviews
2008, 2010	Cancer Research UK	Grant Reviews
2008	Irish Health Research Board	Grant Reviews
2010	Biotech and Bio Sci Res Council	Grant Reviews
2010, 2017	Medical Research Council, UK	Grant Reviews
2010	March of Dimes	Grant Reviews
2012	Netherlands Research Council	Grant Reviews
2016	French National Research Agency	Grant Reviews
2016-2017	European Research Council	Grant Reviews
2017	Israel Science Foundation	Grant Reviews
2000-present	National Science Foundation	Grant Reviews
2003-present	Wellcome Trust	Grant Reviews
2009-present	Deutsche Forschungsgemeinschaft	Grant Reviews
2001-present	National Institutes of Health	Study Section Member (ad hoc)
2014-present	National Institutes of Health	Study Section Member (standing)
2018-2019	National Institutes of Health	Study Section Chair

NIH study sections:
2001-present Ad Hoc (18 times)

a) National Institute for Dental and Craniofacial Research (NIDCR)
- Oral Bio. and Med. - OBM-2 (Feb. 2001; Mar. 2002); RFA Panel (Nov. 2002).
- Special Section for review of R21s (Apr. 2006; June 2009)
- Skeletal Biol. Dev. and Disease – SBDD (Oct. 2007; June 2008)

b) National Institute of Child Health and Development (NICHD)
- Cell Diff. and Function - CDF-5 (Mar. 2001; Jan. 2002; Apr. 2004; June 2009)
- Zebrafish Resources – ZRG BDA-F (Feb. 2008)
- Bio of Dev and Aging - ZRG1 BDA-A (Dec. 2009)

c) National Institute of Neurological Disorders and Stroke (NINDS)
- Mol. Dev. Cell. Neurosci. - MDCN-6 (Feb. 2003)
- Skel. Biol. Structure and Regen. - SBSR (Apr. 2006)

- chair of Special Emphasis Panel for review of R25s (Feb. 2011)

d) National Cancer Institute (NCI)
- Special Section for late review of RO1s (Feb. 2004)

e) National Institute for Arthritis, Musculoskeletal and Skin Diseases (NIAMS)
- Musculoskeletal, Oral and Skin Sciences – ZRG-MOSS (Oct. 2013)

2014-present Standing (permanent) Member - Skeletal Biology Development and Disease – SBDD
(4 year appointment – July 1, 2014 – June 30, 2018)
Co-chair (chaired 4 applications) – Sept. 2016
Co-chair (chaired 4 applications) – Feb. 2017
Co-chair (chaired 4 applications) – June 2017
Co-chair (chaired 6 applications) – Oct. 2017

2018-2019 Study Section Chair – Skeletal Biology Development and Disease – SBDD
(1-year appointment – July 1, 2018 – June 30, 2019)

UNIVERSITY SERVICE

Campus:

1999-present	Academic Senate, member
2011-2014	Biosafety Level 3 Oversight Committee, member
2011-2014	Institutional Biosafety Committee, chair
2007-present	Institutional Biosafety Committee, member
2011-present	Pew Scholar Candidate Selection Committee, member

School:

1999-present	Cellular and Molecular Biology Preliminary Exam Committee
2003-2011	PhD Workshops (2003, 2004, 2011)
2009-2011	First year PhD Advisor, Cellular and Molecular Biology program
2011-2013	Faculty Research and Travel Awards Committee, member
2012-2013	BioSci Executive Committee, member
2013-2014	BioSci Executive Committee, vice-chair
2009-2011	T32 Systems Biology Training Grant Advisory Committee, member
2009-present	Minority Science Program, mentor
2011-present	Optical Biology Core and Zeiss LSM780 Equipment Advisory Committee
2014-present	BioSci Committee for Academic Promotions (BioCAP), member
2014-present	BioSci Administrative Cabinet (AdCab), member

Department:

2000-present	Faculty Merit/Promotions Review Committees, member or chair
2001-2009	Graduate Student Advisor
2002-2003	Faculty Search Committee
2004-2005	Faculty Search Committee
2005-2011	Student Research in Progress Talks, organizer
2011-2012	Faculty Search Committee
2011-present	Faculty Mentoring Program
2014	External Supervisor for Tyler Cutforth
2015-2016	Faculty Search Committee
2016-2017	Faculty Search Committee
2017-2018	Faculty Search Committee
2014-present	Strategic Planning Committee
2014-present	Department Chair

TEACHING AND MENTORING

FORMAL SCHEDULED CLASSES FOR UCI STUDENTS:

Freshman Seminar*	Bio 2B
Developmental and Cell Biology	Bio 108
Developmental Biology	Bio 136
Eukaryotic and Human Genetics	Bio 137
Development and Disease*	Bio 148
Undergraduate Research	Bio 199

POSTGRADUATE AND OTHER COURSES

UC Irvine:

Vertebrate Genetics Research*	Bio 200
Vertebrate Genetics Tutorial*	Bio 203
Adv Top in Cell Biol Seminar	Bio 206
Molecular Genetics Journal Club*	Bio 209
Advanced Developmental Genet*	Bio 210
Mol Cell Dev Neuroscience*	Bio 231D
Dev and Cell Bio Colloquium	Bio 290
Scientific Comm Seminar	Bio 292

*Primary course responsibilities for many years.

Outside UC Irvine:
Woods Hole Zebrafish Neural Development and Genetics (08/2018)

PREDOCTORAL STUDENTS SUPERVISED OR MENTORED:

ADVISOR:

2001-2006	Angela Linville	Received Ph.D. in 2006 Currently Staff Scientist at Genzyme Genetics
2001-2006	Sreelaja Nair	Received Ph.D. in 2006 Currently Reader (Asst Prof) at Tata Inst, India
2004-2010	Sarah Piloto	Received Ph.D. in 2010 Currently postdoc at Burnham Institute, San Diego
2007-2012	Courtney Alexander	Received Ph.D. in 2012 Currently postdoc at UCSF
2008-2013	Kelly Radtke	Received Ph.D. in 2013 Currently Staff Scientist at Ambrey Genetics, CA
2012-2013	Carrie Ng	Received M.S. in 2013 (Ph.D. student left with M.S.) Currently Staff Scientist at Broad Inst, Boston
2008-2014	Adam Tuttle	Received Ph.D. in 2014 Currently postdoc at OHSU, Portland, OR
2013-present	Diego Hoyle	
2014-present	David Tatarakis	
2016-present	Lianna Fung	

MENTOR:

2001-2007	12 PhD committees
2007-2013	Linda Doan – Monuki lab (Pathology)
2007-2015	Maribel Alvarez – Arora lab (Dev and Cell)
2009-2013	Daniel Clemens – Hall lab (Physiol and Biophys)
2011-2012	Francesco Cutrale – Gratton lab (Biomed Engin)
2011-2014	Anne Phan – Gardiner lab (Dev and Cell)
2012-2013	Iris Kim – Tombola lab (Physiol and Biophys)
2012-2015	Adrian Paz – Cinquin lab (Dev and Cell)
2013-2016	Justin Lengfeld – Agalliu lab (Dev and Cell)
2013-2016	Jenna Mazzoni – Agalliu lab (Dev and Cell)
2014-	Yilun Zhu – Lander lab (Dev and Cell)
2014-	Kitt Paraiso – Cho lab (Dev and Cell)
2015-2018	Bassem Shoucri – Blumberg lab (Dev and Cell)
2015-	Dail Chapman – Gross lab (Dev and Cell)
2016-	Andres Carrillo – McHenry lab (Eco and Evo)
2017-	Christina Wilcox – Mortazavi lab (Dev and Cell)
2018-	Rachel Waymack – Wunderlich lab (Dev and Cell)

POSTDOCTORAL FELLOWS DIRECTY SUPERVISED OR MENTORED:

Name	Dates	Current Position
Robert Knight	2000-2004	Lecturer (Asst Prof), Kings College, London, UK
Jochen Holzschuh	2002-2004	Junior Group Leader (Asst Prof), U Freiburg, Germany
Richard White	2002-2007	Senior Researcher, Sanger Inst., Cambridge, UK
Naoyuki Wada	2003-2005	Associate Professor, Tokyo Univ of Science, Japan
Trevor Hoffman	2005-2008	Physician, Kaiser Permanente, Irvine, CA
Nikki Plaster	2005-2008	Instructor (Professor), Golden West Comm. College, CA
Sreelaja Nair	2007-2008	Reader (Asst Prof), Tata Inst of Fundamental Res., Bombay, India
Angela Linville	2007-2008	Quality and Tech Support Scientist, Irvine Scientific, Irvine, CA
Sarah Piloto	2010	Visiting Scientist, Sanford Burnham Prebys Inst., San Diego, CA
Akihiko Muto	2006-2012	Postdoctoral Fellow, Hiroshima Univ, Japan
Courtney Alexander	2013	Scientist, Advanced Cell Diagnostics, Newark, CA
Adam Tuttle	2014-2015	Postdoctoral Fellow, Oregon Health Sciences Univ., Portland, OR
Julian Sosnik	2009-2014	Instructor, Wentworth Inst. of Technology, Boston, MA
Pierre LePabic	2009-2014	Assistant Professor, Univ. of North Carolina, Wilmington, NC NIH F32 Postdoctoral Fellowship (2012-2015)
Arul Subramanian	2007-2012	Senior Project Scientist, Univ of California, Irvine, CA
Praveer Sharma	2014-present	
Irene Vorontzova	2014-present	
Daniel Dranow	2015-present	NIH F32 Postdoctoral Fellowship (2017-2020)

OTHER SUPERVISION/MENTORING:

2001-2009	Graduate Advisor, Dept of Developmental and Cell Biology
2005-2011	Organizer, Student Research in Progress (RIP) Talks, Dev and Cell Biol
2009-2011	UCI Minority Science Program, faculty mentor
2009-2011	T32 System Biology of Development Training Grant Advisory Committee, member
2010-2011	First Year PhD Advisor, Mathematical Computational Biology (MCB) program
2011-2012	First Year PhD Advisor, Cellular and Molecular Biology (CMB) program
2012-present	Supervisor of Dr. Arul Subramanian, Senior Project Scientist in Schilling lab
2014-2015	Supervisor of Dr. Julian Sosnik, Senior Project Scientist in Schilling lab

2014-2016	Supervisor of Dr. Pierre Le Pabic, Senior Project Scientist in Schilling lab
2013-2014	Supervisor of Dr. Tyler Cutforth, Asst Researcher in Agalliu lab
5-7/2015	Graduate Advisor (temporary)
2015-2016	Sabbatical Host for Dr. Patrick Blader and Dr. Pascale Dufourq, U Toulouse, France
2018-present	Faculty Mentor for Dr. Andrew Browne, NIH Career Development KL2 Scholar
Summer 2018	Supervisor of Jennifer Schultz, Foothill High School student
9/2014-present	Department Chair

PUBLICATIONS:

1. Kimmel CB, Warga RM and Schilling TF (1990). Origin and organization of the zebrafish fate map. Development 108, 581-594.

2. Hatta K, Schilling TF, BreMiller RA, and Kimmel CB (1990). Specification of jaw muscle identity in zebrafish: correlation with *engrailed*-homeoprotein expression. Science 250, 802-805.

3. Kimmel CB, Schilling TF and Hatta K (1991). Patterning of body segments of the zebrafish embryo. Current Topics in Developmental Biology 25, 77-110.

4. Kimmel CB, Molven A, Ellis TJ, Hatta K, Ho RK, Kane DA, Schilling TF, Walker C and Warga RM (1993). Developmental and Mutational Analysis of Body Pattern Formation: The Zebrafish Model. In Physiological and Biochemical Aspects of Fish Development. (eds. Walther BT and Fyhn HJ). Grafisk Hus, Bergen, Norway.

5. Thisse C, Thisse B, Schilling TF, and Postlethwaite J (1993). Structure of the zebrafish *snail 1* gene and its expression in wild-type, *spadetail* and *notail* mutant embryos. Development 119, 1203-1215.

6. Schilling TF (1993). Cell lineage and mutational analyses of cranial neural crest development in the zebrafish embryo. Ph.D. Thesis. University of Oregon Press, Eugene.

7. Schilling TF and Kimmel CB (1994). Segment and cell type lineage restrictions during pharyngeal development in the zebrafish embryo. Development 120, 483-494.

8. Kimmel CB, Ballard WW, Kimmel SR, Ullmann B and Schilling TF (1995). Stages of embryonic development in the zebrafish. Developmental Dynamics 203, 253-310.

9. Schilling TF, Walker C and Kimmel CB (1996). The *chinless* mutation and cell interactions in zebrafish jaw development. Development 122, 1417-1426.

10. Schilling TF, Piotrowski T, Grandel H, Brand M, Heisenberg C-P, Jiang Y-J, Beuchle D, Hammerschmidt M, Kane DA, Mullins MC, van Eeden FJM, Kelsh RN, Furutani-Seiki M, Granato M, Haffter P, Odenthal J, Warga RM, Trowe T and Nusslein-Volhard C (1996). Jaw and branchial arch mutants in zebrafish I: branchial arches. Development 123, 329-344.

11. Piotrowski T, Schilling TF, Brand M, Jiang Y-J, Heisenberg C-P, Beuchle D, Grandel H, van Eeden FJM, Furutani-Seiki M, Granato M, Haffter P, Hammerschmidt M, Kane DA, Kelsh RN, Mullins MC, Odenthal J, Warga RM and Nusslein-Volhard C (1996). Jaw and branchial arch mutants in zebrafish II: anterior arches and cartilage differentiation. Development 123, 345-356.

12. Schilling TF (1997). Genetic analysis of craniofacial development in the vertebrate embryo. Bioessays 19, 459-468.

13. Schilling TF and Kimmel CB (1997). Musculoskeletal patterning in the pharyngeal segments of the zebrafish embryo. Development 124, 2945-2960.

14. Brown L, Amores A, Schilling TF, Jowett T, Baert JL, de Launoit Y and Sharrocks AD (1998). Molecular characterization of zebrafish PEA3 ETS-domain transcription factor. Oncogene 17, 93-104.

15. Currie P, Schilling TF and Ingham PW (1999). Small scale marker-based screening for mutations in zebrafish development. Methods in Molecular Biology 97, 441-460.

16. Schilling TF, Concordet J-P and Ingham PW (1999). Regulation of left-right asymmetries in the zebrafish by *Shh* and *BMP4*. Developmental Biology 210, 277-287.

17. Brown L, Rodaway A, Schilling TF, Jowett T, Ingham PW, Patient R and Sharrocks AD (2000). Insights into vasculogenesis revealed by the expression of the ETS-domain transcription factor Fli-1 in wild-type and mutant zebrafish embryos. Mechanisms of Development 90, 237-252**.**

18. Schilling TF and Thorogood PV (2000). Development and Evolution of the Vertebrate Skull. In Development, Growth and Evolution: Implications for the Study of the Hominid Skeleton. (eds. O'Higgins P and Cohn M) Academic Press, London.

19. Veitch E, Begbie J, Schilling TF, Smith MM and Graham A (2000). Pharyngeal arch patterning in the absence of neural crest. Current Biology 9, 1481-1484.

20. Miller CT, Schilling TF, Lee K, Parker J and Kimmel CB (2000). *sucker* encodes a zebrafish Endothelin-1 required for ventral pharyngeal arch development. Development 127, 3815-3828.

21. Schilling TF. and Knight RD (2001). Origins of anteroposterior patterning and Hox gene regulation during chordate evolution. Phil. Trans. R. Soc. Lond. B 356, 1599-1613.

22. Schilling TF, Prince V, and Ingham PW (2001). Plasticity in zebrafish *hox* expression in the hindbrain and cranial neural crest. Developmental Biology 231, 201-216.

23. Begemann G, Schilling TF, Rauch G-J, Geisler R and Ingham PW (2001). The zebrafish *neckless* mutation reveals a requirement for *raldh2* in mesodermal signals that pattern the hindbrain. Development 128, 3081-3094.

24. Schilling TF (2002). The morphology of larval and adult zebrafish. In "Zebrafish: A Practical Approach" (eds. S. Schulte-Merker and C. Nusslein-Volhard) Oxford Univ. Press, Oxford.

25. David N, Saint-Etienne L, Schilling TF* and Rosa F* (2002). Critical requirement for endoderm and FGF in ventral head skeleton induction. Development 129, 4457-4468 (*co-senior authors).

26. Yelick PC and Schilling TF (2002). Molecular dissection of craniofacial development using zebrafish. Critical Reviews of Oral Biology and Medicine 13, 308-322.

27. Knight RD, Nair S, Nelson S, Javidan Y, Afshar A, Geisler R, Rauch G-J, and Schilling TF (2003). The *lockjaw* mutation reveals requirements for zebrafish *tfap2a* in early development of the neural crest. Development 130, 5755-5768.

28. Schilling TF (2003). Evolution and development: Making jaws. Heredity 90, 3-5.

29. Piotrowski T, Ahn D-G, Schilling TF, Nair S, Geisler R, Rauch G-J, Foote H, Zon, L, Dawid IB and Ho RK (2003). The zebrafish *van gogh* mutation disrupts *tbx1* involved in DiGeorge deletion syndrome in humans. Development 130, 5043-5052. Article recommended in Faculty of 1000.

30. Knight RD, Javidan Y, Nelson S, Zhang T and Schilling TF (2004). Skeletal and pigment cell defects in the *lockjaw* mutant reveal multiple roles for zebrafish *tfap2a* in neural crest development. Developmental Dynamics 229, 87-98.

31. Linville A , Gumusaneli E, Chandraratna R and Schilling TF (2004). Independent roles for retinoic acid in segmentation and neuronal differentiation in the zebrafish hindbrain. Developmental Biology 270, 186-199.

32. Clouthier DE and Schilling TF (2004). Understanding Endothelin-1 function during craniofacial development in the mouse and zebrafish. Birth Defects Res. 72, 190-199.

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