Thomas Bartman, M.D., Ph.D.

Associate Professor
Division of Neonatology
Nationwide Children's Hospital
700 Children's Drive, ED324
Columbus, OH 43205-2664
Office: (614) 722-2564
Email: Thomas.Bartman@nationwidechildrens.org

Home Address
4934 Gillingham Way
Dublin, OH 43017
(614) 760-8700

Education

Bachelor of Science	Life Sciences	1989	M.I.T., Cambridge, MA
Doctor of Medicine		1996	Temple University, Philadelphia, PA
Doctor of Philosophy	Molecular Biology and Genetics	1996	Temple University, Philadelphia, PA

Mentor: Kenneth J. Blank. Isolation and identification of endogenous retroviruses causing leukemia in aging mice. Identifying recombination as a mechanism for reversion of lethal point mutations in endogenous viruses.

Residency	Pediatrics	1996-1999	U.C.S.F., San Francisco, CA
Board Certification	Pediatrics	1999-2006	American Board of Pediatrics
Fellowship	Neonatal-Perinatal Medicine	1999-2003	U.C.S.F., San Francisco, CA
Postdoctoral Research	Cardiovascular Res. Institute	2000-2003	U.C.S.F., San Francisco, CA

Mentor: Didier Y.R. Stainier. Positional cloning of a zebrafish mutant with aberrant endocardial cushion formation. Identification of early heart function as a major epigenetic factor controlling late heart morphogenesis.

Board Certification	Neonatal-Perinatal Medicine	2003-present	American Board of Pediatrics

Academic Appointments

7/2011 – present	Associate Professor of Pediatrics Director of Quality Improvement, Neonatal Services Nationwide Children's Hospital – the Ohio State University Division of Neonatology
8/2003 – 7/2011	Assistant Professor of Pediatrics Cincinnati Children's Hospital Medical Center – University of Cincinnati Divisions of Neonatology, Pulmonary Biology, and Developmental Biology
11/2003 – 7/2011	Hospital Staff Privileges, Attending Physician: Bethesda North Hospital, Montgomery, Ohio Mercy Fairfield Hospital, Fairfield, Ohio Fort Hamilton Hospital, Hamilton, Ohio
11/2003 – 2/2006	Hospital Staff Privileges, Attending Physician: Mercy Franciscan Hospital, Mt. Airy, Ohio
8/2010 – 7/2011	Hospital Staff Privileges, Attending Physician: Good Samaritan Hospital, Cincinnati, Ohio

Awards and Honors

2003 Melvin Grumbach Award for Outstanding Research
University of California San Francisco Department of Pediatrics

2002 Outstanding Oral Presentation
Weinstein Cardiovascular Development Conference, Salt Lake City, Utah

1996 Mary DeLeo Award for Outstanding Research in Oncology
Temple University School of Medicine

Memberships in Professional Organizations

American Academy of Pediatrics
Society for Developmental Biology
American Association for the Advancement of Science
Society for Pediatric Research, November 2006-present

Service

Clinical Programs:

2010-2011 Responsible for **directing QI program** to improve outreach from the Perinatal Institute to referring community physicians, Cincinnati Children's Hospital

2010-2011 **Development of clinical QI/research program** to study development of pulmonary hypertension in infants with chronic lung disease (collaboration with Russel Hirsch), Cincinnati Children's Hospital

2009-2011 **Co-developed an integrated perinatal-neonatal cardiology program** to improve clinical care, physician education, and clinical research for newborns with congenital heart malformations (collaboration with Eric Michelfelder), Cincinnati Children's Hospital

Research Programs:

2003-2010 **Initiated the zebrafish research program** at Cincinnati Children's, including managing the development of the animal facility and recruitment of a core group of investigators

Committee Involvement:

2010-2011 Perinatal Institute and HPCE QI Steering Committee Member, Cincinnati Children's Hospital

2007 Faculty Search Committee
Division of Developmental Biology
Children's Hospital Research Foundation, Cincinnati

2006-2009 Admissions Committee Member
Graduate Program in Molecular and Developmental Biology
University of Cincinnati School of Medicine, Cincinnati

2006-2011 Member, Pharmacy and Therapeutics Committee
Cincinnati Children's Hospital Medical Center, Cincinnati

2005-2006 Graduate Curriculum Committee Member
Graduate Program in Molecular and Developmental Biology
University of Cincinnati School of Medicine, Cincinnati

2004-2006	Committee Member
2009-2010	Developmental Biology Seminar Series Organizing Committee Children's Hospital Research Foundation, Cincinnati
1997-1998	Advisory Committee on Postdoctoral Education University of California, San Francisco
1994-1995	LCME Subcommittee on Graduate Education in the Basic Sciences Temple University School of Medicine

Grant Review:

2006, 2009	**National Institutes of Health, Cardiovascular Sciences SBIR**
2005	National Science Foundation

Manuscript Review:

2010	Abstract reviewer for 2011 SPR meeting
2004-present	**PLoS One – 1 article per year** Journal of Molecular and Cellular Cardiology – 1 article per year **Developmental Dynamics – 2 articles per year** Mechanisms of Development – 1 article per year Gene Expression Patterns – 1 article per year AJP – Heart and Circulatory Physiology – 1 article per year

National Distinguished Activities:

2005	**Session chair, Weinstein Cardiovascular Development Meeting** (Tucson, AZ)

Editorial Activities:

2010 – present	**Member of Editorial Board of Developmental Dynamics**

Department Recruiting Activities:

2004-2011	Ad hoc interviewing of Neonatology Fellowship Applicants – two per year
2004-2011	Ad hoc interviewing of Pediatrics Residency Applicants – two per year
2004-2009	Active member of recruiting and interviewing team for applicants to Molecular and Developmental Biology graduate program

Community:

2008-2011	Sycamore Youth Football League – team coaching and member of board of directors
2006-2007	Greater Sycamore Soccer Association – team coaching
2004-2011	Sycamore Baseball Association – team coaching
2004-2011	Provide materials and reagents to undergraduate developmental biology course at Miami University, Oxford, OH

Teaching

5% Effort

Undergraduate/High School Student Education
Annual participation in High School Science Symposium (lectures and/or laboratory demonstrations), 2004-present

Supervised Mark Schibler (Summer Undergraduate Research Fellowship), Summer 2006

Medical Student Education
Annual participation in the education of medical students during their Pediatrics rotation by reviewing sample cases in Neonatology, 2004-present

Graduate/Undergraduate Student Education
Annual journal club discussions which are part of the MDB graduate program (1 hour per semester, 2004-present)

Introduction to Developmental Biology course lectures/laboratory demonstrations (fall 2007, 2008)

Advanced Developmental Biology course lectures (spring 2007, 2008, 2009)

Supervision of graduate student rotating though the lab:
- Gina Whitmore (FLEX program), 2005
- Emily Sites (MDB program), 2005
- Om Prakash (MDB program), 2005
- Sumeda Nandadasa (MDB program), 2005
- Nikki Glenn (MDB program), 2006
- Mikah Coffindaffer (MDB program), 2007

Graduate mentor for Om Prakash, MDB student (entering class of 2005); Nikki Glenn, MDB student (entering class of 2006); Mikah Coffindaffer, MDB student (entering class of 2007)

Qualifying examination and thesis committee member for Eric Waits, Department of Environmental Health, Division of Environmental Genetics and Molecular Toxicology, University of Cincinnati, 2004-2010

Resident Education
Teaching during daily rounds in the RCNIC at CCHMC (56 days per year) as well as 12 one-hour-long didactic lectures to residents per year

Fellow Education
Teaching during daily rounds in the RCNIC at CCHMC (56 days per year) as well as 1 one-hour-long didactic lecture to fellows per year (Scientific Basis of Neonatology)

Neonatal Grand Rounds – one lecture per year

Educational Materials
Developed 10-page handout for residents/fellows regarding congenital heart disease diagnosis and management in the newborn

Grants

March of Dimes (National), #1-FY06-363
Role of Chondroitin and Dermatan Sulfation in Endocardial Cushion Morphogenesis
Project Period 6/1/06-5/31/09
Total Direct Costs - $240,000
10% Effort
PI (Peer Reviewed)

American Heart Association Scientist Development Grant (National), #0630287N
Analysis of NFATc1 as the mechanism by which early heart function regulates endocardial cushion and valve morphogenesis
Project Period 1/1/06-12/31/09
Total Direct Costs - $260,000
15% Effort
PI (Peer Reviewed)

National Institute of Health Child Health Research Career Development Award, 2K12HD28827
Project Period 9/1/03 – 8/31/05
Total Direct Costs - $175,000
50% Effort
Awardee (Internal Peer Review)

Howard Hughes Medical Institute, Postdoctoral Research Fellowship for Physicians
Project Period 9/1/00 – 7/31/03
Total Direct Costs - $276,000
100% Effort
PI (Peer Reviewed)

Publications

Waits E, **Bartman T**, Nebert D. (2011) PCB126-induced developmental heart defects in the developing zebrafish: A quantitative trait loci (QTL) analysis. *In preparation*

Glenn NO, Kohli V, Craig M, **Bartman T**, Sumanas S. (2011) Mutation of Zebrafish Alpha Cardiac Actin is a Model for Dilated Cardiomyopathy. *Submitted*

Martin RT and **Bartman T**. (2009) Analysis of heart valve development in larval zebrafish. *Developmental Dynamics* 238:1796-802.

Maeda Y, Suzuki T, Pan X, Chen G, Pan S, **Bartman T,** Whitsett JA. (2008) CUL2 is required for the activity of hypoxia-inducible factor and vasculogenesis. *J Biol Chem* 283:16084-92.

Beis D, **Bartman T**, Jin SW, Scott IC, D'Amico LA, Ober EA, Verkade H, Frantsve J, Field HA, Wehman A, Baier H, Tallafuss A, Bally-Cuif L, Chen J-N, Stainier DYR and Jungblut B. (2005) Genetic and cellular analysis of zebrafish atrio-ventricular cushion and valve development. *Development* **132**, 4193-4204.

Bartman T and Hove J. Mechanics and Function in Heart Morphogenesis. (review) (2005) *Developmental Dynamics* **233**, 373-381.

Bartman T, Walsh EC, Wen KK, McKane M, Ren J, Alexander J, Rubenstein PA, Stainier DY. (2004) Early myocardial function affects endocardial cushion development in zebrafish. PLoS Biol 2:673-681.

Stainier DY, Beis D, Jungblut B, **Bartman T**. (2002) Endocardial cushion formation in zebrafish. Cold Spring Harb Symp Quant Biol 67:49-56.

Bartman T, Murasko DM, Blank KJ. (1995) A replication-competent, endogenous retrovirus from an aged DBA/2 mouse contains the complete env from Emv-3 and a novel gag partially related to AKT-8. J Virol 69:3224-3228.

Bartman T, Murasko DM, Sieck TG, Turturro A, Hart R, Blank KJ. (1994) A murine leukemia virus expressed in aged DBA/2 mice is derived by recombination of the Emv-3 locus and another endogenous gag sequence. Virology 203:1-7.

Gray GS, White M, **Bartman T**, Mann D. (1990) Envelope gene sequence of HTLV-1 isolate MT-2 and its comparison with other HTLV-1 isolates. Virology 177:391-395.

Gray GS, **Bartman T**, White M. (1989) Nucleotide sequence of the core (gag) gene from HTLV-1 isolate MT-2. Nucleic Acids Res 17:7998.

Quality Review of Publications (limited to 5)
(Citation numbers as of 11/15/10, self citations not included in totals)

- Martin RT and **Bartman T**. 2009 Analysis of heart valve development in larval zebrafish. *Developmental Dynamics* 238:1796-802.

  This paper provides evidence to disprove the commonly held theory that structural valve leaflets are required to prevent regurgitant flow in the zebrafish embryo. Instead, we prove that myocardial forces create a "functional" valve without structural component. These findings have serious implications for multiple other labs which are attempting to dissect the molecular events regulating valve formation in the zebrafish.

- Beis D, **Bartman T**, Jin SW, Scott IC, D'Amico LA, Ober EA, Verkade H, Frantsve J, Field HA, Wehman A, Baier H, Tallafuss A, Bally-Cuif L, Chen J-N, Stainier DYR and Jungblut B. 2005. Genetic and cellular analysis of zebrafish atrio-ventricular cushion and valve development. *Development* **132**, 4193-4204.

  This paper was the first to describe the molecular and cellular events which occur at the atrioventricular boundary during the formation of the endocardial cushions in the zebrafish. The paper also describes the results of a forward genetic screen that identified multiple mutants in which the endocardial cushions do not form, and suggested possible mechanisms by which those genes might act. My laboratory contributed information regarding the general development of the cushions, and I had participated in the screen described.

  Total Citations = 53; 2006 – 8, 2007 – 10, 2008 – 12, 2009 – 12, 2010 – 11.

- **Bartman T** and Hove J. Mechanics and Function in Heart Morphogenesis. (review) 2005 *Developmental Dynamics* **233**, 373-381.

  This paper was a co-written review of the role that early heart function plays in determining the physical morphogenesis of the heart. We described many functional-form links at the molecular and physical level, and developed the thesis that many structural malformations may be secondarily created after primary lesions in heart function.

  Total Citations = 18; 2006 – 1, 2007 – 5, 2008 – 4, 2009 – 6, 2010 – 2.

- **Bartman T**, Walsh EC, Wen KK, McKane M, Ren J, Alexander J, Rubenstein PA, Stainier DY. 2004. Early myocardial function affects endocardial cushion development in zebrafish. PLoS Biol 2:673-681.

  This paper was the result of my postdoctoral work in Didier Stainier's laboratory along with some supplemental data obtained in my laboratory after arrival at CCHMC. The paper described the positional cloning of a zebrafish mutant that lacks endocardial cushion development, and the identification of a novel actin mutation as the basis for the phenotype. I showed that the phenotype caused by the mutation was poor heart function, that the lack of cushion development was secondary,

and that the phenotype could be re-capitulated by pharmacologic perturbation of heart function. I did all the work except for the initial discovery of the mutant line (Walsh and Alexander), and yeast site-directed mutagenesis to verify an actin polymerization defect (Wen, McKane, Ren and Rubenstein).

Total Citations = 49; 2006 – 7, 2007 – 6, 2008 – 9, 2009 – 7, 2010 – 9.

- Stainier DY, Beis D, Jungblut B, **Bartman T**. 2002. Endocardial cushion formation in zebrafish. Cold Spring Harb Symp Quant Biol 67:49-56.

  This is a peer-reviewed review article describing the morphogenetic process and genes involved in endocardial cushion formation in zebrafish. The authors contributed equally to the work.

Total Citations = 4; 2008 – 1, 2010 – 2.

Abstracts and Presentations

May 2009, Weinstein Cardiovascular Development Conference, UCSF, San Francisco, CA – Two Poster Presentations (by lab members)

June 2008, 8th International Zebrafish Conference, Madison, WI – Two Poster Presentations (by lab members)

May 2007, Weinstein Cardiovascular Development Conference, IUPUI, Indianapolis, IN – Two Poster Presentations (by lab members)

June 2006, 7th International Zebrafish Conference, Madison, WI – Poster

May 2006, Weinstein Cardiovascular Development Conference, University of South Florida, Tampa, FL – Poster

April 2006, Ohio Perinatal Club, Newark, OH - Presentation

April 2006, Temple University School of Medicine – Invited Presentation

July 2005, Society for Developmental Biology, San Francisco, CA (national) – Poster

May 2005, Weinstein Cardiovascular Development Conference, University of Arizona, Tucson, AZ – Poster and Session Chair

October 2004, Child Health Research Center Annual Retreat, University of Michigan, Ann Arbor, MI – Presentation

May 2003, Weinstein Cardiovascular Development Conference, Harvard Medical School, Boston, MA – Presentation

May 2002, Weinstein Cardiovascular Development Conference, University of Utah, Salt Lake City, UT – Presentation

July 2001, West-Coast Regional Zebrafish Meeting, University of Washington, Seattle, WA (regional) – Poster

July 2001, Society for Developmental Biology, Seattle, WA (national) – Poster

May 2001, Weinstein Cardiovascular Development Conference, University of Texas Southwestern, Dallas, TX – Poster