

BIOGRAPHICAL SKETCH

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NAME Nathan Bahary	POSITION TITLE Assistant Professor		
eRA COMMONS USER NAME bahary			
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Cornell University Ithaca, NY.	A.B.	1980-1984	Chemistry
The Cornell University Medical College, NY, NY.	M.D.	1984-1989	Medicine
The Rockefeller University, NY, NY	Ph.D.	1988-1992	Genetics
Beth Israel Hospital, Boston MA	Residency	1992-1995	Medicine
Dana-Farber Cancer Institute	Fellowship	1995-1998	Oncology
Children's Hospital Boston	Postdoctoral	1998-2002	Developmental Genetics

Professional Experience (selected)

Sept. 1987 - July 1988 American Heart Association Student Fellow
Cornell University, Ithaca, NY.

June 1990 - Jan. 1992 **Co-chair**, Mouse chromosome 6 mapping committee,
International Mammalian Genome Society

July 1989 - June 1992 Arnold and Mabel Beckmann Graduate Fellow

July 1992 - June 1993 Intern, Department of Internal Medicine
The Beth Israel Hospital, Boston, MA.

July 1993 - June 1995 Resident, Department of Internal Medicine
The Beth Israel Hospital, Boston, MA.

July 1995 - June 1998 Clinical Fellow in Medicine/Oncology, Harvard Medical
The Dana Farber Cancer Institute, Boston, MA.

July 1998- Dec. 2002 Instructor in Medicine, Harvard Medical School
The Dana Farber Cancer Institute, Boston, MA.

Jan. 2003- present Assistant Professor, University of Pittsburgh School of Medicine.
Department of Molecular Genetics and Biochemistry

Jan. 2003-present Assistant Clinical Professor, University of Pittsburgh School of Medicine
Department of Medicine, Division of Hematology/Oncology

Certification and Licensure

1996-2006 American Board of Internal Medicine Certificate

1999-2009 American Board of Internal Medicine: Oncology Subspecialty Certificate

1994-2003 Massachusetts Medical License Registration

2003-present Pennsylvania Medical License Registration

Awards and Honors (selected)

- Phi Beta Kappa Honor Society, Cornell University, 1984
- Distinction in all subjects, Cornell University, 1984
- Summa Cum Laude, Cornell University, 1984
- Dean's Commendation, Cornell Medical College, 1984 - 86
- Alpha Omega Alpha Honor Society, Cornell Medical College, 1988
- M.D. with honors in research, Cornell Medical College, 1989
- Du- Vigneund research commendation, Cornell Medical College, 1989
- Dean William Mecklenburg Polk research award, Cornell Medical College, 1989

- John Metcalf Polk award (ranked 1st in graduating class), Cornell Medical College, 1989
- Arnold and Mabel Beckmann Graduate Fellowship, The Rockefeller University, 1988-92

Publications

1. Irving N.G., Hardy J.A., **Bahary N.**, Friedman J.M., Brown S.D.M. (1989) *The a-2 chain of type 1 collagen does not map to mouse chromosome 16 but maps close to the met proto-oncogene on mouse chromosome 6*. Cytogenetics and Cell Genetics, 50: 121-122.
2. Leibel R.L., **Bahary N.**, Friedman J.M. (1990) *Genetic variation and nutrition in obesity: Approaches to the molecular genetics of obesity*. in Genetic Variation and Nutrition, eds. A.P. Simopoulos and B. Childs, Karger Publishing.
3. **Bahary N.**, Leibel R.L., Joseph L., Friedman J.M. (1990) *Molecular mapping of the mouse db mutation*. Proc. Nat. Acad. Sci. USA, 87: 8642-8646.
4. Friedman, J. M., Leibel, R. L., **Bahary, N.**, Siegel, D. A., and Truett, G. (1991) *Genetic analysis of complex disorders: Molecular mapping of obesity genes in mice and humans*. Annals of the New York Academy of Sciences, 630: 100-115.
5. **Bahary N.**, Zorich G., Pachter, J. E., Leibel R.L. and Friedman J.M. (1991) *Molecular genetic linkage maps of mouse chromosomes 4 and 6*. Genomics, 11: 33-47.
6. Truett, G.E., **Bahary, N.**, Friedman, J. M., and Leibel, R. L. (1991) *The rat obesity gene fatty (fa) maps to chromosome 5: Evidence for homology with the mouse gene diabetes (db)*. Proc. Nat. Acad. Sci. USA, 88: 7806-7809.
7. Friedman, J. M., Leibel, R. L., **Bahary, N.**, Siegel, D., and Walsh, J. (1991) *Molecular mapping of the mouse ob mutation*. Genomics, 11: 1054-1062.
8. Friedman, J.M., Leibel, R. L., **Bahary, N.** (1991) *Molecular mapping of obesity genes*. Mammalian Genome, 1: 130-144.
9. **Bahary, N.**, Pachter, J., Felman, R., Leibel, R. L., Albright, K. A., Cram, S., and Friedman, J. M. (1992) *Molecular mapping of mouse chromosomes 4 and 6: use of a flow-sorted Robertsonian chromosome*. Genomics 13:761-9.
10. **Bahary, N.**, McGraw, D.E., Shilling, R., and Friedman, J. M. (1993) *Microdissection and microcloning of mid-chromosome 4: genetic mapping of 41 microdissection clones*. Genomics, 16: 113-22 .
11. Leibel, R. L., **Bahary, N.**, and Friedman, J.M. (1993) *Strategies for the Molecular genetic Analysis of Obesity in Humans*. Critical reviews in Food Science and Nutrition, 33(4/5): 351-358.
12. **Bahary, N.**, Siegel, D.A., Walsh, J., Zhang, Y., Leopold, L., Leibel, R.L., Proenca R., Friedman, J.M. (1993) *Microdissection of proximal mouse chromosome 6: identification of RFLPs tightly linked to the ob mutation*. Mammalian Genome, 4 (9): 511-15.
13. Truett, G. E., Jacob, H. J., Miller, J., Drouin, G., **Bahary, N.**, Smoller, J. W., Lander, E., Leibel, R. L. (1994) *Genetic map of rat chromosome 5 including the fatty (FA) locus*. Mammalian Genome, 6: 25-30.
14. Thompson MA, Ransom DG, Pratt S J, MacLennan H, Kieran MW, Detrich HW III, Vail B, Huber T L, Paw B, Brownlie A, Oates AC, Fritz A, Gates MA, Amores A, **Bahary N**, Talbot WS, Her H, Beier DA, Postlethwait JH, Zon LI. (1998) The cloche and spadetail genes differentially affect hematopoiesis and vasculogenesis. Developmental Biology, May 15;197(2):248-69.
15. **Bahary N**, Zon LI. (1998) Use of the zebrafish (*danio rerio*) to define hematopoiesis. Stem Cell;16(2):89-98.
16. **Bahary N**, Zon LI. *Endothelium: Chicken soup for the Endoderm*. Science 2001; 294:530-1.
17. Brownlie, A., Hersey, C., Oates, A.C., Paw, B.H., Falick, A.M., Witkowska, H.E., Flint, J., Higgs, D., Jessen, J., **Bahary, N.**, Zhu, H., Lin, S. and Zon, L. (2003) *Characterization of embryonic globin genes of the zebrafish*. Dev. Biol. 255(1):48-61.
18. Bovenkamp DE, Goishi K, **Bahary N**, Davidson AJ, Zhou Y, Becker T, Becker CG, Zon L, Klagsbrun M. (2004) *Expression and mapping of duplicate neuropilin-and neuropilin-2 genes in developing zebrafish*. Gene Expression Patterns, Gene Expr Patterns. 2004 Jul;4(4):361-70.
19. Ransom DG, **Bahary N**, Niss K., Traver D., Burns C, Paffett-Lugassy N, Saganic WJ, Lim CA, Hersey H, Zhou Y, Barut BA, Lin S, Kingsley P, Palis J, Orkin SH and Zon LI (2004) *Isolation of the zebrafish moonshine gene establishes Transcriptional Intermediary Factor 1 gamma as a critical regulator of hematopoiesis*. PLoS, Aug; 2(8):E237.

20. Carsten Stuckenholtz, Paul E. Ulanich, and **Nathan Bahary** (2004) *From Guts to Brains: Using Zebrafish Genetics to Understand the Innards of Organogenesis*. *Curr Top Dev Biol*. 2004;65:47-82.
21. **Bahary N**, Davidson A, Ransom D, Shepard J, Stern H, Trede N, Zhou Y, Barut B, Zon LI. (2004) *The laboratory guide to positional cloning in zebrafish*. *Methods Cell Biol*. 2004;77:305-29.
22. **Bahary, N.** (2005) *Tales from the Deep: Reeling in Renal Failure*. *AJP*, 2005;288(5):F921-2.
23. Tang J, Hu G, Hanai J, Yadlapalli G, Lin Y, Zhang B, Galloway J, Sinha S, **Bahary N**, Thisse B, Thisse C, Jin JP, Zon LI and Sukhatme VP. *A Critical Role For Calponin 2 In Vascular Development* *Developmental Biology* *J Biol Chem*. 281(10):6664-72;2006.
24. Hu G, Tang J, Zhang B, Lin Y, Hanai J, Galloway J, Bedell V, Han Z, Ramchandran R, **Bahary N**, Thisse B, Thisse C, Zon LI and Sukhatme VP. *A novel endothelial specific heat shock protein HspA12B is required in both zebrafish development and endothelial functions in vitro*. *J Cell Sci* 119:4117-26;2006
25. Hultman KA, **Bahary N**, Zon LI, Johnson SL (2007) *Gene Duplication of the Zebrafish kit ligand and Partitioning of Melanocyte Development Functions to kit ligand a*. *PLoS Genetics* .3:e17; 2007
26. Paffett-Lugassy N, Yang Y, Paw B, Leschinsky I, Barut B, **Bahary N**, Caro J, Handin R, and Zon LI. *Functional Conservation Of Epo-Epor Signaling In Zebrafish Blood* 110:2718-26;2007.
27. **Bahary, N.**, Goishi K., Schafer C.S., Klasbrun, M., Zon, L.I. (2007) *Duplicated VegfA and Flk loci Mediate Angiogenesis and Vasculogenesis in the Zebrafish*. *Blood* 110:3627-36; 2007.
28. Reschly EJ, Bainy AC, Mattos JJ, Hagey LR, **Bahary N**, Mada SR, Ou J, Venkataramanan R, Krasowski MD. *Functional evolution of the vitamin D and pregnane X receptors*. *BMC Evol Biol*. 2007 Nov 12;7:222.
29. Stuckenholtz C., Lu L., Kaminski, N, **Bahary N**. *FACS-Assisted Microarray Profiling Implicates Novel Genes and Pathways in Zebrafish Gastrointestinal Tract Development*, *Gastroenterology* 2008, accepted pnd revision.

Grants Active and Completed In Last 3 Years

ACTIVE:

R01 HD50872 (PI: Bahary) 01/01/2008-12/31/2013
NIH Role: PI \$220,000/annum
Inducible Multiplex Transgenesis in the Zebrafish

The proposal aims to develop an inducible system for regulating genes that cause GI cancers in the zebrafish in order to develop zebrafish models of human diseases and developmental processes.

R01 CA123756 (PI: Smithgall) 12/01/07-11/30/12 (projected)
NIH/NCI Role: Co-investigator \$250,000/annum (estimated)
A Tumor Suppressor Function for the c-Fes Tyrosine Kinase in Colon Cancer

The goal of this project is to investigate a tumor suppressor function for the c-Fes protein-tyrosine kinase in colon cancer pathogenesis using cell-based assays and a whole animal model.

R21DK073177 09/01/06-08/31/09
NIH Role: PI
Modeling Novel Gastrointestinal Growth Pathways in the Zebrafish
The proposal aims to test the hypothesis that three specific mutant lines characterize novel pathways involved in the patterning and growth of the gastrointestinal system in Zebrafish.

U54 (Lazo) 03/01/05-02/29/08
NIH Role: (Sub only)
Pittsburgh Molecular Libraries Screening Center High Throughput Screening Core

COMPLETED:

#1-FY04-109

06/01/04-05/31/07

March of Dimes Fnd

“Functional Genomic Screening in the Zebrafish to Define Developmentally Critical Gastrointestinal Genes”

The aims of this grant are: 1) Define the transcriptome of developing gastrointestinal cells by a functional expression screen; 2) Isolate the gastrointestinally expressed sequence tag (EST) and then analyze the temporal-spatial expression pattern of the identified ESTs by in situ hybridization; 3) Elucidate the normal functions of those gastrointestinally expressed genes and their possible roles in development using overexpression and antisense morpholino analysis in the zebrafish and identification of the orthologous human gene.

CMRF

07/01/04-06/30/05

UPMC

“Forward Genetic Screening in the Zebrafish

Crohns & Colitis Fnd

01/01/03-12/31/06

“Developmental Expression and Function of IBD Genetic Determinants in the Zebrafish”

The aims of this grant are: 1) Characterize normal gastrointestinal development in the zebrafish, providing the framework in which to study genes implicated in inflammatory bowel disease pathogenesis. Define the normal growth and differentiation of the zebrafish gastrointestinal tract by visual microscopy and standard pathologic stains; 2) Clone and characterize the zebrafish orthologues of genes known to be involved in the pathogenesis of Crohn’s and ulcerative colitis and investigate the contributions of these genes to normal gastrointestinal development and developmental pathology.

Invited Lectures

July 2005: Senior Vice-Chancellor’s Seminar Series Speaker

June 2005: Pittsburgh Cancer Center Retreat speaker and Session Chair

March 2005: UPMC Board of Visitors

August 2004: Department of Gastroenterology, University of Pittsburgh

March 2004: Crohn’s Colitis Foundation of America Retreat

September 2003: Science 2003 University of Pittsburgh

July 2003: Division of Human Genetics, University of Pittsburgh

May 2003: Stem Cells and Human Disease, University of Pittsburgh Medical Center

January 2003: Department of Genetics Harvard Medical School

Review Committees

July 2005:

NHLBI:

1) Myelodysplastic Syndrome (MDS): Seeking cure through discovery on pathogenesis and disease progression.

2) Cellular and Genetic Discovery toward curative therapy in Myeloproliferative Disorders (MPD).