

# Jonathon T Hill, PhD

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## Education and Employment

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Asst. Prof. 2015-Current	<b>Brigham Young University</b> Dept. of Physiology and Developmental Biology
Postdoc 2010-2015	<b>University of Utah</b> , H. Joseph Yost, PhD “Genetic and epigenetic regulation of heart development”
Ph.D. 2007-2010	<b>Columbia University</b> , Lori Sussel, PhD “Nkx2-2 regulation during pancreas development” <i>Awarded with Distinction</i>
M.S. 2005-2007	<b>University of Colorado Health Sciences Center</b> , Lori Sussel, PhD “Developmental ontogeny of pancreatic $\epsilon$ -cells”
B.S. 1999-2005	<b>Brigham Young University</b> , Richard Robison, PhD Microbiology Major, “Culture techniques of <i>Mycobacterium ulcerans</i> ”

## Publications

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1. Karanth S, Zinkhan EK, **Hill JT**, Yost HJ, Schlegel A. (2016). FOXN3 Regulates Hepatic Glucose Utilization. *Cell Rep* 15: 2745–2755.
2. Ray JD, Kener KB, Bitner BF, Wright BJ, Ballard MS, Barrett EJ, **Hill JT**, Moss LG, Tessem JS. 2016. Nkx6.1-mediated insulin secretion and  $\beta$ -cell proliferation is dependent on upregulation of c-Fos. *FEBS Lett* 590: 1791–1803.
3. **Hill JT**, Demarest BL, Bisgrove, BW, Su Y, Smith M, Yost HJ. (2014). Poly Peak Parser: Method and software for identification of unknown indels using Sanger Sequencing of PCR products. *Developmental Dynamics* 243(12), 1632–1636.
4. Sarkar AA, Nuwayhid SJ, Maynard TM, Ghandchi F, **Hill JT**, Lamantia AS. (2014). Hectd1 is Required for Development of the Junctional Zone of the Placenta. *Developmental Biology* 392(2):368-80.
5. **Hill JT**, Demarest BL, Bisgrove BW, Gorski B, Su Y, Yost HJ. (2013). MMAPP: Mutation Mapping Analysis Pipeline for Pooled RNA-seq. *Genome Research* 23(4):687-97. *Highlighted in Nature Reviews Genetics*.
6. Maguire CT, Demarest BL, **Hill JT**, Palmer JD, Brothman AR, Yost HJ, Condit ML. (2013). Genome-wide Analysis Reveals the Unique Stem Cell Identity of Human Amniocytes. *Plos One* 7(12): e520267.
7. Arnes L\*, **Hill JT\***, Gross S, Magnuson MA, Sussel L. (2012). Ghrelin expression in the mouse pancreas defines a unique multipotent progenitor population. *Plos One* 7(12): e520267.
8. **Hill JT**, Anderson KR, Mastracci TL, Kaestner KH, and Sussel L. (2011). Novel computational analysis of protein binding microarray data identifies direct targets of Nkx2-2 in the pancreas. *BMC Bioinformatics* 12, 62.

9. **Hill JT\***, Chao CS\*, Anderson KR, Kaufman F, Johnson CW, Sussel L. (2010). Nkx2-2 activates the ghrelin promoter in pancreatic islet cells. *Molecular Endocrinology* 24, 381-90.
10. **Hill JT**, Mastracci TL, Vinton C, Doyle ML, Anderson KR, Loomis ZL, Schrunk JM, Minic AD, Prabakar KR, Pugliese A, Sun Y, Smith RG, Sussel L. (2009). Ghrelin is dispensable for embryonic pancreatic islet development and differentiation. *Regulatory Peptides* 157, 51-6.

## Posters and Oral Presentations

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| 2016 | <b>RNA-seq Time Course Data Reveals Gene Regulatory Interactions During Heart Looping</b><br>Ohio State University (Invited Speaker)                          |
| 2016 | <b>RNA-seq Time Course Data Reveals Gene Regulatory Interactions During Heart Looping</b><br>NHLBI B2B Consortium Meeting (Invited Speaker)                   |
| 2015 | <b>RNA-seq Time Course Data Reveals Gene Regulatory Interactions During Heart Looping</b><br>SDB National Meeting (Poster)                                    |
| 2015 | <b>RNA-seq Time Course Data Reveals Gene Regulatory Interactions During Heart Looping</b><br>Weinstein Cardiovascular Conference (Poster)                     |
| 2015 | <b>RNA-seq Time Course Data Reveals Gene Regulatory Interactions During Heart Looping</b><br>Heart Disease and Regeneration: Insights from Development (Oral) |
| 2014 | <b>Genetic and Genomic Analysis of Heart Development in Zebrafish</b><br>Utah Valley University (Invited Speaker)   |
| 2014 | <b>RNA-seq Timecourse of Heart Morphogenesis in Zebrafish</b><br>SDB Southwest Regional Meeting (Oral)  |
| 2013 | <b>Genomic Techniques for Studying Heart Development in Zebrafish</b><br>Bench to Bassinet Consortium Meeting (Oral)  |
| 2013 | <b>MMAPPR: Mutation Mapping Analysis Pipeline for Pooled RNA-seq</b><br>International Congress of Developmental Biology (Poster)                              |
| 2013 | <b>MMAPPR: Mutation Mapping Analysis Pipeline for Pooled RNA-seq</b><br>SDB Southwest Meeting (Oral) Received best presentation by a Postdoc                  |
| 2012 | <b>MMAPPR: Mutation Mapping Analysis Pipeline for Pooled RNA-seq</b><br>BioT Conference (Poster)  |
| 2012 | <b>MMAPPR: Mutation Mapping Analysis Pipeline for Pooled RNA-seq</b><br>Weinstein Cardiovascular Conference (Poster)  |
| 2010 | <b>Genome-wide Prediction of Nkx2.2 Binding Sites</b><br>Columbia University Dept. of Genetics and Development Retreat (Oral)                                 |
| 2009 | <b>Transcriptional Regulation in The Embryonic Pancreas by Nkx2.2</b><br>Beta Cell Biology Consortium Investigator Retreat (Poster)                           |
| 2008 | <b>Nkx2.2 Activates The Ghrelin Promoter in Mature Islet Cells</b><br>Beta Cell Biology Consortium Investigator Retreat (Poster)                              |

2007                    **Characterization of The Ghrelin Promoter**  
Beta Cell Biology Consortium Investigator Retreat (Poster)

## Research Awards and Grants

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2015-Current        **Genome-wide Analysis of Cardiac Development in Zebrafish**  
NHLBI Cardiovascular Development Consortium: 2UM1HL098160  
PI: H. Joseph Yost, Jonathon Hill (consortium member within Utah center)  
Total Costs: \$2,500,000 for Utah center (Paid genomic sequencing costs for my lab)

2013-2015          **Elucidating the Gene Regulatory Network in the Embryonic Atrio-ventricular Canal**  
NRSA Fellowship: NIH NHLBI F32HL115881  
PI: Jonathon Hill, H. Joseph Yost (mentor)  
Total Costs: ~\$156,570

## Journal Peer Reviews

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*BMC Bioinformatics*  
*Developmental Biology*  
*Developmental Dynamics*

## Open Source Software

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sangerseqR        **Software package for opening, viewing and manipulating sanger sequencing chromatograms in R (Bioconductor)**  
I conceived, developed and programmed the entire package. Available at <http://www.bioconductor.org/packages/release/bioc/html/sangerseqR.html>

MMAPPR           **Software package for identifying mutations underlying phenotypes in forward genetic screens**  
I conceived, developed and programmed the software. Available at <http://yost.genetics.utah.edu/software.php>

## Courses Taught

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2015-Current        **PDBIO 360: Cell Biology, BYU**  
Taught three lectures per week covering a broad range of topics, including cell/organelle structure, transcription and translation, protein transport, endocytosis, cell signaling, cell replication, and apoptosis.

2015-Current        **PDBIO 494R/495R: Mentored Research, BYU**  
Mentored an average of 15 undergraduate students each semester in my lab.

2016-Current        **PDBIO 601: Cell Biology, BYU**  
Taught a lecture and literature review on the cellular and molecular mechanisms of cardiac physiology.

## Mentored Undergraduate Students

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Blayne Fekete	Brad Atoa	Joshua Yates
Adriana Lopez	Madison Tippetts	Carson Russell
Dawson Lybbert	Spencer Coleman	Matthew "Quinn" Benson

Jonathan Rawlins  
Justin Ward  
Zachary Frederich  
Annika Martin

Morgan Fronk  
Kyle Johnsen  
Elizabeth Porter  
Nathan Jenkins

Nathaniel Batey

## Graduate Committee Membership

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- 2015-Current     **Ting Chen, Physiology and Developmental Biology (PhD)**  
Committee Member
- 2016-Current     **Micah Ross, Physiology and Developmental Biology (PhD)**  
Committee Member
- 2016-Current     **David Bates, Microbiology and Molecular Biology (PhD)**  
Committee Member

## Guest Lectures and Other Teaching

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- 2016             **Guest Lecturer on Genomic Analysis of Time-course Data, Ohio State University**  
Gave two lectures with an assignment in between to help graduate students at Ohio State University learn how to analyze complex RNA-seq datasets, including time course data analysis and identification of interactions in factorial designs.
- 2008-2009       **SMDEP Biology Course Instructor, Columbia University**  
Developed curriculum for and taught a biology course as part of a program to help minority students prepare for medical or dental school.
- 2004-2005       **Teaching Assistant, Brigham Young University**  
Aided student instruction for two courses: Introduction to Genetics and Microbiology Lab. Duties included lab demonstrations, preparing quizzes, conducting review sessions, grading papers, and answering student questions.

## Brigham Young University Service

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- 2015-Current     **Physiology and Developmental Biology Department Curriculum Committee**  
Member of standing committee to review and address curriculum issues for the Physiology and Developmental Biology, Biophysics and Neuroscience majors
- 2015-Current     **University Internal Grant Reviewer**  
Reviewed internal grant applications for the John A. Widstoe and David O. McKay grants
- 2015-Current     **Office of Research and Creative Activities (ORCA) Reviewer**  
Reviewed 10-12 student grant applications each year

## Other Service

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- 2012-2013       **Member of the Society of Developmental Biology Southwest Meeting Organizing Committee**  
Oversaw development of meeting website, abstract book and email campaign and participated in planning tasks.
- 2011-2015       **Member of the NHLBI Bench-to-Bassinet Consortium Bioinformatics Committee**

Participated in monthly phone conferences and in-person meetings to present, discuss and plan work in the consortium to analyze, store and share genomic datasets.

2010-Current      **Portuguese to English Translator, American Journal Experts**  
Translate scientific articles from Portuguese to English

## Awards and Honors

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2013                **Best Postdoc Presentation, SDB Southwest Regional Meeting**

2012-2016        **NIH Extramural Loan Repayment Program**

2010                **PhD awarded with Distinction, Columbia University**

2008-2010        **NIH Pre-Doctoral Training Grant in Endocrinology**

2007,2008,2009 **Beta Cell Biology Consortium Student Travel Scholarship**

2006-2007        **NIH Pre-Doctoral Training Grant in Molecular Biology**

2004                **ORCA Research Grant, Brigham Young University**

1999-2005        **Heritage Scholarship (Full Tuition), Brigham Young University**