

Vikas Ghai, Curriculum vitae

Postdoctoral Research Fellow
Institute for Systems Biology
401 Terry ave N, Seattle, WA, 98109, USA
206 732 1444

Education

PhD, Molecular Biology

- Department of Biochemistry and Molecular Biology, The University of Calgary (September 2005 – November 2011)
- *Thesis title: "Transcriptional Regulation of Genes Expressed in the C. elegans Pharyngeal Glands" (supervisors - Dr. Jeb Gaudet and Dr. Paul Mains)*

BSc (Honors), Biology - Molecular Biology and Biotechnology

- Department of Biology, University of Waterloo (September 2001 – April 2005)
- *Honors Thesis Project (Supervisor - Dr. Trevor Charles - Microbiology)*

Relevant Work Experience

Postdoctoral Research Fellow

- Institute for Systems Biology (February 2016 – Present)
- *Supervisor - Dr. Kai Wang, Hood-Price Lab*
- Characterizing the spectra of circulating (extracellular) microRNAs present in various biological samples during different disease states, with the goal of identifying diagnostic and/or prognostic biomarkers. Focus on diabetes and kidney disease

Genetic Counseling Internship, Joan H. Marks Program in Human Genetics, Sarah Lawrence College

- Norwalk Hospital (Sept 2014 – December 2014)
- Saw and consulted with patients seeking genetic counseling services through the Norwalk Hospital Cancer Center(s).

Postdoctoral Research Fellow

- Department of Molecular Biology and Genetics, Cornell University (January 2012 – January 2014)
- *Supervisor - Dr. Jun 'Kelly' Liu, Liu lab, Cornell Stem Cell Program*
- Lead three major research projects related to trans-differentiation of cell-types in *C. elegans*, supervised and trained several undergraduate and graduate students.

Sessional Lecturer - BIOMG-6120: Overview of Model Genetic Organisms

- Department of Molecular Biology and Genetics, Cornell University (June 2012 – June 2014)
- Gave multi-part lecture series on using *C. elegans* as a model organism, including the current genetic and genomic techniques available.

Postdoctoral Research Associate

- Department of Biochemistry and Molecular Biology, University of Calgary and Alberta Children's Research Institute (September 2011 – December 2011)
- Followed up to graduate research with the focus being on whole genome sequencing and analysis of *C. elegans* pharyngeal development.

Graduate Research

- Labs of Jeb Gaudet and Paul Mains, Department of Biochemistry and Molecular Biology, The University of Calgary (September 2005 – November 2011)

Vikas Ghai, CV

- *Thesis title: "Transcriptional Regulation of Genes Expressed in the C. elegans Pharyngeal Glands" (supervisors - Dr. Jeb Gaudet and Dr. Paul Mains)*
- Performed research in area of developmental genetics of organ development (*C. elegans* pharynx), supervised three undergraduate students and two high school students in the lab, wrote and published three peer-reviewed papers (see below).

Graduate Teaching Assistant - MDSC 341: Principles of Human Genetics

- O'Brien Centre for the Bachelor of Health Sciences, University of Calgary (September 2008 – December 2009)
- Taught tutorial session for two semesters, marked assignments, and proctored exams.

Undergraduate Teaching Assistant - BIOL 130L: Cell Biology Laboratory, BIOL 331L: Advanced Cell Biology Laboratory

- Department of Biology, University of Waterloo (September 2004 – April 2005)
- Ran laboratory sessions for two lab courses over two semesters, marked assignments, and proctored exams.

Additional Leadership Experience

STEM fellow, Washing Alliance for Better Schools (WABS) (Sept 2016-May 2017)

- Helped develop a science lesson plan to teach middle school students about Zika
- <http://www.wabsalliance.org/academic-leadership/curriculum-resources/2016-17/>

5th Genes and Development Research Group Research Symposium on Stem Cells, Organization Committee (Sept 2007-March 2007)

- Senior member of organizing committee
- Head of Fundraising

7th Canadian Developmental Biology Conference (March 2008)

- Student Organization Committee
- Liaison between keynote speakers and trainee programs

1st Annual Alberta Children's Hospital Research Institute Conference (April 2010)

- Organization Committee

Heritage Youth Researcher Summer Program, University of Calgary (Summers 2007-2010)

- Co-mentor/program volunteer

Publications (peer-reviewed papers)

- Ghai, V. Wu, X., Malge, A., Argyropoulos, C., Brendardo, J., Orchard, T., Johnson, J. and Wang, K. (2016) "Genome-wide Profiling of Urinary Exosomal microRNAs Associated with Diabetic Nephropathy in Type 1 Diabetes". Kidney International Reports (In press)
- Shen, Q. Shi, H., Tian, C., Ghai, V. and Liu, J. (2017) The *C. elegans* Spalt-like protein SEM-4 functions through the SoxC transcription factor SEM-2 to promote a proliferative blast cell fate in the postembryonic mesoderm. Developmental Biology 429(1): 335-342
- Ghai, V. and Wang, K. (2016). "Recent progress toward the use of circulating microRNAs as clinical biomarkers." Archives of Toxicology 90(12):2959-2978
- Ghai, V. Smit RB, and J. Gaudet (2012). "Transcriptional regulation of pharyngeal gland subtype-expressed genes." Mechanisms of Development 129 (9-12):284-97
- Raharjo, W., Ghai, V. Dineen, A, Bastiani, M and Gaudet, J (2011). "Maintenance of gland cell morphology by surrounding musculature in the *Caenorhabditis elegans* pharynx." Genetics 189(3):885-97
- Ghai, V. and J. Gaudet (2008). "The CSL transcription factor LAG-1 directly represses *hlh-6* expression in *C. elegans*." Developmental Biology 322(2): 334-44.

Conference abstracts and presentations (Selected)

- Ghai, V. Wu, X., Malge, A., Argyropoulos, C., Brendardo, J., Orchard, T., Johnson, J. and Wang, K. (2016) "Genome-wide Profiling of Urinary Exosomal microRNAs Associated with Diabetic Nephropathy in Type 1 Diabetes" (poster) 7th Extracellular RNA Communication Consortium (ERCC) meeting. November 3rd-4th Bethesda, Maryland, USA
- Sammons, S., Sun, K., Ghai, V. Shi, H., Hamilton, A., and Liu, J. (2016) "The histone chaperone RBA-1 is critical for *C. elegans* postembryonic mesoderm development" (poster). Shen, Q., Ghai, V., Tian, C., Shi, H., and Liu, J. (2016) "Dissecting the roles of the zinc finger transcription factor SEM-4/SALL in distinct cell fate specification programs in the *C. elegans* postembryonic mesoderm." (poster) The 2016 Allied Genetics Conference July 13th -17th, 2016, Orlando , Florida, USA
- Ghai, V. Tian, C., and Liu, J (2012, 2013) "Investigating the Role of SEM-4/SALL in Development of the Postembryonic Mesoderm" (poster) C. elegans Development, Cell Biology, & Gene Expression Meeting June 7th - 10th 2012, Madison, Wisconsin, USA. 19th Annual International C. elegans meeting, June 26th - 30th 2013, Los Angeles, California, USA.
- Ghai, V. and Gaudet, J. (2011) "Transcriptional regulation of pharyngeal gland sub-type expressed genes" (poster); Ghai, V., Flibotte, S. and Gaudet, J. (2011) "Isolation, characterization, and whole genome sequencing of a mutant defective for the pharyngeal g1a gland sub-type" (poster) 18th Annual International C. elegans meeting, June 22nd - 26th 2011, Los Angeles, California, USA.
- Ghai, V., and Gaudet, J. (2010). Isolation of mutants involved in pharyngeal gland sub-type specification and maintenance (poster) C. elegans Development and Gene Expression Meeting, June 17th - 20th, European Molecular Biology Laboratory, Heidelberg, Germany.

Awards, Honors, and scholarships (selected)

IDEA Award (June 2013)

- NYSTEM (New York Stem Cell Foundation)
- 'Induced cellular reprogramming in *C. elegans*' (co-investigator with Jun Liu, Cornell University)

EMBO Travel Award (June 2010)

- European Molecular Biology Organization

Alberta Graduate Scholarship (December 2006)

- Government of Alberta

Invited participant - Canadian Student Health Research Form (April 2009)

- CIHR Institute for human development

Biochemistry and Molecular Biology Departmental Publication Award (Sept 2009)

- Department of Biochemistry and Molecular Biology, University of Calgary

Departmental Graduate Award (Sept 2008)

- Department of Biochemistry and Molecular Biology, University of Calgary

CHIR Studentship in in Genetics, Child Development and Health (May 2007-2009)

- Alberta Children's Hospital Research Institute for Child and Maternal Health

Professional Organizations

American Association for the Advancement of Science

- Guest member (2012-2013)

Genetics Society of America

- Member (2007-2014)

Genetics Society of Canada

- Past Member (2009-2010)