

Ish Venkatesh

Research Assistant Professor

Department of Biomedical Sciences

Marquette University

561 N.15th street, Schroeder complex Rm 446

Milwaukee, WI 53233

ishwariya.venkatesh@marquette.edu, ishwariyavenkatesh@gmail.com

ishvenkatesh.com

@Ishwariya13

Education and Training

University of Wisconsin-Milwaukee

2009-2014

PhD in Neuroscience

Advisor: Dr. Ava Udvardia

BIT, Sathy- India

2005-2009

B. Tech in Biotechnology

Professional Experience

Research Assistant Professor

2018- Present

Marquette University, Milwaukee

Postdoctoral Research Associate

2014- 2018

Marquette University, Milwaukee- WI

Mentor: Dr. Murray Blackmore

Research Support and Fellowships

NSF – XSEDE XRAC grant

2020-2022

NIH R21 (Co-Investigator) - R21NS106309

2018-2020

NSF – XSEDE XRAC grant

2018-2020

Craig.H.Nielsen Post-doctoral fellowship

2016-2018

NSF – XSEDE grant for Bioinformatics data analysis

2016-2018

Ruth Walker grant-in-aid for graduate research

2012-2014

UWM Chancellor's award for graduate research

2009-2014

Professional Activities

Member of XRAC-NSF review panel

2019-2021

Publications

Venkatesh, I.*, Mehra, V., Wang, Z., Simpson, M. T., Eastwood, E., Chakraborty, A., Beine, Z., Gross, D., Cabahug, M., Olson, G and Blackmore, M. G.* (2020) Computational approaches identify novel transcription factor combinations that promote corticospinal axon growth after injury. biorxiv. doi: <https://doi.org/10.1101/2020.06.12.146159> [under review - Nature Neuroscience]

* Co-corresponding authors

Venkatesh, I. and Makky, K. (2019) Teaching Epigenetic regulation of Gene Expression is critical in 21st century science education: Key concepts and teaching strategies. American Biology Teacher. In press.

Wang, Z., Mehra, V., Simpson, M. T., Maunze, B., Chakraborty, A., Holan, L., Eastwood, E., Blackmore, M. G.,* and Venkatesh, I.* (2018) KLF6 and STAT3 co-occupy regulatory DNA and functionally synergize to promote axon growth in CNS neurons. Sci. Rep. 8, 12565

* Co-corresponding authors

Venkatesh, I.*, Mehra, V., Wang, Z., Califf, B., and Blackmore, M. G. (2018) Developmental chromatin restriction of pro-growth gene networks acts as an epigenetic barrier to axon regeneration in cortical neurons. Dev. Neurobiol. 10.1002/dneu.22605

*Corresponding author

Venkatesh, I., and Blackmore, M. G. (2017) Selecting optimal combinations of transcription factors to promote axon regeneration: Why mechanisms matter. Neurosci. Lett. 652, 64–73

Venkatesh, I.*, Simpson, M. T., Coley, D. M., and Blackmore, M. G. (2016) Epigenetic profiling reveals a developmental decrease in promoter accessibility during cortical maturation in vivo. Neuroepigenetics. 10.1016/j.nepig.2016.10.002

*Corresponding author

Simpson, M. T.*, Venkatesh, I.*, Callif, B. L. Thiel, L.K, Coley, D. M., Winsor, K. N., Wang, Z., Kramer, A., Lerch, J. K., and Blackmore, M. G. (2015) The tumor suppressor HHEX inhibits axon growth when prematurely expressed in developing central nervous system neurons. Mol. Cell. Neurosci. 68, 272–283

* These two authors contributed equally

Williams, R. R*., Venkatesh, I.*, Pearse, D. D., Udvardia, A. J., and Bunge, M. B. (2015) MASH1/Ascl1a Leads to GAP43 Expression and Axon Regeneration in the Adult CNS. PLoS One. 10, e0118918

* These two authors contributed equally

Awards and Honors

UWM graduate student travel awards (Society for Neuroscience meetings): 2011-2014

International symposium for Neuroregeneration Travel Award: 2013

Best research poster award- Midwest Zebrafish conference: 2013

Talks and Seminars

Computational approaches identify novel transcription factor combinations that promote corticospinal axon growth after injury. Monsoon Brain Meeting, India, June 2020

Combinatorial TF treatments to drive increased outgrowth in CNS neurons. BIT, Sathy-India, 2018

Epigenetic regulation of CST axon regeneration. American Society for Pharmacology and Experimental Therapeutics (ASPET), Great Lakes Chapter. Chicago, USA 2015

Conference presentations (First Author at International Conferences only)

- 2019 Ishwariya Venkatesh, Zimei Wang, Vatsal Mehra, Erik Eastwood, Matthew Simpson, Advaita Chakraborty, Derek Gross, Zac Beine, Michael Cabahug, Greta Olson and Murray Blackmore. An integrated in silico pipeline identifies a novel TF combination that promotes enhanced CST growth following injury. Gordon Research Conference-CNS injury and repair. Waterville Valley, NH.
- 2017 Ishwariya Venkatesh, Vatsal Mehra, Matthew Simpson, Zimei Wang and Murray Blackmore. An integrated in silico pipeline identifies novel transcription factor combinations that promote axon growth in CNS neurons. Society for Neuroscience 2017. Washington DC.
- 2017 Ishwariya Venkatesh, Vatsal Mehra, Matthew Simpson, Zimei Wang and Murray Blackmore. An integrated in silico pipeline identifies novel transcription factor combinations that promote axon growth in CNS neurons. International Society for Neuroregeneration. Pacific Grove, CA.
- 2016 Ishwariya Venkatesh, Vatsal Mehra, Ben Califf, Matthew Simpson, Zimei Wang, Denise Coley, Murray Blackmore, 2016. Combinatorial transcription factor treatments to promote axon outgrowth in CNS neurons. Society for Neuroscience 2016. San Diego, CA.

- 2015 Ishwariya Venkatesh, Matthew Simpson, Zimei Wang, Denise Coley, Murray Blackmore, 2015. Combined genetic/epigenetic manipulations to promote CST axon regeneration. Society for Neuroscience. Chicago, IL.
- 2015 Ishwariya Venkatesh, Matthew Simpson, Zimei Wang, Denise Coley, Murray Blackmore, 2015. Combined genetic/epigenetic manipulations to promote CST axon regeneration. International symposium for Neuroregeneration. Asilomar, CA
- 2014 Ishwariya Venkatesh, Ava.J.Udvadia,2014. Identification of transcription factors driving GAP-43 gene expression and optic nerve regeneration in zebrafish. International zebrafish development and genetics. Madison, WI.
- 2014 Ishwariya Venkatesh, Robert Teal, Ava.J. Udvadia,2014. Identification of transcription factors necessary for re-establishing retinotectal projections after optic nerve transection in zebrafish. Society for Neuroscience. Washington DC.
- 2013 Ishwariya Venkatesh, Ava.J.Udvadia, 2013. Identification of transcription factors regulating gap43 gene expression during optic nerve regeneration in zebrafish. 6th Aquatic Animal Models for Human Disease & Midwest zebrafish conference. Milwaukee, WI
- 2013 Ishwariya Venkatesh, Ava.J.Udvadia, 2013. Identification of transcription factors regulating gap43 gene expression during optic nerve regeneration in zebrafish. Society for Neuroscience. San Diego, CA
- 2013 Ishwariya Venkatesh, Ava.J.Udvadia, 2013. Identification of transcription factors regulating gap43 gene expression and axon outgrowth during optic nerve regeneration in zebrafish. International symposium for Neuroregeneration. Asilomar, CA.
- 2012 Ishwariya Venkatesh, Ava.J.Udvadia, 2012. Probing molecular pathways regulating CNS regeneration in zebrafish. International zebrafish genetics and development. Madison, WI
- 2012 Ishwariya Venkatesh, Ava.J. Udvadia, 2012. Identification of transcription factors regulating axon outgrowth and gap43 gene expression during optic nerve regeneration in zebrafish. Society for Neuroscience. New Orleans, LA

Teaching Experience

Lead Teaching Assistant

2011-2014

Human Anatomy and Physiology labs, UW-Milwaukee

- Independently taught two labs per year
- Designed course syllabus, lab activities, case studies for A&P labs
- Trained and coordinated between 10-30 TAs per semester on lab course material

Teaching assistant

Human Anatomy and Physiology labs, UW-Milwaukee

2009,2010

- Independently taught two labs per year

Professional Development

ENCODE workshops for regulatory genomics

2019

- Cis-regulatory element search using SCREEN database
- Visualizing HiC data using Juicer
- Machine learning approaches to decode regulatory codes

Neuroinformatics in the Age of Big Data: Working with the Right Data and Tools
Workshop at The Society for Neuroscience- Washington DC

2017

Analysis of high-throughput sequencing data- data intensive biology workshop
University of California-Davis

2017

- In-depth hands-on training in command line tools, R and Python tools for the analysis of next-gen sequencing data

Workshop on recent advances in analysis and visualization of RNA-Seq data
University of California-Davis

2016

Workshop on design and execution of CRISPR-cas9 based knockdown strategies
Medical College of Wisconsin

2016

Grant writing workshop for early career scientists
University of Wisconsin-Milwaukee

2014

Outreach/Volunteering activities

Science outreach

Brain awareness outreach

2010- 2014

Active member of lab team that designed and executed fun activities to demonstrate basic neuroscience concepts to high school children from areas of Milwaukee/Racine-WI as part of Brain Awareness week.

Science Judge - Wisconsin Regional Competition
of the National Ocean Sciences Bowl

2010- 2014

Volunteered to be the science judge for Wisconsin regional competition of the national ocean sciences bowl