1. Personal information

TENZIN NGODUP, Ph.D.

2. Education

Ph.D.	**University at Buffalo, SUNY** Department of Biological Sciences	2012-2017
MS	**University at Buffalo, SUNY** Neuroscience Program, Department of Biomedical Sciences	2010-2012
MS	**Annamalai University,** Tamil Nadu, India Department of Zoology	2008-09
B Ed	**Central Institute of Education, Delhi University**, India	2005
BS Biology	**Government College**, **Panjab University**, India	2004

3. Postgraduate training

Postdoctoral Fellow 2017-Present
Vollum Institute, Oregon Health & Science University
Advisor: Laurence Trussell, Ph.D.
Project Titles:

- Identification of novel glycinergic cells in the ventral cochlear nucleus.
- Noradrenergic modulation in the auditory system via Na^+ leak channel NALCN.
- An Integrated Physiological, Morphological and Transcriptomic Atlas of the mouse cochlear nucleus (Collaborative work with Baylor College of Medicine).
- Glutamate transporters are essential for high-fidelity sound coding in the auditory system.
- Role of Feedforward excitation of T-stellate cells of the ventral cochlear nucleus.
- Role of diverse inhibitory interneuron in the cochlear nucleus.

Graduate Researcher
University at Buffalo, SUNY Buffalo, NY
Advisor: Matthew Xu-Friedman, Ph.D. 2010-2017
Project Titles:

- Effects of noise exposure on detection of sound features *in vivo* by units in the cochlear nucleus.
- Activity-dependent regulation of neurotransmitter release from auditory nerve fibers.
- Regulation of Short-term plasticity at the endbulb of Held.

4. Faculty position held: None

5. Hospital position held: n/a

6. Honors

- **Bishop Outstanding Neuroscience Thesis Award**, University at Buffalo, NY 2017
- **Graduate Scholarship for Tibetans,** Dalai Lama Trust, DC, US 2013-15
- **Graduate Fellowship Award,** University at Buffalo, NY 2012-13
- **Sikyong Academic Achievement Award for Tibetan Refugees**, CTA, India 2017
- **Tibetan Scholarship Program (equivalent to Fulbright scholarship for Tibetan refugees)** Tibet Fund, NY and US Department of State, DC 2010-12
- **College Scholarship**, Tibetan Homes Foundation, India 2005
- **College Scholarship**, Tibetan Homes Foundation, India, 2001-04

7. Board certification: n/a

8. Current license to practice: n/a

9. Diversity, equity and inclusion activities

Community outreach and education efforts

- Organized an introduction to Neuroscience session for *Tibetan refugee high school students*, Portland 2022
- Served as the Education Director of the Northwest Tibetan Language and Cultural School for children of Tibetan refugees in the Portland metro area. 2020-22
- Invited guest speaker on *Voice of America, Tibetan, radio broadcast as "Person of the Week" 2021*
- Delivered a talk to Tibetan College Students on Auditory Neuroscience, Machik Weekend, Fordham Law, New York City 2019
- Organized an information session and delivered a talk on the *importance of Hearing Health to the Tibetan Refugee exile community*, Portland 2018
- Participated in *Neuroscience exhibition to Girls Scout* 2015
- Participated in *Brain Awareness Week for middle school students* organized by the Neuroscience Graduate Student Association (GSA), Buffalo 2015
- Participated in *Brain Awareness Week for underrepresented school students* in Buffalo, NY organized by Neuroscience GSA, Buffalo 2013
- Participated in *Brain Awareness Week*, GSA Neuroscience 2011

Public conferences attendance

- Participated in *Mind and Life Institute conference* 2012
- Attended *National Conference of Animal Ethics and Welfare*, March 2008
- Attended Emory University– *Tibet Initiation Presentation* 2007
- Attended *Science for Monks Workshop* 2005

10. Professional organizations

- Society of Neuroscience Active
- ARO

11. Education and training activities

Teaching experience

Arizona State University, AZ Fall 2020
Guest Instructor, Neurophysiology
(Invitee: Timothy Balmer, Ph.D.)

University at Buffalo, SUNY

Teaching Assistant, Cell Biology — Spring 2016
Teaching Assistant, Physiology lab — Fall 2015, Fall 2014, Fall 2013
Teaching Assistant, Developmental Biology — Spring 2015
Teaching Assistant, Perspectives in Human Biology — Spring 2014

Science meets Dharma, Sera Jey Monastic University, Bylakuppee, KS, India
Sera Je Secondary School
Science Teacher — 2005-2010

Mentoring experience

- *Hector Iglesias*, graduate student, OHSU — 2023-present
- *Tavita Garrett*, graduate student, OHSU — 2019-2020
- *Goh Butler*, undergraduate visiting student, OHSU — 2019
- *Gabriel Romero*, graduate student, OHSU — 2017-2022
  Co-author on elife paper, 2020
  Currently Postdoc with Lisa Goodrich at Harvard University
- *Douglas Zeppenfeld*, graduate student, OHSU — 2017-2022
  Currently with Andor Technology
- *Connor Cook*, undergraduate student — 2015-2017
  Currently Pediatric Resident, UW Health
- *Nicole Wong*, graduate student, University at Buffalo (UB), NY — 2015-2017
  Currently postdoc with Gina Turrigiano at Brandeis University
- *Gabriel Si*, graduate student, MS, UB — 2015-2017
  Currently Resident, Northwestern University
- *Adam-Corey Rander*, undergraduate student, UB — 2015
  Currently Licensed Radiation Therapist, NY
- *Nabiha Ahsan*, undergraduate student, UB — 2014
- *Joseph Cassata*, undergraduate student, UB — 2014
- *Rachel La Rosa*, undergraduate student, and research assistant, UB — 2013-2014
- *Jack Goetz*, MA student, UB — 2012-2014
  co-author on PNAS paper in 2015.

12. Editorial responsibilities: None

13. Special responsibilities and service: None

14. Clinical activities: None

15. Research funding

Past Research Fundings

- **Emerging Research Grant**, Hearing Health Foundation, US — 2018-2019
- **Travel Award**, Association for Research in Otolaryngology, NJ, US — 2019
- **Bishop Outstanding Neuroscience Thesis Award**, University at Buffalo, NY — 2017

- **Graduate Scholarship for Tibetans,** Dalai Lama Trust, DC, US 2013-15
- **Travel Award**, Association for Research in Otolaryngology, NJ, US 2014
- **Graduate Fellowship Award,** University at Buffalo, NY 2012-13

16. Bibliography

Ngodup, T., Irie, T., Elkins, S., Trussell, Laurence (2023). *The Na^+ leak channel NALCN controls spontaneous activity and mediates synaptic modulation by α2-adrenergic receptors in auditory neurons.* **eLife, 2023**, June 24, DOI: 10.7554/eLife.89520.

Jing, J., Hu, M., **Ngodup, T.**, Ma, Q., Lau, Natalie., Ljungberg, C., McGinley, Matthew., Trussell, L., Jiang, X. (2023). *Comprehensively defining cellular specializations for initiating parallel auditory pathways in the mouse cochlear nucleus.* **bioRxiv 2023**, June 04, DOI:10.1101/2023.05.15.539065

Ngodup, T., Romero, G., and Trussell, L. (2020). *Identification of an inhibitory neuron subtype, the L-stellate cell of the cochlear nucleus*. **eLife, 2020**, November 3, DOI: 10.7554/eLife.54350

Ngodup, T. and Xu-Friedman, M. *Auditory nerve adaptations enhance sound detection after prolonged noise exposure* (2017). *In revision*

Ngodup, T., Goetz, Jack., McGuire, B., Sun, Wei., Lauer, A., and Xu-Friedman, M. (2015). *Activity-dependent regulation of neurotransmitter release from auditory nerve fibers*. **Proceedings of the National Academy of Sciences, 2015**, May 19, DOI: 10.1073/pnas.1420885112.

Ngodup, T. and Xu-Friedman, M. (2012). *Regulation of Short-term plasticity at the endbulb of Held*. UMI ProQuest Dissertations and Thesis.

17. Talks and presentations

Ngodup, Tenzin and Trussell, Laurence (2024). Glial Glutamate transporters are essential for auditory coding in the ventral cochlear nucleus. Poster presentation at Association of Research on Otolaryngology, Anaheim, LA, 2024.

Jing, Junzhan., Hu Ming., **Ngodup**, **Tenzin.,** McGinley, Matthew., Trussell, Laurence., Jiang, Xiaolong (2024). Molecular subtypes of bushy cells in mouse cochlear nucleus. Poster presentation at Association of Research on Otolaryngology, Anaheim, LA, 2024

Pfliger, August., Jiang, Hong., Srivastava, Hemant., Jing, Junzhan., **Ngodup**, **Tenzin.,** Trussell, Laurence., Jiang, Xiaolong., and McGinley, Matthew. (2024) A systems-neurophysiologic toolkit for studying dorsal cochlear nucleus' role in state-dependent spatial saliency Poster presentation at Association of Research on Otolaryngology, Anaheim, LA, 2024

Ngodup, Tenzin and Trussell, Laurence (2024). Glial Glutamate transporters are essential for auditory coding in the ventral cochlear nucleus. Poster presentation at Northwest auditory and vestibular research meeting, Portland.

Ngodup, Tenzin (2023). A novel mechanism for noradrenergic modulation in the auditory system. Work-in-progress seminars, Vollum Institute, Oregon Health & Science University.

Ngodup, Tenzin., Irie, Tomohiko., Elkin, Sean., and Trussell, Laurence (2023). Sodium Leak channel NALCN underlies noradrenergic modulation of cartwheel interneurons of the cochlear nucleus. Poster presentation at Association of Research on Otolaryngology, Orlando, FL, 2023

Jing, Junzhan., Hu Ming., **Ngodup**, **Tenzin.,** McGinley, Matthew., Trussell, Laurence., Jiang, Xiaolong (2023). An Integrated Physiological, Morphological and Transcriptomic Atlas of the Mouse Cochlear Nucleus Poster presentation at Association of Research on Otolaryngology, Orlando, FL, 2023

Ngodup, Tenzin., Irie, Tomohiko., Elkin, Sean., and Trussell, Laurence (2022). Sodium Leak channel NALCN underlies noradrenergic modulation of cartwheel interneurons of the cochlear nucleus. Poster presentation at the annual meeting of Society of Neuroscience, San Diego, 2022

Ngodup, Tenzin., Irie, Tomohiko, Elkin, Sean., and Trussell, Laurence (2022). Sodium Leak channel NALCN underlies noradrenergic modulation of cartwheel interneurons of the cochlear nucleus. Poster presentation at the annual retreat of Vollum Institute, OHSU, Portland, 2022

Ngodup, Tenzin and Trussell, Laurence (2020). Synaptic properties of a novel inhibitory cell type in the cochlear nucleus. Poster presentation at Association of Research on Otolaryngology, San Jose, CA, 2020

Ngodup, Tenzin (2019). Discovery of a novel inhibitory neuron in the cochlear nucleus. Work-in-progress seminars, Vollum Institute, Oregon Health & Science University.

Ngodup, Tenzin and Trussell, Laurence (2019). Discovery of a novel inhibitory neuron in the cochlear nucleus. Poster presentation at the annual meeting of the Society of Neuroscience, Chicago, 2019

Ngodup, Tenzin., Romero. G., and Trussell, Laurence (2019). Discovery of a novel inhibitory neuron in the cochlear nucleus. Poster presentation at the annual meeting of the Association of Research on Otolaryngology, Baltimore, 2019

Ngodup, Tenzin., Romero. G., and Trussell, Laurence (2018). Discovery of a novel inhibitory neuron in the cochlear nucleus. Poster presentation at Northwest auditory and vestibular research meeting, University of Washington, Seattle.

Ngodup, Tenzin and Xu-Friedman, Matthew (2016). Effects on noise exposure on detection of sound features in vivo by units in the cochlear nucleus. Poster presentation at the annual symposium of the Society of Neuroscience, Buffalo chapter, 2016, **Won third prize for the poster competition.**

Ngodup, Tenzin and Xu-Friedman, Matthew (2016). Effects on noise exposure on detection of sound features in vivo by units in the cochlear nucleus. Poster presentation at the annual meeting of the Association of Research on Otolaryngology, San Diego, 2016
Ngodup, Tenzin and Xu-Friedman, Matthew (2015). Effects of noise rearing on synaptic function in vivo. Poster presentation at the annual symposium of the Department of Biological Sciences, University at Buffalo, 2015.

Ngodup, Tenzin and Xu-Friedman, Matthew (2014). Activity-dependent regulation of neurotransmitter release at the endbulb of Held in vivo. Poster presentation at the annual symposium of the Department of Biological Sciences, University at Buffalo, 2014.

Ngodup, Tenzin., Jack Goetz., Wei Sun., and Xu-Friedman, Matthew (2014). Activity-dependent regulation of neurotransmitter release at the endbulb of Held. Poster presentation at the annual meeting of Association of Research on Otolaryngology, San Diego, 2014

Ngodup, Tenzin and Xu-Friedman, Matthew (2013). Activity-dependent regulation of neurotransmitter release at the endbulb of Held. Oral presentation at the annual meeting of Society of Neuroscience, Buffalo chapter, 2013

Ngodup, Tenzin and Xu-Friedman, Matthew an (2013). Activity-dependent regulation of neurotransmitter release at the endbulb of Held. Poster presentation at the annual symposium of the Department of Biological Sciences, University at Buffalo, 2013.

Ngodup, Tenzin and Xu-Friedman, Matthew (2013). Activity-dependent regulation of neurotransmitter release at the endbulb of Held. Poster presentation at the annual meeting of Society of Neuroscience, Buffalo chapter, 2013

Ngodup, Tenzin and Xu-Friedman, Matthew (2012). Activity-dependent regulation of neurotransmitter release at the endbulb of Held. Poster presentation at Neuroscience student recruitment, Department of Biomedical Sciences, UB, 2012

Ngodup, Tenzin and Xu-Friedman, Matthew (2012). Multiquantal nature of spontaneous release at the endbulb of Held, Poster presentation at Neuroscience symposium, Department of Biomedical Sciences, UB, 2012

18. <u>Other employment</u>: n/a