

Unit Name

Neuronal Rhythms in Movement Unit
Associate Professor Marylka Yoe Uusisaari

Collaborations

Prof. Katarzyna Bozek, University of Cologne, Germany, Machine learning analysis of animal movement

Prof. Rieko Osu, Waseda University, Japan, Kinematic signatures of wellbeing

Dr. Simo Järvelä, University of Tampere, Finland, Kinematic signatures of interoception

Students Supervised:

- Deviana Lidya David (PhD Student)
- Dmitriy Sakharuk (PhD Student)
- Tara Helmi Turkki (PhD Student)
- Lorena Andreoli (PhD Student)
- Lakshmipriya Swaminathan (PhD Student)
- Adam Altner (Research Intern)

Scholarly Contributions and Creative Productions (by Faculty)

Journal Article

1. Ignatowska-Jankowska, B. M.; Swaminathan, L. I.; Turkki, T. H.; Sakharuk, D.; Ozer, A. G.; Kuck, A.; Uusisaari, M. Y.
Accurate Tracking of Locomotory Kinematics in Mice Moving Freely in Three-Dimensional Environments. *eNeuro* 2025, 12.
2. Lacava, S. A.; Isilak, N.; Ranawat, N.; Katzke, J.; Hoedemaker, J. F. H.; Yoshida, Y.; Uusisaari, M. Y.
A Vestibulospinal Pathway for Context-Dependent Motor Control of the Mouse Tail. *Cell Reports* 2025, 44.
3. Rose, F.; Michaluk, M.; Blindauer, T.; Ignatowska-Jankowska, B. M.; O'Shaughnessy, L.; Stephens, G. J.; Pereira, T. D.; Uusisaari, M. Y.; Bozek, K.
Deep Imputation for Skeleton Data (DISK) for Behavioral Science. *Nature Methods* 2025.
4. Uusisaari, M. Y.; Guo, D.
In Vivo Imaging of Inferior Olive Neurons Reveals Roles of Coactivation and Cerebellar Feedback in Olivocerebellar Signaling. *eLife* 2025.

Poster Presentation at Conference

1. Uusisaari, M. Y.; Ignatowska-Jankowska, B. M.; Swaminathan, L.; Turkki, T. H.
Low-Dose CP55,940 Changes Body Coordination Patterns during Treadmill Running in Marker Based 3D Motion Capture of Mice. International Cannabinoid Research Society Annual Symposium (ICRS) 2025.

2. Uusisaari, M. Y.; Turkki, T. H.; Ignatowska-Jankowska, B. M.; Salamovska, T.
Effects of Motor Experience on Mouse Inferior Olive Neuron Morphology. Gordon Research Conference, Cerebellum 2025.
3. Uusisaari, M. Y.; Eguchi, K.; Shigemoto, R.
Ultrastructural Mapping of Phosphatidylinositol 4,5-Bisphosphate in Active Zones of Cerebellar Presynaptic Terminals in a Down Syndrome Mouse Model. Neuro2025 2025.

Presentation at Conference

1. Uusisaari, M. Y.; Ignatowska-Jankowska, B. M.; Swaminathan, L.; Turkki, T. H.
Disruption of Kinematic Phenotypes Induced by Cannabinoid Agonist and Harmaline in Marker-Based 3D Motion Capture of Freely Moving Mice. World Congress of Neuropsychopharmacology, CINP 2025 2025.
2. Uusisaari, M. Y.; Ignatowska-Jankowska, B. M.; Turkki, T. H.; Swaminathan, L.
High-Speed Treadmill Running in Young and Old Mice Recorded with Marker-Based 3D Motion Capture. World Congress of Neuropsychopharmacology, CINP 2025 2025.

Scholarly Contributions (by Unit Members)

Name of Unit Member	Type	Title	Outlet	Publisher	Year Pub
Bogna Ignatowska-Jankowska	Journal Article	Cannabinoid receptor 1 positive allosteric modulator ZCZ011 shows differential effects on behavior and the endocannabinoid system in HIV-1 Tat transgenic female and male mice			
Kohgaku Eguchi	Journal Article	Phosphoinositides: Nanoscale effects on neuronal membranes	The Neuroscientist		
Tara H.Turkki / Bogna M.Ignatowska-Jankowska	Journal Article	Repeated administration of cannabidiol decreases splenic lymphocyte subset numbers in rats	International Journal of Immunopathology and Pharmacology	Sage Journals	2026
Swaminathan L / Ignatowska-Jankowska BM	Journal Article	Allosteric Modulation of Cannabinoid Type 1 Receptor by ZCZ011: Integration of In Vitro Pharmacology and Molecular Dynamics Simulation	ACS Bio & Med Chem Au	ACS Publications	2025
Bogna M.Ignatowska-Jankowska	Poster Presentation at Conference	FAAH Inhibition offers sex-specific protection in a NeuroHIV TAT transgenic mouse model of neuroinflammation	International Cannabinoid Research Society Annual Symposium (ICRS)		
Bogna M.Ignatowska-Jankowska	Seminars	Imaging of Neuronal Network Activity in Cerebellar Nuclei of Freely Moving Mice Performing Complex Behaviors	Inscopix (a Bruker company) Miniscope User Group Meeting at OIST		
Bogna M.Ignatowska-Jankowska	Seminars	Distinct kinematic phenotypes revealed by high-precision marker-based 3D motion capture in freely behaving mice	Invited Seminar at the Center for Sleep and Circadian Biology, Northwestern University, IL, USA		

Name of Unit Member	Type	Title	Outlet	Publisher	Year Pub
Tara H.Turkki	Seminars	Examining Effects of Motor Experience on Mouse Inferior Olive Neuron Morphology	University of Helsinki		

Honors, Awards & Fellowships

Term 3 2023 - Ongoing Special Prize at Exceptional Presentation, 2023, Gordon Research Conference

Term 2 2016 - Ongoing Marie Sklodowska-Curie Actions (MSCA) Independent Fellowship, 2016 [Fiscal Year: 2016-04-01]