Karolinska Institutet

Center for Cognition and Sociality

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Symposium

Astrocytes in Brain Function and Disease

Venue Nobel Forum, Campus Solna Karolinska Institutet

Date June 10-11, 2024

Organizer Agneta Nordberg (Karolinska Institutet)
Alexei Verkhratsky (The University of Manchester)
C. Justin Lee (Institute for Basic Science)
Eunji Cheong (Yonsei University)

Invited speakers and Participants

Eunji Cheong	Yonsei University
Il Han Choo	Chosun University College of Medicine
Heejung Chun	Yonsei University
Christian Goritz	Karolinska Institutet
Tibor Harkany	Medical University of Vienna
Tomas Hökfelt	Karolinska Institutet
Wuhyun Koh	Institute for Basic Science
C. Justin Lee	Institute for Basic Science
Jae-Hun Lee	Institute for Basic Science
Sangkyu Lee	Institute for Basic Science
Maria Lindskog	Uppsala University
Jan Mulder	Karolinska Institutet
Min-Ho Nam	Korea Institute of Science and Technology
Agneta Nordberg	Karolinska Institutet
Ole Petter Ottersen	Oslo University
Marcela Pekna	University of Gothenburg
Milos Pekny	University of Gothenburg
Aleksandra Pękowska	Nencki Institute of Experimental Biology PAS
Hoon Ryu	Korea Institute of Science and Technology
Marianne Schultzberg	Karolinska Institutet
Hee-Sup Shin	Institute for Basic Science
Chang Ho Sohn	Yonsei University
Verena Untiet	University of Copenhagen
Alexei Verkhratsky	The University of Manchester
Tim Viney	University of Oxford
Wongu Youn	Institute for Basic Science
Mijin Yun	Yonsei University College of Medicine
Robert Zorec	University of Ljubljana

This symposium is sponsored by KNTEC and Neuroscience Ledare workshop program.

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Mon, June 10, 2024

09:00-09:15	**Opening Remarks**	**Agneta Nordberg and C. Justin Lee**
09:15-11:00	**General biology of astroglia**	**Moderator: Tomas Hökfelt**
09:15-09:40	Evolution of neuroglia: From worm to mammals	*Alexei Verkhratsky, University of Manchester*
09:40-10:05	Evolution of astroglia: From Ape to Man	*Aleksandra Pekowska, Nencki Institute of Experimental Biology PAS*
10:05-10:30	Single-cell biology of astrocytes to interrogate their crosstalk with neurons in health and disease	*Tibor Harkany, ,Medical University of Vienna*
10:30-11:00	Coffee Break	
11:00-12:05	**Physiology of astroglia**	**Moderator: Ole Petter Ottersen**
11:00-11:25	Sculpting Neural Circuits via Engineered Neuro-Glial Interactions	*Sangkyu Lee, IBS*
11:25-11:45	The role of astrocytic chloride as modulator of neuronal inhibition in epilepsy	*Verena Untiet, University of Copenhagen*
11:45-12:05	Glycan Transfer Between Neurons and Astrocytes	*Wongu Youn, IBS*
12:05-12:35	**Panel discussion**	
12:35-13:35	**Lunch**	
13:35-14:50	**Physiology of astroglia**	**Moderator: Milos Pekny**
13:35-14:00	The multifarious roles of astrocyte aquaporins	*Ole Petter Ottersen, Oslo University*
14:00-14:25	Mulit-omics approaches to characterize the molecular signatures of human astrocytes in health and disease.	*Jan Mulder, Karolinska Institutet*
14:25-14:50	Single nucleus RNA-seq for PFA-fixed or FFPE tissues by fixative-exchange(FX)-seq and its application to neuroscience	*Chang Ho Sohn, Yonsei University*
14:50-15:20	coffee break	
15:20-17:25	**Imaging of astrocytes in AD**	**Moderator: Maria Lindskog**
15:20-15:45	Alzheimer's disease seen through PET/CT imaging	*Mijin Yun, Yonsei University College of Medicine*
15:45-16:10	Dynamic Reactive Astrogliosis in Alzheimer's disease continuum	*Agneta Nordberg, Karolinska Institutet*
16:10-16:35	Astrocyte induced structural changes in Alzheimer's disease continuum	*Il Han Choo, Chosun University College of Medicine*
16:35-17:00	18F-THK5351 PET tracer for imaging MAO-B-mediated reactive astrocytes in Alzheimer's disease	*Heejung Chun, Yonsei University*
17:00-17:25	Visualization of reactive astrocyte-neuron interaction in Alzheimer's disease using 11C-acetate and 18F-FDG	*Min-Ho Nam, KIST*
17:25-17:55	**Panel discussion**	

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Tue, June 11, 2024

09:00-10:40	**Astrocytes in regulation of behaviour and cognition**	**Moderator: C Justin Lee**
09:00-09:25	Neurobiology of Observational Fear, a Model for Affective Empathy	*Hee-Sup Shin, IBS*
09:25-09:50	Adrenergic control of astrocyte function in cognitive decline	*Robert Zorec, University of Ljubljana*
09:50-10:15	The astrocyte as the gearbox of the brain	*Maria Lindskog, Uppsala University*
10:15-10:40	Astrocytic Ank2 stabilizes long-term synaptic plasticity and remote memory through BDNF-dependent morphogenesis	*Wuhyun Koh, IBS*
10:40-11:10	Coffee Break	
11:00-12:00	**Reactive astrogliosis**	**Moderator: Marcela Pekna**
11:10-11:35	Vulnerability of neural circuits encoding head direction in preclinical Alzheimer's disease	*Tim Viney, University of Oxford*
11:35-12:00	Characterizing Astrogliosis in the Thalamus During the Progression of Alzheimer's Disease	*Eunji Cheong, Yonsei University*
12:00-12:30	**Panel Discussion**	
12:30-13:30	**Lunch**	
13:30-14:45	**Astroglial reactivity and inflammation**	**Moderator: Robert Zorec**
13:30-13:55	Targeting C3aR to modulate astrocyte reactivity	*Marcela Pekna, University of Gothenburg*
13:55-14:20	Resolution of inflammation in the brain	*Marianne Schultzberg, Karolinska Institutet*
14:20-14:45	Astrocytic autophagy plasticity modulates Aβ clearance and cognitive function in Alzheimer's disease.	*Hoon Ryu, KIST*
14:45-15:10	Coffee Break	
15:10-16:50	**Astrocytes in stroke**	**Moderator: Agneta Nordberg**
15:10-15:35	Intermediate filaments and reactive astrocytes in stroke and ALS	*Milos Pekny, University of Gothenburg*
15:35-16:00	Fibrotic scarring – the dark side of the glial scar	*Christian Goritz, Karolinska Institutet*
16:00-16:25	Astrocytic hemoglobin is a H2O2-decomposing peroxidase and therapeutic target for Alzheimer's disease and ischemic stroke	*C. Justin Lee, IBS*
16:25-16:45	Astrocytic collagen induced by H2O2 triggers fibrotic scar and exacerbates neuronal death in ischemic stroke	*Jae-Hun Lee, IBS*
16:45-17:20	**Panel Discussion**	
17:20-17:30	**Closing Remarks**	

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