

The Neurobiology of Mental Health

Lake Conference

Thun, May 12-16, 2024

Sunday, May 12

Arrival / Registration; Buffet dinner starting at 18:30

Monday, May 13

9:00-9:35 **Naomi Wray** (Univ. Queensland) Genetic architecture of psychiatric disorders

9:35-10:10 **Daniel Geschwind** (UCLA) Tackling heterogeneity in neuropsychiatric disorders through high throughput biology.

Coffee

10:30-11:05 **Weizhe Hong** (UCLA) Neural basis of prosocial behavior

11:05-11:40 **Nancy Padilla-Coreano** (Univ. Florida) Neural circuits underlying social competence in mice

11:40-11:55 **Xiaoke Chen** (Stanford) Unveiling the role of retinal processing in empathetic pain and autism

11:55-12:10 **Tilmann Achsel** (Univ. Lausanne) Identification of a sociability signature in the dorsal striatum

12:10-12:30 **Camilla Bellone/Marie Schaer** (Univ. Geneva) Translational research approach to social orienting deficits in autism: the role of superior colliculus-ventral tegmental pathway

Lunch 12:30-14:30

14:30-15:05 **Hongkui Zeng** (Allen Inst.) Transcriptomic changes of cell types in development, aging and disease

15:05-15:40 **Sergiu Pasca** (Stanford) Constructing and deconstructing the human nervous system to understand disease

15:40-16:15 **Paola Arlotta** (Harvard) Brain organoids as avatars to study human brain development and disease

Coffee

16:35-17:10 **Deanna Barch** (Washington Univ.) Developmental risk factors for psychosis emergence

17:10-17:45 **Beatriz Rico** (KCL, London) Cortical interneuron dysfunction and neurodevelopmental disorders

17:45-18:00 **Martin Munz** (IOB, Basel) Layer 5 pyramidal neuron circuits at the inception of neocortex in the living mouse embryo

18:00-18:15 **Matthew Johnson** (Broad Inst.) A comparative atlas of cell states and molecular vulnerability to mental illness in the adolescent prefrontal cortex

dinner 18:30-20:30

20:45-21:20 **Kelsey Martin** (Simons SFARI, UCLA) From synaptic plasticity to autism research

Poster Session I (A-K)

Tuesday, May 14

- 9:00-9:35 **Nadine Gogolla** (MPI Munich) Whole-brain emotion state coding in mice
- 9:35-10:10 **Catherine Dulac** (Harvard) Neurobiology of sickness behavior
- 10:10-10:25 **Adam Kepecs** (Washington Univ.) Bridging bodily and mental illness: A neuro-immune circuit mediates cancer cachexia-induced apathy
- 10:25-10:40 **Tatiana Korotkova** (Univ. Koeln) Regulation of anxiety by leptin receptor-expressing hypothalamic neurons in health and in anorexia model

Coffee

- 11:00-11:35 **Kay Tye** (Salk) Longitudinal visualization of stress Induced anhedonia
- 11:35-12:10 **Michael Bruchas** (Univ. Washington) A diverse network of pericoerulear neurons control arousal and stress states
- 11:10-12:25 **Adelaide Minerva** (Princeton) Cellular resolution changes in the ventral tegmental area underlying susceptibility and resilience to chronic social stress

lunch 12:30-14:30

- 14:30-15:05 **Christian Luescher** (Univ. Geneva) Dopamine transients in the nucleus accumbens instructing reward choice
- 15:05-15:20 **Iskra Pollak Dorocic** (Stockholm Univ.) Mapping the transcriptional effects of SSRI treatment on serotonin subtypes
- 15:20-15:35 **Clara Liao** (Yale) 5-HT2A dependent effects underpinning the action of psilocybin

Coffee

- 15:55-16:30 **Steve McCarroll** (Harvard) The Synaptic Neuron-and-Astrocyte Program (SNAP)
- 16:30-17:05 **Misha Ahrens** (Janelia) Flexible computation in brainwide neuron-astrocyte zebrafish circuits
- 17:05-17:40 **Hailan Hu** (Zhejiang Univ.) The region-specific effect of ketamine and neuron-glia crosstalk in lateral habenula
- 17:40-17:55 **Marc Duque-Ramirez** (Harvard) Ketamine induces plasticity in a norepinephrine-astroglial circuit to promote behavioral perseverance in zebrafish

dinner 18:30-20:30

- 20:45-21:20 **Bryan Roth** (UNC Chapel Hill) Ultra-large-scale approaches for discovering transformative CNS therapeutics

Poster Session II (L-Z)

Wednesday, May 15

9:00-9:35 **Akira Sawa** (Johns Hopkins) Multimodal, longitudinal study for psychotic disorders: homeostatic signaling to neural connectivity

9:35-10:10 **Kevin Mastro/B. Stevens** (Broad Inst.) Cellular mechanisms of adolescent development and psychiatric vulnerability

10:10-10:25 **Flurin Cathomas** (Univ. Zurich) Circulating myeloid-derived MMP8 in stress susceptibility and depression

10:25-10:40 **Yeong Shin Yim** (Univ. Penn.) Non-conventional CD8+ T cells engage in brain homeostasis

Coffee

11:00-11:35 **Katharina Schmack** (Crick, London) Hallucinating mice, dopamine and immunity: towards mechanistic treatments for psychosis

11:35-12:10 **Jonathan Flint** (UCLA) A complementation test to find the genes involved in altering behavior and disease risk

lunch 12:30-14:30

14:30-15:05 **David Redish** (Univ. Minn.) Episodic imagination in approach-avoid conflicts: implications for worry and anxiety

15:05-15:40 **David Kupferschmidt/ J. Gordon** (NIMH) Optical reshaping of hippocampal-prefrontal communication

15:40-16:15 **Georg Keller** (FMI, Basel) A cortical circuit approach to psychosis

16:15-16:30 **Sam Vesuna** (Stanford) Deep posteromedial cortical rhythm in dissociation

Coffee

16:50-17:25 **Nolan Williams** (Stanford) Interventional neuropsychiatry

17:25-18:00 **Edward Chang** (UCSF) Closed-loop brain pacemakers for neuropsychiatric conditions

18:00-18:15 **Irene Rembado** (Allen Inst.) Cell type-specific and area-dependent effects in cortex to sinusoidal electric stimulation in-vivo

18:15-18:30 **Kristin Raj** (Stanford) SAINT in the treatment of bipolar depression

dinner 18:45-20:45

Posters (All)

Thursday, May 16

9:00-9:35 **Chris Walsh** (Harvard) You contain multitudes: somatic mutation in human neuropsychiatric disease

9:35-10:10 **Elise Robinson** (Broad Inst.) From genes to biology for autism

Coffee

10:30-11:05 **Michael Gandal** (Univ. Penn.) Interpreting neuropsychiatric genetics through the lens of human brain development

11:05-11:40 **Mauro Costa-Mattioli** (Baylor) Harnessing evolution and proteostasis networks to reverse cognitive dysfunction

lunch 12:00-14:00

Departure