

IBANGS Annual Meeting 2024: Genes, Brain and Behavior

June 3-6, 2024 | Western University, London, Ontario, Canada

Conference Agenda

Program Overview

Date: Monday, 03/June/2024

9:00am Meeting Registration (UNTIL 5 PM)

Virtual location: Atrium of Thames Hall

10:00am Educational Workshop: Open Behaviour: Using Microcontrollers for Neuroscience Research

Virtual location: The Garden, Somerville House

And see building map for best entrance

Chair: Jibran Khokhar Chair: Jude Frie

12:00pm Lunch

Virtual location: Atrium of Thames Hall

Posters can be set up on boards, until 5 pm.

Map of posters' location based on their numbers

1:00pm Tours of Core Facilities

Chair: Anne Simon

Parallel Tours:

<u>Tours of behaviour cores:</u> Visit our <u>MouseTRAP</u> facilities! (max 6 participant per tour, 2 tours) -With Kelly Summers and Dan Palmer

Participants will have the choice to visit either a rodent touchscreen cognitive testing space and engage researchers within the Translational Cognitive Neuroscience Lab (TCNLab) or spend time exploring our state-of-the-art microscopy suite within Western's Advanced Microscopy Core (WAMC).

Meet at 1pm and 1:45 in Atrium Hall, by the registration desk.

<u>Tour of the Biotron:</u> Visit our Experimental Climate Change Research Centre (**max 36 people**) - with Anne Simon

Participants will be guided through this unique facility supporting research on biotic and abiotic processes in the environment, that specializes in the simulation of natural environments at a range of scales. Includes state-of-the-art microscopy suite, insects suite and Biomes.

Meet at 1pm in Atrium Hall, by the registration desk. Back around 3pm.

3:00pm Afternoon Break

Virtual location: Atrium of Thames Hall

Upload slides to room PC for tomorrow's talks

3:30pm Resume Trainee Workshop

Virtual location: The Garden, Somerville House

Trainee Workshop
Virtual location: The

Virtual location: The Garden, Somerville House

And see building map for best entrance

Chair: Kristin Scaplen

And see building map for best entrance

Chair: Kristin Scaplen

5:00pm Welcome and Opening

Virtual location: AHB 1R40

5:15pm Presidential Address: Professor Sheena Josselyn

Virtual location: AHB 1R40

Chair: Karla Kaun

Dr. Anna Phan (Asst Prof Univ Alberta) will introduce Dr. Sheena Josselyn

Making memories in mice

Sheena Josselyn Hospital for Sick Children

7:00pm Welcome Barbecue

Virtual location: Grad Club

Entertainment: Mr. Josh and Hoddinauts

Date: Tuesday, 04/June/2024

8:30am **Meeting Registration**

Virtual location: Art & Humanities Building hallway near 1R40

9:00am Symposium 1: Gene Expression and Behavioral Regulation: A Cross-Species Exploration

Virtual location: AHB 1R40

Chair: Ina Anreiter

Symposium 1: Gene Expression and Behavioral Regulation: A Cross-Species Exploration

Ina Anreiter University of Toronto

Decoding the Biological Basis of Opioid Addiction using Single Nuclei RNA-seq and Chromatin Accessibility from the Nucleus Accumbens of Outbred Rats

Brad Balderson

Salk Institute for Biological Studies

Behavioral pharmacology and genetics of psychedelics

Charles Nichols

Louisiana State University

Untangling the web of behaviors used in spider orb-weaving

Andrew Gordus

Johns Hopkins University

Developmental logic informs the sexual and cellular identities of the nervous system

Aaron Allen University of Oxford

11:00am **Morning Break**

Virtual location: Atrium of Thames Hall

11:30am Selected Talks I

Virtual location: AHB 1R40 Chair: David Ashbrook

The Role of Novel Histone Modifications in Sleep Regulation

Wanhe Li

Texas A&M University

Nep1 in the Spotlight: Unraveling the Downstream Transcriptional Mediators of Stromalin's Effects on Synaptic Vesicle Pool Size Illia Pimenov

University of Alberta

The Adaptor Protein Complex 2 (AP-2) regulates sensorimotor gating through prepulse inhibition and habituation in larval zebrafish

Roshan Jain Haverford College

Uncovering the neural basis for individual differences in fear memory using adult zebrafish

Justin Kenney Wayne State University

Characterization of cognitive performance in GPR158 transgenic mice across sex and age in a social environment using an automated home cage

Alyson Blount

University of Maryland

Combining neuroimaging and transcriptomics to investigate the A13 as a neuromodulatory target for Parkinson's Disease

Violet Liu Western University

1:00pm Lunch

Virtual location: Atrium of Thames Hall

2:00pm Symposium 2: CNTNAP2 and its role in autism spectrum disorders - from mice to men

Virtual location: AHB 1R40

Chair: Katrina Choe Chair: Susanne Schmid

Symposium 2: CNTNAP2 and its role in autism spectrum disorders - from mice to men

Katrina Choe

CNTNAP2 and its role in autism spectrum disorders - from mice to men

Accelerated social representational drift in the nucleus accumbens in the CNTNAP2 model of autism

Peyman Golshani

UCLA

An early role in human cortical development for the disease associated CNTNAP2

Minyin Li Stanford University

Autistic phenotypes in the Cntnap2 KO rat are changed by early life experience

Susanne Schmid

University of Western Ontario

Investigating the mechanistic link between Cntnap2 and social behaviour using a mouse model

Katrina Choe McMaster University

4:00pm Afternoon Break

Virtual location: Atrium of Thames Hall

Upload slides to room PC for tomorrow's talks

4:30pm Early Career Achievement Award: Dr. Francesca Telese

Virtual location: AHB 1R40 🗹

Chair: Karla Kaun

Dr. Hayley Thorpe (postdoc Western, Salk) will be introducing Dr. Francesca Telese

Gene Regulatory Mechanism Shaping Brain Function and Dysfunction

Francesca Telese

University of California San Diego

5:30pm <u>Poster Session I (even numbers)</u>

Virtual location: <u>Atrium of Thames Hall</u>

Map of posters' location based on their numbers

P2 Investigating the Effect of Humanized Apolipoprotein E, Amyloid and Tau on Cognition and Alzheimer's Disease Pathology

Aya Arrar

Western University

P4 Validating Zhx2 as a candidate gene underlying oxycodone metabolite (oxymorphone) brain concentration and behavior via gene editing and -omics analyses in BALB/cByJ mice

Will Lynch

Boston University

P6 The histone methyltransferase G9a regulates expression of a cGMP-dependent protein kinase and thermal nociception in Drosophila melanogaster

Dunya Assaf

University of Windsor

P8 Investigation into the involvement of C. elegans glia in sensory sensitivity and habituation of tap-induced reversal behaviour Catharine Rankin

University of British Columbia

P10 Serotonin transporter knockdown relieves depression-like behavior and ethanol-induced CPP in mice after chronic social defeat stress Amine Bahi

Ajman University

P12 Mapping the neural basis for individual differences in the exploratory behavior of adult zebrafish by combining in-situ hybridization chain reaction with the adult zebrafish brain atlas and BrainGlobe.

Neha Rajput

Wavne University

P14 Alcohol-Related Behaviors in a Mouse Model Containing the Human GCKR SNP rs1260326 (P446L)

Erika Mehrhoff

University of Colorado

P16 Sex and genetic background influences oral oxycodone self-administration in the hybrid rat diversity panel: correlations with behavioral tests of anxiety and novelty-seeking

Hao Chen

University of Tennessee Health Science Center

P18 The combined effects of Apolipoprotein (ApoE) 4, amyloid, and tau on hippocampal dependent behaviour and pathology in mice Madison Longmuir

Western University

P20 Investigating the mechanisms of transgenerational effects induced by Ritalin

Rebekah Jolicoeur

University of Toronto

P22 Interconnections between Behavior, Neuroinflammation, Gut Microbiota, Transcriptional Regulation, and Epigenetics in a Mouse Model of High Ethanol Consumption and Preference: The Integrative Role of the Gut-Brain Axis.

Renato Elias Moreira Júnior

Universidade Federal de Minas Gerais

P24 Sex-specific modulation of social space by dopamine receptors in the Drosophila melanogaster mushroom bodies

Micah Evans

Western University

P26 Using Signal Detection Theory to Define Olfactory Discrimination Reversal Learning Strategies in Mice

Wyatt Ortibus

Dalhousie University

P28 Dopamine dynamics in the dorsolateral striatum during visuomotor conditional learning task in a mouse model of synucleinopathies.

Anoosha Attaran

Western University

P30 Wild Isolate Strains of the Nematode C. elegans Reveal Natural Variation in Avoidance Behaviors

Denise Ferkey

University at Buffalo

P32 Effects of Zhx2 liver and brain overexpression on oxymorphone metabolite levels and state-dependent oxycodone reward learning in BALB/cJ mice with a Zhx2 loss-of-function variant

Sophia Miracle

Boston University

P34 Identifying neural circuit and molecular mechanisms underlying dopaminergic regulation of sleep in Drosophila melanogaster Sissi Yuli

University of Alberta

P36 Perineuronal nets in the brain areas involved in sensory processing in the CNTNAP2 rat.

Cleusa de Oliveira

University of Western Ontario

P38 Examining the inter-litter and intra-litter differences of maternal care and offspring behaviour in Long-Evans rats Quintin Whitman

University of Toronto

P40 Development of a translationally relevant mouse paradigm to study prenatal exposure to Δ9- tetrahydrocannabinol

Megan Mulligan

University of Tennessee Health Science Center

P42 Molecular mechanisms of alcohol-induced cognitive impairment in Drosophila melanogaster larvae

Isaury Sanchez

University of Puerto Rico

P44 High-Throughput Behavioral Assay Unveils Female Courtship Behaviors in Drosophila

Lisha Shao

University of Delaware

P46 A comparison of neuroplasticity-related markers in the nucleus accumbens of male and female mice models of chronic inflammatory and neuropathic pain

Danielle Halasz

University of Guelph

P48 Spontaneously Hypertensive Rat substrains and the offspring of reciprocal F2 crosses exhibit differences in addiction risk traits and cocaine behavioral sensitivity

Britahny Baskin

Northeastern University

P50 Glutamate receptor expression in startle-mediating neurons in Cntnap2 knock-out rats

Alice Zheng

Western University

P52 Effects of bacterial strain use on reducing alcohol preference in a free choice animal model

Mariana Amormino

Universidade Federal de Minas Gerais

P54 Age-related changes in Acoustic startle response and Prepulse Inhibition of Startle in Four genotypes of Neurexin model mice from 6 to 24 months of age

Richard Brown

Dalhousie University

P56 Modelling cohesinopathies in fruit flies: Stromalin and its effects on seizure behavior in Drosophila

Amoolya Sai Dwijesha

University of Alberta

P58 Exploring Neurological Effects of Social Isolation in Drosophila

Gurlaz Kaur

University of Alberta

P60 Chronic adolescent restraint stress downregulates miRNA-200a expression

Helen Kamens

Pennsylvania State University

P62 The neural basis of female aggression in Drosophila

Amanda Moehring

Western University

P64 Evaluation of Midgestation Binge Ethanol Exposure on Behavior in Adult Mice and Pilot Bioinformatic Analyses of Potential Candidate Genes

Kristin Hamre

University of Tennessee Health Science Center

P66 Aim: To develop an open-source device for tracking fluid intake in socially-housed rats.

Jude Frie

Western University

P68 Analysis and functional characterization of alternatively spliced novel isoforms of human genes encoding small heat shock protein 8 and deciphering their potential role in neuroprotection.

Naira Rashid

Jamia Hamdard University

P70 Effects of TIr3-dependent innate immune activation and chronic alcohol consumption on gene expression in brain micro-vessels.

Texas Tech University Health Sciences Center

P72 Impact of pre-implantation alcohol exposure on brain development and functions: an implication for GABAergic interneurons

Aboubacrine Mahamane Touré

CHU Sainte-Justine Research Center

P74 Sex-dependent behavioural and brain connectivity in adulthood upon adolescent CBD and THC vapour exposure

Pedro Marinho Western University

P76 Impact of Maternal Diet on The Severity of Prenatal Alcohol Exposure

Michelle Robb University of Montreal

P78 Interaction of trace-amine associated receptor 1 and mu-opioid receptor influence on motivational behaviors and thermoregulation

Shkelzen Shabani Grand Valley State University

9:00pm Night at the Observatory

Virtual location: Cronyn Observatory

Chair: Anne Simon

Date: Wednesday, 05/June/2024

8:30am <u>Meeting Registration</u>

Virtual location: Art & Humanities Building hallway near 1R40

9:00am <u>Symposium 3: Cell-type specific molecular signatures of alcohol-induced neuroadaptations</u>

Virtual location: AHB 1R40

Chair: Maiya Rajani Chair: Igor Ponomarev

Symposium 3: Cell-type specific molecular signatures of alcohol-induced neuroadaptations

Raiani Maiva

LSU Health Sciences Center, New Orleans

STAT3 transcriptional signatures in mouse prefrontal cortex and hippocampus after chronic binge-like drinking

Amy Lasek

Virginia Commonwealth University

The epigenetic enzyme g9a acts in dynorphin-positive accumbal neurons to reduce stress-induced escalation of ethanol drinking in mice

Ethan Anderson

Louisiana State University

Cell Type Specific Signatures of Social-Stress Escalated Alcohol Consumption in The Paraventricular Thalamus

Rajani Maiya

Louisiana State University

Effects of TIr3-dependent innate immune activation and chronic alcohol consumption on gene expression in brain micro-vessels.

Brent Kisby

Texas Tech University Health Sciences Center

11:00am <u>Games Organized</u>

Virtual location: <u>Lawn of University College</u>

Chair: Jibran Khokhar

12:00pm Lunch

Location: Between Art & Humanities and University College buildings

Food Truck: The Angry Goose

2:00pm Symposium 4: C. elegans neurogenetics: Behavior, Learning, Stress and Disease

Virtual location: AHB 1R40

Chair: Denise Ferkey

Symposium 4: C. elegans neurogenetics: Behavior, Learning, Stress and Disease

Int Behavioural and Neural Genetics Society, United States of America

Sleep-dependent olfactory memory requires astrocytes during sleep to consolidate memory

Rashmi Chandra

University of California San Francisco

Neuronal control over cell stress pathways

Veena Prahlad

Roswell Park Comprehensive Cancer Center

Neurodegenerative diseases: C. elegans models and conserved mechanisms

Anne Hart

Brown University

Biological sex as a dynamic modulator of neural circuit function and behavior in C. elegans

Douglas Portman

University of Rocheste

4:00pm Afternoon Break

Virtual location: Atrium of Thames Hall

Upload slides to room PC for tomorrow's talks

4:30pm **Keynote Address: Dr. Amita Sehgal**

Virtual location: AHB 1R40

Chair: Anne Simon Chair: Jibran Khokhar

Dr. Wanhe Li (Asst Prof Texas A&M) will be introducing Dr. Amita Seghal

Unlocking the Metabolic Mysteries of Sleep: Before and After the Zzzs

Amita Sehgal

University of Pennsylvania

5:30pm Poster Session 2 (Odd numbers)

Virtual location: Atrium of Thames Hall

Map of posters' location based on their numbers

P1 Can genome-wide association study of cannabis initiation and cannabis use frequency pre-addiction traits reveal novel associations with cannabis use?

Hayley Thorpe Western University

P3 Examining the relationship between neuronal lactate production, memory, and lipid dynamics in aged mice

Marc Courchesne

Western University

P5 Investigating the interaction between cell adhesion molecule 2 (CADM2) genetic variation and cannabinoids using behavioural and neurochemical assessments

Esther Choi

Western University

P7 Mice with Distinct Drug Taking Phenotypes Exhibit Strain Specific Neurocircuitry and Transcriptional Changes.

Troy Wilcox

Jackson Laboratory

P9 Hunger activates parallel circuit for cue-induced ethanol seeking circuits in Drosophila

Lewis Sherer

Brown University

P11 Diverse phenotypic responses across biological scale to environmental enrichment and impoverishment in genetically diverse mice

Michael Leonardo

Marshall University

P13 Histone variant H2A.Z is relocated in the genome during neuronal development and regulates gene expression.

Sandra Youssef

University of Ottawa

P15 Pilot Study on the Genetic Effects of THC Metabolism in Mice

Winona Booher

University of Colorado

P17 Deciphering distinct signaling networks that regulate dopamine-mediated learned and innate behaviours.

Dana Guhle

University of Alberta

P19 Investigating the neural circuitry underlying social spacing using Drosophila melanogaster as a model

Abigail Bechard

Western University

P21 Social spacing: elucidating the neural circuitry

Wesley Robinson

Western University

P23 The role of phosphatidylserine in synaptic development and plasticity at the Drosophila melanogaster neuromuscular junction

Adam Sghaier

University of Windson

P25 Leveraging the BXD recombinant inbred mouse population to identify gene variants mediating behavioral and physiological responses to high dose $\Delta 9$ - tetrahydrocannabinol

Megan Mulligan

University of Tennessee Health Science Center

P27 Encoding and retrieval of a contextual fear memory evoke divergent expression of immediate-early genes Arc and c-Fos

Nicholas Bulthuis

Columbia University

P29 Prepulse inhibition deficits in the Cntnap2-knockout rat depend on startle stimulus intensities

Ella Doornaert

Western University

P31 Fut2 genotype and alcohol impacts on gut microbiota in mice

André Lucas Borges

University of New Mexico

P33 Resting-state Functional Connectivity Alterations Between Hippocampal Subfields and Prefrontal Cortex in Alzheimer's Disease

Esmin Unaran

Western University

P35 Contrasting roles of Beclin-1 in pain hypersensitivity and anxiety-like behaviours in a mouse model of neuropathic pain

Fariya Zaheer

University of Guelph

P39 Behavioral Effects of Chronic Social Isolation in Drosophila

Heba Mahmood

University of Alberta

P41 The role of Drosophila calcium binding proteins frequenin1 and frequenin2 in Taxol-induced nociceptive hypersensitivity

Alexandria St.Louis

University of Windso

P43 Identifying mechanisms of ap2s1 regulation of habituation learning via live calcium imaging in larval zebrafish

Jacob Krawitz

Haverford College

P45 Sex Differences in Astrocyte-Neuron Dynamics in Chronic Neuropathic Pain in the Anterior Cingulate Cortex

P47 Unexpected Sexual Dimorphism in an AstAergic Circuit for Thirst-Motivated Water Seeking

Fred Wolf

University of California Merced

P49 Elucidating the neural mechanisms of a novel memory suppressor gene, sec22

Akhila Eswaran

University of Alberta

P51 Uncovering the neural genetic basis of paternal care in African striped mice

Forrest Rogers

Princeton Neuroscience Institute

P53 Sex differences in the effect of sucrose-induced locomotor sensitization in rats

Vangel Matic

Western University

P55 Mice selected for success and failure of "puzzle-box" test solution, reveal differences in attention to moving stimuli and memory.

Inga Poletaeva

Moscow State University

P57 Tip60 histone acetyltransferase regulates PDF neuropeptide expression and alcohol-tolerance acquisition in Drosophila melanogaster Christian Del Valle-Colón

University of Puerto Rico, Río Piedras

P59 The histone chaperone Srcap regulates H2A.Z genomic location, gene expression, and neuronal differentiation in N2A cells.

karanveer Johal

University of Ottawa

P61 Investigating the impact of alpha-synuclein pathology on sustained and selective attention in a translational mouse model Samina Panjwani

Western University

P63 Absence Seizures in Mouse Models of Alzheimer's Disease: True Disease-associated Pathology or Unlucky Choice of Background Strain?

David Linsenbardt

University of New Mexico

P65 The role of fruitless and Sex-Peptide-expressing neurons in female mate receptivity of the Drosophila genus

Omar El-Deeb

Western University

P67 Functional inference analysis of cecum and colon microbiota in an animal model of high alcohol consumption and preference Mirian Velten

Universade Federal de Minas Gerais

P69 Defining the Developmental Impact of a Pathogenic dnmt3a Variant in a Mouse Model

Josianne Clavel

University of Montreal

P71 DNMT3A loss-of-function leads to abnormal brain development

Karine Doiron

Centre de Recherche Azrieli du CHU Sainte-Justine

P73 Effects of sleep displacement and sleep fragmentation on hippocampal neurogenesis in mice

Robert Gibson

Simon Fraser University

P75 Experience specific tuning of postnatally born hippocampal neurons

Gelareh Modara

University of British Columbia

Habibe Ucpunar

University of Toronto

P79 Discovery of a new mouse model for spontaneous late-onset epileptic seizures

Richard Brown Dalhousie University

7:00pm Social: Touchscreen Translational Cognival

Virtual location: 6th floor Western Interdisciplinary Research Building (WIRB).

More details

Location WIRB

Date: Thursday, 06/June/2024

8:30am **Meeting Registration**

Virtual location: Art & Humanities Building hallway near 1R40

9:00am Symposium 5: Translational Insights into Neurodegenerative Disease: From Mice to Marmosets to Humans

Virtual location: AHB 1R40

Chair: Julie Dumont Chair: Miguel Skirzewski

Symposium 5: Translational Insights into Neurodegenerative Disease: From Mice to Marmosets to Humans

Julie Dumont Western University

Gene-environment interactions modulating cognitive and affective disorders in mouse models of neurodegenerative brain diseases

Anthony Hannan University of Melbourne

Apoε4 and Aβ load interact to drive attentional performance differences on a translational touchscreen task in mice and humans at-risk for Alzheimer's disease.

Kate Onuska Western University

Touchscreen-based cognitive tests to assess sleep-associated cognition in mice and humans

Brianne Kent Simon Fraser University

Overcoming the preclinical to clinical translational gap in neurodegenerative disorders: application of cross-species touchscreen cognitive testing in mice and marmosets

Stacey Rizzo

University of Pittsburgh

11:00am **Morning Break**

Virtual location: Art & Humanities Building hallway near 1R40

11:30am Selected Talks 2

Virtual location: AHB 1R40

12:45pm Chair: Megan Mulligan

Genome wide association studies in heterogeneous stock rats identify pleiotropic loci for cue-reactivity and cocaine motivation.

Chris King University at Buffalo

Molecular Profiling of CADM2 Knockout Mice: Implications for Executive Function and Reward Signaling Pathways

Kendra Loedige Western University

Genetic diversity shapes the infant's distress response in mice

Marcelo Rigon Zimmer

Yale University

TCF7L2 deficiency in the thalamus leads to alterations in social behavior profile

Suelen Baggio

University of Warsaw

Genetic Association of Socially Acquired Nicotine Self-administration in Adolescent Outbred Rats Identifies Candidate Genes Shared with Human Smoking GWAS

Hao Chen

University of Tennessee Health Science Center

12:45pm Talk by CREDIT

Virtual location: AHB 1R40

1:00pm Chair: Jibran Khokhar

Council on Reforming Equity, Diversity, and Inclusion for Trainees

1:00pm Lunch

Virtual location: Atrium of Thames Hall

1:45pm **Business Meeting**

Virtual location: AHB 1R40

2:45pm Outstanding Travel Awardees

Virtual location: AHB 1R40

Chair: Amy Lasek

Characterization of the gut microbiome and intravenous oxycodone self-administration in two genetically divergent rat strains

Eamonn Duffy

University of Colorado Boulder

Helping a friend in need: behavioral and neural mechanisms of prosocial behavior in rats

Reut Hazani

Bar-Ilan University and Geha Mental Health Center

A dopaminergic circuit for escalation of alcohol use in Drosophila

John Hernandez Brown University

Combining Electroacupuncture and Metformin Therapy to Enhance Neural Recovery and Alleviate Cognitive Impairment After Traumatic Brain Injury

Jay Prakash Prasad Kumal Nepalgunj Medical College

4:15pm Afternoon Break

Virtual location: Art & Humanities Building hallway near 1R40

4:45pm <u>Distinguished Investigator Award: Andrew Holmes</u>

Virtual location: AHB 1R40

Chair: Karla Kaun

Dr. Winona Booher (postdoc Univ Colorado) will be introducing Dr. Andrew Holmes.

Mechanisms supporting neural representations of memory

Andrew Holmes

NIH

7:30pm Banquet

Virtual location: The Mercato, at Brescia

Google map location: 15 min walk from Arts and Humanities Building (directions here).

Complimentary transportation: Checkers SUV that will provide a continuous loop from the Alumni Circle (the round about facing Thames Hall) to the Mercato from 6:00pm to 7:30pm.

It will only provide transport to the function prior to meals starting. You will need to find their own way back (a 6 min walk from Ontario Hall: <u>directions here</u>).

There are also free parkings, up Brescia lane.

Entertainment: BÄM!