GLOBAL BRAIN CONSORTIUM

Annual Meeting Program
November 22-23, 2021

Welcome Messages

Pedro Valdes-Sosa,
Co-Chair
Global Brain Consortium

Alan Evans,
Co-Chair
Global Brain Consortium

On behalf of the GBC Steering Committee and project leads, we are pleased to welcome you to the third meeting of the Global Brain Consortium (GBC). It has been a challenging period since we last met in Varadero, Cuba, and we are happy to bring together so many initiatives and recent advances in international collaboration for global disease/disorder discovery for global health.

This year brings us a new opportunity as well to gather virtually online, bringing together more people in distinct projects focused on Global EEG Norms, Malnutrition and Brain Development, Dementia, Parkinson's disease, Global Longitudinal Study of Child and Adolescent Brain Development, and COVID-Induced Brain Disorder.

EEG brings excellent temporal resolution in quantification of brain states, and can be leveraged broadly around the world, to provide a unique opportunity for scientific coordination and applications. We believe it is an excellent use case that will lay the groundwork for a new global collaborative neuroscience ecosystem, tackling complex issues of international best practices and data sharing.

Gathering together with renewed focus on the potential applications for these neuroelectrophysiology methods, technology, standards, applications, development, inclusive practices and accessible neuroinformatics towards alleviating the global burden of disease is a delicate balancing act. Working together - scientists, technology experts and funders - to shape strategic multidisciplinary approaches to operational gaps and to expand equitable access for global mental health is an exciting opportunity for our research community.

We are grateful for the continued support of the community and the Ludmer Foundation for this conference and its vision for a global neuroscience network.

Irving Ludmer, Founder
Ludmer Centre for
Neuroinformatics and
Mental Health

On behalf of the Ludmer Centre for Neuroinformatics and Mental Health, welcome.

Today represents the next chapter for the growing vision of the GBC - a global consortium cooperatively researching neurodegenerative disorders and mental health.

Three years on, the Global Brain Consortium has brought together an impressive array of truly global partnerships and research connections, building further progress in the understanding of the universe within. It embodies the essence of the vision we had in creating the Ludmer Centre.

Thank you for your participation.

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Goals and Leadership

Goals of the 2021 Annual Meeting

To organize the GBC into distinct projects leveraging collaborative neuroscience to increase access for low and middle income countries (LMIC) to neuroelectrophysiology data access, standards, neuroinformatics methods and infrastructure, best practices for open science in the international arena, and potential applications for disease/disorder discovery or equitable global mental health.

Steering Committee

Gary Egan,
Monash University

Maryann Martone,
UCSD

JB Poline,
McGill University

Katrin Amunts,
Julich

Alan Evans,
McGill University

Jane Roskams,
UBC

Pedro Valdes-Sosa,
CNEURO

Bartha Knoppers,
McGill University

Paul Thompson,
USC

Greg Farber,
NIH

Dezhong Yao,
UESTC

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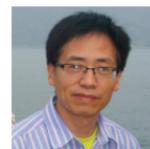
Agenda Day 1

Monday, November 22, EST

9:00 am

9:30 am

10:00 am

Opening Remarks
GBC Progress Updates and Summary of Outcomes
WHO remarks
Donor remarks

Plenary Session
Administrative Update - GBC Next Steps and Directions

Project Overviews
see descriptions on pages 6-7

Global EEG Norms

Biomarkers of Parkinson's disease for Global Health

Biomarkers of Dementia for Global Health

Malnutrition and Brain Development

COVID-Induced Brain Dysfunction

Global Longitudinal Study of Child and Adolescent Brain Development

10:30 am

Biobreak

10:45 am

First Project Breakout session
Project Working Sessions to develop Project Plan

Global EEG Norms

Biomarkers of Parkinson's disease for Global Health

Biomarkers of Dementia for Global Health

11:45 am

Plenary - Day 1 Close

12:00 pm

Social event
Gathertown

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Agenda Day 2

Tuesday, November 23, EST

9:00 am

Welcome back
Recap of Day 1 and Next Steps

9:10 am

Project Plan Presentations Day 1
Review project plans from previous breakouts

Global EEG Norms

Biomarkers of Parkinson's disease for Global Health

Biomarkers of Dementia for Global Health

9:55 am

Biobreak

10:00 am

Second Project Breakout Session
Project Working Sessions to develop Project Plan

Malnutrition and Brain Development

COVID-Induced Brain Dysfunction

Global Longitudinal Study of Child and Adolescent Brain Development

11:00 am

Project Plan Presentations Day 2

Malnutrition and Brain Development

COVID-Induced Brain Dysfunction

Global Longitudinal Study of Child and Adolescent Brain Development

11:45 am

Plenary - Closing

12:00 pm

Vera Gross Lecture
Delivered by Dr. Janina Galler
Join us at: https://ccrsolutions.zoom.us/j/86251947552

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Projects - Day 1 Breakouts

Global EEG Norms

With the increase of large collaboration and data sharing, EEG data faces the critical barrier of replicability and data pooling problems. Especially for quantitative EEG (qEEG) analysis, the characterized age-frequency distribution of log-spectrum may lose reliability for clinical diagnosis when people gather datasets from different sites recorded at a different time with varying data acquisition protocols because of batch effects. These issues must be addressed and further factors identified on a global scale.

Project Lead: Pedro Valdes-Sosa, Christoph Michel
Project Scribe: Mathew Abrams

Biomarkers of Parkinson's disease for Global Health

This workgroup will build upon the success of the ENIGMA project in enhancing neural imaging genetics through meta-analysis. In this case, technologies such as EEG and other useful measures in LMIC will be considered to expand the usefulness of the results obtained.

Project Lead: Paul Thompson, Alain Dagher
Project Scribe: Sophia Thomopoulous

Biomarkers of Dementia for Global Health

This global project is directed towards the early detection of dementia based on EEG technologies and accessible multi-omics studies. This project attempts to gather and share global data focused on early disease stages to facilitate the development of disease progression models that will allow the management of this pathology in all socioeconomic settings.

Project Lead: Claudio Babiloni, Gorsev Yener, Yasser Iturria
Project Scribe: Freddy Ochoa

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Projects - Day 2 Breakouts

Malnutrition and Brain Development

This workgroup will enhance the studies on malnutrition in early life and its long-term effects on mental health and brain development over the lifespan and across generations. The initial project will focus on the Barbados Nutrition Study, a 50+ year longitudinal study that has followed the children with histories of malnutrition, their offspring and grandchildren. The project will consist of multidisciplinary research in animal models of prenatal and intergenerational malnutrition. Exciting new facets of this research involve epigenetic mechanisms which offer an intriguing explanation of earlier findings and provide a powerful new tool to identify potential intergenerational mechanisms of early life malnutrition and associated behavioral and mental health outcomes. An important aspect is the identification of early brain biomarkers of child malnutrition that predict adverse mental health outcomes in middle and late adulthood.

Project Lead: Janina Galler, Simon Anderson
Project Scribe: Arielle Rabinowitz

COVID-Induced Brain Dysfunction

COVID-19-Induced Brain Dysfunction (CIBD) will cause strain on world health systems as a result of the heterogeneity of manifestations. Neural, psychological, and social factors must be disentangled for effective population-level management of CIBD. This requires international cooperation leveraging open science and neurotechnologies appropriate for health systems. This workgroup will attempt to organize an international collaboration towards this goal.

Project Lead: Mitchell Valdes-Sosa, Ben Becker
Project Scribe: Roberto Rodriguez

Global Longitudinal Study of Child and Adolescent Brain Development

Following in the footsteps of the several successful longitudinal projects that characterize early brain development, it becomes evident that a similar project must be launched to increase the national diversity of the subjects studied. The workgroup of this study aims to draft such a project adapting the measurements to the LMIC, as well as offering health solutions as part of the program.

Project Lead: Damien Fair, Giuseppe Chiarenza
Project Scribe: Manuel Hinojosa

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Annual Vera Gross Lecture
Dr. Janina R. Galler, Harvard Medical School

Life-Span and Intergenerational Legacy of Early Childhood Malnutrition on Brain and Behavior: the 48+ Year Barbados Nutrition Study

Tuesday, November 23, 2021, 12 p.m. ET

Join us at:
https://ccrsolutions.zoom.us/j/86251947552

Made possible by a generous donation from Mortimer and Vera Gross

Hosted in conjunction with the Global Brain Consortium 2021 Annual Meeting

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Dr. Janina R. Galler

Janina R. Galler, MD, is Professor of Psychiatry at Harvard Medical School and a Senior Researcher, Division of Pediatric Gastroenterology and Nutrition, Massachusetts General Hospital for Children.

Dr. Galler is recognized as a leader in the areas of child nutrition and mental health. Her multidisciplinary research has focused on the effects of childhood malnutrition on brain and behavioral development throughout the lifespan and across generations. She is the founding Director of the Barbados Nutrition Study, a 48+ year longitudinal study that has followed children with histories of malnutrition, their offspring and grandchildren.

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2021 Annual Meeting Agenda

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