

MiSBIE Transition Meeting

April 5, 2024

Scientific Program

Todd Auditorium, P&S 16th Fl, Room 405, Columbia University Irving Medical Center

Part I – MiSBIE Study status, rationale, and protocol (45 min)

2:00	Zoom setup https://columbiacuimc.zoom.us/j/5779841445
2:05	Welcome – Martin Picard MiSBIE Team, Collaborators, Partners <i>Agenda for today's MiSBIE Transition meeting</i>
2:10	MiSBIE Study overview – Martin Picard Rationale, primary hypotheses, scientific opportunities The stress-disease cascade hypothesis Study timeline, recruitment, and completion
2:15	Mitochondrial diseases – Michio Hirano Which clinical population does MiSBIE include? MELAS, CPEO, multi-system disease Markers of disease severity: neurological, functional capacity, autonomic, fatigue, etc
2:20	MiSBIE protocol – Catherine Kelly What did participants experienced during a MiSBIE visit? Protocol overview
2:30	Psychosocial assessments and questionnaires – Caroline Trumpff Constructs & instruments <i>PRELIMINARY RESULTS: Psychophenotypes and mental health variables</i>
2:35 10 min	Questions

Part II – Procedures, preliminary data, and results – short vignettes (50 min)

2:45 3 min	RedCap Database – Grace Liu Dimensionality and properties of MiSBIE database
3 min	Stress psychophysiology session – Vincenzo Lauriola Continuous measures of heart rate, blood pressure, respiration, skin conductance <i>PRELIMINARY RESULTS: Psychophysiological stress reactivity at different resolution</i>

3 min	<p>Biospecimen processing and MiSBIE Biobank – Mangesh Kurade From participant to lab to cryostorage: What samples are available? <i>PRELIMINARY RESULTS: Success rates and sample availability</i></p>
3 min	<p>Steroid hormones in saliva and hair – Natalia Bobba-Alves / Clemens Kirschbaum Cortisol, corticosterone, DHEA-s, testosterone, others <i>PRELIMINARY RESULTS: Cortisol stress reactivity and awakening response</i></p>
3 min	<p>Immune cell bioenergetics – Anna Monzel Seahorse in leukocytes, JATP calculations, sn/scRNAseq, and MHI <i>PRELIMINARY RESULTS: Seahorse cell type differences, monocyte gene expression</i></p>
3 min	<p>Neuropsychological assessment – Stephanie Assuras / Catherine Kelly Instruments, domains of cognition assessed <i>PRELIMINARY RESULTS: Cognitive domains affected in mitochondrial diseases</i></p>
3 min	<p>Clinical biochemistry and allostatic load – Alex Junker / Robert-Paul Juster Standard blood chemistry, biomarkers, allostatic load indices <i>PRELIMINARY RESULTS: Clinical biochemistry and multisystem dysregulation in MitoD</i></p>
3 min	<p>Neuroimaging – Ke Bo / Tor Wager / Michel Thiebaut de Schotten MRI protocol: structural, fMRI-BOLD rest and tasks, DWI <i>Preliminary results: Brain activation maps, pain signature, hemodynamic responses</i></p>
3 min	<p>Cell-free mitochondrial DNA – David Shire Socioevaluative speech task-induced cf-mtDNA in saliva, serum, plasma <i>PRELIMINARY RESULTS: cf-mtDNA stress reactivity across biofluids</i></p>
3 min	<p>Home-based assessments – Aric Prather MiSBIE App, surveys, actigraphy <i>PRELIMINARY RESULTS: Sample data from actigraphy-based sleep monitoring</i></p>
3 min	<p>Saliva proteomics – Molei Liu, Alan Cohen Saliva awakening response proteome, dynamics statistical models <i>PRELIMINARY RESULTS: Saliva awakening proteome dynamic signature of MitoD</i></p>
3 min	<p>Age-related and mitochondrial disease biomarker dynamics – Hannah Huang GDF15 in blood and saliva, stress reactivity, also FGF21 (Mangesh Kurade) <i>PRELIMINARY RESULTS: Elevated saliva GDF15 in MitoD, and is a stress hormone</i></p>
3 min	<p>Single cell transcriptomics – Anna Monzel PBMC cryopreservation, 10x genomics, immune-disease connection and integration <i>PRELIMINARY RESULTS: Mitochondrial molecular phenotyping in single immune cells</i></p>
3:25 10 min	<p>Questions</p>

PART III – Future plans and discussion (25 min)

<p>3:35</p>	<p>Future plans for MiSBIE – Martin Congratulations to the MiSBIE Team Key scientific questions, planned biomarker analyses, opportunities Pending and planned NIH grants MiSBIE mother paper – inviting “<i>MiSBIE Group Collaborators</i>”</p>
<p>3:40</p>	<p>Using MiSBIE data and samples – Martin R01 data in NIMH Data Archive (NDA), Omics on GEO, Requesting other data Annual MISBIE symposium <i>Coordinator: Vanessa Giardino</i> <i>Data Manager: Grace Liu</i></p>
<p>3:45 15 min</p>	<p>Questions and Discussion</p>

<p>4:00</p>	<p>MiSBIE Wine & Cheese Behavioral Medicine Conference room – Presbyterian Hospital 15th floor (PH1505)</p>
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