

DATE OF PREPARATION: July 18, 2024

## PERSONAL DATA:

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- **Martin Picard, Ph.D.**
- **Contact information**  
Division of Behavioral Medicine, 622 W. 168th Street, PH1540-N, New York, NY 10032  
mp3484@columbia.edu, 646-774-8967 (PH office), 646-774-5026 (Kolb office) [www.picardlab.org](http://www.picardlab.org)
- **Birthplace:** Montreal, Canada
- **Citizenship:** Canada    **US Immigration status:** Permanent Resident

## EXECUTIVE SUMMARY

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- **Training:** Interdisciplinary training in mitochondrial biology of aging, mitochondrial genetics and medicine, computational biology, behavioral medicine, psychoneuroendocrinology, and integrative medicine.
- **Research:** My laboratory develops and applies mitochondrial science approaches to human psychobiology research, leading the field of *Mitochondrial Psychobiology*. We define principles and mechanisms linking the human experience to molecular processes within mitochondria. To achieve this, we have developed a mitochondrial health index (MHI) and omics-based methods to study the mind-mitochondria connection in humans, identified novel membrane structures for mitochondrial communication, found that mitochondrial biomarkers are acutely inducible by psychological stress in blood and saliva, and that human hair greying is reversible and linked to life stress. We also have developed a longitudinal Cellular Lifespan System that recapitulates epigenetic aging trajectories and allows us to quantify the energetic cost of stress *in vitro*, along with computational approaches to profile mitochondrial diversity across the body and brain at single-cell resolution. Concepts and assays from our group have been shared and implemented internationally, now being applied to develop holistic metrics of human health and resilience across the lifespan.
- **Publications:** 127 publications; >12,500 citations ([Google Scholar](https://scholar.google.com/)); including invited perspectives that have integrated concepts across fields to build the integrative foundation for Mitochondrial Psychobiology.
- **Funding:** PI/MPI on 8 NIH R01s and 1 non-NIH grant, Co-I on 3 collaborative R01/U01 grants. *Pending:* 3 R01s.
- **Awards:** *Baszucki Prize in Science*; *NIA Nathan Shock Memorial Lecture*; *FABBS Early Career Impact Award*; *NIH Rising Stars Lecture*; *ABMR Neal E Miller New Investigator Award*; *APS Herbert Weiner Early Career Award*.
- **Outreach:** >60 invited talks at international/national conferences and institutions in the past 5 years, including a *TEDx* talk. Research covered in *Scientific American*, *The New Yorker*, *The Scientist*, *The New York Times*.
- **Leadership and service:** I am leading the field of mitochondrial science towards a more holistic vision. I serve as the co-director of the *Columbia Science of Health* program, was co-chair of the *Columbia University Seminar* on the future of aging research, organized the inaugural agenda-setting *Banbury Meeting* on mitochondrial psychobiology, and have played advisory roles to the NIA and NIMH leadership. I currently lead a team of 15-20 diverse scientists, am devoted to supporting the next generation of translational mitochondrial psychobiologists, and to develop large-scale initiatives to accelerate the transition towards a sustainable vision for human health and healing.

## ACADEMIC APPOINTMENTS:

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| • Associate Professor of Behavioral Medicine (in Psychiatry, Neurology and the Robert N. Butler Columbia Aging Center) | 01/2019 - present | Department of Psychiatry, Division of Behavioral Medicine & Department of Neurology, Division of Neuromuscular Disorders<br>Columbia University Irving Medical Center (CUIMC) |
|--|-------------------|---|

• Endowed Chair in the Science of Energy and Health	03/2024 – present	Robert N Butler Columbia Aging Center, Mailman School of Public Health, Columbia University
• Research Scientist VI	07/2021 - present	New York State Psychiatric Institute (NYSPI)
• Research Scientist VIII	10/2019 - present	Research Foundation for Mental Hygiene (RFMH)
• Faculty	11/2015 - present	The H. Houston Merritt Center for Neuromuscular and Mitochondrial Disorders, CUIMC
• Faculty	11/2015 - present	Columbia Translational Neuroscience Initiative, CUIMC
• Visiting Scientist	03/2015 - 02/2020	Wellcome Centre for Mitochondrial Research; <i>Newcastle University</i> , Newcastle UK
• Assistant Professor of Behavioral Medicine (in Psychiatry and Neurology)	11/2015 - 12/2018	Department of Psychiatry, Division of Behavioral Medicine Department of Neurology College Physicians & Surgeons, CUIMC

### EDUCATION:

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• Doctorate	01/2008 - 05/2012	<i>Mitochondrial Biology of Aging</i> Thesis: <i>Assessment of mitochondrial function in skeletal muscle during disease, disuse and normal aging</i> Advisors: Tanja Taivassalo PhD, Russell T Hepple PhD McGill University, Department of Kinesiology
• B.Hons., Physiology	09/2003 - 01/2007	<i>Neuroimmunology</i> Advisor: Julie Desbarats PhD McGill University, Department of Physiology Montreal, Canada

### TRAINING:

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• Postdoctoral Fellow	07/2012 - 06/2015	Mitochondrial Genetics and Epigenomics Center for Mitochondrial and Epigenomic Medicine <i>University of Pennsylvania</i> , Philadelphia, PA Advisor: Douglas C Wallace
• Fellow	09/2010 - 04/2012	CIHR Systems Biology Training Program <i>McGill University</i> , Montreal
• Fellow	09/2009 - 04/2012	CIHR Psychosocial Oncology Training Program <i>McGill University</i> , Montreal
• D.Hom.	09/2006 - 04/2009	Integrative Medicine, Clinical Case Taking <i>Montreal Institute of Classical Homeopathy</i> , Montreal

### OTHER WORK EXPERIENCES:

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• Visiting Scholar	01/2013 - 03/2013	Novo Nordisk Foundation Center Integrative Physiology, Metabolism and Epigenetics Group; Romain Barres, PhD <i>University of Copenhagen</i> , Copenhagen, Denmark
	02/2012 - 06/2012	Institute for Aging and Health, Mitochondrial Research Group; Douglass M Turnbull, MD <i>Newcastle University</i> , Newcastle Upon Tyne, UK
	04/2012 - 07/2012	Clinical Exercise Physiology, Unité Médicale de

		Physiology Fonctionnelle; Ruddy Richard, MD <i>Université de Strasbourg, Strasbourg, France</i>
	01/2010 - 03/2010	Muscle Aging Research Laboratory, Russell T Hepple, PhD <i>University of Calgary, Calgary, Canada</i>
• Research Assistant	05/2007 - 08/2007	Mitochondrial Biochemistry Laboratory Yan Burelle, PhD <i>Université de Montréal, Montreal, Canada</i>
	12/2006 - 05/2007	Mitochondrial Impairment, Impact, and Intervention Laboratory. Tanja Taivassalo, PhD <i>McGill University, Montreal, Canada</i>
	05/2005 - 09/2005	Clinical Exercise Physiology Laboratory, Montreal Chest Institute, Hélène Perrault, PhD <i>McGill University Health Center, Montreal, Canada</i>
	05/2004 - 08/2004	Neuroimmunology Laboratory, Department of Physiology, Julie Desbarats, PhD <i>McGill University, Montreal, Canada</i>
	05/2002 - 08/2002	Mechanical Engineering Laboratory Martin Brouillette, PhD <i>Université de Sherbrooke, Sherbrooke, Canada</i>

## HONORS & AWARDS:

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### FACULTY:

- 2024 *Baszucki Prize in Science*: Baszucki Group
- 2023 *Nathan W. Shock Memorial Lecture*: NIH/NIA  
*Herbert Weiner Early Career Award*: American Psychosomatic Society (APS)
- 2021 *Early Career Impact Award*: Federation of Associations of Behavioral and Brain Sciences (FABBS)
- 2019 *Rising Stars Lecturer*: NIH Director's Office  
*Neal E Miller New Investigator Award*: Academy of Behavioral Medicine Research (ABMR)
- 2017 *Herbert Irving Named Professorship (3 years)*: Columbia University Irving Medical Center  
*Faculty Research Fellow*: Columbia Aging Center  
*Frontiers in PNI Lecturer*: PsychoNeuroImmunology Research Society (PNIRS)
- 2015 *Gray Matters Fellow*: Columbia University, Department of Psychiatry

### POST-GRADUATE:

- 2013 *Young Investigator Colloquium Award*: American Psychosomatic Society  
*Caroline Tum Suden/Francis A. Hellebrandt Award*: American Physiological Society

### GRADUATE:

- 2012 *Michael Smith Foreign Study Supplement*: National Science and Engineering Research Council (NSERC)  
*International Early Career Physiologist Travel Award*: American Physiological Society
- 2011 *Prix Acfas Desjardins 2011 - Doctoral, all disciplines*: Association Francophone Pour le Savoir  
*International Travel Award*: CIHR Institute of Musculoskeletal Health and Arthritis  
*EGSS Doctoral Award for Research and Professional Excellence*: McGill University  
*Age + Prize*: Canadian Institute of Health Research (CIHR)

- International Travel Award: Fonds de la Recherche en Santé du Québec (FRSQ)*
- Best Oral Research Presentation: Scientific Day COPD RSR Network, FRSQ*
- David L. Montgomery Award: McGill University, Department of Kinesiology*
- Graduate Research Enhancement and Travel Award: McGill University, Faculty of Education*
- 2010 *Best Oral Research Presentation: FRSQ/RSR & APPQ Annual Congress*
- Graduate Research Enhancement and Travel Award: McGill University, Faculty of Education*
- 2009 *Alexander Graham Bell Canada Graduate Scholarship (Doctoral): NSERC*
- Master's Research Excellence Award: McGill University, Education Graduate Student Society*
- McGill Provost's Graduate Fellowship: McGill University, Office of the provost*
- Tomlinson Doctoral Fellowship: McGill University (declined)*
- 2008 *Alexander Graham Bell Canada Graduate Scholarship (Masters): NSERC*
- Masters Training Scholarship: Fonds de la Recherche en Santé du Québec (FRSQ) (declined)*
- Graduate Fellowship: McGill University Health Center Research Institute (declined)*
- 2007 *Undergraduate Summer Research Award: NSERC*
- 2006 *Alvin Shrier Physiology Scholarship: Physiology Department, McGill University*
- 2004-6 *Principal's Student-Athlete Honour Roll: McGill University*
- Dean's Honour List: McGill University*

## **ADMINISTRATIVE LEADERSHIP AND ACADEMIC SERVICE:**

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### **NATIONAL/INTERNATIONAL:**

- *Banbury Meeting on Mitochondrial Psychobiology: Organizer* 2024
- *American Society for Cell Biology MOSAIC Program: Mentor* 2024-present
- *Marie-Curie European Training Network (ETN) – Mitochondrial Morphofunction: Member* 2017-2021  
Project Advisory Board member. Nijmegen, The Netherlands.
- *Biophysical Society – Bioenergetics, Mitochondria Subgroup: Council Member* 2019-2021
- *FASEB Mitochondrial Biogenesis in Health and Disease: Session chair* 05/2019  
Palm Springs, CA.
- *World Mitochondria Society Meeting, Targeting Mitochondria: Opening session chair* 10/2016  
Berlin, Germany.
- *European Muscle Conference: Session chair* 09/2016  
Montpellier, France.

### **LOCAL/REGIONAL:**

- *University Seminars: The Future of Aging Research: Co-chair* 2016-2021  
Columbia University
- *Faculty Mentor* 2018-2019  
Presidential Scholars in Society and Neuroscience (PSSN) Program
- *Host: Guest speaker Douglas C Wallace, PhD – Children's Hospital of Philadelphia* 1/2018  
CUIMC-Precision Medicine Initiative and Departments of Psychiatry and Neurology
- *Host: Guest speaker Zhenglong Gu, PhD – Cornell University* 05/2017  
Departments of Psychiatry and Neurology
- *Host: Guest speaker Giovanni Marsicano, PhD – Université Bordeaux II, France* 11/2016  
Departments of Psychiatry and Neurology

- *Children’s Hospital of Philadelphia Research Institute Summer Scholars Program: Judging Committee* 2013-2014  
Poster Day, Children’s Hospital of Philadelphia
- *Committee on Research and Graduate Studies: Graduate student representative* 2011-2012  
McGill University, Faculty of Education
- *Muscle Mitochondria Meetings: Founder* 2010-2012  
Organization of dialogue-based forum to facilitate interactions among faculty and graduate students
- *Education Graduate Student Society: Departmental graduate student representative* 2009-2012  
McGill University, Faculty of Education. Montreal, Canada
- *Bloomberg-Manulife Roundtable with Inaugural winner Dr. Steven Blair: Invited panelist* 01/2012  
McGill University. Montreal, Canada
- *Student Committee for Doctoral Students in Education: Departmental doctoral representative* 2010-2011  
McGill University, Department of Kinesiology
- *Academic Integrity Day: Workshop facilitator* 02/2011  
McGill University Skillsets Event
- *The importance of knowing how to write in graduate school: Panelist* 10/2010  
McGill University Skillsets Event “Sneak Peek Into Graduate School”
- *ABCs of the PhD: How to be successful in your doctoral fellowship application: Panelist* 09/2010  
McGill University, Faculty of Education

## **PROFESSIONAL ORGANIZATIONS AND SOCIETIES:**

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### **MEMBERSHIP AND POSITIONS:**

- **National/International:**

- *Society for Biopsychosocial Medicine Research: Member* 2011-present
- *North American Mitochondrial Disease Consortium – NAMDC: Member* 2017-present
- *Academy of Behavioral Medicine Research – ABMR: Elected Member* 2019-present
- *International Society of Psychoneuroimmunology – ISPNE: Member* 2014-2022
- *Psychoneuroimmunology Research Society – PNIRS: Member* 2017-2020
- *Biological Psychiatry: Member* 2017-2020
- *Biophysical Society: Member* 2019-2021
- *American Physiological Society – APS: Member* 2011-2018
- *American Society of Human Genetics – ASHG: Member* 2011-2012

- **Local/Regional:**

- *New York Nutrition and Obesity Research Center, CUIMC: Member* 2020-present
- *Institute of Human Nutrition, CUIMC: Member* 2020-present
- *Center for Translational and Computational Neuroimmunology, CUIMC: Affiliate Member* 2020-present
- *Zuckerman Institute (Mind Brain Behavior Institute), Columbia University: Affiliate Member* 2018-present
- *Herbert Irving Comprehensive Cancer Center, CUIMC: Member* 2017-present
- *Neuromuscular Research Group, Montreal Neurological Institute (MNI): Member* 2009-2012
- *Canadian Association of Psychosocial Oncology: Member* 2009-2012
- *Respiratory and Epidemiology Clinical Research Unit, Columbia University: Member* 2004-2012

### **GRANT REVIEWER:**

- **Yale Pepper Center:** Ad-hoc reviewer 01/2024
- **Swiss Academy of Sciences:** Ad-hoc reviewer 08/2023
- **Human Frontier Science Program:** Ad-hoc reviewer 09/2022
- **National Science Foundation (NSF):** Ad-hoc reviewer 04/2021
- **NIH study section Aging Systems and Geriatrics (ASG):** Ad-hoc reviewer (R01, R21, R03 grants) 02/2021
- **Wellcome Trust, UK:** Ad hoc reviewer 05/2020
- **Israeli Ministry of Science, Technology and Space – Life Sciences, Israel:** Ad hoc reviewer 01/2020
- **The Irving Institute Study Section – Columbia University:** Ad hoc reviewer 2017, 2019
- **Biotechnology and Biological Sciences Research Council (BBSRC), UK:** Ad hoc reviewer 10/2019
- **National Switzerland Science Foundation:** Ad hoc reviewer 09/2018
- **Medical Research Council – MRC, UK:** Ad hoc reviewer 10/2017
- **Columbia University Irving Institute – CTSA:** Ad hoc reviewer 2016-2017
- **Danish Council for Independent Research, Medical Sciences Grant Review:** Ad hoc reviewer 2015-2016
- **National Science Center of Poland Grant Review Committee:** Ad hoc reviewer 2015-2016

#### ADVISORY POSITIONS:

- **NIA, Intramural Research Program:** Primary reviewer for intramural concept proposal 2020
- **Czech Academy of Sciences, Czech Republic:** Program review panel member 2020

#### JOURNAL REVIEWER:

- **Aging and Biology Journals:** *Aging Cell, Biochemical Journal, Biochim Biophys Acta (BBA) Biomembranes, Bioessays, Biological Reviews, Biology, Biology of Sex Differences, Cell Death Discovery, Cell Metabolism, Cell Reports, Chromosome Research, Experimental Gerontology, FASEB Journal, General Comparative Endocrinology, Human Genetics, Journal of Bioenergetics and Biomembranes, Journal of Bioengineering and Biomedical Sciences, Journal of Cachexia, Sarcopenia and Muscle, Journal of Gerontology: Biological Sciences, mBio, Microscopy and Microanalysis, Mitochondrion, Molecular Metabolism, Nature Aging, Nature Cell Biology, Nucleic Acid Research*
- **Physiology Journals:** *American Journal of Physiology Cell Physiology, American Journal of Physiology Endocrinology Metabolism, American Journal of Physiology Regulatory Integrative Comparative Physiology, Applied Physiology Nutrition Metabolism, Frontiers in Physiology, Journal of Applied Physiology, The Journal of Physiology (London), Obesity, Physiological Reports*
- **Clinical Journals:** *American Journal of Respiratory and Critical Care Medicine, Anesthesiology, Aust N Z J Psychiatry, BBA Molecular Basis of Disease, Cancer Investigation, Cardiovasc Research, Circulation Research, Clinical Science, EBiomedicine, Experimental Dermatology, Journal of Alzheimer's Disease, Journal of Clinical Investigation, Journal of Clinical Medicine Research, Journal of Neurological Sciences, Journal of Pathology, New England Journal of Medicine*
- **Neuroscience and Psychology Journals:** *Acta Neuropathologica Communications, Biological Psychiatry, Brain Behavior and Immunity, Brain Behavior and Immunity-Health, Cerebral Cortex, Frontiers in Neuroscience, Health Psychology, Journal of Neuroscience, Neuroscience Biobehavioral Reviews, Molecular Psychiatry, Neurochemistry International, Psychosomatic Medicine, Psychoneuroendocrinology, Stress, Translational Psychiatry*
- **Multidisciplinary Journals:** *eLife, iScience, Life Science Alliance, Nature, Nature Communications, Phenomics, Plos One, PNAS, Scientific Reports, Science Advances*

#### EDITORIAL BOARD:

- *Health Psychology*

## FELLOWSHIP AND GRANT SUPPORT:

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### FELLOWSHIP:

- **MFE-274188** Postdoc Fellowship 01/07/12 – 06/30/15  
**Canadian Institute of Health Research**  
*Mitochondria as Mediators of Metabolic and Neuroendocrine Stressors on the Epigenome*  
The goal of this Postdoctoral Fellowship project was to define the primary effects of stressors on mitochondrial function and mtDNA, and identify consequences for epigenetic regulation of nuclear gene expression.

### ACTIVE RESEARCH FUNDING:

- **R01MH137190** Contact MPI (Picard, Trumpff) 7/01/24 - 6/30/29  
**NIA**  
*Psychobiological Regulation and Molecular Characterization of Cell-Free Mitochondrial DNA in Humans*  
In this project, we deploy our high-throughput MitoQuicly platform to quantify cf-mtDNA in >5,000 blood and saliva samples and profile cf-mtDNA reactivity to socio-evaluative stress. We also combine omics-based approaches, functional profiling, and molecular biology to develop new insights into human cf-mtDNA biology.
- **R01AG086764** PI 6/01/24 - 5/31/29  
**NIA**  
*Mapping Mitochondrial Diversity in the Aging Brain and Immune System*  
This collaborative project deploys a new transcriptome-based computational mitotyping pipeline to map mitochondrial diversity in the brain and immune system in relation to cognitive reserve and AD diagnosis. In vitro studies also will examine the cellular contagion of OxPhos defects on multiple aspects of mitochondrial biology.
- **R01000000** Subcontract PI (PI Brestoff) 7/01/24 - 6/30/29  
**NINDS**  
*Harnessing Mitochondria Transfer Pathways to Ameliorate Leigh Syndrome-like Disease*  
In this project, we deploy our high-throughput mitochondrial profiling methods to biochemically assess brain mitochondrial changes and circulating mitochondrial biology in mouse models of mitochondrial diseases.
- **Emerald Gate** PI 5/01/24 - 4/30/25  
*Non-invasive Monitoring of Mitochondrial OxPhos by Ultraweak Photon Emission*  
This project investigates how genetic and pharmacologic perturbations of mitochondria influence ultraweak photon emission (UPE) from primary human fibroblasts, and links UPE with mitochondrial biology in humans.
- **RF1AG076821** PI 8/01/22 - 3/30/25  
**NIA**  
*Mitochondrial Energetics, Circuits and Cognitive Decline in the Aging Human Brain*  
This collaborative project leverages our mitochondrial phenotyping platform to examine mitochondrial respiratory chain function in the human brain in relation to cognitive reserve, brain connectivity, and Alzheimer's disease.
- **R01MD016278** MPI (Monk, Trumpff, Gyamfi-Bannerman, Picard) 5/01/21 - 4/30/26  
**NIMD**  
*Stress Phenotypes and Preterm Birth: Immune and Energetic Cellular Dysregulation and the Preventive Effect of Social Support*  
This project uses a mitochondrial psychobiology approach to delineate by which mechanisms life stress results in disproportionate risk of PTB in minority women, and evaluate trajectories of mitochondrial dysfunction.
- **R01AG066828** PI 4/15/20 - 12/31/24  
**NIA**

*Metabolic Regulation of Human DNA Methylation Clocks*

This project will establish longitudinal trajectories of epigenetic aging, inflammation, gene expression, and other aging biomarkers in a cellular lifespan model of accelerated aging, and their regulation by mitochondria.

- **R01MH122706** PI 4/15/20 - 3/31/25  
**NIMH**  
*Mitochondrial Regulation of Stress Reactivity in Humans*  
This is a sub-project of the Mitochondrial Stress, Brain Imaging, and Epigenetics (MiSBIE) study that evaluates the influence of mitochondrial allostatic load on systemic allostatic load, stress reactivity, and psychological function.
- **R01MH119379** Co-I (Mann, Sublette) 4/01/20 - 3/31/25  
**NIMH**  
*Inflammatory, Mitochondrial and Serotonergic Interrelationships in the Pathogenesis of Major Depression*  
The proposed project performs brain positron emission tomography (PET) to measure glial activation serotonin 1A receptors in parallel with brain near infrared spectroscopy (NIRS) and direct mitochondrial assessments in blood.
- **U01AG061356** Co-I (De Jager) 9/30/18 - 8/31/24 (NCE)  
**NIA**  
*Multi-Omic Network-Directed Proteoform Discovery, Dissection and Functional Validation to Prioritize Novel AD Targets*  
This project leverages proteomic, transcriptomic, metabolomic, and neuroimaging data to identify cellular mechanisms of cognitive dysfunction in the ROS-MAP longitudinal cohort.
- **R01MH119336** Contact MPI (Picard, Marsland, Kaufman) 5/01/19 - 2/29/25 (NCE)  
**NIMH**  
*Transduction of Psychological Stress Into Systemic Inflammation By Mitochondrial DNA Signaling*  
This project will test the hypothesis that circulating cell-free mtDNA release is the mechanism linking acute psychological stress and inflammation in humans.

**PENDING:**

- **R01AG000000** Co-I (Cohen) 4/01/25 - 3/30/30  
**NIA**  
*Mitochondrial and energetic underpinnings of resilience in human aging: integrating genetic and epidemiological evidence*  
This project leverages the rich MiSBIE dataset and biobank to generate proteomic profiles of mitochondrial health, replicated in the Baltimore Longitudinal Study of Aging (BLSA), and relate them to human resilience across the lifespan.
- **R01AG000000** PI 4/01/25 - 3/30/30  
**NIA**  
*Causes of Hypermetabolism in People and Cells Aging with Mitochondrial Oxphos Defects*  
This translational projects supports deep metabolic and multi-omic phenotyping in the Mitochondrial Daily Energy Expenditure (MDEE) study, with *in vitro* studies to examine the Mitochondria→Hypermetabolism→Aging cascade.
- **R01MH000000** Contact MPI (Picard, Hirano) 9/01/24 - 8/31/29  
**NIA**  
*Dissecting the Stress-Metabolism-Disease Cascade in Primary Mitochondrial Diseases*  
This is a follow up study of the MiSBIE cohort that includes novel cross-sectional and longitudinal studies of psychosocial and metabolic stress markers in relation to mitochondrial diseases severity and clinical progression.

**PAST SUPPORT:**



- **R21MH123927** PI 7/22/21 - 6/30/23  
**NIMH**  
*Psychobiological Regulation of Cell-Free Mitochondrial DNA in Human Saliva*
- **R01 AG056424** Subaward PI (PI: Irwin) 7/01/17 - 6/30/22  
**NIA**  
*Mindfulness Meditation and Insomnia in Alzheimer Disease Caregivers: Inflammatory and Biological Aging Mechanisms*
- **Director's pilot award** Contact MPI (Picard, Mocharov, Boldrini) 5/01/21- 4/30/22  
**CUIMC Department of Psychiatry**  
*Mapping Mitochondrial Function in the Human Brain: The MitoBrainMap v1.0*
- **Pilot grant** PI 7/01/20 - 6/31/22  
**New York Nutrition and Obesity Research Center**  
*Energy Expenditure in Genetic Mitochondrial Disease: Metabolic Regulation from Organelle to Organism*
- **R01 HD086487** Subaward PI (PI: Tyrka) 7/01/16 – 6/30/21  
**NICHD**  
*Risk Profiles and Mechanisms of Disease in Maltreated Children*
- **Sponsored Research Agreement** PI 9/01/20 - 9/01/21  
**Epirium Bio Inc**  
*Effects of Mitochondrial Hormone Signaling on Bioenergetic and Epigenomic Aging Trajectories*
- **R35 GM119793** PI 9/01/16 – 5/31/21  
**NIGMS**  
*Mitochondrial Stress Signal Transduction from Organelle to Organism*
- **Irving Scholars Program** PI 7/1/17 – 6/30/20  
**Columbia University Irving Institute CTSA**  
*Profiling Mitochondrial Health to Understand Physiological Variability*
- **CU-ZI-MR-S-0002-R1** PI 3/1/18 – 2/31/20  
**Zuckerman Institute**  
*The Mitochondrial Stress, Brain Imaging, and Epigenetics Study - MiSBIE*
- **Pilot grant** PI 5/01/19 - 1/31/20  
**Nathaniel Wharton Fund**  
*Biological Encoding of Stress in Hair: A Retrospective Longitudinal Pilot Study*
- **Faculty Research Fellowship** PI 4/01/17 – 3/31/19  
**Columbia Aging Center**  
*Mitochondrial Regulation of Aging in Humans: A Transdisciplinary Investigation*
- **R21 MH113011** PI 4/01/17 – 3/31/19  
**NIMH**  
*Mitochondrial Regulation of Stress Reactivity in Humans*
- **CaMPRI (UL1TR001873)** PI 4/01/16 – 7/31/16  
**Columbia CTSA Irving Institute**

**EDUCATIONAL CONTRIBUTIONS:**

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**DIRECT TEACHING/PRECEPTING/SUPERVISING:**

• **Columbia University**

Department of Genetics

**GR6212 | Introduction to the Biology of Aging (12 students) – Lecturer** 02/2022

Department of Pharmacology

**G9600 | Molecular Pharmacology Graduate Seminar (5) – Lecturer** 04/2022

**G9600 | Molecular Pharmacology Graduate Seminar (8) – Lecturer** 03/2020

CUIMC – Vagelos College of Physicians and Surgeons

**Breakthroughs in Neuroscience Seminar (22) – Lecturer** 02/2021

**Breakthroughs in Neuroscience Seminar (25) – Lecturer** 02/2020

Department of Psychiatry

**G4100 | Biology of Neurologic and Psychiatric Disorders (13) – Lecturer** 02/2019

Neurobiology and Behavior Graduate Program (NB&B)

**Graduate seminar (20) – Lecturer** 11/2018

Integrated Program in Cellular, Molecular and Biomedical Studies (CMBS)

**Graduate seminar for MD/PhD students (14) – Invited lecturer** 11/2022

**Graduate seminar for MD/PhD students (12) – Invited lecturer** 11/2017

Department of Biological Sciences

**UN1908 | First Year Seminar in Modern Biology (40) – Lecturer** 10/2017

• **University of British Columbia, Department of Kinesiology, Vancouver, Canada**

**Healthy Aging from Cells to Society (25) – Lecturer** 02/2022

“Healthy aging from organelle (mitochondria) to organism” (1.5 hour)

• **Cornell University, Department of Nutritional Sciences, Ithaca NY**

**NS2750 | Human Biology and Evolution (60) – Lecturer** 2015, 2016

“Mitochondrial DNA variation and disease” (1 hour)

• **McGill University, Department of Kinesiology and Physical Education Lecturer**

**EDKP-443 | Research Methods (55) – Lecturer** 2011

"The Art and Science of Academic Writing" (6 hours)

**EDKP-449 | Exercise Pathophysiology (38) – Lecturer** 2011

"Structure, Function and Assessment of Mitochondria in Disuse Atrophy" (6 hours)

**EDKP-605 | Research Methods (15) – Lecturer** 2011

"Experimental and Quasi-Experimental Designs" (6 hours)

**EDKP-485 | Exercise Pathophysiology (118) – Lecturer** 2009-2010

“Skeletal Muscle Function in Chronic Obstructive Pulmonary Disease: From Research to Practice” (3 hours)

**EDKP-485 | Exercise Pathophysiology (23) – Lecturer** 2017

"Spinal cord injuries and rehabilitation" (4.5 hours)

• **Natural Health Consultant Institute, Montreal, Canada**

• **Anatomy and Physiology (13) – Course Instructor** 2009-2010

Full course, 30 lectures (90 hours)

## ADVISING AND MENTORSHIP:

### Postdoctoral

- Darshana Kapri	PhD in Neuroscience (India)	2024-present
- Anna Monzel	PhD in Integrated Systems Biology and Stem Cells (Germany)	2020-present
- Alexander Sercel	PhD in Cell Biology (USA) Current position: Director & Operations Manager, MitochondriaWorld.org	2021-2023
- Kalpita Karan	PhD in Human molecular genetics (India) Current position: Research Scientist, Weill Cornell Medical School	2017-2021
- Caroline Trumpff	PhD in Psychology (Belgium) Current position: Assistant Professor, Columbia University	2017-2021
- Lan Li	PhD in Science, technology, and society studies (USA) <i>Presidential Scholar in Society and Neurosciences</i> Current position: Assistant Professor, John Hopkins University	2018-2019
- Robert-Paul Juster	PhD in Neuroscience (Canada) <i>FRQS Postdoctoral Fellowship</i> Current position: Assistant Professor, University of Montreal	2015-2016

### Graduate

- Evan Shaulson	PhD Program, Nutrition and Metabolic Biology	2023-present
- Alex Junker	PhD Program, Nutrition and Metabolic Biology	2023-present
- Janell Smith	PhD Program, Cellular, Molecular and Biomedical Studies	2022-present
- Natalia Maria Bobba	PhD Program, Nutrition and Metabolic Biology	2020-2023
- Jeremy Michelson	PhD Program, Nutrition and Metabolic Biology	2019-2023
- Alex Junker	MPH Program, Sociomedical Sciences	2019-2021
- Elizabeth Thompson (Rot)	PhD Program, Cellular, Molecular and Biomedical Studies	Winter 2023
- Tyler Dorrity (Rot)	PhD Program, Microbiology and Immunology	Fall 2018
- Elizabeth Pekarskaya (Rot)	PhD Program, Neurobiology and Behavior	Winter 2018
- Ryan Serrao	MSc Program, Data Science	2017-2018
- Marina Triplett (Rot)	PhD Program, Cellular, Molecular and Biomedical Studies	Fall 2017
- Amy Vincent	Visiting PhD student in Cell Biology, from Newcastle University, UK <i>* Received a Medical Research Council (MRC) Fellowship</i>	2015-2017

*Rot: Rotation student*

### Undergraduate

- Soah Grace Franklin	Medical Humanities (Columbia University)	2022-present
- Amanda Peng	Psychology and Biology (Barnard College)	2022-2024
- Sophie Basarrate	Biology and Social Science (Columbia University)	2020-2023
- Ellie Yan	Neuroscience (Barnard College)	2022
- Fruma Landa	Psychology (Yeshiva University)	2020-2021
- Rachel Haarh	Neuroscience (Barnard College) (Honors Thesis)	2020-2021
- Lily Van Petten	Neuroscience (Fordham University)	2019-2020
- Shani Erdman	Psychology (Wesleyan College)	2019-2020
- Jennifer Wang	Neuroscience (Columbia) Accepted in MD program at SUNY Downstate	2018-2020
- Celina Porcaro	Psychology (Smith College)	Summer 2019

	<i>*AMGEN Summer Undergraduate Research Fellowship</i>	
- Ayelet Rosenberg	Neuroscience and Behavior (Barnard) (Honors thesis) Accepted in MSc Neuroscience program at the Weissman Institute	2017-2020
- Veronica Taleon	Political Science and Pre-Med (Barnard)	2017-2019
- Snehal Bindra	Neuroscience (UCLA) Accepted in MD program at Vanderbilt	2018-2020
- Divia Rajasekharan	Biology (Columbia) <i>*Summer Undergraduate Research Fellowship</i>	Summer 2018
- Anisha Tyagi	Biomedical Engineering (Columbia)	Winter 2018
- Gabriel Sturm	Biology and computer science (Honors, Yeshiva University) <i>*AMGEN Summer Undergraduate Research Fellowship</i> Accepted in PhD bioengineering program Berkeley/UCSF	2016-2018
- Avsar Rana	Biology (Boston University)	Summer 2017
- Meir Retter	Mathematics and computer science (Yeshiva University)	Summer 2017
- Rikita Jodhani	Pharmacology (Boston University)	Summer 2016

### *High school*

- Temmie Yu	Medical Sciences Technology (Bergen County Academies)	2022-2023
- Logan Beharry	Engineering and Biomedical (Bergen County Academies)	2020-2021
- Akshay Khanna	Science (John P Stevens High School)	Fall 2018

### *Staff*

- David Shire, PhD	Research scientist	2023-present
- Jack Devine, MSc	Research assistant	2023-present
- Mangesh Kurade, MSc	Laboratory manager	2022-present
- Vanessa Giardino, BA	Project coordinator	2022-present
- Samantha Leonard, BA	Research assistant	2022-present
- Hannah Huang, BSc	Research assistant	2022-present
- Catherine Kelly, BA	Clinical research coordinator	2021-present
- Grace Liu, MA	Data manager (part time)	2017-present
- Jack Baker, BA	Research assistant	2023-2024
- Lea Gregario, RN	Research nurse (part time)	2021-2023
- Shannon Rausser, BSc	Research assistant	2018-2023
- Marlon McGill, BSc	Lab manager	2016-2022
- Anjali Goyal, BSc	Research assistant	2021-2022
- Marissa Cross, BA	Study coordinator	2017-2022
- Ayelet Rosenberg, BSc	Research assistant	2020-2021
- Snehal Bindra, BSc	Research assistant	2021
- Johanne Fortune, RN	Research nurse (part time)	2018-2020
- Gabriel Sturm, BSc	Research assistant	2018-2020
- Kirwan Walsh, BSc	Research assistant	2016-2017

### *Visiting scientists*

- Alexander Behnke, PhD	Fullbright visiting scholar (Ulm, Germany)	2024
- Atif Towheed, PhD	Visiting scholar (Middletown, NY)	2019-2020
- Carla Basualto, MD, PhD	Visiting scholar (Santiago, Chili)	2017, 2019

#### PHD ADVISORY AND EXAMINATION COMMITTEES:

- Sarah McLarnan	PhD candidate in Environmental Health Sciences Advisors: Drs. Julie Herbstman and Branson Pearson <i>Qualifying Exam and Thesis Committee</i>	2021-present
- Nickole Kanyuch	MD/PhD candidate Program in Neuroscience, University of Maryland Advisor: Dr. Tracy Bale <i>Thesis Committee</i>	2021-2023
- Samantha Tener	PhD candidate in Neurobiology and Behavior Advisors: Dr. Mimi Shirasu-Hiza <i>Thesis Committee</i>	2022-2023
- Joshua H Goodman	MD/PhD program Advisors: Dr. Tony Ferrante <i>Thesis Committee</i>	2021-2023
- Frédéricik Dufour	PhD candidate in Biology, Université de Sherbrooke Advisor: Drs. Alan Cohen and Pierre-Étienne Jacques <i>External examiner, Thesis Defense</i>	09/2021
- Kobi Wasner	PhD candidate in Biology, Université du Luxembourg Advisor: Dr. Anne Grunewald <i>External examiner, Thesis Defense</i>	03/2021
- Vrinda Kalia	PhD candidate in Environmental Health Sciences Advisor: Dr. Gary Miller <i>Thesis Committee</i>	10/2020
- Christian Garcia	PhD candidate in Human Nutrition Advisor: Dr. Edward Owusu-Ansah <i>Thesis Committee and Thesis Defense</i>	2017-2019
- Christopher Griffey	MD/PhD program Advisor: Dr. Ai Yamamoto <i>Qualifying Exam Committee</i>	09/2019
- Maria Natalia Bobba	PhD candidate in Nutrition and Metabolic Biology Advisor: Dr. Lori Zeltser <i>Qualifying Exam Committee</i>	09/2019
- James Belarde	MD/PhD program Advisor: Dr. Carol Troy <i>Qualifying Exam &amp; Thesis Committee</i>	2017-2019
- Annie Lee	PhD candidate in Neuroscience Advisor: Dr. Frank Polleux <i>Thesis Defense Committee</i>	05/2018
- Danielle E. Matsushima	PhD candidate in Genetics Advisor: Dr. Chozha Rathinam <i>Thesis Defense Committee</i>	05/2016

## GRADUATE PROGRAMS INTERVIEWING COMMITTEES:

- |  |              |
|--|--------------|
| - MD/PhD program, CUIMC  | 2019-present |
| - PhD program in Nutrition and Metabolic Biology, CUIMC                    | 2019-present |
| - PhD program in Neurobiology and Behavior, CUIMC                          | 2018-present |
| - Integrated Program in Cellular, Molecular, and Biomedical Studies, CUIMC | 2017-present |

## CLINICAL TRAINING AND CONTINUING EDUCATION:

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- **Private practice, Integrative Medicine** – SPHQ-certified (accepting insurance)  
Clinique Médicale 1746 – Longueuil, Canada 2009-2012  
Private Practice – St-Bruno, Canada 2007-2010
- **Continuing Education**  
The Case Taking Process (80 hours) 2009-2012  
*Montreal Institute of Classical Homeopathy*  
Mindfulness-Based Medical Practice (20 AMA-PRA Category 1 credits) 2008  
*McGill University, Department of Continuing Education*  
Spirituality and Healing in Medicine: Including the Concept of Emergence (15.5 AMA-PRA 1 Credits) 2007  
*Harvard Medical School, Department of Continuing Education*
- **Clinical Internship Program – Homeopathic Medicine** (96 hours) – Mumbai, India 2009  
Supervising Physician: Dr. Dinesh Chauhan M.D., D.Hom.
- **International Homeopathic Workshop** (88 hours) – Goa, India 2009
- **Post-graduate training**  
Ontario College of Homeopathic Medicine, Rajan Sankaran (33 hours) – Toronto, Canada 2011  
Ontario College of Homeopathic Medicine, Alize Timmerman (24 hours) – Toronto, Canada 2009  
Ontario College of Homeopathic Medicine, Dyvia Chabra (24 hours) – Toronto, Canada 2008  
Ontario College of Homeopathic Medicine, Sankaran, Chauhan, Chabra (80 hours) – Toronto, Canada 2008  
New York School of Homeopathy, Rajan Sankaran (21 hours) – New York, USA 2008

## REPORT OF CLINICAL AND PUBLIC HEALTH ACTIVITIES AND INNOVATIONS:

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- **Mitochondrial Disease Clinic, Columbia University Irving Medical Center** 2019-present  
Weekly neuromuscular clinic of Dr. Michio Hirano, MD (new cases and follow ups)  
New York Presbyterian Hospital, Columbia Neurological Institute. One half-day/week (Wednesday AM)

## PUBLICATIONS:

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### PEER-REVIEWED RESEARCH PUBLICATIONS (PRIMARY RESEARCH): \*SENIOR/CORRESPONDING AUTHOR

#### 2024

1. \* Trumpff C, Monzel AS, Sandi C, Menon V, Klein HU, Fujita M, Lee A, Petyuk V, Hurst C, Duong DM, Seyfried NT, Wingo A, Wingo T, Wang Y, Thambisetty M, Ferrucci L, Bennett DA, De Jager PL, **Picard M**. Psychosocial experiences are associated with human brain mitochondrial biology. *PNAS* 2024; 121(27):e2317673121  
[PubMed](#)
2. \* Zhou W, Karan KR, Klein HU, Sturm G, De Jager PL, Bennett DA, Hirano M, **Picard M\***, Mills RE\*. Somatic nuclear mitochondrial DNA insertions are prevalent in the human brain and accumulate in aging fibroblasts. *Plos Biol* 2024 (in press) [Preprint](#)

3. \* Basarrate S, Monzel AS, Smith JLM, Marsland A, Trumpff C, **Picard M**. Distribution of glucocorticoid and adrenergic receptors across human organs and tissues: a map for stress transduction. *Psychosom Med* 2024; 86(2):89-98 [PubMed](#)
4. Vega-Vásquez T, Langgartner D, Wang JY, Reber SO, **Picard M**, Basualto-Alarcón C. Mitochondrial morphology in the mouse adrenal cortex: influence of chronic psychosocial stress. *Psychoneuroendocrinol* 2024; 160:106683 [PubMed](#)

## 2023

5. \* Sturm G, Karan KR, Monzel AS, Santhanam BS, Taivassalo T, Bris C, Duplaga SA, Cross M, Towheed A, Higgins-Chen A, McManus MJ, Cardenas A, Lin J, Epel ES, Rahman S, Vissing V, Grassi B, Levine M, Horvath S, Haller RG, Lanaers G, St-Onge MP, Wallace DC, Tavazoie S, Procaccio V, Kaufman BA, Seifert EL, Hirano H, **Picard M**. OxPhos defects cause hypermetabolism and reduce lifespan in cells and in patients with mitochondrial diseases. *Commun Biol* 2023; 6(1):22 [PubMed](#)
6. \* Bobba-Alves N, Sturm G, Lin J, Ware SA, Karan KR, Monzel AS, Bris C, Procaccio V, Lenaers G, Higgins-Chen A, Levine M, Horvath S, Santhanam BS, Kaufman BA, Hirano M, Epel ES, **Picard M**. Cellular allostatic load is linked to increased energy expenditure and accelerated biological aging. *Psychoneuroendocrinol* 2023; 155:106322 [PubMed](#)
7. \* Rosenberg A, Saggari M, Monzel AS, Devine J, Rogu P, Mosharov EV, Junker A, Sandi C, Dumitriu D, Anacker C, **Picard M**. Brain mitochondrial diversity and network organization predict anxiety-like behavior in male mice. *Nat Commun* 2023; 14(1):4726 [PubMed](#) [Research Highlight](#) [Spotlight](#)
8. \* Michelson J, Rausser S, Peng A, Yu T, Sturm G, Trumpff C, Kaufman BA, Rai AJ, **Picard M**. MitoQuicLy: a high-throughput method for quantifying cell-free DNA from human plasma, serum, and saliva. *Mitochondrion* 2023; 71:26-39 [PubMed](#)
9. Sevilla A, **Picard M**, Horesh EJ, Rajabi-Estarabadi A, Paus R. Spontaneous, long-lasting re-pigmentation of grey hair: an association with psychoemotional stress relief. *Dermatol Online J* 2023; 29(6):20 [Link](#)
10. Singh P, Gollapalli K, Mangiola S, Schraner D, Yusuf MA, Chamoli M, Shi SL, Bastos BL, Nair T, Riermeier A, Vayndorf EM, Wu JZ, Nilakhe A, Nguyen CQ, Muir M, Kiflezghi MG, Foulger A, Junker A, Devine J, Sharan K, Chinta SJ, Rajput S, Rane A, Baumert P, Schönfelder M, Lavarone F, di Lorenzo G, Kumari S, Gupta A, Sarkar R, Khyriem C, Chawla AS, Sharma A, Sarper N, Chattopadhyay N, Biswal BK, Settembre C, Nagarajan P, Targoff KL, **Picard M**, Gupta S, Velagapudi V, Papenfuss AT, Kaya A, Ferreira MG, Kennedy BK, Andersen JK, Lithgow GJ, Ali AM, Mukhopadhyay A, Palotie A, Kastenmüller G, Kaeblerlein M, Wackerhage H, Pal B, Yadav VK. Taurine deficiency as a driver of aging. *Science*; 2023 380(6649):eabn9257 [PubMed](#)

## 2022

11. \* Sturm G, Monzel AS, Karan KR, Michelson J, Ware SA, Cardenas A, Lin J, Bris C, Santhanam B, Murphy MP, Levine ME, Horvath S, Belsky DW, Wang S, Procaccio V, Kaufman BA, Hirano M, **Picard M**. A multi-omics and bioenergetics longitudinal aging dataset in primary human fibroblasts with mitochondrial perturbations. *Sci Data* 2022; 9(1):751 [PubMed](#)
12. \* Trumpff C, Rausser S, Haahr R, Karan KR, Gouspillou G, Puterman E, Kirschbaum C, **Picard M**. Dynamic behavior of cell-free mitochondrial DNA in human saliva. *Psychoneuroendocrinol* 2022; 143:105852 [PubMed](#)
13. Oppong R, Terracciano A, **Picard M**, Qian Y, Butler TJ, Tanaka T, Moore AZ, Simonsick AM, Opsahl-Ong K, Coletta C, Gorospe M, Resnick S, Cucca F, Traynor BJ, Schlessinger D, Ferrucci L, Ding J. Personality traits are consistently associated with blood mitochondrial DNA copy number estimated from genome sequences in two genetic cohort studies. *eLife* 2022; 11:e7780 [PubMed](#)
14. \* Karan KR, Trumpff C, Cross M, Englestad KM, Marsland AL, McGuire P, Hirano M, **Picard M**. Leukocyte cytokine responses in adult patients with mitochondrial DNA defects. *J Mol Med* 2022; 100(6):963-971 [PubMed](#)

15. \* Trumpff C, Klein H, Owusu-Ansah E, Lee A, Petyuk V, Wingo TS, Wingo AP, Thambisetty M, Ferrucci L, Seyfried NT, Bennett DA, De Jager PL, **Picard M**. Mitochondrial respiratory chain protein co-regulation in the human brain. *Heliyon* 2022; 8(5):e09353 [PubMed](#)
16. Gyllenhammer LE, **Picard M**, McGill MA, Boyle KE, Vawter MP, Rasmussen JM, Buss C, Entringer S, Wadhwa PD. Prospective association between maternal allostatic load during pregnancy and child mitochondrial content and bioenergetic capacity. *Psychoneuroendocrinol* 2022; 144:105868 [PubMed](#)
17. Higgins-Chen AT, Thrush KL, Wang Y, Minter CJ, Kuo PL, Wang M, Niimi P, Sturm G, Lin J, Moore AZ, Bandinelli S, Vinkers CH, Vermetten E, Rutten BPF, Geuze E, Okhuisen-Pfeifer C, van der Horst MZ, Schreiter S, Gutwinski S, Luykx JJ, **Picard M**, Ferrucci L, Crimmins EM, Boks MP, Hägg S, Hu-Seliger TT, Levine ME. A computational solution for bolstering reliability of epigenetic clocks: Implications for clinical trials and longitudinal tracking. *Nat Aging* 2022; 2:644–661 [PubMed](#)
18. Weiss SL, Henrickson SE, Lindell RB, Sartori L, Zhang D, Bush J, Farooqi S, Starr J, Deutschman CS, McGowan Jr FX, Becker L, Tuluc F, Wherry J, **Picard M**, Wallace DC. Influence of immune cell subtypes on mitochondrial phenotypes measured in peripheral blood mononuclear cells from children with sepsis. *Shock* 2022; 57(5):630-638 [PubMed](#)
19. Moriconi C, Dzieciakowska M, Roy M, D’Alessandro A, Roingeard P, Lee JY, Gibb DR, McGill MA, Qiu A, La Carpia F, Francis RO, Hod EA, Thomas T, **Picard M**, Akpan I, Buehler PW, Zimring JC, Spitalnik S, Hudson KE. Retention of functional mitochondria in mature RBCs from patients with sickle cell disease. *Br J Haematol* 2022; 198(3):574-586 [PubMed](#)
20. Kalia V, Bradner JM, Niedzwiecki MM, Lau FK, Bucher ML, Manz KE, Fuentes ZC, Pennell KD, **Picard M**, Walker DI, Hu W, Jones DP, Miller GW. Cross-species metabolomic analysis of tau- and DDT-related toxicity. *PNAS Open* 2022; 1(2):pgac050 [PubMed](#)
21. Zhang R, Ogden RT, **Picard M**, A Srivastava. Nonparametric  $k$ -sample test on shape spaces with applications to mitochondrial shape analysis. *J R Stat Soc – Series B* 2022; 71(1):51-69 [Link](#)

## 2021

22. \* Rosenberg A, Rausser S, Ren J, Mosharov EV, Sturm G, Ogden RT, Patel P, Soni RK, Laceyfield C, Tobin DJ, Paus R, **Picard M**. Quantitative mapping of human hair graying and reversal in relation to life stress. *eLife* 2021; 10:e67437 [PubMed](#) [eLife Digest](#) [eLife Insight](#)
23. \* Faitg J, Laceyfield C, Davey T, White K, Laws R, Kosmidi S, Reeve AK, Kandel E, Vincent AE, **Picard M**. 3D neuronal mitochondrial morphology in axons, dendrites, and cell bodies of the aging mouse hippocampus. *Cell Rep* 2021; 36(6): 109509 [PubMed](#)
24. \* Rausser S, Trumpff C, McGill MA, Junker A, Wang W, Ho S, Mitchell A, Karan K, Monk C, Segerstrom S, Reed R, **Picard M**. Mitochondrial phenotypes in purified human immune cell subtypes and cell mixtures. *eLife* 2021; 10:e70899 [PubMed](#)
25. Fernström J, Mellon SH, McGill MA, **Picard M**, Reus VI, Hough CM, Lin J, Epel ES, Wolkowitz OM, Lindqvist D. Blood-based mitochondrial respiratory chain function in major depression. *Transl Psychiatr* 2021; 17;11(1):593 [PubMed](#)
26. Klein H, Trumpff C, Yang HS, Lee AJ, **Picard M**, Bennett DA, De Jager PL. Mitochondrial DNA quantity and quality in the human aged and Alzheimer’s disease brain. *Mol Neurodegener* 2021; 16:75 [PubMed](#)
27. \* Bindra S, McGill MA, Triplett MK, Tyagi A, Thaker PH, Dahmouh L, Goodheart MJ, Ogden RT, E Owusu-Ansah, Karan KR, Cole S, Sood AK, Lutgendorf SK, **Picard M**. Mitochondria in epithelial ovarian carcinoma exhibit abnormal phenotypes and blunted associations with biobehavioral factors. *Sci Rep* 2021; 11:11595 [PubMed](#)
28. Trumpff C, Sturm G, **Picard M**, Foss S, Lee S, Feng T, Do C, Cardenas A, McCormack C, Tycko B, Champagne FA, Monk C. Added sugar intake during pregnancy: Fetal behavior, birth outcomes and placental DNA methylation. *Dev Neurobiol* 2021; 63(5): 878-889 [PubMed](#)



## 2020

29. \* Karan KR, Trumpff C, McGill MA, Thomas JE, Sturm G, Lauriola V, Sloan RP, Rohleder N, Kaufman BK, Marsland AL, **Picard M**. Mitochondrial respiratory chain function modulates LPS-induced inflammatory signatures in human blood. *Brain Behav Immun Health* 2020; 100080 [PubMed](#)
30. Ware SA, Desai N, Lopez M, Leach D, Zhang Y, Giordano L, Nouraie M, **Picard M**, Kaufman B. An automated, high throughput methodology optimized for quantitative cell-free mitochondrial and nuclear DNA isolation from plasma. *J Biol Chem* 2020; 295(46):15677-15691 [PubMed](#)
31. Ulgherait M, Chen A, McAllister S, Kim HX, Delventhal R, Wayne CR, Garcia CJ, Recinos Y, Oliva M, Canman JC, **Picard M**, Owusu-Ansah E, Shirasu-Hiza M. Circadian regulation of mitochondrial uncoupling and lifespan. *Nat Commun* 2020; 11:1927 [PubMed](#)

## 2019

32. \* Sturm G, Cardenas A, Bind MA, Horvath S, Wang S, Wang Y, Hägg S, Hirano M, **Picard M**. Human aging DNA methylation signatures are conserved but accelerated in cultured fibroblasts. *Epigenetics* 2019; 14(10):961-976 [PubMed](#)
33. \* Trumpff C, Marsland AL, Basualto C, Martin JL, Carroll JE, Sturm G, Gu Z, Vincent A, Kaufman BA, **Picard M**. Acute psychological stress increases serum circulating cell-free mitochondrial DNA. *Psychoneuroendocrinol* 2019; 106:268-276 [PubMed](#)
34. \* Trumpff C, Marsland AL, Sloan RP, Kaufman BA, **Picard M**. Predictors of ccf-mtDNA reactivity to acute psychological stress identified using machine learning classifiers: A proof-of-concept. *Psychoneuroendocrinol* 2019; 107:82-92 [PubMed](#)
35. \* Vincent AE, White K, Davey T, Philips J, RT Hogden, Lawless C, Warren C, Hall MG, Ng Y, Falkous G, Holden T, Deehan D, Taylor RW, Turnbull DM, **Picard M**. Quantitative 3D mapping of the human skeletal muscle mitochondrial network. *Cell Rep* 2019; 26(4):996-1009 [PubMed](#)
36. Liu C, Tate T, Batourina E, Truschel S, **Picard M**, Potter S, Adams M, Reiley M, Schneider K, Tamargo M, Xiang T, Lu C, Xiao C, He J, Mendelsohn CL. Pparg promotes differentiation, prevents squamous metaplasia, and regulates mitochondrial gene expression in bladder epithelial cells. *Nat Commun*; 10(1):4589 [PubMed](#)
37. McManus MJ, **Picard M**, Chen HW, De Haas HJ, Potluri P, Towheed A, Leipzig J, Angelin A, Sengupta O, Kauffman B, Narula J, Wallace DC. Mitochondrial DNA variation dictates the expressivity and progression of nuclear DNA mutations causing cardiomyopathy. *Cell Metab* 2019; 29(1):78-90 [PubMed](#)

## 2018

38. \* Vincent AE, Rosa HS, Pabis K, Lawless C, Grünewald A, Chen C, Rygiel KA, Rocha MC, Falkous G, Perissi V, White K, Davey T, Grady JP, Petrof B, Sayer AA, Cooper C, Taylor RW, Turnbull DM, **Picard M**. Sub-cellular origin of mtDNA deletions in human skeletal muscle. *Annals Neurol* 2018; 84(2):289-301 [PubMed](#)
39. *Finalist paper for the 2020 Ziskind-Somerfeld Research Award*  
\* **Picard M**, Prather AA, Puterman E, Cuillerier A, Coccia M, Aschbacher K, Burelle Y, Epel ES. A mitochondrial health index sensitive to mood and caregiver stress. *Biol Psychiatry* 2018; 84(1):9-17 [PubMed](#)
40. Lindqvist D, Wolkowitz OM, **Picard M**, Ohlsson L, Bersani FS, Fernström J, Westrin A, Hough CM, Lin J, Reus VI, Epel ES, Mellon SH. Major depressive disorder is associated with elevated levels of circulating cell-free mitochondrial DNA, but not of leukocytes mitochondrial DNA copy number. *Neuropsychopharmacol* 2018; 43(7):1557-1564 [PubMed](#)
41. Gouspillou G, Godin R, Piquereau J, **Picard M**, Mofarrahi M, Mathew J, Purves-Smith FM, Sgarioto N, Hepple RT, Burelle Y, Hussain SNA. Protective role of Parkin in skeletal muscle contractile and mitochondrial function. *J Physiol* 2018; 596(13):2565-2579 [PubMed](#)
42. Guha M, Srinivasana S, Raman P, Jiang Y, Kaufman BA, Taylor D, Dong D, Chakrabarti R, **Picard M**, Carstens RP, Kijima Y, Feldman M, Avadhani NG. Aggressive triple negative breast cancers have unique molecular signature

on the basis of mitochondrial genetic and functional defects. *Biochim Biophys Acta* 2018; 1864(4):1060-1071 [PubMed](#)

43. Verhoeven JE, Révész D, **Picard M**, Epel EE, Wolfowitz OM, Matthews KA, Penninx BWJH, Puterman E. Depression, telomeres and mitochondrial DNA: between-person and within-person associations from a 10-year longitudinal study. *Mol Psychiatr* 2018; 23(4):850-857 [PubMed](#)
44. Révész D, Verhoeven JE, **Picard M**, Sidney S, Epel ES, Penninx BWJH, Puterman E. Associations between cellular aging markers and metabolic syndrome: findings from the CARDIA study. *J Clin Endocrinol Metab* 2018; 103(1):148-157 [PubMed](#)

## 2017

45. Zhang R, Wang Y, Ye K, **Picard M**, Gu Z. Independent impacts of aging on mitochondrial DNA quantity and quality in humans. *BMC Genomics* 2017; 18:890 [PubMed](#)
46. Mehta M, Ingerslev LR, Fabre O, **Picard M**, Barrès R. Evidence supporting absence of mitochondrial DNA methylation. *Front Genet* 2017; 6(166):1-9 [PubMed](#)
47. Kandel J, **Picard M**, Wallace DC, Eckmann DM. Mitochondrial DNA 3243A>G heteroplasmy is associated with changes in cytoskeletal protein expression and cell mechanics. *Proc Roy Soc Interface* 2017; 14(131): 20170071 [PubMed](#)
48. Morrow RM, **Picard M**, Derbeneva O, Leipzig J, McManus MJ, Gousspillou G, Barbat-Artigas S, Hepple RT, Murdock DG, Wallace DC. Mitochondrial energy deficiency signals hyperproliferation of skeletal muscle mitochondria and enhanced insulin sensitivity. *PNAS* 2017; 114(10):2705-2710 [PubMed](#)

## 2016

49. \* Vincent AE, Ng YS, White K, Davey T, Mannella C, Falkous G, Feeney C, Schaefer AM, McFarland R, Gorman GS, Taylor RW, Turnbull DM, **Picard M**. The spectrum of mitochondrial ultrastructural defects in mitochondrial myopathy. *Sci Rep* 2016; 6:30610 [PubMed](#)
50. Wang Y, **Picard M**, Gu Z. Genetic evidence for elevated pathogenicity of mitochondrial DNA heteroplasmy in autism spectrum disorder. *Plos Genet* 2016; 12(10):e1006391 [PubMed](#)
51. Cadete VG, Deschesnes S, Cuillierier A, Brisebois F, Sugiura A, Vincent AE, Turnbull DM, **Picard M**, McBride H, Burelle Y. Formation of mitochondria-derived vesicles is an active and physiologically relevant mitochondrial quality control process in the cardiac system. *J Physiol* 2016; 594(18):5343-62 [PubMed](#)
52. dos Santos C, Hussain SN, Mathur S, **Picard M**, Herridge M, Correa J, Bain A, Guo M, Advani A, Advani SL, Tomlinson G, Katzberg H, Streutker CJ, Cameron J, Schols A, Gosker H, Batt J for the MEND ICU group, the RECOVER Program investigators and the Canadian Critical Care Translational Biology Group. Mechanisms of chronic muscle wasting and dysfunction after an intensive care unit stay: A pilot study. *Am J Resp Crit Care Med* 2016; 194(7):821-30 [PubMed](#)
53. Grünewald A, Rygiel KA, Hepplewhite PD, Morris C, **Picard M**, Turnbull DM. Mitochondrial DNA depletion in respiratory chain-deficient Parkinson disease neurons. *Ann Neurol* 2016; 79(3):366-78 [PubMed](#)
54. Bersani FS, Morley C, Lindqvist D, Epel ES, **Picard M**, Yehuda R, Flory J, Bierer LM, Makotkine J, Abu-Amara D, Coy M, Reus VR, Lin J, Blackburn EH, Marmar C, Wolkowitz OM, Mellon SH. Mitochondrial DNA copy number is reduced in male combat veterans with PTSD. *Prog Neuro Psychopharmacol Biol Psychiatr* 2015; 26(64):10-17 [PubMed](#)
55. Rygiel K, Tuppen H, Reeve AK, Taylor RW, **Picard M**, Miller J, Turnbull DM. Complex mitochondrial DNA rearrangements in individual cells from patients with sporadic inclusion body myositis. *Nucl Acid Res* 2016; 44(11):5313-5329 [PubMed](#)

56. Konokhova Y, Spendiff S, Jagoe RT, Aare S, Kapchinsky S, MacMillan N, Rozakis P, **Picard M**, Leheudre MA, Pion CH, Bourbeau J, Hepple RT, Taivassalo T. Failed upregulation of TFAM protein and mtDNA copy number in oxidatively deficient fibers of COPD locomotor muscle. *Skelet Musc* 2016; 6(10) [PubMed](#)

## 2015

57. **Picard M**, McManus MJ, Gray J, Nasca C, Moffat C, Kopinsky P, Seifert E, McEwen BS, Wallace DC. Mitochondrial functions modulate neuroendocrine, metabolic, inflammatory and transcriptional responses to psychological stress. *PNAS* 2015; 112(48):E6614-23 [PubMed](#)
58. **Picard M**, McManus MJ, Csordas G, Varnai P, Dorn GW, Williams D, Hajnoczky G, Wallace DC. Inter-mitochondrial coordination of cristae at regulated membrane junctions. *Nat Commun* 2015; 6:6259 [PubMed](#)
59. Leduc-Gaudet JP, **Picard M**, St-Jean Pelletier F, Sgarioto N, Auger MJ, Robitaille R, St-Pierre DH, Gouspillou G. Mitochondrial morphology is altered in atrophied skeletal muscle of aged mice. *Oncotarget* 2015; 6(20):17923-17937 [PubMed](#)
60. **Picard M**, Azuelos I, Jung B, Giordano C, Matecki S, Hussain SNA, White K, Li T, Liang F, Benedetti A, Gentil BJ, Burelle Y, Petrof B. Mechanical ventilation triggers abnormal mitochondrial dynamics and morphology in the diaphragm. *J Appl Physiol* 2015; 118(9):1161-1171 [PubMed](#)
61. Azuelos I, Jung B, **Picard M**, Liang F, Li T, Lemaire C, Giordano C, Hussain SNA, Burelle Y, Petrof B. Relationship between autophagy and ventilator-induced diaphragmatic dysfunction. *Anesthesiology* 2015; 122(6):1349-1361 [PubMed](#)

## 2014

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64. Glancy B, Hsu LY, Dao L, Bakalar M, French S, Chess DJ, Taylor JL, **Picard M**, Aponte A, Daniels MP, Esfahani S, Cushman S, and Balaban RS. In vivo microscopy reveals extensive embedding of capillaries selectively within the sarcolemma of slow twitch skeletal muscle fibers. *Microcirculation* 2014;21(2):131-47 [PubMed](#)

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65. \* **Picard M**, White K, Turnbull DM. Mitochondrial morphology, topology and membrane interactions in skeletal muscle: A three-dimensional electron microscopy study. *J Appl Physiol* 2013; 114(2):161-71 [PubMed](#)  
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68. **Picard M**, Wright KJ, Ritchie D, Thomas MM, Hepple RT. Mitochondrial function in permeabilized cardiomyocytes is relatively preserved in the senescent heart. *PLoS One* 2012; 7(8):e43003 [PubMed](#)

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69. **Picard M**, Ritchie D, Wright KJ, Thomas MM, Hepple RT. Alterations in intrinsic mitochondrial function with aging are fiber type-specific and do not explain differential atrophy between muscles. *Aging Cell* 2011; 10:1047-55 [PubMed](#)
70. **Picard M**, Taivassalo T, Ritchie D, Wright KJ, Thomas MM, Romestaing C, Hepple RT. Mitochondrial structure and function are disrupted by standard isolation methods. *PLoS One* 2011; 6(3):e18317 [PubMed](#)  
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## PEER-REVIEWED RESEARCH PUBLICATIONS (REVIEWS, META-ANALYSES, INVITED PERSPECTIVES):

### 2024

74. \* Sercel A, Sturm G, Kempes C, Gallagher D, St-Onge MP, Pontzer H, Hirano M, **Picard M**. Hypermetabolism and energetic constraints in mitochondrial disorders. *Nat Metab* 2024; 6(2):192-195 [PubMed](#)
75. \* Monzel AS, Levin M, **Picard M**. The energetics of cellular life transitions. *Life Metab* 2024; 3(3):load051 [PubMed](#)
76. Verhoven JE, Wolkowitz OM, Satz IB, Conklin Q, Lamers F, Lavebratt C, Lin J, Lindqvist D, Mayer SE, Melas PA, Milaneschi Y, Picard M, Rampersaud R, Rasgon N, Ridout K, Söderberg G, Trumpff C, Tyrka A, Watson K, Wu GWY, Yang R, Zannas AS, Han, LKM, Månsson KNT. The researcher's guide to selecting biomarkers in clinical mental health studies. *Bioessays* 2024 (in press)
77. Bishop DJ, Lee MJC, **Picard M**. Exercise as mitochondrial medicine: how does the exercise prescription affect mitochondrial adaptations to training? *Annu Rev Physiol* 2024 (in press)
78. Caicedo A, Benavides-Almeida A, Haro-Vinueza A, Peña-Cisneros J, Pérez-Meza AA, Michelson J, Peñaherrera S, Picard M. Decoding the nature and complexity of extracellular mtDNA: Types and implications for health and disease. *Mitochondrion* 2024; 75:101848 [PubMed](#)
79. Kavoosi S, **Picard M**, Kaufman BA. TFAM mislocalization during spermatogenesis. *Trends Genet* 2024; 40(2):112-114 [PubMed](#)

### 2023

80. \* Monzel AS, Enriques JA, **Picard M**. Multifaceted mitochondria: Moving mitochondrial science beyond function and dysfunction. *Nat Metab* 2023; 5(4):546-562 [PubMed](#)
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82. Smith AR, Hinojosa A, Briseño AH, **Picard M**, Cardenas A. The prenatal environment and its influence on maternal and child mitochondrial DNA copy number and methylation: A review of the literature. *Environ Res* 2023; 227:115798 [PubMed](#)

## 2022

83. \* **Picard M**, Shirihai O. Mitochondrial signal transduction. *Cell Metab* 2022; 34(11):1620-1653 [PubMed](#)
84. \* Bobba-Alves N, Juster RP, **Picard M**. The energetic cost of allostasis and allostatic load. *Psychoneuroendocrinol* 2022; 146:105951 [PubMed](#)
85. \* **Picard M**. Energy transduction and the mind-mitochondria connection. *Biochem (Lond)* 2022; 44(4):14–18 [Link](#)
86. \* **Picard M**. Why do we care more about disease than health? *Phenomix* 2022; 2:145–155 [Link](#)
87. \* Junker A, Juster RP, **Picard M**. Integrating sex and gender in mitochondrial science. *Curr Opin Physiol* 2022; 26:100536 [Link](#)
88. \* Junker A, Wang J, Gouspillou G, Ehinger JK, Elmér E, Sjövall F, Fisher-Wellman K, Neuffer PD, Molina AJA, Ferrucci L, **Picard M**. Human studies of mitochondrial biology demonstrate an overall lack of binary sex differences: A multivariate meta-analysis. *FASEB J* 2022; 36:e22146 [PubMed](#)
89. O'Sullivan J, Peters E, Amer Y, Atuluru P, Chéret J, Rosenberg A, **Picard M**, Paus R. The impact of perceived stress on the hair follicle: Towards solving a psychoneuroendocrine and neuroimmunological puzzle. *Front Neuroendocrinol* 2022; 66:101008 [PubMed](#)
90. Taylor HA, Finkel T, Gao Y, Ballinger S, Campo R, Chen R, Chen S, Davidson K, Iruela-Arispe ML, Jaquish C, LeBrasseur NK, Odden MC, Papanicolaou GJ, **Picard M**, Srinivas P, Tjurmina O, Wolz M, Galis ZS. Scientific opportunities in resilience research for cardiovascular health and wellness. Report from a National Heart, Lung, and Blood Institute workshop. *FASEB J* 2022; 36(12):e22639 [PubMed](#)
91. Brasanac J, Gamradt S, Otte C, Milaneschi Y, Monzel AS, **Picard M**, Gold S. Cellular specificity of mitochondrial and immunometabolic dysfunction in major depression. *Mol Psychiatr* 2022; 27:2370–2371 [PubMed](#)

## 2021

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93. \* **Picard M**, Sandi C. The social nature of mitochondria: Implications for human health. *Neurosci Biobehav Rev* 2021; 120(5):595-610 [PubMed](#)
94. \* **Picard M**. Blood mtDNA copy number: What are we counting? *Mitochondrion* 2021; 60:1-11 [PubMed](#)
95. O'Sullivan JDB, Nicu C, **Picard M**, Chéret J, Bedogni B, Tobin DJ, Paus R. The biology of human hair greying. *Biol Rev* 2021; 96(1):107-128 [PubMed](#)

## 2019

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97. \* Han LKM, Verhoeven JE, Tyrka A, Penninx BWJH, Wolkowitz OM, Månsson KNT, Lindqvist D, Vinkers CH, Boks MP, Révész D, Mellon SH, **Picard M**. Accelerating research on biological aging and mental health: Current challenges and future directions. *Psychoneuroendocrinol* 2019; 106:293-311 [Special issue: *Stress and cellular aging*] [PubMed](#)
98. Sturmberg JP, **Picard M**, Aron DC, Bennett JM, Bircher J, DeHaven MJ, Gijzel SMW, Marcum JA, Heng HHQ, Martin CM, Miles A, Peterson C, Rohleder N, Walker C, Rikkert MO, Melis RJF. Health and disease: Emergent states resulting from adaptive social and biological network interactions. *Front Med* 2019; 6(59):1-14 [PubMed](#)

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99. Eisner V, **Picard M**, Hajnoczky G. Mitochondrial dynamics in adaptive and maladaptive cellular stress responses. *Nat Cell Biol* 2018; 20(7):655-665 [PubMed](#) [Special focus issue: Mitochondrial form and function]
100. \* **Picard M**, McEwen BS. Psychological stress and mitochondria: A systematic review (Part I). *Psychosom Med* 2018; 80(2):141-153 [PubMed](#)
101. \* **Picard M**, McEwen BS. Psychological stress and mitochondria: A conceptual framework (Part II). *Psychosom Med* 2018; 80(2):126-140 [PubMed](#)
102. \* Vincent AE, **Picard M**. Multilevel heterogeneity of mitochondrial respiratory chain deficiency. *J Pathol* 2018; 245: 311–323 [Invited commentary] [PubMed](#)
103. \* **Picard M**, McEwen BS, Epel ES, Sandi C. An energetic view of stress: Focus on mitochondria. *Front Neuroendocrinol* (Elsevier) 2018; 49:72-85 [Invited review] [PubMed](#)
104. Kaufman B, **Picard M**, Sondheimer N. Mitochondrial DNA, nuclear context and the risk for carcinogenesis. *Env Mol Mut* 2018; 60(5):455-462 [PubMed](#)

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105. \* Vincent AE, Turnbull DM, Hajnoczky G, Eisner V, **Picard M**. Mitochondrial nanotunnels. *Trends Cell Biol* 2017; 27(11):787-799 [PubMed](#)
106. \* **Picard M**, Juster RP, Sloan RP, McEwen BS. Mitochondrial nexus to allostatic load biomarkers. *Psychosom Med* 2017; 79(1):114-117 [PubMed](#)
107. Sturmberg JP, Bennett J, **Picard M**, Martin C. Multimorbidity as the manifestation of network disturbances. *J Eval Clin Pract* 2017; 23(1):199-208 [PubMed](#)

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109. \* **Picard M**, Hirano M. Disentangling (epi)genetic and environmental contributions to the mitochondrial 3243A>G mutation phenotype: Phenotypic destiny in mitochondrial disease? *JAMA Neurol* 2016; 73(8):923-5 [Invited commentary] [PubMed](#)
110. Juster RP, Russell JJ, Almeida D, **Picard M**. Allostatic load and comorbidities: A mitochondrial, neuroepigenetic, and psychoevolutionary perspective. *Dev Psychopathol* 2016; 28(4pt1):1117:46 [PubMed](#)
111. Rygiel KA, **Picard M**, Turnbull DM. The ageing neuromuscular system and sarcopenia: A mitochondrial perspective. *J Physiol* 2016;594(16):4499–4512 [PubMed](#)
112. **Picard M**, Vincent AE, Turnbull DM. Expanding our understanding of mtDNA deletions. *Cell Metab* 2016; 24(1):3-4 [PubMed](#)

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113. \* **Picard M**. Mitochondrial synapses: Intracellular communication and signal integration. *Trends Neurosci* 2015; 38(8):468-474 [PubMed](#)
114. Sturmberg JP, Bennett J, **Picard M**, Seely A. The trajectory of life: Decreasing physiological network complexity through changing fractal patterns. *Front Physiol* 2015; 6:169 [PubMed](#)

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115. \* **Picard M**, Juster RP, McEwen BS. Mitochondrial allostatic load puts the ‘gluc’ back into glucocorticoids. *Nat Rev Endocrinol* 2014; 10(5):303-10 [PubMed](#)
116. \* **Picard M** and McEwen BS. Mitochondria impact brain function and cognition. *PNAS* 2014; 111(1):7-8 [Invited Commentary] [PubMed](#)

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117. \* **Picard M**, Turnbull DM. Linking the metabolic state and mitochondrial DNA in chronic disease, health and aging. *Diabetes* 2013; 62(3):672-8 [PubMed](#)
118. \* **Picard M**, Juster RP and Sabiston CM. Is the whole greater than the sum of the parts? Self-rated health and transdisciplinarity. *Health* 2013; 5(12A):24-30 [PDF](#)
119. Bizik G, **Picard M**, Nijjer R, Tourjman V, McEwen BS, Lupien SJ, Juster RP. Allostatic load as a tool for monitoring comorbidities in schizophrenia and bipolar disorder. *Harv Rev Neurosci* 2013; 21(6):296-313 [PubMed](#)
120. Gouspillou G, **Picard M**, Godin R, Burelle Y, Hepple RT. Role of peroxisome proliferator-activated receptor gamma coactivator 1-alpha (PGC-1 $\alpha$ ) in denervation-induced atrophy in aged muscle: Facts and hypotheses. *Longevity and Healthspan* 2013; 2:1-13 [PubMed](#)
121. **Picard M**, Shirihai O, Gentil BJ, Burelle Y. Mitochondrial morphology transitions and functions: Implications for retrograde signaling? *Am J Physiol Regul Integr Comp Physiol* 2013; 304:R393-406 [PubMed](#)

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122. \* **Picard M** and Burelle Y. Mitochondria: Starving to reach quorum? *Bioessays* 2012; 43(4):272-4 [PubMed](#)
123. **Picard M**, Hepple RT, Burelle Y. Mitochondrial functional specialization in glycolytic and oxidative muscle fibers: Tailoring the organelle for optimal function. *Am J Physiol Cell Physiol* 2012; 302(4):C629-41 [PubMed](#)

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124. **Picard M**, Taivassalo T, Gouspillou G, Hepple RT. Mitochondria: Isolation, structure and function. *J Physiol (London)* 2011; 589(18):4413-21 [PubMed](#)
125. \* **Picard M**. Pathways to aging: The mitochondrion at the intersection of biological and psychosocial sciences. *J Aging Res* 2011; 814096:1-11 [PubMed](#)
126. Juster RP, Bizik G, **Picard M**, Arsenault-Lapierre G, Sindi S, Trepanier L, Marin MF, Wan N, Sekerovic Z, Lord C, Fiocco A, Plusquellec P, McEwen B, Lupien S. A transdisciplinary perspective of chronic stress in relation to psychopathology throughout lifespan development. *Dev Psychopathol* 2011; 23(03):725-76 [PubMed](#)
127. \* **Picard M**, Sabiston C, McNamara JK. The need for a transdisciplinary, global health framework. *J Alt Complement Med* 2011; 17(2):179-84 [PubMed](#)

## MANUSCRIPTS UNDER REVIEW (PREPRINTS):

1. \* Mosharov EV, Rosenberg AM, Monzel AS, Osto CA, Stiles L, Rosoklija GB, Dwork AJ, Bindra S, Zhang Y, Fujita M, Mariani MB, Bakalian M, Sulzer D, De Jager PL, Menon V, Shirihai OS, Mann JJ, Underwood M, Boldrini M, Thiebaut de Schotten M, **Picard M**. A human brain map of mitochondrial respiratory capacity and diversity. (Under revision in *Nature*)  
Preprint: <https://www.biorxiv.org/content/10.1101/2024.03.05.583623v1>
2. \* Shaulson ED, Cohen AA, **Picard M**. The brain-body energy conservation model of aging. (Under revision in *Nat Aging*)  
Preprint: [www.osf.io/zuuey2](http://www.osf.io/zuuey2)
3. \* Sturm G, Bobba-Alves N, Michelson J, Ferrucci L, Kempes C, **Picard M**. Accelerating the clock: Interconnected speedup of energetic and molecular dynamics during aging in cultured human cells. (Under review in *Commun Biol*)  
Preprint: <https://www.biorxiv.org/content/10.1101/2022.05.10.491392v3>
4. \* Kelly C, Cross M, Junker A, Engelstad K, Rosales X, Hirano M, Trumpff C, **Picard M**. Perceived association of mood and symptom severity in adults with mitochondrial diseases.

(Under review in *J Neurol Clin*)

Preprint: <https://www.medrxiv.org/content/10.1101/2024.02.02.24302076.abstract>

5. \* Sercel A, Sturm G, Shaulson ED, Gallagher D, St-Onge MP, Kempes C, Pontzer H, Hirano M, **Picard M**. Accelerated physiology and increased energy expenditure in animals and humans with mitochondrial defects: A meta-analysis.  
Preprint: <https://biorxiv.org/cgi/content/short/2023.09.09.556754v1>
6. Haage VC, Tuddenham JF, Comandante-Lou N, Bautista A, Monzel AS, Chiu R, Fujita M, Garcia FG, Bhattarai P, Patel R, Buonfiglioli A, Idiarte J, Herman M, Rinderspacher A, Mela A, Zhao W, Argenziano MG, Furnari J, Banu MA, Landry DW, Bruce JN, Canoll P, Zhang Y, Nuriel Y, Kizil C, Sproul AA, de Witte LD, Sims PA, Menon V, **Picard M**, De Jager PDL. A pharmacological toolkit for human microglia identifies Topoisomerase I inhibitors as immunomodulators for Alzheimer's disease.  
(Under review in *Neuron*)  
Preprint: <https://www.biorxiv.org/content/10.1101/2024.02.06.579103v1>
7. Cohen AA, Beard J, Ferrucci L, Fülöp T, Gladyshev V, Moqri M, Olde Rikkert MGM, **Picard M**. Balancing the promise and risks of geroscience.  
(Under revision in *Nat Aging*)  
Preprint: <https://osf.io/uf25z>

#### PEER-REVIEWED RESEARCH PRESENTATIONS (POSTERS AND TALKS INCLUDING BY \*TRAINEES):

1. Cohen A, **Picard M**, Bandeen-Roche K. Intrinsic health: toward a framework for the objective study of the biology of health. *Innovation Aging* 2023;7(1):34. Presented at the American Gerontological Society of America (November 2023)
2. Cohen AA, **Picard M**, Beard J, Belsky DW, Fried LP, Hall K, Herbstman J, Makarem N. A theoretical framework to understand intrinsic health. *Innovation Aging* 2023;7(1):34-35. Presented at the American Gerontological Society of America (November 2023)
3. Liu M, Xu B, Honfo S, Cohen A, **Picard M**. Representation learning of proteome dynamics to characterize organismic communication and intrinsic health. *Innovation Aging* 2023;7(1):35. Presented at the American Gerontological Society of America (November 2023)
4. Khan Z, Malinsky D, Cohen A, Pei S, Berhane K, Picard M, Belsky DW, Wei Y. Understanding the dynamics of intrinsic health using age-dependent quantile graphical models. *Innovation Aging* 2023;7(1):35. Presented at the American Gerontological Society of America (November 2023)
5. Wang Y, Tsang SP, Khan Z, Malinsky D, Wei Y, Cohen A, **Picard M**, S Pei. Quantifying intrinsic health using stress-evoked information flow between physiological systems. *Innovation Aging* 2023;7(1):35. Presented at the American Gerontological Society of America (November 2023)
6. Williams Z, Covell L, Tung PW, Bloomquist TR, Kathrin Schilling K, Deyssenroth M, Herbstman JB, **Picard M**, Trumpff C, Kupsco A. Investigating the influence of prenatal metals exposures on childhood mitochondrial biomarkers. Society of Toxicology 2024.
7. \* Monzel AS, Sturm G, Lin J, Hirano M, **Picard M**. Mapping human mitochondrial diversity and dynamics in human tissues and aging cells. UCLA Mitochondria Symposium; Los Angeles, CA (December 2023)
8. \* Devine J, Monzel AS, Rosenberg AM, Cohen AA, **Picard M**. Individualized multi-tissue mitochondrial distribution patterns in mice and humans. UCLA Mitochondria Symposium; Los Angeles, CA (December 2023)
9. \* Smith JLM, Bobba-Alves N, Sturm G, Monzel AS, Hirano M, **Picard M**. Mitochondria modulation of intercellular communication and bioenergetic response to adrenergic stress signaling in primary human fibroblasts. UCLA Mitochondria Symposium; Los Angeles, CA (December 2023)



10. \* Monzel AS, Fujita M, Rosenberg AM, Mosharov EV, Devine J, Bennett DA, Menon V, De Jager PL, Picard M. **Picard M.** Brain and brainstem-specific mitochondrial diversity associated with vulnerability to neurodegeneration in mitochondrial diseases. Euromit 2023; Bologna, Italy (June 2023)
11. \* Trumpff C, Monzel AS, Kelly C, Engelstad K, Michelson J, Sturm G, Tepler S, Manly J, Liu G, Lauriola V, McIntyre K, Assuras S, Thiebaut de Schotten M, Shapiro P, Sloan RP, Wager TD, Hirano M, **Picard M.** The Mitochondrial Stress, Brain Imaging, and Epigenetics Study – MiSBIE. Euromit 2023; Bologna, Italy (June 2023)
12. \* Sturm G, Karan KR, Monzel AS, Santhanam BS, Taivassalo T, Bris C, Duplaga SA, Cross M, Towheed A, Higgins-Chen A, McManus MJ, Cardenas A, Lin J, Epel ES, Rahman S, Vissing V, Grassi B, Levine M, Horvath S, Haller RG, Lanaers G, St-Onge MP, Wallace DC, Tavazoie S, Procaccio V, Kaufman BA, Seifert EL, Hirano H, **Picard M.** OxPhos defects cause cell-autonomous and whole-body signs of hypermetabolism in cells and in patients with mitochondrial diseases. Euromit 2023; Bologna, Italy (June 2023)
13. \* Michelson J, Peng A, Yu T, Lauriola V, Sloan R, Trumpff C, **Picard M.** Cell-free mitochondrial DNA is an acute biomarker of psychological stress with unique kinetics in blood and saliva. American Psychosomatic Society; San Juan, Puerto Rico (March 2023)
14. \* Peng A, Michelson J, Kelly C, Lauriola V, Sloan R, Trumpff C, **Picard M.** Psychological and physical measures of anxiety predict stress-induced rise in cell-free mitochondrial DNA. American Psychosomatic Society; San Juan, Puerto Rico (March 2023)
15. \* Trumpff C, Klein HU, Sandi C, Petyukd V, Seyfried N, Bennett D, De Jager PL, **Picard M.** Psychosocial experiences and the mitochondrial brain proteome in older adults. American Psychosomatic Society; San Juan, Puerto Rico (March 2023)
16. \* Yu T, Michelson J, Lauriola V, Hirano M, Sloan R, Juster R-P, Trumpff C, **Picard M.** Preliminary Associations Between Depressive Symptoms, Neuroticism and Salivary cf-mtDNA Reactivity to Psychosocial Stress. American Psychosomatic Society; San Juan, Puerto Rico (March 2023)
17. \* Kelly C, Trumpff C, Gray Z, Wang S, Sloan R, Shapiro P, Hirano M, Slavich G, Assuras S, **Picard M.** Early Life Adverse Experiences and Adulthood Memory Performance Among Individuals with Impaired Cellular Mitochondrial Energetics. American Psychosomatic Society; San Juan, Puerto Rico (March 2023)
18. \* Huang Q, Monzel A, Rausser S, Lauriola V, Sloan R, Juster R, Shapiro P, Hirano M, Trumpff C, **Picard M.** Acute Psychological Stress and the Age-Related Marker Growth Differentiation Factor 15 (GDF15) in Healthy Adults: A Preliminary Study. American Psychosomatic Medicine Poster (March 2023)
19. **Picard M,** Bobba-Alves N, Juster RP, Trumpff C. Mitochondrial psychobiology and the energetic cost of stress responses. American Psychosomatic Society; San Juan, Puerto Rico (March 2023)
20. \* Bobba-Alves N, Sturm G, Lin J, Ware SA, Karan KR, Monzel AS, Bris C, Procaccio V, Lenaers G, Higgins-Chen A, Levine M, Horvath S, Santhanam BS, Kaufman BA, Hirano M, Epel E, **Picard M.** Glucocorticoid stress causes cellular hypermetabolism and accelerated aging. Poster presented at EMBO/FEBS Lecture Course: Mitochondria in life, death and disease Budva, Montenegro (2022)
21. \* Monzel AS, Enriquez JA, **Picard M.** Molecular diversity among mitochondria in human and mouse tissues highlight specialized mitochondria types (mitotypes). Cell symposium Multifaceted Mitochondria - Seville, Spain. (November 2022)
22. \* Sercel AJ, Sturm G, Rausser S, Hirano M, Gallagher D, Melanson EL, St-Onge M-P, **Picard M.** (2022). Does mitochondrial respiratory chain dysfunction impact cellular and whole-body energy metabolism? Cell Symposia: Multifaceted Mitochondria- Sevilla, Spain. (November 2022)
23. \* Bobba-Alves N, Sturm G, Lin J, Higgins-Chen A, Levine M, Horvath S, Hirano H, Epel E, Picard M. Modeling the energetic cost of stress adaptation in human cells. Energetics in Anthropology Workshop – Duke University, NC. (May 2022)

24. \* Sercel AJ, Sturm G, Rausser S, Hirano M, Gallagher D, Melanson EL, St-Onge MP, Picard M. Does mitochondrial respiratory chain dysfunction alter cellular and whole-body energy Expenditure? Poster presentation, Energetics in Anthropology Workshop – Duke University, NC. (May 2022)
25. \* Junker A, Wang J, Gousspillou G, Ehinger JK, Elmér E, Sjövall F, Fisher-Wellman K, Neuffer PD, Molina AJA, Ferrucci L, Picard M. Sex differences in human mitochondria are heterogenous. Oral presentation at the American Psychosomatic Society conference, Long Beach CA. (March 2022)
26. \* Bobba-Alves N, Sturm G, Lin J, Ware SA, Karan KR, Monzel A, Bris C, Procaccio V, Lenaers G, Higgins-Chen A, Levine M, Horvath S, Santhanam BS, Kaufman BA, Hirano M, Epel ES, Picard M. Chronic Glucocorticoid Stress Increases Energy Expenditure and Accelerates Aging Trajectories in Human Fibroblast. Oral presentation at the American Psychosomatic Society, Long Beach CA. (March 2022)
27. \* Basarrate S, Trumpff S, Picard M. Heterogeneous distribution of psychological stress hormone receptors across major human organ systems: a map for stress transduction. Oral presentation at the American Psychosomatic Society, Long Beach CA. (March 2022)
28. \* Rosenberg A, Saggari M, Rogu P, Limoges AW, Sandi C, Mosharov EV, Dumitriu D, Anacker C, **Picard M**. Mouse brain-wide mitochondrial connectivity anchored in gene, brain and behavior. EMBO Workshop on Mitochondrial homeostasis and human disease. (September 2021)
29. \* Sturm G, Karan G, Monzel A, Santhanam B, Bris C, Lin J, Procaccio V, Kaufman B, T Saeed, Hirano M, **Picard M**. Mitochondrial respiratory chain dysfunction causes hypermetabolism and accelerates cellular aging trajectories in a longitudinal cellular lifespan system. Oral presentation at the EMBO Workshop on Mitochondrial homeostasis and human disease. (September 2021)
30. \* Rosenberg A, Rausser S, Ren J, Mosharov EV, Sturm G, Ogden RT, Patel P, Soni RK, Lacefield C, Tobin DJ, Paus R, **Picard M**. Human hair greying is reversible and involves changes in mitochondrial proteins. Oral presentation at the EMBO Workshop on Mitochondrial homeostasis and human disease. (September 2021)
31. \* Fajt J, Lacefield C, Davey T, White K, Laws R, Kosmidis S, Reeve AK, Kandel E, Vincent AE, **Picard M**. 3D neuronal mitochondrial morphology in axons, dendrites, and cell bodies of the aging mouse hippocampus. Poster presentation at the EMBO Workshop on Mitochondrial homeostasis and human disease. (September 2021)
32. \* Rosenberg A, Saggari M, Rogu P, Sandi C, Dumitriu D, Anacker C, **Picard M**. Mitochondrial health in mouse cortical and sub-cortical brain region networks is linked to behavior. Society for Biological Psychiatry – Poster presentation (April 2021 - Online)
33. \* Sturm G, Michelson J, Kothari M, Karan K, Cardenas A, McGill MA, Hirano M, **Picard M**. Mapping human aging with longitudinal multi-omic and bioenergetic measures in cellular lifespan system. International Conference on Complex Systems – Oral presentation (July 2020 - Online)
34. \* Trumpff C, Klein HU, Sandi C, Bennett DA, De Jager PL, **Picard M**. Late-life psychosocial exposures and the human brain mitochondrial proteome. American Psychosomatic Society 2020 – Long Beach, CA. (March 2020) Oral presentation accepted, not presented due to conference cancellation.
35. \* Rausser S, Trumpff C, McGill MA, Karan KR, Reed RG, **Picard M**. Mitochondrial phenotypes in immune cell subtypes in adult women and men. American Psychosomatic Society 2020 – Long Beach, CA. (March 2020) Poster presentation accepted, not presented due to conference cancellation.
36. \* Karan K, Trumpff C, Sturm G, Thomas JE, McGill MA, Rohleder N, Sloan RP, **Picard M**. Mitochondrial respiratory capacity modulates acute LPS-stimulated inflammatory signatures in human blood. TriMAD 2019 – Philadelphia, CA. (October 2019)
37. \* Trumpff C, Rausser S, Juster RP, Mitchell A, Ahmad S, Karan KR, Sturm G, McGill MA, Kirschbaum C, **Picard M**. Daily and weekly within-person stability of neuroendocrine, metabolic, and immune biomarkers: An intensive longitudinal exploratory study. International Society of Psychoneuroendocrinology 2019 – Milan, Italy. (August 2019)

38. \* Karan KR, Trumpff C, McGill MA, Thomas JE, Sturm G, Lauriola V, Rohleder N, Sloan RP, **Picard M**. Mitochondrial respiratory capacity regulates acute LPS-stimulated inflammatory signatures in human blood. International Society of Psychoneuroendocrinology 2019 – Milan, Italy. (August 2019)
39. \* Sturm G, Cardenas A, Bind MA, Horvath S, Wang S, Wang Y, Hägg S, Hirano M, **Picard M**. Human Aging DNA Methylation Signatures are Conserved but Accelerated in Cultured Fibroblasts. International Society for Computational Biology (ISCB/ECCB). (June 2019)
40. \* Cross M, Trumpff C, Engelstad K, Gabriel Sturm G, McGill MA, Karan KR, Rosales XQ, Anderson Z, Clark J, Tepler S, Taleon V, Wang J, Manly J, Martinez M, Medina V, Fortune J, Liu G, Lauriola V, Elder DJ, Ogden T, Thiebaut de Schotten M, Shapiro P, McEwen BS, Sloan RP, Wager TD, Hirano M, Picard M. The Mitochondrial Stress, Brain Imaging, and Epigenetics Study – MiSBIE. United Mitochondrial Disease Foundation (UMDF). (June 2019)
41. \* Vincent AE, Turnbull DM, **Picard M**. Oncogenic spread of mutant mitochondria in aging and disease. FASEB Mitochondrial Biogenesis in Health and Disease. (May 2019)
42. \* Bindra S, McGill MA, Triplett M, Tyagi A, Strack S, Cole S, Sood A, Lutgendorf S, **Picard M**. Tumor mitochondria exhibit abnormal phenotypes and blunted associations with positive and negative psychosocial factors. American Psychosomatic Society – Vancouver, Canada. (March 2019) (\*\* citation poster)
43. \* Trumpff C, Marsland AL, Sloan RP, Kaufman BA, **Picard M**. Psychophysiological predictors of stress induced mitochondrial reactivity identified using machine learning classifiers. American Psychosomatic Society – Vancouver, Canada. (March 2019)
44. \* **Picard M**. Social principles linking human and mitochondrial behavior. American Psychosomatic Society – Vancouver, Canada. (March 2019)
45. \* Vincent AE, Rosa HS, Pabis K, Lawless C, Grünewald A, Chen C, Rygiel KA, Rocha MC, Falkous G, Perissi V, White K, Davey T, Grady JP, Petrof B, Sayer AA, Cooper C, Taylor RW, Turnbull DM, **Picard M**. Clonal expansion of mtDNA deletions originates as a perinuclear niche in aging and disease. Keystone Symposia: Mitochondria in Aging and Age-related Disease. (January 2019)
46. \* Vincent AE, Rosa HS, Pabis K, Lawless C, Grünewald A, Chen C, Rygiel KA, Rocha MC, Falkous G, Perissi V, White K, Davey T, Grady JP, Petrof B, Sayer AA, Cooper C, Taylor RW, Turnbull DM, **Picard M**. Sub-cellular origin of mtDNA deletions in human skeletal muscle. CSHL Evolving Concept of Mitochondria Conference – Cold Spring Harbor Laboratory, NY. (October 2018)
47. \* Trumpff C, Marsland AL, Martin JL, Carroll JE, Sturm G, Gu Z, Vincent A, Kaufman BA, **Picard M**. Acute psychological stress and ccf-mtDNA reactivity: Psycho-physiological profiles of high responders using multivariate classification algorithms. International Society of Psychoneuroendocrinology – Irvine, CA. (September 2018)
48. \* Karan K, Trumpff C, Sturm G, Thomas JE, McGill MA, Rohleder N, Sloan RP, **Picard M**. Mitochondrial modulation of LPS-induced inflammation and glucocorticoid sensitivity in human blood. International Society of Psychoneuroendocrinology 2018 – Irvine, CA. (September 2018)
49. \* Sturm G, Karan K, Trumpff C, Basualto C, McGill MA, Hirano M, **Picard M**. Chronic glucocorticoid stress causes a distinct mitochondrial signature and accelerates cellular aging in human fibroblasts. Cell Symposia: Aging and Metabolism – Sitges, Spain. (September 2018)
50. \* Trumpff C, Marsland AL, Martin JL, Carroll JE, Sturm G, Gu Z, Vincent A, Kaufman BA, **Picard M**. Circulating cell-free mitochondrial DNA is induced by brief psychological stress. Society for Biological Psychiatry 2018 – New York, NY. (May 2018)
51. \* Vincent AE, Rosa HS, Pabis K, Lawless C, Grünewald A, Chen C, Rygiel KA, Rocha MC, Falkous G, Perissi V, White K, Davey T, Grady JP, Petrof B, Sayer AA, Cooper C, Taylor RW, Turnbull DM, **Picard M**. Sub-cellular origin of mtDNA deletions in human skeletal muscle. Annual Neuromuscular Translational Research Conference 2018 – Cambridge, UK. (April 2018)

52. \* Vincent AE, White K, Davey T, Philips J, Serrao R, Warren C, Hall, MG, Ng Y, Falkous G, Hogden T, Deehan D, Taylor RW, Turnbull DM, **Picard M**. Quantitative 3D mapping of the skeletal muscle mitochondrial network in health and mtDNA disease. Annual Neuromuscular Translational Research Conference 2018 – Cambridge, UK. (April 2018)
53. \* Trumpff C, Marsland AL, Martin JL, Carroll JE, Sturm G, Gu Z, Kaufman BA, **Picard M**. Socio-evaluative stress selectively increases serum circulating cell-free mitochondrial DNA (ccf-mtDNA). American Psychosomatic Society – Louisville, KY. (March 2018)
54. \* Vincent AE, White K, Davey T, Philips J, Hall MG, Ng YS, Falkous G, Holden T, Taylor RW, Turnbull DM, **Picard M**. Three dimensional visualisation and quantitative analysis of mitochondrial networks in human skeletal muscle. EUROMIT 10 – Colone, Germany. (June 2017)
55. \* Vincent AE, Rosa H, Rygiel KA, Grunewald A, Rocha MC, Reeve AK, Chen C, Falkous G, White K, Davey T, Petrof BJ, Sayer AA, Cooper C, Taylor RW, Turnbull DM, **Picard M**. Clonally expanded mtDNA deletions in human skeletal muscle originate as a proliferative perinuclear niche. EUROMIT 10 – Colone, Germany. (June 2017)
56. \* **Picard M**, McManus MJ, Csordas G, Varnai P, Dorn GW, Williams D, Petrof BJ, Turnbull DM, Hajnoczky G, Wallace DC. Trans-mitochondrial coordination of cristae at physiologically-regulated membrane junctions. EUROMIT 10 – Colone, Germany. (June 2017)
57. \* Vincent AE, Rosa H, Rygiel KA, Grady JP, Rocha M, Taylor RW, Turnbull, **Picard M**. Mitochondrial DNA deletions originate as a proliferative perinuclear niche. Keystone Symposium, Mitochondria Communication - Taos NM, USA. (Jan 2017)
58. \* Vincent AE, Rosa H, Rygiel KA, Grady JP, Rocha M, Taylor RW, Turnbull, **Picard M**. Mitochondrial DNA deletions originate as a proliferative perinuclear niche. TRIMAD - Philadelphia PA, USA. (Nov 2016)
59. **Picard M**, McManus MJ, Gray J, Nasca C, Moffat C, Kopinsky P, Seifert E, McEwen BS, Wallace DC. Discrete Signatures of multi-systemic dysregulation in mice with genetic mitochondrial defects: Implications for health and disease. United Mitochondrial Disease Foundation - Seattle WA, USA. (June 2016)
60. \* Vincent AE, Rosa H, Rygiel KA, Grady JP, Rocha M, Taylor RW, Turnbull, **Picard M**. Clonal expansion of mtDNA deletions in skeletal muscle: new insights into mechanisms. United Mitochondrial Disease Foundation - Seattle WA, USA. (June 2016) *[Best poster presentation]*
61. **Picard M**, McManus MJ, Gray J, Nasca C, Moffat C, Kopinsky P, Seifert E, McEwen BS, Wallace DC. Discrete Signatures of Multi-systemic Dysregulation in Mice with Genetic Mitochondrial Defects. NIH Mitochondrial Biology Symposium - Bethesda MD, USA. (May 2016)
62. \* Vincent AE, Rosa H, Rygiel KA, Grady JP, Rocha M, Taylor RW, Turnbull, **Picard M**. Clonal expansion of mtDNA deletions across the skeletal muscle mitochondrial network: Insights into mechanisms. NIH Mitochondrial Biology Symposium - Bethesda MD, USA. (May 2016)
63. \* Vincent AE, Ng YS, White K, Davey T, Manella C, Falkous G, Feeney C, Schaefer AM, McFarland R, Gorman GS, Taylor RW, Turnbull DM, **Picard M**. The spectrum of mitochondrial ultrastructural and morphological defects in mitochondrial myopathy. Mitochondrial Medicine: Developing New Treatments for Mitochondrial Disease - Hinxton-Cambridge, UK. (May 2016)
64. \* Vincent AE, White K, Davey T, Taylor RW, Turnbull, **Picard M**. 3D reconstruction and quantitative analysis of skeletal muscle mitochondrial networks in patients with mitochondrial disease. Neuromuscular Translational Research Conference - Oxford, UK. (March 2016)
65. **Picard M**, McManus MJ, Gray J, Nasca C, Moffat C, Kopinsky P, Seifert E, McEwen BS, Wallace DC. Mitochondrial functions modulate the stress response in mice. ISPNE - Edinburgh, Scotland. (September 2015) \* Best poster presentation

66. **Picard M**, McManus MJ, Csordas G, Varnai P, Dorn GW, Williams D, Hajnoczky G, Wallace DC. Trans-mitochondrial coordination of cristae at regulated membrane junctions. Multifaceted Mitochondria, Cell Press meeting - Chicago IL, USA. (July 2015)
67. **Picard M**, McManus MJ, McEwen BS, Wallace DC. Mitochondria Impact Neuroendocrine, Metabolic and Inflammatory Responses to Acute Stress in the Mouse. ISPNE - Montreal, Canada. (August 2014)
68. \* **Picard M**, McEwen BS, Juster RP, McManus MJ, Wallace DC. Mitochondrial Allostatic Load (MAL): Putting the 'gluc' back into glucocorticoids. American Psychosomatic Society - San Francisco CA, USA. (March 2014)
69. \* **Picard M**, Murphy J, Spendiff S, Hepple RT, Petrof BJ, Wallace DC, Turnbull DM, Taivassalo T. Is Mitochondrial COX Deficiency a Cause of Myofiber Atrophy in Humans. 13th Meeting on Advances in Skeletal Muscle Biology in Health and Disease - Gainesville FL, USA. (March 2014)
70. **Picard M**, Zhang J, Hancock S, Derbeneva O, Procaccio V, Golhar R, Golik P, O'Hearn S, Levy SE, Potluri P, Lvova M, Davila A, Lin CS, Perin JC, Rappaport EF, Hakonarson H, Wallace DC. Increasing mitochondrial DNA heteroplasmy causes biphasic reprogramming of nuclear gene expression in human cells. Keystone Conference Q5: Mitochondrial Dynamics and Physiology - Santa Fe NM, USA. (February 2014)
71. **Picard M**, Zhang J, Hancock S, Derbeneva O, Procaccio V, Golhar R, Golik P, O'Hearn S, Levy SE, Potluri P, Lvova M, Davila A, Lin CS, Perin JC, Rappaport EF, Hakonarson H, Wallace DC. Mitochondrial DNA heteroplasmy reprograms nuclear gene expression. Genomics in Metabolism Conference - Copenhagen, Denmark. (November 2013)
72. **Picard M**, Zhang J, Hancock S, Derbeneva O, Procaccio V, Golhar R, Golik P, O'Hearn S, Levy SE, Potluri P, Lvova M, Davila A, Lin CS, Perin JC, Rappaport EF, Hakonarson H, Wallace DC. mtDNA A3243G Heteroplasmy induces bi-phasic reprogramming of the nuclear genome. NHLBI Mitochondrial Biology Symposium - Bethesda, USA. (May 2013)
73. **Picard M**, Azuelos I, White K, Jung K, Petrof BJ and Turnbull DM. Contractile in/activity influence mitochondrial morphology and membrane interactions in mouse skeletal muscle. Experimental Biology 2013 - Boston MA, USA. (April 2013)
74. **Picard M**, Zhang J, Hancock S, Derbeneva O, Procaccio V, Golhar R, Golik P, O'Hearn S, Levy SE, Potluri P, Lvova M, Davila A, Lin CS, Perin JC, Rappaport EF, Hakonarson H, Wallace DC. Mitochondrial DNA heteroplasmy reprograms nuclear gene expression. 2013 Annual CHOP Research Poster Day - Philadelphia PA, USA. (February 2013)
75. \* **Picard M**, White K, Gartside S, Turnbull DM. Three-dimensional dynamic organization of mitochondria in skeletal muscle: Effects of a single bout of voluntary exercise. APS Intersociety Meeting: Integrative Biology of Exercise VI - Westminster MD, USA. (October 2012)
76. \* **Picard M**, Lax NZ, Ratnaik T, Juster RP, Turnbull DM. Mitochondrial allostatic load? The combined effect of glucose intolerance and mitochondrial DNA mutations on neurological symptoms incidence. International Society of Psychoneuroendocrinology Meeting - New York NY, USA. (September 2012)
77. **Picard M**, Wright KJ, Ritchie D, Thomas MM, Hepple RT. Intrinsic mitochondrial function is relatively preserved in permeabilized cardiomyocytes of senescent myocardium. American College of Sports Medicine 59th annual Meeting and 3rd World Congress on Exercise is Medicine - San Francisco CA, USA. (June 2012)
78. **Picard M**, Liang F, Hussain SNA, Godin R, Goldberg P, Danialou G, Chaturvedi R, Matecki S, Jaber S, Des Rosiers C, Karpati G, Turnbull DM, Taivassalo T, Petrof BJ. Metabolic overload and mitochondrial dysfunction as a cause of diaphragmatic failure after mechanical ventilation. Experimental Biology - San Diego, USA. (April 2012)
79. **Picard M**, Juster RP, Sabiston C. Self-rated mental health predicts emotional well-being in breast cancer survivors. American Psychosomatic Society – Athens, Greece. (March 2012)
80. **Picard M**, Liang F, Hussain SNA, Godin R, Goldberg P, Danialou G, Chaturvedi R, Matecki S, Jaber S, Des Rosiers C, Rygiel K, Karpati G, Turnbull DM, Petrof BJ, Taivassalo T. Metabolic oversupply in the mechanically ventilated

human diaphragm is associated with respiratory chain deficiency and alterations of mtDNA. Society of General Physiologists 2011 Symposium: Mitochondrial Physiology and Medicine - Woods Hole MA, USA. (September 2011)

81. **Picard M**, Liang F, Hussain SNA, Godin R, Goldberg P, Danialou G, Chaturvedi R, Matecki S, Jaber S, Des Rosiers C, Karpati G, Petrof BJ, Taivassalo T. Complete segmental cytochrome c oxidase (COX) deficiency dolocalizes with lipid accumulation in the human diaphragm after mechanical ventilation. Euromit 8 - Zaragoza, Spain. (June 2011)
82. **Picard M**, Taivassalo T, Ritchie D, Wright KJ, Thomas MM, Romestaing C, Hepple RT. Mitochondrial isolation exaggerates severity of mitochondrial dysfunction in severely atrophied aging muscle. Euromit 8 - Zaragoza, Spain. (June 2011)
83. **Picard M**, Liang F, Hussain SNA, Goldberg P, Danialou G, Chaturvedi R, Matecki S, Jaber S, Des Rosiers C, Karpati G, Godin R Taivassalo T, Petrof BJ. Mitochondrial dysfunction and lipid accumulation in the human diaphragm during mechanical ventilation. American Thoracic Society (ATS) Meeting - Denver CO, USA. (May 2011)
84. **Picard M**, Ritchie D, Wright KJ, Thomas MM, Rowan SL, Taivassalo T, Hepple RT. Isolated mitochondria from skeletal muscle show exaggerated impairments with aging compared to mitochondria from permeabilized myofibers. ACSM Conference of Integrative Physiology of Exercise - Miami FL, USA. (September 2010)
85. \* **Picard M**, Sabiston CA, McNamara JA. What is health? Framing a transdisciplinary perspective for health as a holistic phenomenon. 5th International Multidisciplinary Conference - Calgary, Canada. (September 2009)

#### CHAPTERS, MONOGRAPHS, EDITORIALS:

1. (Book Chapter) \* **Picard M**, McManus MJ. Mitochondrial signaling in neurodegeneration. In Reeve AK, Simcox A, Duchen MR, Turnbull DM. (Eds.) *Mitochondrial dysfunction in neurodegenerative disorders*, 2<sup>nd</sup> edition, London: Springer (2016)
2. (Book Chapter) Juster RP, Seeman T, McEwen BS, **Picard M**, Mahar I, Mechawar N, Sindi S, Smith NG, Souza-Talarico J, Sarnyai Z, Lanoix D, Plusquellec P, Ouellet-Morin I, Lupien SJ. Social inequalities and the road to allostatic load: From vulnerability to resilience. In Cichetti D. (Ed.) *Developmental Psychopathology Handbook: Genes and Environment*, 3<sup>rd</sup> edition, Hoboken, NJ: Wiley (2016)

#### DOCTORAL THESIS:

- **Picard M**. Assessment of mitochondrial function in skeletal muscle during disease, disuse and normal aging. *PhD Dissertation*, McGill University, Canada. 05/2012

#### MEDIA COVERAGE HIGHLIGHTING OUR RESEARCH:

##### *Energy, mitochondria, and health*

- “**Martin Picard: Exploring the Mind-Mitochondria Connection**” – [CUIMC News](#) 09/2023
- “**Overactive Cell Metabolism Linked to Biological Aging**” – [CUIMC News](#) 01/2023
- “**Energy, and How to Get It**” – [The New Yorker](#) 11/2021

##### *Mental states and brain mitochondria*

- “**Life Experiences May Shape the Activity of the Brain’s Cellular Powerhouses**” – [Scientific American](#) 06/2024
- “**Brain Health is Rooted in State of Mind, Finds Study**” – [CUIMC News](#) 06/2024
- PNAS paper covered in [Medical Dialogues](#), [Medical Express](#), [Earth.com](#) 06/2024

##### *The reversibility of hair greying, aging, and stress psychobiology*

- **CBC Documentary “On the nature of things”** (broadcasted in Canada) 04/2024
- **BBC Documentary “The Science of living to 101”** (distributed internationally) 09/2023

- “Going Grey? Relax. Those Silver Strands Could Disappear” – [Columbia Magazine](#) 10/2021
- “It’s Easy to Avoid Going Gray. Just Stress Less.” – [Wall Street Journal](#) 07/2021
- “New research on how to reverse gray hair” – [PBS News Hour](#) 07/2021
- “Aging May Not Be a Linear Process, Study on Reversible Stress-Induced Graying Suggests” – [GENews](#) 07/2021
- “Gray Hair Can Return to Its Original Color—and Stress Is Involved, of Course” – [Scientific American](#) 06/2021
- “It’s True: Stress Does Turn Hair Gray (And It’s Reversible)” – [Columbia News](#) 06/2021
- Other outlets: [Daily Mail](#), [Globe and Mail](#), [New York Post](#), [Philly Voice](#), [Yahoo News](#), [Sci Tech Daily](#), [ScienceDaily](#), [New Scientist](#), [International Business Times](#), [Insider.com](#), [Healthing.ca](#), [Pledge Times](#), [Business Insider](#)
- Radio coverage: [BYU radio](#), [Radio Canada-Bien Entendu](#), [ABC](#), [RNZ](#), BBC Radio World Show, BBC Mundo
- TV coverage: [NBC Today show](#), [CTV News](#), [7NEWS Perth](#),
- Podcasts: [eLife](#)

#### *Mitochondria, stress and mental health*

- “The truth about the internet’s favorite stress hormone” – [New York Times](#) 03/2023
- “A glimpse at the mind-body connection under the microscope” – [FABBS](#) 10/2021
- “Could mitochondria be the key to a healthy brain?” – [Knowable](#) 06/2021
- “Mitochondria may hold keys to anxiety and mental health” – [Quanta Magazine](#) 08/2020

#### *Mitochondrial biology and the sociality of mitochondria*

- “Rebranding Mitochondria” – [The Scientist](#) 12/2023
- “‘Social’ mitochondria, whispering between cells, influence health” – [Quanta Magazine](#) 07/2021
- “The idea that inanimate objects have consciousness, gains steam in science communities” – [Salon](#) 07/2021

#### *Psychological stress and mitochondrial genome release in the blood*

- “Brain’s dumped DNA may lead to stress, depression” – [Scientific American](#) 09/2019

### **INVITED AND/OR PEER-SELECTED ORAL PRESENTATIONS:**

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#### **INTERNATIONAL MEETINGS:**

1. (Keynote) Stress and Resilience & Global Stress Network. Lausanne, Switzerland. 04/2024
2. Milken Institute LHON Scientific Retreat. Lisbon, Portugal. 04/2024
3. UCLA Mitochondria Symposium. Los Angeles, CA. 12/2023
4. United Mitochondrial Disease Foundation – UMDF. Charlotte, NC. (Research & Clinical talks) 06/2023
5. Euromit. Bologna, Italy. 06/2023
6. Biology of Aging Symposium IV. Montreal, Canada. 05/2023
7. American Psychosomatic Society. San Juan, Puerto Rico. [Award talk; Symposium] 03/2023
8. Biophysical Society. San Diego, CA. 02/2023
9. Mitochondria at the cutting edge. Weismann Institute, Israel. 11/2022
10. Mitochondria: Past and Present. Ein Gedi, Israel. 11/2022
11. Gerontological Society of America. Indianapolis, IN. 11/2022
12. American Psychosomatic Society. Long Beach, CA. 03/2022
13. Society for Neuroscience – SfN. (Remote) 11/2021
14. World Mitochondria Society. Berlin, Germany. (Remote) 10/2021
15. Academy of Behavioral Medicine Research – ABMR. Santa Cruz, CA. 10/2021
16. EMBO workshop on mitochondrial homeostasis in human disease. 09/2021
17. American College of Neuropsychopharmacology – ACNP. (Remote) 12/2020

18. Aging in Single Cells Special Working Group – Sante Fe Institute. Santa Fe, NM.	02/2020
19. European Brain and Behavior Society – EBBS. Prague, Czech Republic.	09/2019
20. International Society for Psychoneuroendocrinology – ISPNE. Milan, Italy.	08/2019
21. Academy of Behavioral Medicine Research – ABMR. Tucson, AZ.	06/2019
22. Gordon Conference, Mitochondria in Health and Disease. Ventura Beach, CA.	03/2019
23. Keystone Symposia, Mitochondria in Skeletal Muscle and Aging. Keystone, CO.	01/2019
24. International Society for Psychoneuroendocrinology – ISPNE. Irvine, CA.	09/2018
25. United Mitochondrial Disease Foundation – UMDF. Nashville, TN.	06/2018
26. Amsterdam Aging Meeting 2018. Amsterdam, Netherlands.	06/2018
27. Society for Biological Psychiatry – SOBP. New York, NY.	05/2018
28. American Psychosomatic Society – APS. Louisville, KY.	03/2018
29. Biophysical Society, Bioenergetics subgroup. San Francisco, CA.	02/2018
30. Psychoneuroimmunology Research Society – PNIRS. Galveston, TX.	06/2017
31. Practicalities of Cellular Imaging, Newcastle University. Newcastle Upon Tyne, UK.	03/2017
32. American Psychosomatic Society – APS. Seville, Spain.	03/2017
33. World Mitochondria Society: Targeting Mitochondria 2016. Berlin, Germany.	10/2016
34. International Society for Psychoneuroendocrinology – ISPNE. Miami, FL.	09/2016
35. European Muscle Conference 2016. Montpellier, France.	09/2016
36. Wellcome Trust Conference on Mitochondrial Medicine. Hinxton, UK.	05/2016
37. Biophysical Society - Bioenergetic Subgroup. Los Angeles, CA.	02/2016
38. Multifaceted Mitochondria, Cell Press Meeting. Chicago, IL.	07/2015
39. American Psychosomatic Society – APS. Savannah, GA.	03/2015
40. International Conference on Systems and Complexity Sciences for Health Care. Washington, DC.	11/2014
41. Mitochondrial Physiology MiP2014. Obergurgl, Austria.	09/2014
42. Targeting Mitochondrial Dysfunction and Toxicity Meeting. Boston, MA.	03/2014
43. International Congress on Whole Person Care. Montreal, Canada.	10/2013
44. Experimental Biology – EB 2011. Washington, DC.	04/2011
45. Experimental Biology – EB 2011. Washington, DC.	04/2011
46. International Psychosocial Oncology Society (IPOS). Quebec, Canada.	05/2010

#### NATIONAL MEETINGS:

1. NIH R13 Resilience Meeting. NIA/American Geriatric Society. Bethesda, MD.	03/2024
2. NIH/NIA 4 <sup>th</sup> Geroscience Summit.	04/2023
3. (Keynote) NIEHS/NIA Telomere Research Network. (Remote)	03/2023
4. Metabolic Psychiatry Roadmap Retreat 2022. Santa Barbara, CA.	05/2022
5. Energetics in Anthropology Workshop. Duke University, NC.	05/2022
6. (Keynote) MITO2i symposium. Toronto, Canada. (Remote) <a href="#">Link</a>	04/2022
7. UCLA Mitochondria Symposium. Los Angeles, CA.	12/2021
8. NIH-BRS Workshop: Deeply Phenotyped Longitudinal Studies of aging. (Remote)	02/2021
9. Allostatic Load Workshop. New Orleans, LA.	02/2019
10. NHLBI Workshop Panelist: Enhancing Cardiovascular Resilience. Bethesda, DC.	06/2018
11. NIEHS/NIA Workshop Panelist: Exploring telomeres as sentinels for environmental and	09/2017



psychosocial stress, and susceptibility. Research Triangle Park, NC.

12. Annual Congress of the Canadian Association of Psychosocial Oncology. Vancouver, Canada. 04/2012
13. Annual Congress of the Canadian Association of Psychosocial Oncology. Quebec, Canada. 05/2011

#### REGIONAL MEETINGS:

1. MitoCare Symposium Hajnoczky's 60<sup>th</sup> celebration. Philadelphia, PA. 06/2023
2. Translational Regional Mitochondria, Aging and Disease (TRiMAD) Symposium. Pittsburgh, PA. 10/2017
3. Stress Meeting 2017 – Festschrift for Bruce S McEwen. Princeton University, NJ. 06/2017
4. Translational Regional Mitochondria, Aging and Disease (TRiMAD) Symposium. State College, PA. 11/2015
5. 10<sup>th</sup> McGill Education Graduate Student Society Conference, McGill University. Montreal, Canada. 03/2011
6. COPD Strategic Research Group Meeting of the Réseau en Santé Respiratoire (RSR) of the Fond de Recherche en Santé du Québec (FRSQ). Montreal, Canada. \* Best oral presentation 02/2011
7. Congrès Conjoint de l'APPQ et du Réseau en Santé Respiratoire (RSR) du Fond de Recherche en Santé du Québec (FRSQ). Quebec, Canada. \*Best oral presentation 11/2010
8. 9<sup>th</sup> McGill Education Graduate Student Society Conference, McGill University. Montreal, Canada. 03/2010
9. 9<sup>th</sup> McGill Education Graduate Student Society Conference, McGill University. Montreal, Canada. 03/2010
10. 19<sup>th</sup> McGill University Health Center Research Institute Conference. Montreal, Canada. 06/2009
11. FRSQ Respiratory Health Network Meeting: COPD Strategic Research Group. Montreal, Canada. 01/2008
12. Department of Physiology Annual Research Day, McGill University. Montreal, Canada. 03/2006

#### INVITED SEMINARS (NATIONAL OR INTERNATIONAL):

1. Emory University, Department of Cell Biology. Atlanta, GA. 04/2024
2. EPFL Mind Brain Institute. Lausanne, Switzerland. 04/2024
3. University of Cologne CECAD and Max Planck Institute on Ageing. Cologne, Germany. 04/2024
4. UCSF Psychiatry and Behavioral Sciences, Grand Rounds. San Francisco, CA. 03/2024
5. Yale University, Biology of Aging. New Haven, CT. 12/2023
6. Nathan Shock Memorial Lecture. NIH-NIA, MD. 11/2023
7. University of Utah. Salt Lake City, UT. 10/2023
8. Mayo Clinic. (Remote) 09/2023
9. MITOtalks. (Remote, 320 attendees) 09/2023
10. NIH Emotional Well Being Network. (Remote) [Link](#) 04/2023
11. Arizona State University, School of Life Sciences. Tempe, AZ. 04/2023
12. Precision Convergence Webinar on Economy of the Brain, McGill University. (Remote) 01/2023
13. MitoCase Conference, Massachusetts General Hospital. (Remote) 01/2023
14. McCance Center for Brain Health, Massachusetts General Hospital. (Remote) 01/2023
15. NIH Mitochondrial Disease (MiDi) Interest Group. (Remote) 11/2022
16. North American Mitochondrial Disease Consortium (NAMDC). (Remote) 10/2022
17. Université de Montréal, Biology Department. Montreal, Canada. (Remote) 03/2022
18. Genetics and Genomics Program, Texas A&M. 11/2021
19. Centre de Recherche sur le Vieillissement, Université de Sherbrooke, Canada. (Remote) 10/2021
20. Quantitative Methods Network (QMNet), University of Melbourne. (Remote) [Link](#) 09/2021
21. Network Physiology Perspectives of Human Health Webinar, The Physiological Society. (Remote) 07/2021
22. Bench-to-Bedside Seminar, United Mitochondrial Disease Foundation (UMDF). (Remote) 03/2021

23. Penn State University College of Medicine, Department of Physiology. (Remote)	03/2021
24. Friedrich-Alexander University, Chair of Health Psychology. Germany. (Remote)	12/2020
25. NIH Liquid Biopsy Special Interest Group webinar. (joint with Brett Kaufman; Remote)	05/2020
26. UCLA, David Geffen School of Medicine, Metabolism Theme. Los Angeles, CA. (Remote)	03/2020
27. Ohio State University, Institute for Behavioral Medicine Research. Columbus, OH.	03/2020
28. University of Southern California, Leonard Davis School of Gerontology. Los Angeles, CA.	09/2019
29. NIH Rising Stars Lecture Series, Director's Office. Bethesda, MD.	09/2019
30. University of Pittsburgh, Department of Psychology. Pittsburgh, PA.	05/2019
31. Intramural Research Program – Biomedical Research Center, NIA-NIH. Baltimore, MD.	05/2019
32. NIA-IRB Longitudinal Studies Section, Harbor Hospital. Baltimore, MD.	05/2019
33. Victoria University, Institute for Health and Sport. Melbourne, Australia.	03/2019
34. Deakin University, Institute of Physical Activity and Nutrition. Melbourne, Australia.	03/2019
35. Interprofessional Community, "The future of Brain Health". Pasadena, CA.	03/2019
36. Henry Stewart Talks. <a href="https://hstalks.com/bs/3836/">https://hstalks.com/bs/3836/</a> (Series on <i>Mitochondrial Biogenesis</i> )	11/2018
37. Université du Luxembourg, Center for Biomedicine. Luxembourg, Luxembourg.	06/2018
38. Thomas Jefferson University, MitoCare Center. Philadelphia, PA.	02/2018
39. Harvard University, National Scientific Council on the Developing Child. Boston, MA.	12/2017
40. Boston University, Department of Biochemistry. Boston, MA.	11/2017
41. University of Iowa, Department of Psychological and Brain Sciences. Iowa City, IA.	10/2017
42. Wayne State University, Center for Molecular Medicine and Genetics, Department of Psychiatry and Behavioral Neurosciences. Detroit, MI.	05/2017
43. EPFL, Brain Mind Institute. Lausanne, Switzerland.	04/2017
44. Penn State University, Department of Bio-Behavioral Health. State College, NY.	02/2017
45. Cambridge University, Mitochondrial Biology Unit. Cambridge, UK.	04/2016
46. York University, Muscle Health Research Centre. Toronto, Canada.	04/2016
47. Gettysburg College, Department of Biochemistry and Molecular Biology. Gettysburg, PA.	02/2016
48. Université de Montréal Centre for Studies on Human Stress. Montreal, Canada.	07/2015
49. Tufts University, Department of Biology. Boston, MA.	04/2015
50. Université de Montréal, Faculty of Pharmacy. Montreal, Canada.	02/2015
51. Centre de Recherche du CHU Ste-Justine. Montreal, Canada.	01/2015
52. Université de Montréal, Department of Physiology. Montreal, Canada.	01/2015
53. Wellcome Trust & Royal Society, Committee for Sir Henry Dale Fellowship. London, UK.	10/2014
54. East Carolina University, Diabetes and Obesity Institute. Greenville, NC.	11/2014
55. John Templeton Complexity Network Meeting. Colorado Springs, CO.	08/2013
56. Academy of Behavioral Medicine (ABMR) Research Meeting. Monterey, CA.	06/2013
57. Boston University Medical Center. Boston, MA.	12/2012
58. University of Chicago Medicine, Comprehensive Cancer Center. Chicago, IL.	10/2012
59. University of California San Francisco, Department of Psychiatry. San Francisco, CA.	06/2012
60. University of California San Francisco, Department of Medicine. San Francisco, CA.	06/2012

#### INVITED SEMINARS (REGIONAL OR LOCAL):

1. Mailman School of Public Health. New York, NY.	04/2024
2. Columbia University, Department of Neuroscience and ZMBBI. New York, NY.	02/2024

3. CHOP MitoRAG. Philadelphia, PA. 09/2023
4. Nathan Kline Institute, New York University. Orangeburg, NY. 04/2023
5. Mailman School of Public Health, Columbia Aging Center and EH&S Department. New York, NY. 04/2022
6. Yale-Columbia Psychiatry Annual Retreat (Remote) 03/2022
7. Columbia University, University Seminar (USEM) on the Future of Aging, *with Linda Freed.* (Remote) 12/2021
8. Columbia Teachers College, Applied Physiology Seminar. (Remote) 03/2021
9. Columbia University, Department of Neurology, Division of Neuroimmunology. (Remote) 03/2021
10. Columbia University, Columbia Aging Center. (Remote) 03/2021
11. Columbia University, Department of Psychiatry: Molecular Imaging and Neuropathology. (Remote) 11/2020
12. Columbia University, Department of Neurology. New York, NY. (Remote) 11/2020
13. Columbia University, Irving Institute. New York, NY. (Remote) 10/2020
14. Temple University, Center for Translational Research. Philadelphia, PA. (Remote) 05/2020
15. Columbia University, Institute of Human Nutrition. New York, NY. (Remote) 05/2020
16. Columbia University, Sackler Institute (Part II). New York, NY. 05/2019
17. Columbia University, Sackler Institute (Part I). New York, NY. 05/2019
18. Columbia University, Department of Biological sciences. New York, NY. 02/2019
19. Columbia University, Departments of Epidemiology and Neurology. New York, NY. 01/2019
20. Columbia University, Department of Medicine: Clinical/Epidemiological Research. New York, NY. 12/2017
21. Columbia University, Department of Psychiatry: Grand Rounds. New York, NY. 10/2017
22. Columbia University, Department of Neurology Annual Research Retreat. New York, NY. 06/2017
23. Columbia University, Columbia Mito Group (Part II). New York, NY. 01/2017
24. Columbia University, Columbia Mito Group (Part I). New York, NY. 12/2016
25. Columbia University, University Seminars (USEM) on the Future of Aging Research. New York, NY. 12/2016
26. Columbia Translational Neuroscience Initiative Fortnightly PI Luncheon. New York, NY. 02/2016
27. Columbia University, The Merritt Center, Department of Neurology. New York, NY. 02/2016
28. Cornell University, Division of Nutritional Sciences. Ithaca, NY. 11/2015
29. Feinstein Institute for Medical Research. Long Island, NY. 07/2014
30. The Children's Hospital of Philadelphia, Mitochondrial Affinity Group. Philadelphia, PA. 02/2014
31. Columbia University Medical Center, Division of Behavioral Medicine. New York, NY. 12/2013
32. Children's Hospital of Philadelphia, Mitochondrial Research Affinity Group. Philadelphia, PA. 05/2013
33. The Rockefeller University, Laboratory of Neuroendocrinology. New York, NY. 04/2013
34. McGill University, Montreal Muscle Group. Montreal, Canada. 11/2011
35. McGill University, Faculty of Education. Montreal, Canada. 03/2011
36. Université de Montréal, Montreal Muscle Group. Montreal, Canada. 10/2010
37. McGill University, Montreal Muscle Group. Montreal, Canada. 05/2010
38. McGill University, Meakins Christie Laboratories: The Beer Seminar. Montreal, Canada. 06/2009

#### **PUBLIC OUTREACH:**

1. [Brain Ponderings](#) Podcast with Mark Mattson 04/2024
2. [Metabolic Mind](#) Podcast (>400,000 views) 08/2023
3. [TEDx Cambridge](#) – What powers the mind-body connection? 08/2023
4. [Mitochondrial Innovation Initiative](#) Talk 12/2022

5. [Eat Move Think](#) Podcast 07/2022
6. [Mind & Matter](#) Podcast 05/2022
7. [The Energy Blueprint](#) Podcast (>35,000 views) 07/2019
8. [The Human Upgrade](#) Podcast 02/2019
9. Wagner College, Annual Kaufman-Repage Lecture. New York, NY. [Lecture](#) 10/2018
10. Public lecture, University of Amsterdam. Amsterdam, Netherlands. 06/2018
11. Public lecture, The Nathaniel Wharton Fund, The Lotos Club. New York, NY. 05/2018