

# **DOHaD 2019 Preconference Workshop, Melbourne Conference Centre: Emerging research on later-life interventions to remediate and redirect unhealthy lifecourse trajectories induced by early life adversities**

**20 October 2019**

*Chair(s):* Keith Godfrey (Southampton), Teresa Seeman (UCLA)

## **1.30 SESSION 1: Introduction to the Reversibility Network (10minutes)**

- *The NIA/ESRC/BBSRC Network on Reversibility of Early Life Adversity Effects on Later Life Health*  
– Keith Godfrey and Teresa Seeman, including orientation of talks around a developmental model/conceptual model adopted by the network

## **1.40 SESSION 2: Measuring Early Life Adversity: Implications for Intervention Design**

- *Mental and Physical Health Consequences of Childhood Adversity*  
– Kate McLaughlin (Harvard) (20minutes)
- *Dimensions of Early Life Adversity*  
– Margaret Sheridan (UNC Chapel Hill) (20minutes)
- *Prospective vs. Retrospective Assessments of Early Life Adversity*  
– Andrea Danese (Kings College London) (20minutes)
- DISCUSSION (20minutes)

## **3.00 SESSION 3: Identifying Intervention Targets along Pathways Linking Early Adversity to Later Life Health**

- *Physiological Pathways: Leveraging Cohort Studies*  
– Teresa Seeman (20minutes)
- *Sleep Disruption: Insights from Human and Animal Studies*  
– Takao Hensch (Harvard), Andrew Fuligni (UCLA) or Nim Tottenham (Columbia) (20minutes)
- DISCUSSION (20minutes)

## **4.00 Coffee**

## **4.30 SESSION 4: Intervention Design: A Focus on Plasticity and Mechanisms of Change**

- *Nutritional and Exercise Interventions and Later Life Cognition*  
– Kirk Erickson (U Pittsburgh)/Terrence Forrester (University of the West Indies) (20minutes)
- *Mindfulness Interventions: Differential Outcomes as a Function of Early Adversity*  
– Eric Loucks (Brown) (20minutes)
- DISCUSSION (20minutes)

## **5.30 Workshop close**

2. How will your Workshop integrate different disciplines within DOHaD

Early life adversities (ELAs) come in many forms, including poverty, life in depriving orphanages, nutritional deficiency in utero/beyond, deficiencies in parental nurturing, various forms of maltreatment, and loss of a parent/other attachment figure. DOHaD research has established that ELAs engender a liability for major later life non-communicable disorders. While there are interventions for children that partially offset this risk, there are fewer interventions in adults. A coordinated effort to develop interventions for adults is urgent. This workshop will cover three major challenges that the NIH NIA/UK Research Council funded Reversibility Network has been addressing to ready the field for interventions in mid-later life addressing health risks associated with early life adversities: 1) the relative strengths and limitations of prospective vs. retrospective measures of ELA, considering efforts to improve retrospective measures and to distinguish subgroups for whom tailored interventions might be appropriate; 2) pathways (immune, epigenetic, metabolic, neural, microbiome) through which ELAs become biologically and psychologically embedded, considering whether distinct ELA dimensions exert differential impacts on physiological and neurobiological systems; 3) how emerging research on neural and behavioral plasticity – particularly in mid-later life – might be leveraged to design interventions to reverse or compensate for the persistent risk associated with ELA.

3. Please provide details of how your Workshop will provide an educational/interactive component

This workshop will introduce participants to work being conducted within the Reversibility Network, focusing on activities relevant intervention design in DOHaD. New approaches to conceptualizing and measuring ELA will be presented, along with the relative advantages and disadvantages of retrospective/prospective ascertainment of ELA and their implications for approaches to preventive intervention. Additional presentations will illustrate research elucidating causal pathways linking ELA and later life health, as well as potential strategies for targeting and ameliorating risk mechanisms along these pathways. A model will be presented that builds on current knowledge about where plasticity occurs in development and when in the life course interventions might be possible. Approaches to testing hypotheses about “windows” of opportunity along the developmental trajectory (e.g., pregnancy, adolescence, young adulthood, family formation, retirement) will be discussed. Exemplars of interventions that are hypothesized to work by inducing behavioral and neural plasticity (e.g. physical activity, mindfulness) to stimulate new learning during windows of opportunity will be presented, along with evidence of the differential impact these interventions as a function of self-reported or documented exposure to ELA. Alongside the above educational activities, the workshop will stimulate interactive discussion across disciplines to generate the collaborative partnerships needed for new interventions.