

**Meeting of the Research Network on Later Life Interventions to
Reverse Effects of Early Life Adversity
ROCKEFELLER UNIVERSITY
OCTOBER 6-7, 2015**

October 6, 2015 DAY 1

8:30 – 9:00 Breakfast

9:00-10:00 Session 1: Introductions and Welcome from NIA and Network Team

The Network team will provide an overview of our conceptual model and network goals, and goals for this initial meeting.

Overarching Goals of the Network: The overarching goal of our interdisciplinary, international research network is to identify opportunities for later-life reversibility/remediation of phenotypes associated with early life adversity (ELA). Funded in October 2014, the network will bring together senior and junior scientists to foster and facilitate the *interdisciplinary* research needed to stimulate rapid advances in this field. This will: (a) promote needed increases in scientific knowledge regarding the array of psychological and biological processes and pathways through which different ELAs (e.g., low socio-economic status [SES], social isolation, neglect and abuse, maternal malnutrition) may similarly or differentially impact later life health and well-being; (b) increase our understanding of prenatal life, childhood and adolescence as developmental periods of high vulnerability; (c) enhance our ability to identify adults in midlife or at older ages who are at risk for adverse health outcomes by virtue of exposure to ELA; and (d) leverage evidence from (a-c) to promote development and evaluation of novel later-life interventions to reverse, reduce, or compensate for risk processes related to ELAs.

10:00 – 11:00 Session 2: Mechanisms that may account for the association of early life adversity with adult health outcomes (Chris Power & Keith Godfrey chair)

What are the most important/intriguing recent findings in neurobiology and behavioral science relating early life adversity to later life physiological or behavioral dysregulation and disease risk? Is there evidence that different types of ELA have distinguishable types of biological and behavioral sequelae? What behavioral and biological stigmata might be used to both identify adults with health liabilities attributable to ELA and thus might supplement or replace current adult self-report measures for identifying ELA?

Presenters are asked to (a) provide an overview of adult risk processes in their designated area of focus that are associated with early adversity, (b) indicate whether any of these processes are specific to ELA, and (c) indicate what they see as the challenges and major questions in that area that will need to be answered in order to more optimally address possible adult points of intervention.

1. [15 min] **Margaret Sheridan** - Potential mechanisms linking adversity to neural structure and function
2. [15 min] **Sara Jaffee** –Adult relationships as turning points out of the behavioral sequelae of early adversity
3. [15 min] **Keith Godfrey** – Brief update on mechanisms (epigenetics & microbiome) that may link perinatal influences to later emotional and cognitive function
4. [15 min] **Andrea Danese** – The origins of cognitive impairment in victimized children: findings from longitudinal and genetically-sensitive studies testing selection bias

11:00 – 12:00 Group Discussion

12:00 - 1:00 Lunch

1:00 – 2:00 Session 3: Keynote Presentation by Michael Meaney (Steve Suomi, chair) - Gene expression mechanisms linking early adversity with adult health: Programming or reversible predisposition?

2:05 - 2:30 Discussion of Dr. Meaney's presentation

2:30-2:45 Break

2:45 – 4:45 Session 4: Group Discussion (Teresa Seeman, Chair):

- 1) Review and integration of the day's presentations.
- 2) Discussion of other networks and centers of activity on topics related to early adversity and adult health – with an eye toward identifying potential opportunities for collaborations and other synergies
 - a). Overview of the Canadian Institute for Advanced research (CIFAR) and the Toxic Stress Network in Harvard's Center for Child Development (M. Meaney, B. McEwen, S. Suomi)
 - b). Discussion of other networks and other centers of activity related to early adversity and health.

Given the broad scientific interest in ELA and the goals of our network how can we best harness the range of activities in this field? How might our network integrate activities so as to maximally complement activities of these other groups who are focused on early stages of the life-course? For example, in the case of the newly established Harvard-based network on ELA, are there distinctive areas for complementary or joint activities?

6pm Group Dinner

October 7, Day 2

8:00-8:30 Breakfast

8:30- 10:30 Session 5: Behavioral and brain plasticity in child and adult development: critical and sensitive periods and responses to intervention (Bruce McEwen & Steve Suomi chair)

What is the evidence for brain and behavioral plasticity (especially in adulthood)? Is there evidence of adult plasticity (e.g., associated with particular life-stages or biological events) that enhance opportunities to remediate or compensate for ELA effects? More generally, what types of interventions appear to affect brain and personality function in later life? How can those changes affect adult health trajectories? Likewise, how plastic are behavioral and personality features, especially those that typify individuals with ELA, and does evidence of this plasticity hold promise of for reducing the liability to illness incurred by ELA?

Presenters are asked to (a) provide an overview of evidence on brain and/or behavioral plasticity at various life stages, especially in adulthood and (b) indicate what they see as the challenges and major questions in that area that need to be answered in order to move the field forward in identifying effective adult interventions to enhance and foster changes in brain or personality function that can support more positive health trajectories for adults.

The biology of sensitive and critical periods

- 1) [45 minutes] **Takao Hensch** - Critical periods in childhood and reopening them in adulthood
- 2) [15 minutes] **Nim Tottenham** – Plasticity of Emotional Regulation Circuitry during Childhood
- 3) [15 minutes] **BJ Casey** – Sensitivity Periods for Fear Regulation and Implications for Treatment

9:45-10:30 Group Discussion

10:30-10:45 Break

10:45 – 11:30 Session 5 (continued)

Planned interventions illustrating plasticity of brain and behavioral processes in adulthood

- 4) [15 min] **Kirk Erickson** – Physical activity and neuroplasticity in adults
- 5) [15 minutes] **Sara Lazar** – Initial evidence for brain plasticity in adults following a mindfulness meditation program, including a small cohort of young adults with ELA.
- 6) [15 min] **Brent Roberts** – Interventions to change personality in adults

11:30 – 12:15 Group Discussion

12:15 – 1:30 Session 6 (working lunch) – Valid assessment of early adversity in adults. (David Reiss, Chair)

Given the likelihood that future research on ELA and its health impacts in adulthood will, in many cases, continue to require identification of those exposed to ELA through retrospective reporting, Drs. Danese and Widom will lead a discussion of evidence on relationships between prospective vs. retrospective data on ELA and adult outcomes. Group discussion will focus on what may be needed in terms of additional research to better understand the relative strengths and weaknesses of various approaches to retrospective collection of ELA information from adults

Andrea Danese Agreement and source of bias in prospective and retrospective measures of adverse childhood experiences

Cathy Widom Comparison of retrospective and prospective data from a long term follow-up of maltreated children.

1:30 Adjourn

Meeting Participants

NIH:

Lisbeth Nielsen (NIA)

David Reiss (NIA)

Steve Suomi (NICHD)

Network of Reversibility PIs

Keith Godfrey

Bruce McEwen

Christine Power

Teresa Seeman

Invited Participants

Natalie Brito

Jeanne Brooks-Gunn

BJ Casey

Andrea Danese

Kirk Erickson

Takao Hensch

Sara Jaffe

Sara Lazar

Michael Meaney

Marisa Morin

Kim Noble

Margaret Sheridan

Nim Tottenham

Robert (Bob) Waldinger

Cathy Widom