WEBINAR

RESILIENCE AND RESERVE: DEFINING, REFINING, AND ADVANCING RESEARCH IN AGING

THURSDAY APRIL 30 2020
2-3 pm ET (11 am-12 pm PT)
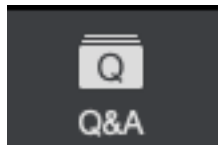
RESEARCH CENTERS COLLABORATIVE NETWORK
of the National Institute on Aging, NIH

A few housekeeping items…

➢ **All lines are muted**

➢ **Have a question?**

Enter in the Q&A box at the bottom of screen

➢ **Rolling—we will be recording…**

Jay Magaziner, PhD, MSHyg

Member,
RCCN Executive Committee

Director,
Center for Research on Aging,
University of Maryland.

Professor and Chair, Department of
Epidemiology and Public Health,
University of Maryland School of
Medicine; Baltimore, MD

RESEARCH CENTERS COLLABORATIVE NETWORK
of the National Institute on Aging, NIH

The objective of the Research Centers Coordinating Network (RCCN) is to initiate new cross-disciplinary collaborative networks that bring together key thought leaders from each of the six NIA center programs to align approaches across programs that will uncover synergies and insights that lead to novel collaborations.

The webinar will explore:

- **What is unique about the resilience paradigm**

- **What do we mean by resilience and reserve**

- **How is the NIA supporting programmatic developments in resilience and reserve**

- **Where to get started: directory of NIA resources**

Basil Eldadah, MD, PhD
Supervisory Medical Officer
Division of Geriatrics and Clinical Gerontology (DGCG),
National Institute on Aging

Suzana Petanceska, PhD
Program Officer,
Division of Neuroscience,
National Institute on Aging

Giovanna Zappala, PhD, MD
Health Science Administrator,
Division of Geriatrics and Clinical Gerontology (DGCG),
National Institute on Aging

Dana Plude, PhD
Deputy Director,
Division of Behavioral and Social Research (DBSR),
National Institute on Aging

resilience (rē-zil'yens) [L. *resilio*, to spring back, rebound].

1.   Energy (per unit of volume) released upon unloading.

2.   Springiness or elasticity

Concepts invoked with resilience

- Responding to a stressor
- Bouncing back
- Resistance
- Recovery
- Adaptation
- Allostasis (maintaining homeostasis)
- Reserve
- Post-traumatic growth / thriving
- Hormesis

Resilience through the lens of the stress-response paradigm
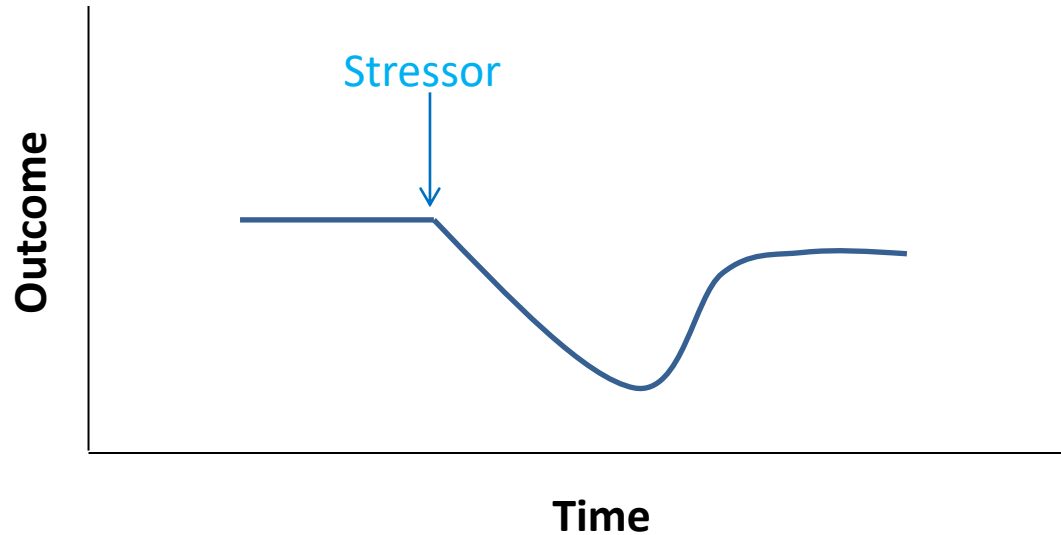
The Question…

Resilient to what?

Resilient by which outcome?

Is X resilient?

What predicts / is associated with X's resilience?

What makes X resilient?

How do we get somebody/something like X to be resilient?

What is unique about the stress-response paradigm?

- Stressors and outcomes are identified

Stressors and outcome identified

STRESSOR; e.g.:

- Injury
- Toxin
- Infection
- Disease
- "Aging"
- Life event

**Context
Chronicity
Multiplicity**
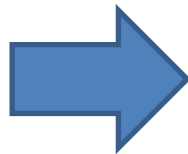
*Physiologic/
Behavioral
Responses*

MODERATORS

OUTCOME; e.g.:

- Survival
- Functional status
- Symptoms
- Indicators of health or disease
- Health-related quality of life
- Subjective well-being

TIME

What is unique about the stress-response paradigm?

- Stressors and outcomes are identified

- Longitudinal with repeated measures

(A)

Change from baseline

Prestressor Assessment
- Functional status
- Self-rated health
- Symptoms
- Frailty
- Hand grip strength
- Other predictors of a resilient response

Stressors
- Fall
- Hip fracture
- Surgery
- Infection
- Chemotherapy
- Psychosocial event

Variable Physiologic Responses

Outcomes
- Functional status
- Self-rated health
- Symptoms
- Frailty
- Hand grip strength

S

T0

T1

T2

Time

(B)

Change from baseline

S T_L T_P T_S

P

T0...   A   ...T14

Time

Characteristics of the response

S: stressor
T_L: lag time before response begins
T_P: interval from initial to maximal response
T_S: interval from maximum response to stabilization
A: amplitude
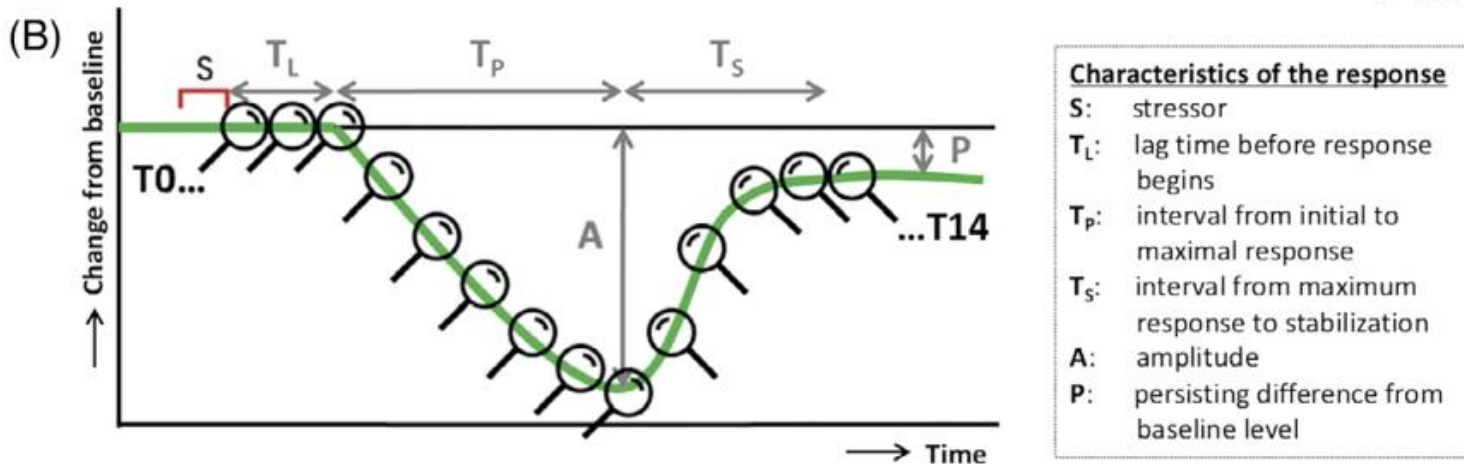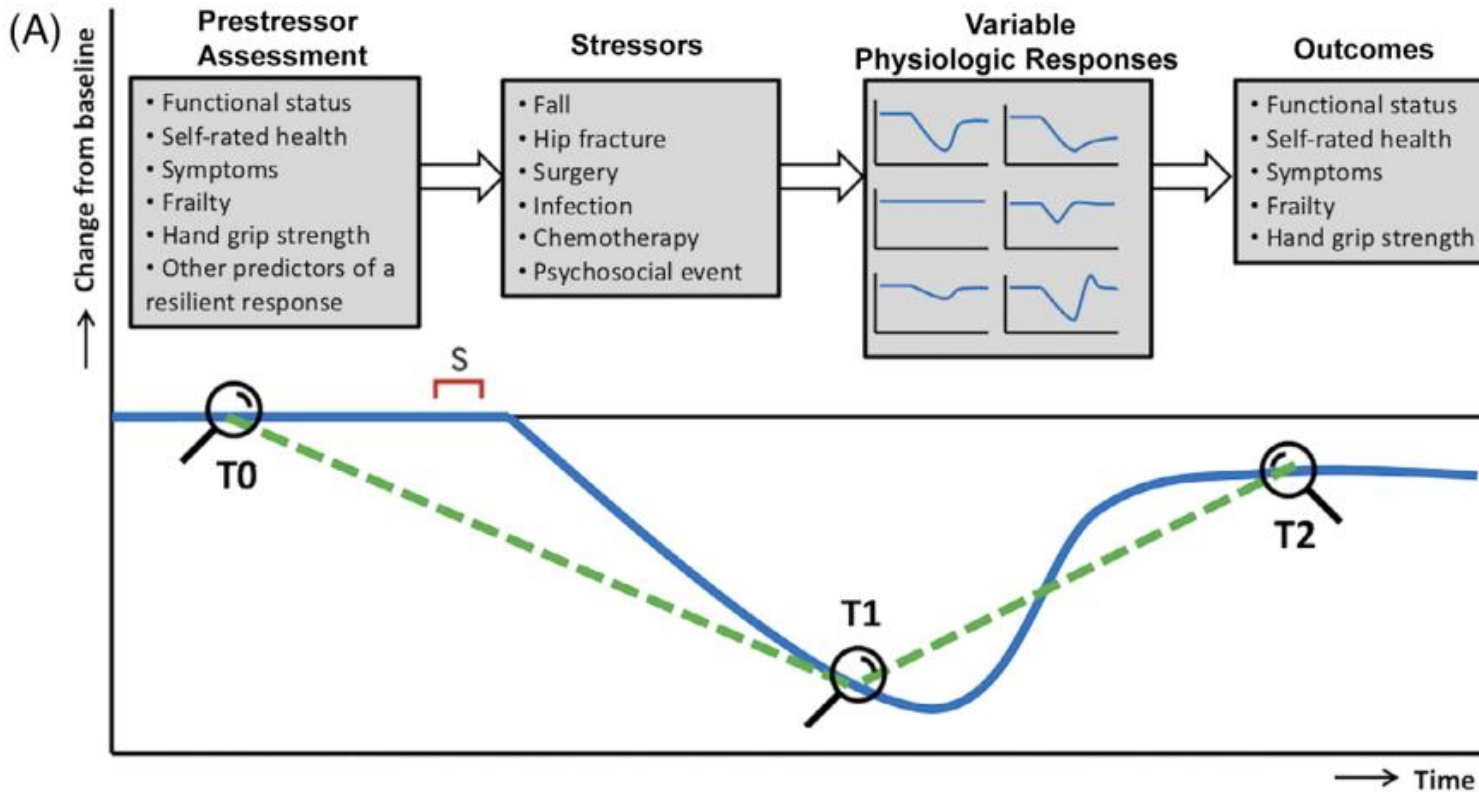P: persisting difference from baseline level

Gjizel et al. 2019. *JAGS* 67:2650-2657

What is unique about the stress-response paradigm?

- Stressors and outcomes are identified

- Longitudinal with repeated measures

- Person-centered

The Question...

Resilient to what?

Resilient by which outcome?
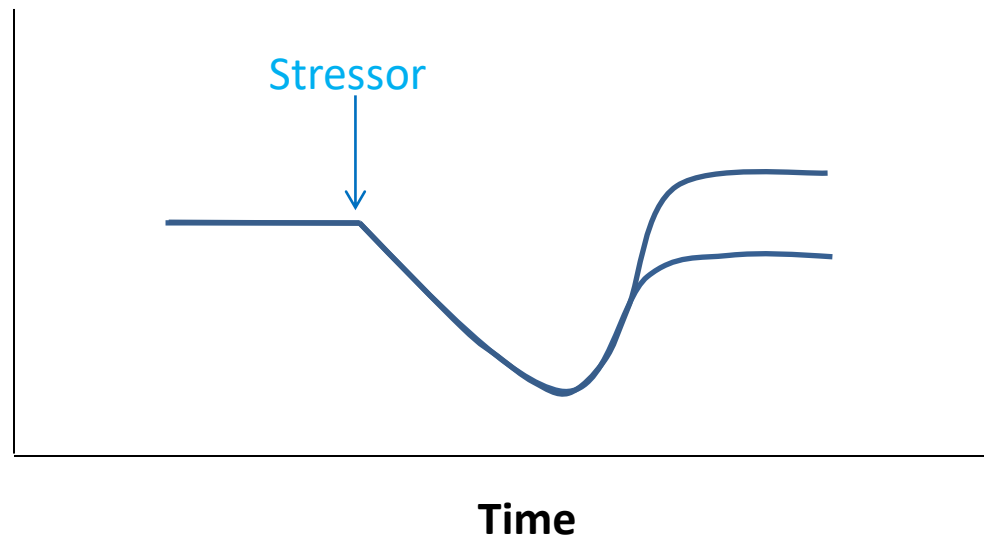
Is X resilient?

Who/what determines this??

What predicts / is associated with X's resilience?

What makes X resilient?

How do we get somebody/something like X to be resilient?

OUTCOME; e.g.:

- Survival
- Functional status
- Symptoms
- Indicators of health or disease
- Health-related quality of life
- Subjective well-being

Stressor

Time

What is unique about the stress-response paradigm?

- Stressors and outcomes are identified

- Longitudinal with repeated measures

- Person-centered

- Informs a unique class of interventions

Example interventions based on the stress-response paradigm

- Vaccination

- Exercise ("pre-habilitation")

- Calorie / nutrient restriction

- Ischemia / hypoxia

- Heat / cold exposure

resilience (rē-zil'yens) [L. *resilio*, to spring back, rebound].

1. Energy (per unit of volume) released upon unloading.

2. Springiness or elasticity

What is unique about the stress-response paradigm?

- Stressors and outcomes are identified
- Longitudinal with repeated measures
- Person-centered
- Informs a unique class of interventions
- Prevention-oriented

What is unique about the stress-response paradigm?

- Stressors and outcomes are identified
- Longitudinal with repeated measures
- Person-centered
- Informs a unique class of interventions
- Prevention-oriented

Bruce S. McEwen, Ph.D. (1938-2020)

ALFRED E. MIRSKY PROFESSOR

IMMUNOLOGY, VIROLOGY, AND MICROBIOLOGY | MECHANISMS OF HUMAN DISEASE | NEUROSCIENCES AND BEHAVIOR | STEM CELLS, DEVELOPMENT, REGENERATION, AND AGING

Studies the molecular mechanisms underlying the effects of stress and sex hormones on the brain.

HAROLD AND MARGARET MILLIKEN HATCH LABORATORY OF NEUROENDOCRINOLOGY →

Thank you

<u>Resiliencies</u> at the NIA: *A Collection of Multiple Tales …*

Giovanna Zappalà, Ph.D, M.P.H.

National Institute on Aging

Conceptual Framework for Resiliencies

Individual Moderators (Resilience Resources)

- ❑ Age
- ❑ Health Status
- ❑ Lifestyle
- ❑ Cognitive ability

- ❑ Socioemotional skills
- ❑ Social relationships
- ❑ Environmental Factors
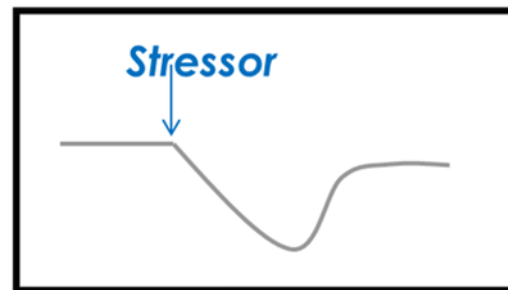 - ▪ Physical
  - ▪ Social
  - ▪ Biological

Stressors

- ➤ Infection
- ➤ Chemotherapy
- ➤ Early Life Adversity
- ➤ Acute or chronic psychological stress
- ➤ Alzheimer's neuropathology

Outcomes

- ❖ Wound healing
- ❖ Survival
- ❖ Functional status
- ❖ Psychological well-being
- ❖ Cognitive function

Stressor

Outcome

Time

Physical and/or Behavioral Resiliencies

National Institute on Aging

# Developing a Test for Resilience

Resilience defined as **"*the capacity of every cell in an organism to respond to physical or chemical stresses, irrespective of cognitive involvement*"**

- ❑ **Develop functional resilience tests** to assess in young and middle-aged animals their overall ability to cope with physical and molecular stresses that mimic those encountered by human subjects

- ❑ Select platforms that allow **stratification among non-responders, normal responders and robust responders** and assess whether they are predictive of lifespan and health span

- ❑ **Validate** these platforms against interventions already known to improve lifespan and/or health span
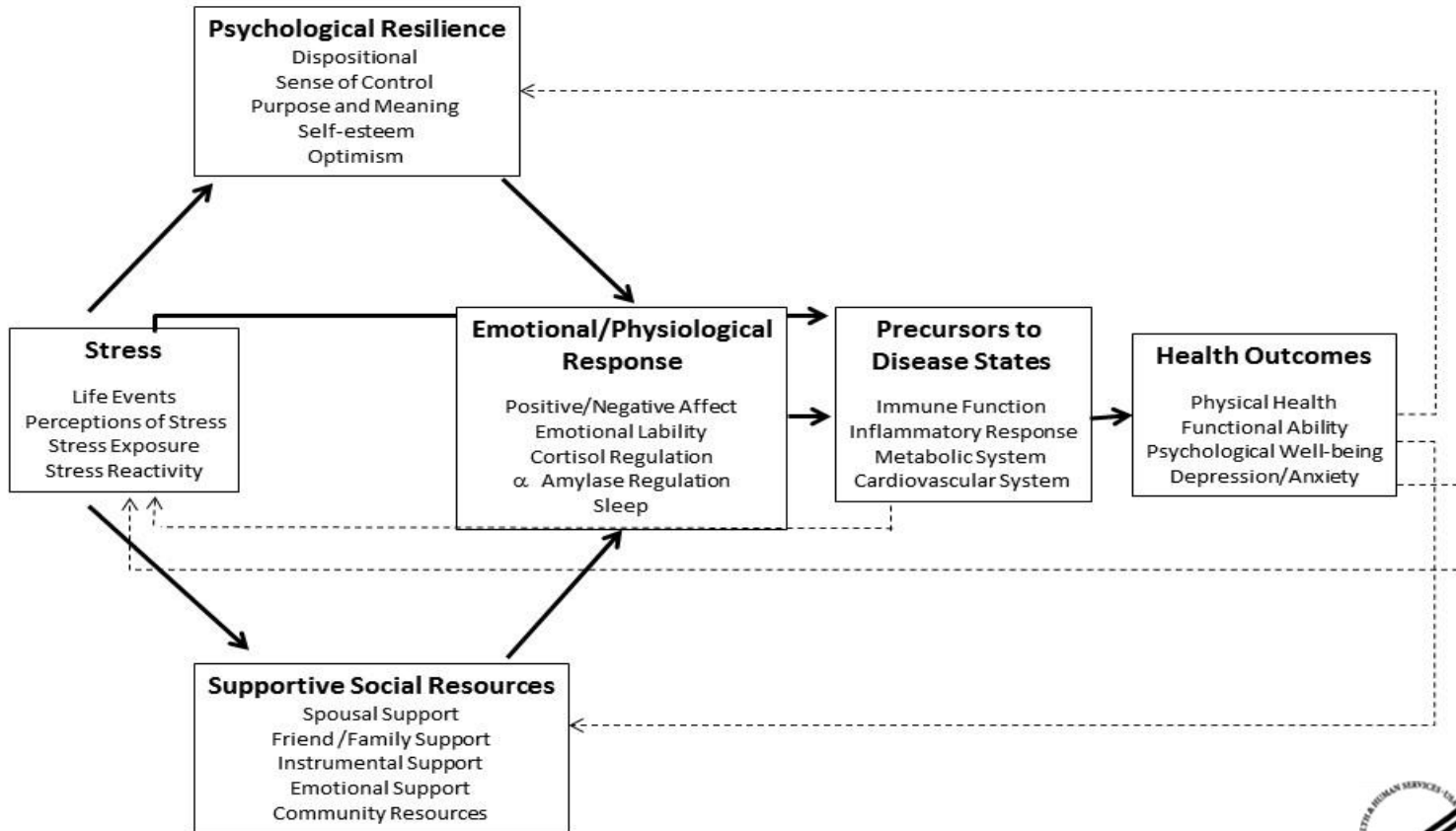
Division of Aging Biology

Interventions that Extend Lifespan May do so by Improving Healthspan
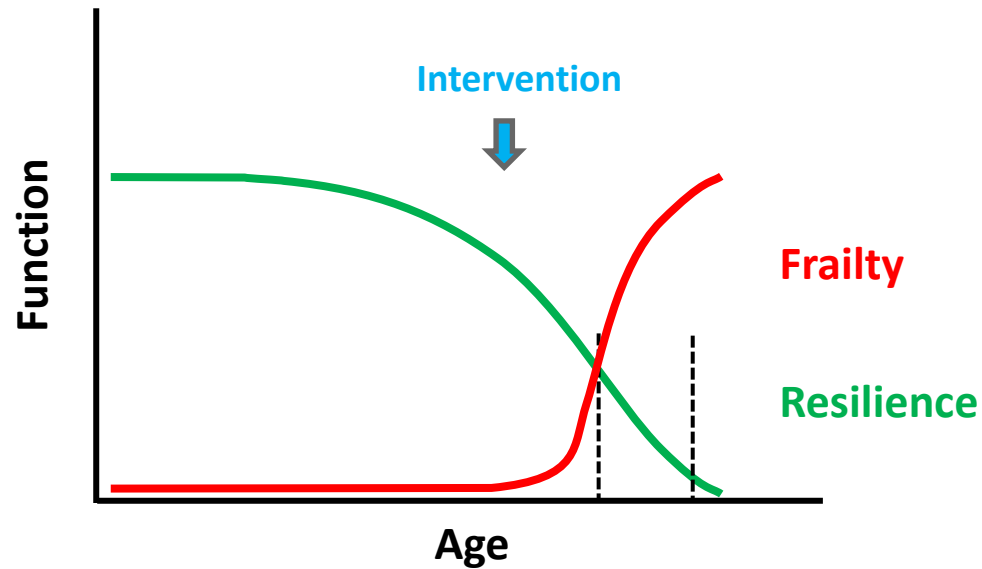
An Integrative Science Approach to Resilience: The Notre Dame Study of Health & Well-being
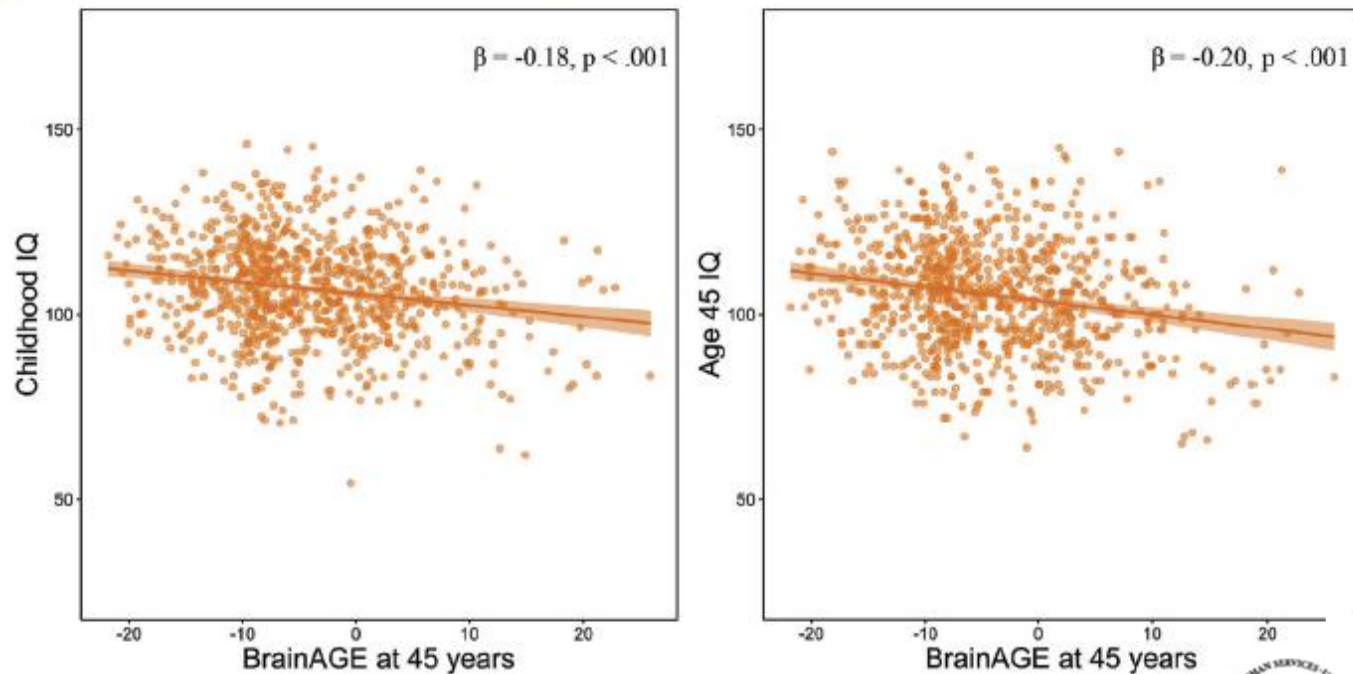## *(UH3AG057039; Cindy Bergeman, PI)*

UNIVERSITY OF NOTRE DAME

Division of Behavioral and Social Research

Study finds support for System Integrity Perspective: *Associations Between Brain Age and Cognitive Function are Present Since Childhood*

Elliott et al., (2019). *Mol Psych.*

Predictors and Determinants of Age-Related Changes in Physiologic Resiliencies to Physical Stressors in Humans: **a Paradigm to Develop Novel Interventions**

❑ **Gap in knowledge** in our understanding of **age-related changes** in responses **to physical stressors**

❑ Understanding resiliencies may offer **better predictive value** for short- and long-term health outcomes **than static measures** of function or indicators of disease

❑ Insight into **changes in resiliencies across the lifespan** could reveal **aging mechanisms** underlying decrements in function and **factors contributing to the maintenance of healthy aging phenotypes**

❑ The availability of **clinical tests of resiliencies** could improve clinical management of older patients -- *Effective Resilience Test*:

  ▪ *Well-defined, quantifiable stressor;*
  ▪ *Reliably measurable outcome of interest prior to, and at multiple time points after, application of the stressor;*
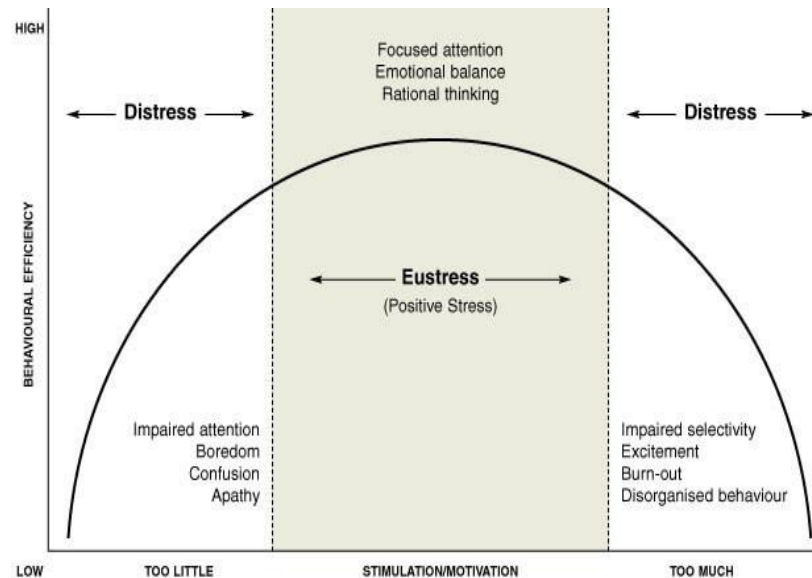 ▪ *Good predictive value for short- and long-term clinical outcomes*

Division of Geriatrics and Clinical Gerontology

National Institute on Aging

Focus on Potential Strategies **to Increase Resiliencies**

Hormesis and the concept of ***Eustressors*** *… Enhancing Resiliencies through Mild Stressors—a Primary Prevention Paradigm*

NIA Resilience-AD Program

RFA-AG-17-061

Department of Health and Human Services

Part 1. Overview Information

This funding opportunity announcement invites comprehensive, cross-disciplinary studies aimed at building predictive molecular models of cognitive resilience based on high-dimensional molecular data collected in individuals who remain free of dementia despite being at high risk for Alzheimer's disease.

Participating Organization(s)	National Institutes of Health (NIH)
Components of Participating Organizations	National Institute on Aging (NIA)
Funding Opportunity Title	Interdisciplinary Research to Understand the Complex Biology of Resilience to Alzheimer's Disease Risk (R01)

RFA-AG-18-029

Department of Health and Human Services

Part 1. Overview Information

Participating Organization(s)	National Institutes of Health (NIH)
Components of Participating Organizations	National Institute on Aging (NIA)
Funding Opportunity Title	Interdisciplinary Research to Understand the Complex Biology of Resilience to Alzheimer's Disease Risk (R01 - Clinical Trial Not Allowed)

Division of Neuroscience

RFA-AG-18-024

Department of Health and Human Services

Part 1. Overview Information

Participating Organization(s)	National Institutes of Health (NIH)
Components of Participating Organizations	National Institute on Aging (NIA)
Funding Opportunity Title	Collaboratory on Research Definitions for Cognitive Reserve and Resilience to Alzheimer's Disease (R24 Clinical Trial Not Allowed)

Cognitive Aging
SUMMIT III
Resilience & Reserve
April 6-7, 2017

RFA-AG-21-015

Department of Health and Human Services

Part 1. Overview Information

| Participating Organization(s) | National Institutes of Health (NIH) |
| Components of Participating Organizations | National Institute on Aging (NIA) |
| Funding Opportunity Title | Network for Identification, Evaluation, and Tracking of Older Persons with Superior Cognitive Performance for Their Chronological Age (U19 Clinical Trial Not Allowed) |

STARRRS

Successful **T**rajectories of **A**ging: **R**eserve and **R**esilience in **R**at**S**

$7.4M project through NIA's IRP. Longitudinal observations (over lifespan) to examine cell biological, behavioral, and other factors that mediate and predict successful brain and cognitive aging, and ultimately for testing interventions aimed at optimally positive aging trajectories. Will create open-source data and a sample hub to be shared with the entire aging science community.
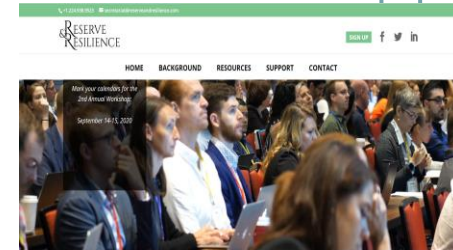
NIH
National Institute on Aging

Research opportunities and Needs for the development of **Cell-based Assays** to study Resiliencies

❑ Provide insight into **aging mechanisms** underlying decrements, as well as **protective factors** contributing to resilient phenotypes

❑ Facilitate comparison of research findings in pre-clinical models and in humans to identify potential **common mechanisms**

❑ Accelerate research progress of novel **therapeutic targets/interventions** to **enhance resiliencies**

❑ Validation of assays developed as research tools for use as **new clinical diagnostics**

❑ Examples:
  ▪ Leverage/adapt existing cell-based methods
  ▪ Use of patient's circulating stem/progenitor cells and co-cultures
  ▪ Simultaneous measurements of different cellular functions

NIH
National Institute on Aging

Division of Aging Biology

- Felipe Sierra, Ph.D.
- Francesca Macchiarini, M.S., Ph.D.

Division of Behavioral and Social Research

- Lis Nielsen, Ph.D.
- Dana Plude, Ph.D.
- Jonathan King, Ph.D.

Division of Geriatrics and Clinical Gerontology

- Evan Hadley, M.D.
- Basil Eldadah, M.D., Ph.D.
- Chhanda Dutta, Ph.D.
- Giovanna Zappalà, Ph.D., M.P.H.

Division of Neuroscience

- Eliezer Masliah, M.D.
- Molly Wagster, Ph.D.
- Coryse St. Hillaire-Clarke, Ph.D.
- Suzana Petanceska, Ph.D.

NIH National Institute on Aging

NIA Division of Neuroscience

Understanding all Aspects of Cognitive Resilience at All Levels of Biologic Complexity

- PAR-17-054: Leveraging Existing Cohort Studies to Clarify Risk and Protective Factors for Alzheimer's Disease and Related Dementias (R01)

- PAR-17-047 / PAR-18-706/ *PAR-19-070 - NOT-AG-19-033: Selective Cell and Network Vulnerability in Aging and Alzheimer's Disease (R01)

- RFA-AG-17-061 / RFA-AG-18-029: Interdisciplinary Research to Understand the Complex Biology of Resilience to Alzheimer's Disease Risk (R01)

- RFA-AG-18-024: Collaboratory on Research Definitions for Cognitive Reserve and Resilience to Alzheimer's Disease (R24)

- RFA-AG-19-025/ RFA-AG-19-026 : Development of Personalized In Vitro Assays to Quantitatively Assess Age-related Changes in Cellular Resiliencies to Physiologic Stressors (R43/R44)/(R41/42)

- *RFA-AG-21-015 : Network for Identification, Evaluation, and Tracking of Older Persons with Superior Cognitive Performance for Their Chronological Age (U19)

NIA Program Directors: Dallas Anderson, Marilyn Miller, Brad Wise, Molly Wagster, Jonathan King, Suzana Petanceska

*Active Funding Opportunities

NIH AD Research Summits:
Path to Treatment and Prevention
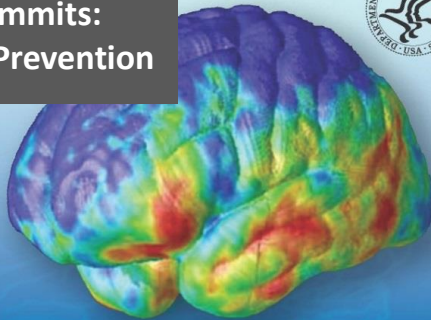
May 14-15, 2012
Feb 9-10, 2015
March 1-2, 2018

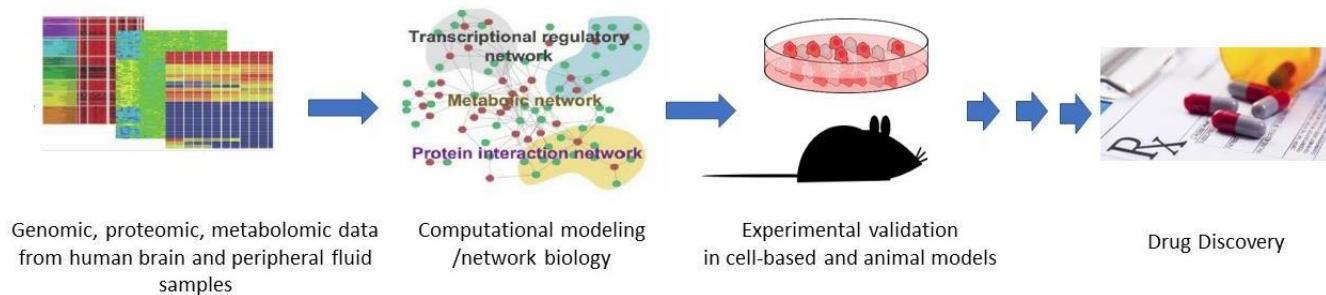Cognitive Aging
SUMMIT III

Resilience & Reserve
April 6-7, 2017

NIH AD Research Summits: Overarching Recommendations

❑ Recognize the **heterogeneity and the multifactorial nature** of the disease.

❑ **Understand** all aspects of **healthy aging and resilience to AD** to inform new prevention strategies.

❑ Support extensive molecular of existing and establish new cohorts to **fill the gaps in large-scale human data** needed to **build predictive models** of disease and wellness.

❑ Employ **data-driven research paradigms** such as systems biology and systems pharmacology.

❑ Enable **rapid and extensive sharing** of data, disease models, and biological specimens.

❑ Develop **computational tools and infrastructure** for storage, integration, and analysis of large-scale biological and other patient-relevant data.

❑ Build **new multidisciplinary translational teams** and create virtual and real spaces where these teams can operate.

❑ Support and enable **open science.**

❑ **Change** academic, publishing, and funding **incentives** to promote collaborative, transparent, and reproducible research.

❑ Engage **patients, caregivers** and citizens **as direct partners in research.**

RFA-AG-17-061 / RFA-AG-18-029: Interdisciplinary Research to Understand the Complex Biology of Resilience to Alzheimer's Disease Risk (R01)

❑ Gain deeper understanding of the molecular mechanisms by which gene-environment interactions lead to cognitively resilient phenotypes, through integrative network analysis of multi-omic data collected from individuals resilient to underlined various types of AD risk*.

❑ Identify and experimentally validate molecular drivers of cognitive resilience that may serve as novel therapeutic targets for AD prevention.

Genomic, proteomic, metabolomic data from human brain and peripheral fluid samples

Computational modeling /network biology

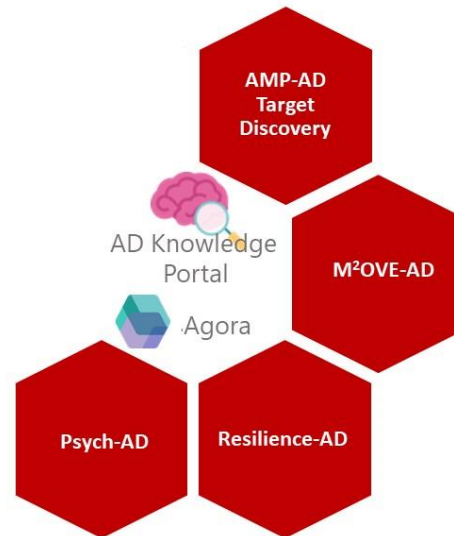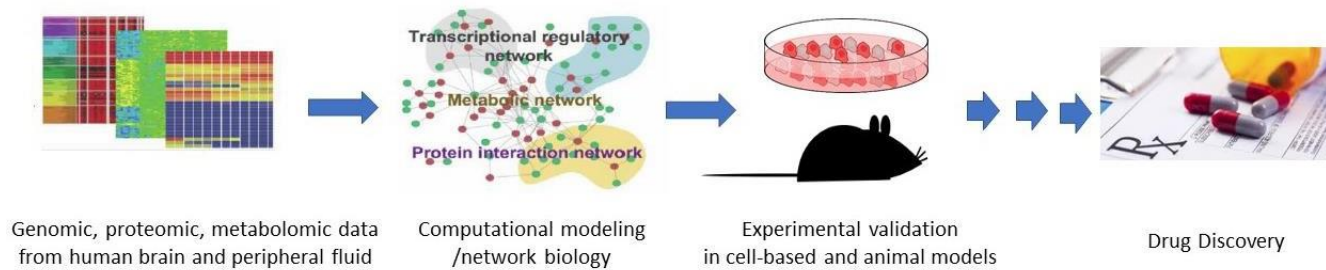Experimental validation in cell-based and animal models

Drug Discovery

*HIGH AD RISK: E4 homozygous, Down Syndrome individuals, FAD mutation carriers, very old age (90+, centenarians), presence of pathologic lesions (amyloid, tau).
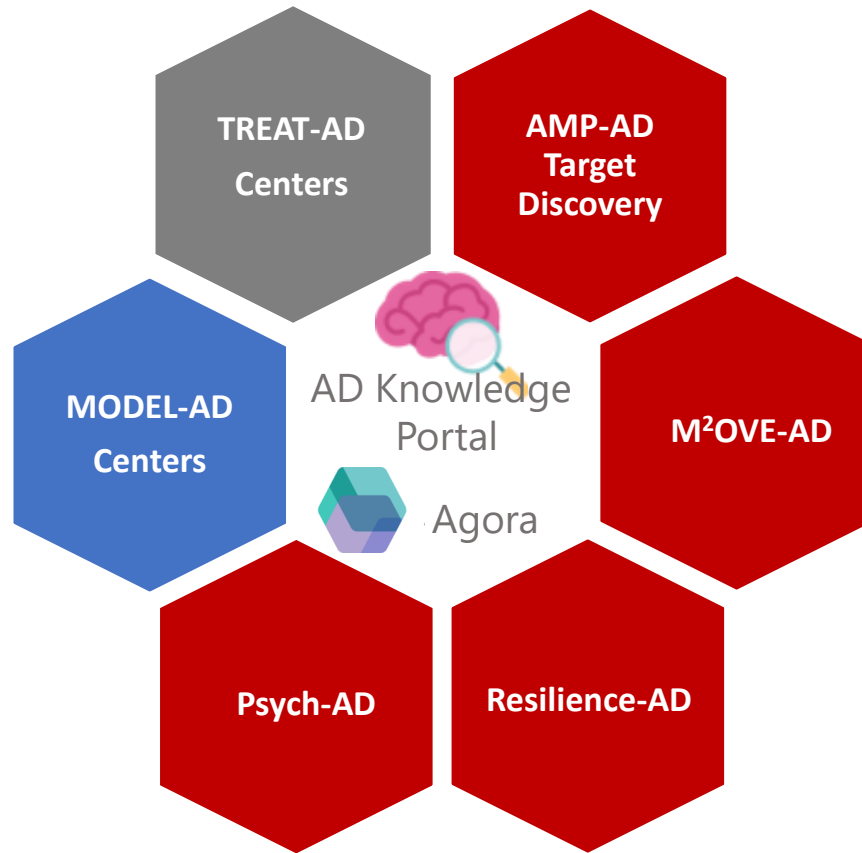
RESILIENCE-AD Program: Learning from the outliers to identify new targets for AD prevention

R56	AG061837-01	LEE, JOSEPH HYUNGWOO (contact); KRINSKY-MCHALE, SHARON J	Identification of protective factors for cognitive resilience in adults with Down Syndrome: A multi-omic study
R01	AG057907-03	ZHANG, BIN (contact); EHRLICH, MICHELLE E; HAROUTUNIAN, VAHRAM	Integrative Network Modeling of Cognitive Resilience to Alzheimers Disease
R01	AG057909-04	BARZILAI, NIR J (contact); ZHANG, ZHENGDONG D	Resilience to Alzheimers disease in humans with exceptional longevity
R01	AG057911-03	GAITERI, CHRISTOPHER A	Identifying the molecular systems, networks, and key molecules that underlie cognitive resilience
R01	AG057912-03	LEVINE, MORGAN ELYSE (contact); HORVATH, STEVE	Molecular Networks Underlying Resilience to Alzheimers Disease Among APOE E4 Carriers
R01	AG057914-03	KACZOROWSKI, CATHERINE COOK	Systems Genetics Analysis of Resilience to Alzheimer's disease
R01	AG057915-03	BENDALL, SEAN CURTIS (contact); ANGELO, ROBERT MICHAEL; MONTINE, THOMAS J	MIRIAD - Multiplexed Imaging of Resilience In Alzheimers Disease
R01	AG061796-02	ERTEKIN-TANER, NILUFER	Harnessing Molecular Networks of Resilience for Therapeutic Discoveries in AD
R01	AG061798-02	GAITERI, CHRISTOPHER A	Identifying the origins of resilience through human single cell molecular networks, then testing them in diverse, resilient, human IPS lines
R01	AG061800-02	HERSKOWITZ, JEREMY HARTFORD (contact); GAITERI, CHRISTOPHER A; SEYFRIED, NICHOLAS THOMAS	Identifying therapeutic targets that confer synaptic resilience to Alzheimer's disease

Harnessing the Power of Big Data and Open Science to Understand the Complex Biology of Disease Risk and Resilience and Discover New Therapeutic Targets and Biomarkers
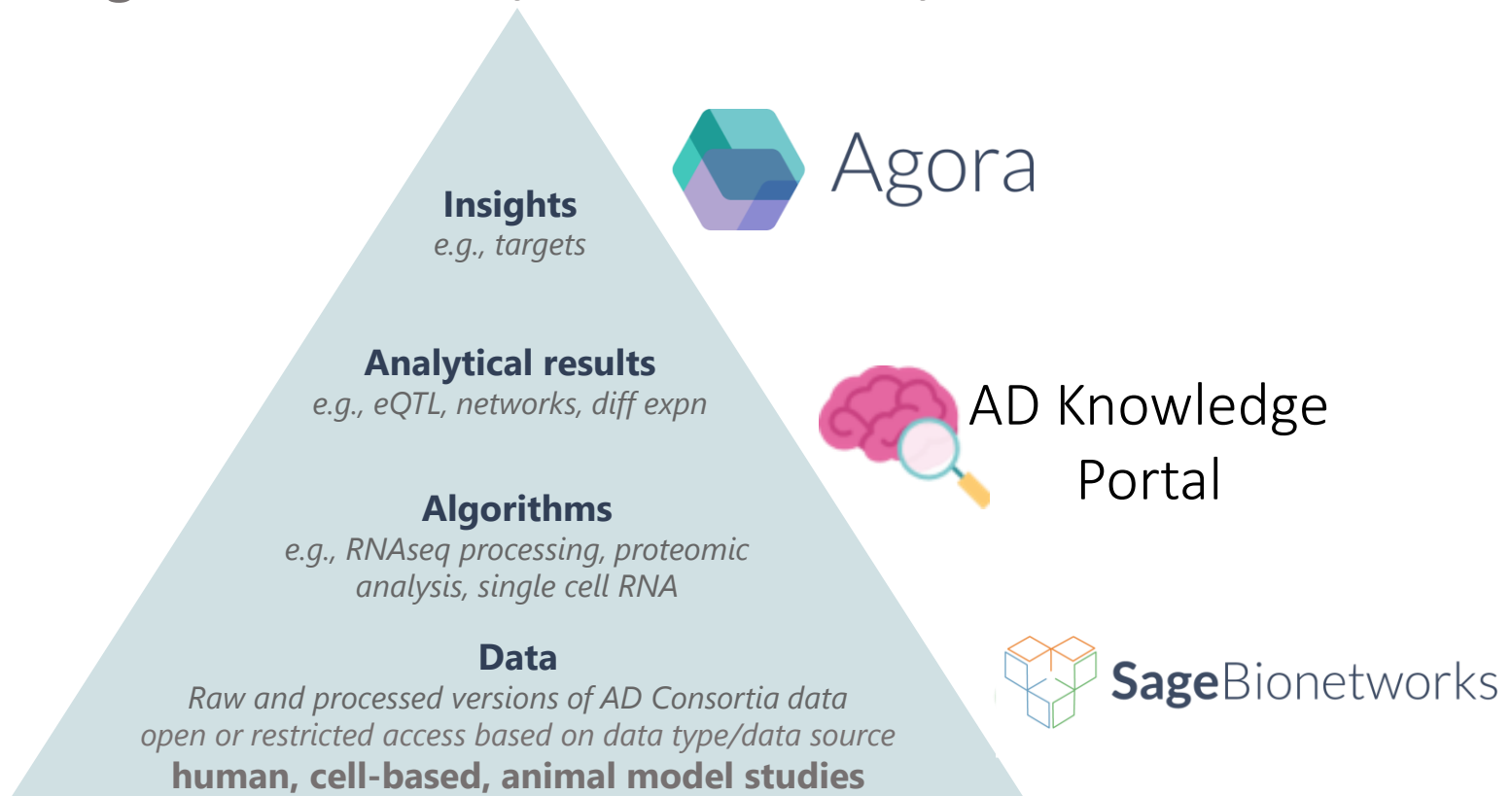

Genomic, proteomic, metabolomic data from human brain and peripheral fluid

Computational modeling /network biology

Experimental validation in cell-based and animal models

Drug Discovery

AMP-AD Target Discovery

AD Knowledge Portal

Agora

M²OVE-AD

Psych-AD

Resilience-AD

M²OVE-AD – Molecular Mechanisms of the Vascular Etiology of AD
Psych-AD - Molecular Mechanisms of the Neuropsychiatric Symptoms in AD

https://adknowledgeportal.synapse.org

AD Knowledge Portal – Data, Research tools, Collaborators

Insights
e.g., targets

Analytical results
e.g., eQTL, networks, diff expn

Algorithms
e.g., RNAseq processing, proteomic analysis, single cell RNA

Data
Raw and processed versions of AD Consortia data
open or restricted access based on data type/data source
human, cell-based, animal model studies

Agora

AD Knowledge Portal

SageBionetworks

17,053 biosamples | 15 genomic data types | 7,261 human donors

Accessing Data From Individual Studies

STUDY

The AD-BXD Study

Jax

C57BL/6J mice hemizygous for the dominant 5XFAD transgene were bred with genetically diverse recombinant inbred strains from the BXD genetic reference panel. The F1 progeny each harbor one maternally derived B allele and either a B or D paternally derived allele at any given genomic locus.

Data Types	Behavior Process, Gene Expression, Immunoassay, Metadata
Diagnosis	5XFAD, WT
Tissue	Hippocampus
Species	Mouse
Program	Resilience-AD
Grant	R01AG057914

- Study Description
- Access Requirements
- Methods
- Study Metadata
- Study Data
- Data Updates

STUDY DESCRIPTION

The AD-BXD study

In this study, the authors develop and characterize the first genetically diverse mouse model of aging and Alzheimer's disease. Female congenic C57BL/6J mice hemizygous for the dominant 5XFAD transgene (Oakley et al., 2006), which consists of 5 human mutations known to cause familial AD [three in amyloid precursor protein (APP; Swedish: K670N, M671L, Florida: I716V, and London: V717I) and two in presenilin 1 (PSEN1; M146L and L286V), were obtained from The Jackson Laboratory **JAX MMRRC Stock No: 34848-JAX**. These mice were bred with 28 males from a set of genetically diverse recombinant inbred strains from the well-established BXD genetic reference panel (Peirce et al., 2004). The F1 progeny resulting from this B6-5XFAD by BXD cross are isogenic recombinant inbred backcross mice, each harboring one maternally derived B allele and either a B or D paternally derived allele at any given genomic locus. As expected from a Mendelian pattern of inheritance, approximately 50% of these F1 mice carry the 5XFAD transgene (termed AD-BXDs) and approximately 50% are non-transgenic (Ntg) littermate controls referred to Ntg- BXDs. All mouse experiments occurred at University of Tennessee Health

Accessing Data Across Studies

Accessing Tools - Computational

Tools

Computational

Diagnosis

Grant

Program

Software Type

Search

Experimental +

Displaying 7 Computational Tools by Program

AMP-AD (7)   Select All

TOOL

MEGENA Multiscale Clustering of Geometrical Network

Software package

Co-Expression Network Analysis by adopting network embedding technique.

CONTRIBUTOR	Won-Min Song, Bin Zhang
PROGRAM	AMP-AD
DOCUMENTATION	https://doi.org/10.1371/journal.pcbi.1004574

Accessing Tools - Experimental

Accessing - People

Agora: Sharing Analytical Results and Insights

https://agora.ampadportal.org/
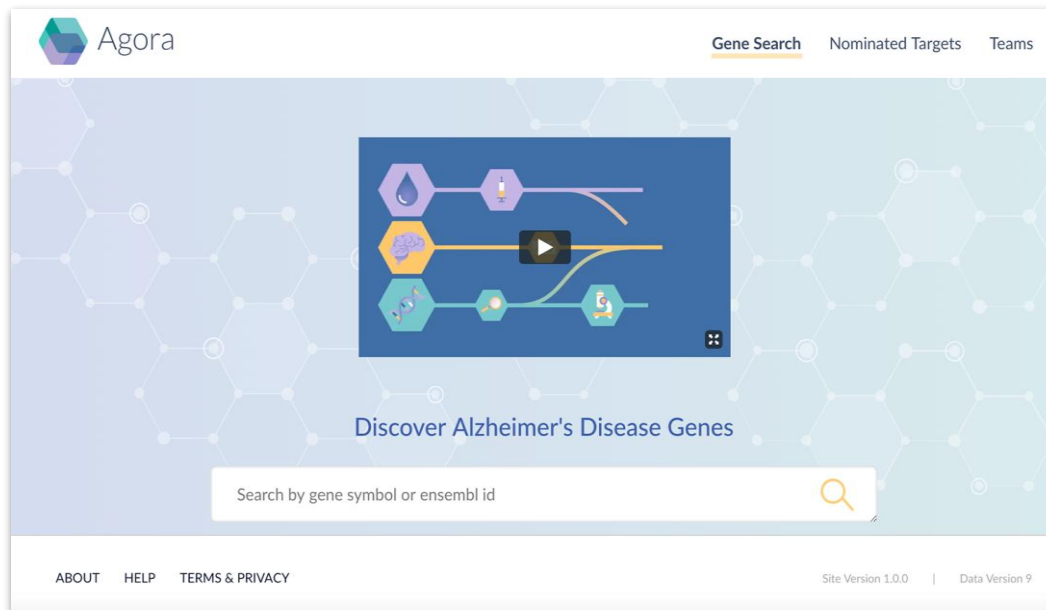
Open-source platform providing curated, AMP-AD verified, systems biology analyses for any gene of interest.

Enables researchers at large to discover and evaluate the evidence behind the AMP-AD nominated targets as well as to nominate new targets.

542 unique targets currently available, derived from unbiased, computational analyses of high-dimensional human omic data.
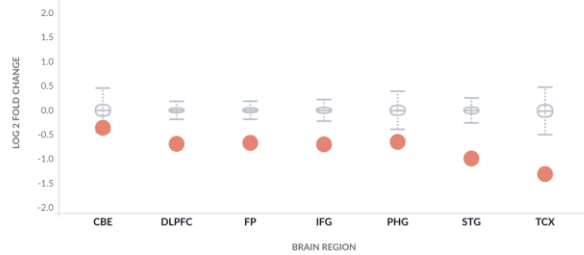
Agora Targets – Systems Biology Evidence

NIA Resources to Support Resilience Related Research

Dana Plude, PhD

Division of Behavioral and Social Research

NIA

dana.plude@nih.gov

RCCN Webinar

April 30, 2020

NIH National Institute on Aging

OUTLINE

- Funding Opportunities

- Other Resources

- Opportunities to Shape Resilience Research

Funding Opportunities

- **Funding Opportunity Announcements (FOAs)**
  - PAR-16-326 Advancing Basic Behavioral and Social Research on Resilience: An Integrative Science Approach (UG3/UH3) - **EXPIRED**
  - RFA-AG-18-029 Interdisciplinary Research to Understand the Complex Biology of Resilience to Alzheimer's Disease Risk (R01) - **EXPIRED**
  - PA-19-055 (R01 Parent R01 Clinical Trial Required)
  - PA-19-056 (R01 Parent R01 Clinical Trial Not Allowed)
  - PA-19-091 (R01 Basic Experimental Studies with Humans Required)
- **Notices of Special Interest (NOSIs)**
  - Extramural Nexus – NOSIs express areas of focal interest to Institutes
  - More expedient than FOAs
  - NOSI 'points' to FOA – enter NOSI number in field 4B of SF424 application

National Institute on Aging

Funding Opportunities

- **Funding Opportunity Announcements (FOAs)**
  - PAR-16-326 Advancing Basic Behavioral and Social Research on Resilience: An Integrative Science Approach (UG3/UH3) - **EXPIRED**
  - RFA-AG-17-061 Interdisciplinary Research to Understand the Complex Biology of Resilience to Alzheimer's Disease Risk (R01) - **EXPIRED**
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  - PA-19-056 (R01 Parent R01 Clinical Trial Not Allowed)
  - PA-19-091 (R01 Basic Experimental Studies with Humans Required)

- **Notices of Special Interest (NOSIs)**
  - Extramural Nexus – NOSIs express areas of focal interest to Institutes
  - More expedient than FOAs
  - NOSI 'points' to FOA – enter NOSI number in field 4B of SF424 application

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Funding Opportunities

- **Funding Opportunity Announcements (FOAs)**
  - PAR-16-326 Advancing Basic Behavioral and Social Research on Resilience: An Integrative Science Approach (UG3/UH3)
  - RFA-AG-17-061 Interdisciplinary Research to Understand the Complex Biology of Resilience to Alzheimer's Disease Risk (R01)
  - PA-19-055 (R01 Parent R01 Clinical Trial Required)
  - PA-19-056 (R01 Parent R01 Clinical Trial Not Allowed)
  - PA-19-091 (R01 Basic Experimental Studies with Humans Required)

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NIH Guide LISTSERV: Weekly E-Mail - New NIH Guide Postings

NIA Funding Opportunities

Funding Opportunity Title	Number	Open/Close	Category
Major Opportunities for Research in Epidemiology of Alzheimer's Disease and Related Dementias and Cognitive Resilience	NOT-AG-18-053	12/17/2018 11/13/2021	Population Studies, Epidemiology
New/Unconventional Animal Models of Alzheimer's Disease (R24 Clinical Trial Not Allowed)	RFA-AG-21-003	1/13/2020 10/8/2020	Infrastructure
Notice of Special Interest: Digital Technology for Early Detection of Alzheimer's Disease and Related Dementias	NOT-AG-20-017	3/11/2020 11/13/2021	Biomarkers/ Diagnosis

NOSI Connection to FOA

Notice Number

Notice to Specify High-Priority Research Topic for PAR-19-070 and PAR-19-071

Notice Number: NOT-AG-18-053

Key Dates
Release Date: December 17, 2018

Related Announcements
PAR-19-070
PAR-19-071

FOA Number

Issued by
National Institute on Aging (N

Purpose

This Notice of Information specifies a high-priority topic of interest for PAR-19-070 "Research on Current Topics in Alzheimer's Disease and Its Related Dementias (R01 Clinical Trial Optional)" and PAR-19-071 "Research on Current Topics in Alzheimer's Disease and Its Related Dementias (R21 Clinical Trial Not Allowed)".

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Other Funding Opportunities

- Career Development & Training Awards
  - K's, F's, T's

- Administrative Supplements
  - PA-18-591- Administrative Supplements to Existing NIH Grants and Cooperative Agreements
  - PA-18-906 - Research Supplements to Promote Diversity in Health-Related Research

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Other Resources

- Research Networks
    - [Reversibility Network](#) – seed funding
    - [Interdisciplinary Network on Rural Population Health and Aging](#) – pilot funding
    - [Stress Measurement Network](#) - consultations

- Research Centers
    - Alzheimer's Disease Centers
    - Claude D. Pepper Older Americans Independence Centers (OAICs)
    - Nathan Shock Centers of Excellence in the Basic Biology of Aging
    - Resource Centers for Minority Aging Research (RCMARs)
    - Edward R. Roybal Centers for Translation Research in the Behavioral and Social Sciences of Aging
    - Centers on the Demography and Economics of Aging

- Research Centers Collaborative Network ([RCCN](#))
    - Pilot study funding tied to individual workshops

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Opportunities to Shape Resilience Research

- STARRRS Longitudinal Rat Resource – NIA Intra/Extramural Program
  - NOT-AG-19-017 – Request for Information

- Collaboratory on Research Definitions – Resilience & Reserve
  - Call for Pilot Projects – due date June 15, 2020
  - Workshop #2 slated for Sept 14-15, 2020

- RCCN Workshops
  - Resilience & Reserve in Aging – Nov 12-13 2019
  - Resilience Webinar # 2 – tba (June?)

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Thank you

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Coming Soon!
Webinar on Resilience and Reserve: Biology of Aging and Translational Research

Date TBA
(Join the RCCN mailing list or follow @rccnaging on Twitter for updates)

THANK YOU
for joining us
&
for completing our brief SURVEY.

(Survey will appear when you exit the webinar.)