

The USC-Buck Nathan Shock Center of Excellence in Research in the Biology of Aging

Town Hall

Feb 24, 2021

Administrative/Program Enrichment Core – Sean Curran/Gordon Lithgow

Geroscience Technology Core – Sean Curran/Gordon Lithgow


Research Development Core – Julie Andersen/Kelvin Davies

Cell Senescence and Beyond Core – Judy Campisi/Birgit Schilling

Genomic Translation Across Species Core – Em Arpawong/Eileen Crimmins

Application Process/Funding – Tara Riley

Q&A




Buck

USC Leonard Davis
School of Gerontology

NOVATO, CALIFORNIA

DIRECTORS: Eric Verdin, MD, Gordon Lithgow, PhD, Pinchas Cohen, MD, Sean Curran, PhD

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EINSTEIN

Albert Einstein College of Medicine

BRONX, NEW YORK

DIRECTOR: Nir Barzilai, MD

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The Jackson Laboratory

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BAR HARBOR, MAINE

DIRECTORS: Gary Churchill, PhD, Ron Korstanje, PhD

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School of Medicine

SBP Sanford Burnham Prebys
MEDICAL DISCOVERY INSTITUTE

SAN DIEGO, CALIFORNIA

DIRECTOR: Gerald Shadel, PhD

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Nathan Shock Centers of Excellence




UT Health
San Antonio

SAN ANTONIO, TEXAS

DIRECTORS: Randy Strong, PhD, Peter Hornsby, PhD, Adam Salmon, PhD

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W

UNIVERSITY of WASHINGTON

SEATTLE, WASHINGTON

DIRECTORS: Peter S. Rabinovitch, MD, PhD, Matt Kaeberlein, PhD

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UAB

THE UNIVERSITY OF ALABAMA AT BIRMINGHAM

BIRMINGHAM, ALABAMA

DIRECTORS: Steven Austad, PhD, Thomas Buford, PhD

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The UNIVERSITY of OKLAHOMA
OKLAHOMA CITY, OKLAHOMA

DIRECTOR: Arlan Richardson, PhD

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Nathan Shock Centers of Excellence in the Basic Biology of Aging



Nathan W. Shock (1906–1989) was known as the "father of gerontology" and head of the Gerontology Research Center of the National Institutes of Health for nearly 35 years - until 1976. He then became scientist emeritus at the center.

He was one of the first scientists to foresee the importance of using longitudinal methods to study human aging. He clocked the rate at which different organs of the body age and showed that different individuals age at different rates.

He was the author of more than 300 journal articles and books, and detailed his research in *Scientific American* 206:100-10, 1962.

Nathan Shock Centers of Excellence in the Basic Biology of Aging

What do the Nathan Shock Centers do?

- The Centers provide leadership in the pursuit of basic research into the biology of aging. They do so through a Research Development Core which administers small start-up funds locally, and organizes national annual meetings to highlight specific areas of research.
- In addition, each Nathan Shock Center has several specialized cores that provide services to Shock Center members, as well as for-fee services to the community at large. The cores are different in each Center, depending on the strengths of each Institution.

USC-Buck NSC is greater than the sum of its parts

Co-leaders:

Sean Curran and Gordon Lithgow



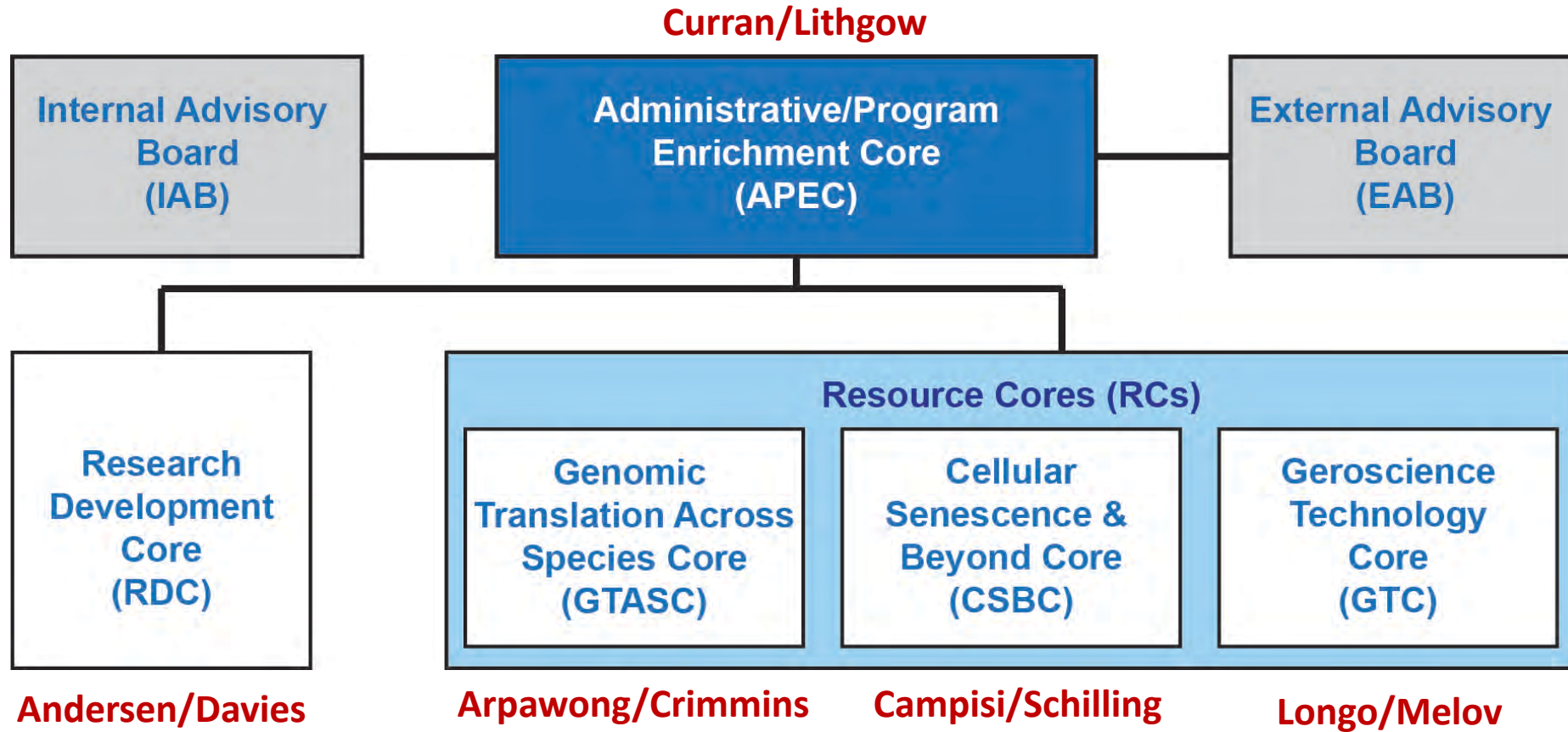
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Organization



Invigorating the geroscience research community

Engage geroscience experts

Spark innovative geroscience research

Facilitate and foster new geroscience collaborations

Provide access to geroscience technology

Train the next generation of geroscience researchers

Provide geroscience project support

Administrative support

Programmatic

- Tara Riley
- Linda Hall/Gillian Miller

Financial

- Kira Harvath
- Sarah Lines

Communication

- Orli Belman
- Robin Snyder

Geroscience Technology Core

Co-leaders

Valter Longo and Simon Melov



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Core Pilots and Vouchers

Mouse Phenotyping Core

Biomarker Core

Mitochondria Core

Bioinformatics Core (NSC-GTASC)

Genomics Core

Multiscale imaging center

AI and data science

Flow cytometry

Metabolomics

Morphology and Imaging

Proteomics (NSC-CSBC)

Single Cell biology

Funding for faculty partnerships

<https://gero.usc.edu/faculty/>

<https://www.buckinstitute.org/research/faculty/>

Single cell RNA seq - 10X genomics

Miniseq – small genome sequencer (invertebrates, mitochondria, etc.)

Model systems: yeast, worm, fly, killifish, mouse, etc.

Focused projects on: mitochondrial peptides, diet, air pollution, multiscale imaging, sexual dimorphism, etc.



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