THE ALLIANCE FOR
LONGEVITY INITIATIVES

Realigning for Impact: A Disease-Burden Framework for NIH Aging Biology Funding

Why Cross-Institute Aging Consortia Are the Most Efficient Path to Reducing Chronic Disease Burden in America

A White Paper by The Alliance for Longevity Initiatives (A4LI)

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Executive Summary

The National Institutes of Health invests approximately $48.7 billion annually in biomedical research. Over half of this budget is directed toward diseases that are fundamentally driven by biological aging: cancer, cardiovascular disease, neurodegeneration, diabetes, and other chronic conditions. Yet the NIA Division of Aging Biology (DAB), the only division within NIH that funds research into the upstream biological mechanisms of aging itself, receives just $346 million[1] — less than 1% of the total NIH budget.

No formal methodology ties NIH funding to disease burden. Peer-reviewed research has repeatedly shown that NIH budget allocations bear virtually no statistical relationship to the diseases that cause the most suffering and death in America. The strongest predictor of current NIH funding is historical allocation from previous decades, not contemporary burden of disease.[2]

Compounding the problem, significant aging-related research already occurs within disease-specific institutes — cancer researchers studying senescence, cardiologists investigating vascular aging, neurologists examining age-related neurodegeneration — but this work is categorized under disease headings and is effectively invisible in NIH's budget tracking systems.[3] The true federal investment in aging biology is unknown because it has never been consolidated or measured.

This white paper proposes two interventions. First, it presents a disease-burden-weighted framework that quantifies how NIH funding should be allocated if it were rationally tied to the health needs of the American public. Second, it proposes a concrete mechanism: expanding the existing Onco-Aging Consortium model into a series of cross-institute joint funding programs, proportionally co-funded by both NIA-DAB and partner institutes. These consortia would make aging-related research visible, trackable, and accountable — while creating named budget lines that can grow as the science matures.

I. The Problem: NIH Funding Ignores Disease Burden

Since at least 1999, researchers have documented a persistent and troubling disconnect between how the NIH allocates its budget and where Americans actually suffer the greatest health burden. A landmark study in the *New England Journal of Medicine* first identified this mismatch, and in the decades since, the gap has not closed — it has widened.[4]

A 2021 analysis published in *JAMA Network Open* compared NIH disease-category spending between 2008 and 2019 and found that the single greatest predictor of an institute's 2019 funding level was its 2008 funding level. Disease burden and changes in disease burden were not statistically significant once prior funding was included in the model.[5] A 2024 follow-up study found the correlation between NIH funding and disability-adjusted life years (DALYs) had dropped to an R^2 of less than 0.03 — essentially zero.[6]

[1] NIA Fiscal Year 2025 Budget. Available at nia.nih.gov/about/budget/fiscal-year-2025-budget.

[2] Barker, F.G., Carter, B.S. "Allocation of National Institutes of Health Funding by Disease Category in 2008 and 2019." JAMA Network Open, 2021.

[3] Former NIA Division of Aging Biology Director Felipe Sierra has noted that substantial aging-related research occurs within disease-specific institutes but is categorized under disease headings rather than aging biology, making it effectively invisible in NIH budget tracking.

[4] Gross, C.P., Anderson, G.F., Powe, N.R. "The Relation between Funding by the National Institutes of Health and the Burden of Disease." NEJM, 1999.

[5] Barker, F.G., Carter, B.S. "Allocation of National Institutes of Health Funding by Disease Category in 2008 and 2019." JAMA Network Open, 2021.

[6] "The persistence of very low correlations between NIH research funding and disease burdens." *SSM - Population Health*, 2024.

In other words, Congress does not use any systematic methodology — no disease-burden weighting, no tractability analysis, no cost-effectiveness framework — to decide how $48.7 billion in public research dollars is distributed. The allocation is driven by historical inertia and the relative political strength of disease-specific advocacy organizations.

The Aging Biology Paradox

Biological aging is the single largest risk factor for cancer, heart disease, stroke, Alzheimer's disease, type 2 diabetes, chronic kidney disease, COPD, and most other conditions that account for the majority of American deaths and healthcare spending. The hallmarks of aging — genomic instability, telomere attrition, epigenetic alterations, loss of proteostasis, deregulated nutrient sensing, mitochondrial dysfunction, cellular senescence, stem cell exhaustion, and altered intercellular communication — are causally upstream of the diseases that consume over 50% of the NIH budget.[7]

Yet the division tasked with understanding these mechanisms, NIA's Division of Aging Biology, receives $346 million out of $48.7 billion: **0.71% of the total NIH budget**. The following table illustrates the disparity.

Disease Category	NIH Funding (FY24)	Evidence that Aging is the Primary Risk Factor	Upstream Hallmarks
Cancer (NCI)	$7.2B	Incidence rises exponentially with age	Senescence, genomic instability, immune decline
Heart/Lung/Blood (NHLBI)	$4.2B	CVD risk doubles each decade after 55	Mitochondrial dysfunction, inflammaging
Alzheimer's/Dementia (NIA-DN)	$3.7B	Age is the dominant risk factor	Proteostasis loss, epigenetic drift
Diabetes/Metabolic & Kidney (NIDDK)	$2.3B	T2D prevalence peaks in older adults	Nutrient sensing, mitochondrial decline
Eyes (NEI)	$0.9B	Age-related Macular Degeneration (AMD) is the leading cause of blindness; presbyopia prevalence age 55+ is nearly 100%	Cellular senescence, loss of proteostasis, mitochondrial dysfunction
Neurological & Stroke (NINDS)	$2.8B	Stroke, Parkinson's are age-driven	Stem cell exhaustion, DNA damage
Deafness (NIDCD)	$0.5B	Age-related hearing loss (presbycusis) is the leading cause of deafness	Stem cell exhaustion, mitochondrial dysfunction, oxidative damage
Division of Aging Biology (DAB)	**$346M**	**Funds research on the upstream cause of all above**	**All hallmarks**

Table 1. NIH institute spending on age-related diseases versus funding for aging biology research. Sources: NIH RCDC, NIA Budget Office.

[7] Lopez-Otin, C. et al. "Hallmarks of aging: An expanding universe." *Cell*, 2023.

The Hidden Aging Portfolio: Underinvested and Uncoordinated

The $346 million figure understates federal spending on aging biology, but not by enough to change the conclusion. Significant aging-related research is already being conducted within single-disease institutes — NCI funds studies on cellular senescence in tumors, NHLBI funds work on vascular aging, NINDS funds research on age-related neurodegeneration. Even if every one of these scattered efforts were summed together, the total would remain a small fraction of what the disease burden warrants. Aging is the dominant upstream driver of conditions that consume more than half the NIH budget; the upstream science receives, by any plausible accounting, a single-digit percentage of that. The mismatch is not a measurement artifact. It is the central problem.

The visibility problem is real, but it is a compounding factor rather than the headline. Because aging-related work inside disease institutes is categorized under disease-specific headings, the federal government cannot produce a defensible figure for its total investment in aging biology. This has two downstream consequences. First, it makes the underinvestment harder to quantify and therefore harder to litigate in front of Congress — advocates and appropriators are forced to argue from a $346 million baseline that everyone knows understates the real number, but no one can replace with a credible alternative. Second, aging-focused researchers within disease institutes operate without a shared identity, coordinated funding announcements, or collaborative infrastructure. They are isolated pockets of excellence with no mechanism for integration, and no way to demonstrate collectively that the field is undersized relative to its scientific opportunity.

II. A Disease-Burden-Weighted Framework

If NIH funding were allocated rationally, what would it look like? We propose a simple, transparent formula that accounts for three factors:

- **Disease burden (50% weight):** Measured by disability-adjusted life years (DALYs) from the Global Burden of Disease Study.
- **Causal upstream weight (30% weight):** An adjustment factor that increases funding for research areas that are causally upstream of multiple disease categories. Aging biology is the clearest case: it is a shared root cause of cancer, CVD, neurodegeneration, diabetes, and more. Research into aging mechanisms has multiplier effects across the entire NIH portfolio.
- **Scientific tractability (20% weight):** An assessment of the current state of the science and the likelihood that increased funding will yield actionable interventions within 10–15 years. The aging biology field has matured dramatically. Several dozen companies at various stages of clinical trials, hundreds of companies with positive preclinical data, and hundreds of peer-reviewed academic studies demonstrate that aging pathways are pharmacologically targetable.

Applying the Framework

Under this framework, aging biology research scores exceptionally high on all three dimensions. Age-related diseases account for approximately 60–70% of total U.S. DALYs. Aging biology is causally upstream of all of them. And the field has reached an inflection point where basic discoveries are translating into clinical candidates at an accelerating pace.

A conservative application of this formula suggests that aging biology research should receive 3–5% of the total NIH budget — approximately $1.5–$2.4 billion annually — rather than the current $346 million. Even a modest first step toward this target, such as doubling DAB funding to roughly $700 million, would represent a transformative increase.

One important caveat: DALYs assume a fixed normal lifespan and cap the maximum gain at eliminating disease within it. Aging interventions are unique in that they can extend healthy lifespan itself, generating quality-adjusted life years (QALYs) beyond what any disease-specific treatment can deliver. A QALY-based weighting would assign aging biology an even larger allocation; the DALY-based figures here should be read as a conservative floor.

III. The Mechanism: Cross-Institute Aging Consortia

The Proportional Co-Funding Model

We propose a **proportional co-funding** model in which both the disease institute and NIA-DAB contribute to each consortium in proportion to their existing budgets. This means each side absorbs an identical percentage reduction in consortium-independent budget.

Consider a concrete example. NHLBI receives approximately $4,200 million annually from Congress and NIA-DAB receives approximately $346 million. A $100 million Cardio-Aging Consortium would be jointly organized in proportion to those appropriations: $92.4 million of NHLBI's existing congressional allocation (92.4%) and $7.6 million of DAB's (7.6%) would be designated to the consortium. The same federal dollars NHLBI was already going to spend on cardiovascular science continue to fund cardiovascular science — but the portion that addresses the upstream aging biology of cardiovascular disease is now organized under a named, jointly governed program rather than scattered across uncoordinated grants. The reorganization touches just 0.22% of each institute's appropriation, but produces a fully visible, trackable cross-cutting research program where none existed.

This structure has three strategic advantages. First, the proportionality makes the arrangement genuinely equitable — DAB is not exempt from contributing, which eliminates the perception that one institute is raiding another. Second, the percentage contribution is identical for both parties regardless of the consortium's size, making it scalable. Third, and most importantly, it creates named budget lines for aging-related research within each disease domain, which makes these programs public and trackable.

Consortium	Partner Budget	DAB Budget	Consortium Size	Partner Pays	Each Contributes
Onco-Aging	$7,200M (NCI)	$346M	$50M/yr	$47.7M (95.4%)	0.66%
Cardio-Aging	$4,200M (NHLBI)	$346M	$50M/yr	$46.2M (92.4%)	1.10%
Neuro-Aging	$2,800M (NINDS)	$346M	$40M/yr	$35.6M (89.0%)	1.27%
Metabo-Aging	$2,300M (NIDDK)	$346M	$40M/yr	$34.8M (86.9%)	1.51%
Immuno-Aging	$6,600M (NIAID)	$346M	$30M/yr	$28.5M (95.0%)	0.43%
Ophthalmo-Aging	$900M (NEI)	$346M	$20M/yr	$14.5M (72.2%)	1.61%
Musculo-Aging	$680M (NIAMS)	$346M	$20M/yr	$13.3M (66.3%)	1.95%
Oto-Aging	$535M (NIDCD)	$346M	$15M/yr	$9.1M (60.7%)	1.70%
TOTAL			$265M/yr	~$230M	~$35M from DAB

Table 2. Proportional co-funding model for proposed aging consortia. Each consortium is funded by contributions from both the partner institute and NIA-DAB in proportion to their existing budgets, so both sides absorb the same percentage reduction.

At the proposed initial funding levels, no individual institute contributes more than 2% of its budget, and most contribute well under 1%. Meanwhile, the total new investment in interdisciplinary aging biology research reaches $230 million per year — effectively doubling the field's federal funding base. For NIA-DAB, the total contribution across all seven consortia would be approximately $38 million, or about 10% of its current budget — a meaningful but manageable investment that buys DAB co-ownership of seven major new research programs.

The Onco-Aging Consortium: Proof of Concept

The Onco-Aging Consortium (OAC) is a joint NIA and NCI program that funds interdisciplinary research teams studying how hallmarks of aging — cellular senescence, loss of proteostasis, DNA repair failure, immunosenescence — drive cancer initiation.[8] Funded through a collaborative mechanism (RFA-CA-20-040), the OAC brings together aging biologists and cancer researchers to study the upstream biological pathways that create cancer-initiating cells.

The OAC demonstrates that cross-institute aging research is operationally feasible within the existing NIH structure. However, it operates at a remarkably small scale — approximately $5 million per year — and no equivalent programs exist for cardiovascular aging, metabolic aging, neuro-aging, or other domains where the science is equally compelling. There are no Cardio-Aging Consortia, no Metabo-Aging Consortia, no Immuno-Aging Consortia. The OAC is the only instance of this model in the NIH portfolio.

From One Consortium to Seven: A Unified Tagline

We propose the establishment of seven new cross-institute aging consortia, modeled after the OAC, each co-funded proportionally by NIA-DAB and a partner institute with a unified objective across all programs: "**Funding interdisciplinary teams studying how aging hallmarks drive [disease].**"

Each consortium funds teams pairing aging biology with disease-specific expertise — an immunosenescence researcher with a vaccinologist, say, or a vascular senescence biologist with a heart failure cardiologist. Every funded project must address an aging hallmark as a causal disease mechanism.

This structure accomplishes something that a simple budget transfer cannot: it gives disease institutes shared credit and shared ownership of aging biology research. NCI's portfolio gains a visible aging-and-cancer program. NHLBI's portfolio gains a visible aging-and-cardiovascular program. The research counts toward each institute's mission. This is not a zero-sum transfer — it is a collaborative upgrade that makes every participating institute's portfolio more scientifically complete.

IV. The BRAIN Initiative as Structural Precedent

The proposed consortia model is not without precedent at NIH. The BRAIN Initiative (Brain Research Through Advancing Innovative Neurotechnologies), launched in 2013, demonstrated that cross-institute

[8] NCI Onco-Aging Consortium (OAC). Available at cancer.gov/about-nci/organization/dcb/research-programs/oac.

research programs can be established, managed, and funded at scale within the existing NIH structure.[9]

The BRAIN Initiative is managed by 10 NIH institutes and centers, co-led by NIMH and NINDS. At its peak, it received $680 million annually through a combination of base allocations from participating institutes and supplemental funding authorized by the 21st Century Cures Act. The initiative features shared governance through a Multi-Council Working Group, coordinated funding, and a unified scientific vision.

The key structural lessons from the BRAIN Initiative for aging biology are:

- **Multi-institute coordination is operationally feasible.** Ten institutes successfully share governance, review processes, and funding mechanisms.
- **Base allocations can be combined without new legislation.** The BRAIN Initiative draws on existing line items from participating institute budgets.
- **Cross-cutting science benefits all participants.** BRAIN Initiative tools and discoveries have accelerated research across neuroscience, far beyond any single institute's mission.
- **Congressional supplementation can follow proof of concept.** The 21st Century Cures Act funding came after the initiative demonstrated results with base allocations. Aging biology consortia could follow the same trajectory.

V. Governance: Where Should the Consortia Live?

The most consequential design decision for these consortia is organizational: should they be housed within the disease-specific institutes, within NIA, or as independent cross-cutting entities? Each option involves tradeoffs, and the right answer may evolve over time.

Option A: Housed Within Disease Institutes

Advantages: This is the path of least resistance. Disease institutes retain full administrative control, the consortia appear naturally in their portfolios, and institute directors face minimal disruption to existing workflows. It requires no new organizational structures and is the easiest model to stand up quickly.

Risks: Aging-focused programs housed within a disease institute are vulnerable to being deprioritized in favor of the institute's core disease mission. When budgets tighten, an NCI director will protect cancer-specific programs before protecting a joint aging-and-cancer consortium. The consortia could be gradually starved or absorbed into existing disease-specific grant mechanisms, losing their identity as aging biology programs. This is the most likely failure mode.

Option B: Housed Within NIA-DAB

Advantages: Centralizing the consortia in NIA-DAB ensures that aging biology remains the organizing principle, not an afterthought. It creates a single administrative home with expertise in aging science and a mission-aligned leadership structure.

Risks: This looks more like a traditional budget transfer and may generate the institutional resistance the

[9] NIH BRAIN Initiative Overview. Available at braininitiative.nih.gov/about/overview.

proportional co-funding model is designed to avoid. Disease institutes may feel they are losing control of research that touches their domain. It also concentrates risk: if NIA-DAB leadership changes, all seven consortia could be affected simultaneously.

Option C: Independent Cross-Cutting Entity (Long-Term)

Advantages: A dedicated cross-cutting program — analogous to the BRAIN Initiative's governance structure, or potentially a new National Institute for Healthy Longevity and Aging Research (NIHLAR) — would give aging biology the organizational independence it needs to grow. This is the structure most likely to produce transformative, long-term results.

Risks: Creating a new entity within NIH is a multi-year effort requiring significant political capital.

Recommended Phased Approach

We recommend starting with Option B and planning for a transition to Option C. In the near term (2027–2028), house each consortium within the NIA-DAB, with joint oversight from each disease institute. This ensures the focus of the project stays on the biology of aging, minimizes institutional friction, and allows the programs to establish scientific track records. The critical design requirement is that each consortium must have a distinct program name, a separate budget line, and joint review by both the disease institute and NIA. These features prevent the consortia from being quietly absorbed into existing programs.

In the medium term (2028–2031), as the consortia grow in funding and scientific output, advocate for their consolidation under a unified governance structure — either a BRAIN Initiative-style Multi-Council Working Group, or a dedicated office within NIA. The named budget lines established in the first phase provide the institutional hooks for this transition: it is far easier to reorganize seven existing programs with established track records than to create something entirely new.

In the long term, the goal is the establishment of a dedicated Aging Biology Initiative or NIHLAR-type institute that houses all cross-cutting aging research. The phased approach builds the evidence base, the political constituency, and the organizational precedent needed to make that case.

VI. Political Viability

This proposal is designed to be viable in the current political and fiscal environment. Several factors work in its favor:

- **No new money required.** In a year where the White House has proposed a 12% cut to NIH's budget, asking Congress for new appropriations faces long odds. This proposal works entirely within the existing budget envelope.
- **Proportional, not one-sided transfers.** Both the disease institute and NIA-DAB contribute to each consortium in proportion to their budgets. No institute is singled out as a donor. The percentage reduction is identical for both sides, making the arrangement equitable by design.
- **Collaboration framing, not redistribution.** The argument is not "take money from cancer research." It is "let NCI and NIA jointly fund research on why aging causes cancer." This is an invitation to collaborate, not a threat.

- **Not aligned with lifestyle politics.** This proposal concerns fundamental biology research and drug development — not diet, supplements, or lifestyle interventions. It is grounded in molecular biology and pharmacology, making it distinct from wellness narratives.
- **Bipartisan appeal.** The Congressional Longevity Science Caucus, co-chaired by Rep. Paul Tonko (D-NY) and Rep. Gus Bilirakis (R-FL), provides a natural legislative home for this proposal. Polling consistently shows bipartisan public support for aging research.
- **Healthcare savings argument.** Research suggests that adding just 2.2 healthy years to the average lifespan could save $7.1 trillion in healthcare costs. Investing $230 million per year in the upstream biology of aging diseases is an extraordinary return on investment.

VII. Recommendations

The Alliance for Longevity Initiatives recommends the following actions:

- Publish and disseminate the disease-burden-weighted framework as a one-page reference for congressional offices, demonstrating the disconnect between NIH funding and disease burden and the rational case for realigning research goals toward aging biology.
- Advocate for the expansion of the Onco-Aging Consortium from roughly $5M to $50M — a first step that proves the co-funding model without new legislation or restructuring.
- Propose eight new cross-institute aging consortia with combined initial funding of $265M/year using the proportional co-funding model.
- Ensure each consortium has a distinct name, budget line, and joint review process — the safeguards against absorption and the foundation for growth.
- Engage NIH leadership on a phased path toward a unified Aging Biology Initiative: joint oversight (2027–2028), shared governance (2028–2031), and an independent Aging Biology Initiative or Cures Act-style supplementation long term.

For more information, contact The Alliance for Longevity Initiatives at info@a4li.org or visit A4LI.org.