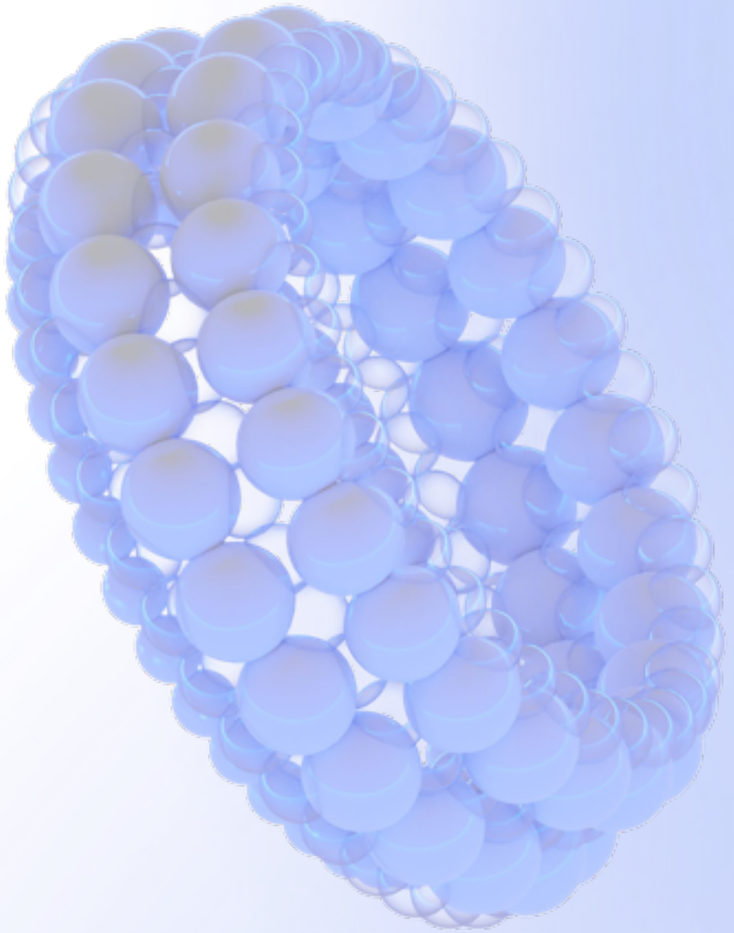
Advancing technology for the long-term benefit of life.

2023 Foresight Longevity Frontiers Workshop



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Links of relevance

- Workshop agenda: https://foresight.org/longevity-frontiers-workshop-2023
- Please fill out this form to create your longevity profile: https://bit.ly/addlongevityprofile
- You can then view others' longevity profiles here: https://bit.ly/viewlongevityprofiles
- This collaboration slide deck can be found at: https://bit.ly/longevityfrontiers

Apart from scientific progress, what are the biggest headaches holding back progress?

- ## What holds funding back?
  - economic downturn
  - risky perception of biotech, historically terrible ROI → more fractional leadership and syndication
  - concentration of funding in senescent cells and reprogramming, less focus on marginal approaches
  - history in the field of bad projects failing
  - joining infectious optimism with real science and pragmatism
  - no business model for prevention
  - match-making between funders, entrepreneurs, scientists
  - better ways of locating donors and onboarding them
  - greed forcing companies to accept low valuations for tech
  - UBI for aging researchers
  - lack of lobbying orgs for aging
  - get politicians on board
  - lack of broker dealers / investment banking firms specializing in longevity
- ## What holds regulatory progress back?
  - length and risk of clinical trials, focus on intervention after damage is done, that's a problem of bad strategy
  - lack of organizations circumventing US regulatory process by going out of country? service to take things overseas
  - Keyfaber amendments to the FDA to focus on efficacy over safety
  - FDA has no pathway for geroprotectors
  - Liability and overly aggressive plaintiffs bar
  - individual hallmarks are not considered → use analogy and get fatty thymus disease approved
  - incentive misalignment between governmental agencies and researchers
  - human volunteer studies, have FDA just do safety over efficacy
  - set better objective functions for regulatory agencies →follow Constitution DAO example to raise $ to correct objective function
  - not enough companies in the pipeline for FDA
- ## What holds talent acquisition back?
  - we miss out on pulling people into the field by labeling it as longevity
  - people aligning skills and interests
  - flexibility in the work environment
  - bystander effect - people think someone else will solve it, don't take enough personal responsibility
- ## What holds collaboration in the field back?
  - low quality standards in science, bad peer review
  - not the right technologists here for working on aging, David Lewis, Jim Collins, John Rogers
  - IP rights
  - clinging on to status quo and clinging on to data
  - getting failed data out there
  - replication bias
  - supporting each other
  - stop using mortality curves
  - data-driven science as opposed to prose driven
- ## What holds public education back?
  - delightful UX
  - 99% of people in the planet don't know it's a problem
  - we don't celebrate successes enough
  - terminology
  - culture in general: too many smart people go into boring jobs, need a culture that celebrates ambitious projects
  - establish credibility for longevity results
  - no strategy for public involvement; outmoded approaches to dissemination and knowledge exchange; public as passive recipients rather than proactive actors of change

Day 2 Project proposals

1. How can we use biomarkers of aging? (Steve, Tina, Greg)
(+ platforms for clinical trials, + to find the senescome?)

2. How can we get everyone to do personal health tracking? (Fiona, Michael, Lucy, Rochelle, Ben)
(e.g. via at home diagnostics, new biosensors, wearables)

3. How can we make progress on brain aging? (Sonia)

4. How can we create AI models to help us understand human biology? (JJ, Carlos, Johnny)

5. How can we give everyone interested in longevity opportunities to contribute? (Mark)

6. Constructive pessimism? (Leon)

7. How can we intervene at an early stage for cancer? (Ashish)

8. How can we advance partial reprogramming? (Yuri)

Working group prompts for project proposals

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Project title

Promote the use of biomarkers of aging in clinical trials

14 people, Tina, Marielle Van Kooten, Karl Pfleger, Jim, Greg Fahy, Steve Horvath

What are you trying to do? Explain it in as few words as possible with zero jargon.

Goal 1. Promote the use of biomarkers of aging to inform that study of baseline characteristics of participants in future and past clinical trial

- Use biomarkers along with chronological age when it comes to the table with baseline characteristics
- Balance control and treatments based on biomarkers

Goal 2: Lay the groundwork for future surrogate endpoints of anti aging interventions.

- Leverage recent innovations at the FDA that move beyond monocausal framework.
  - Clinical decision support for FDA.

How is it done today? What are the limitations of the current system?

- Most trials do not routinely assess readily available biomarkers of aging: immune system, methylation, proteomics.

What is new in your approach and why do you think it will be successful?

1. Everyone who runs a clinical trial collects a blood tube for measuring proteomics and methylation.
2. it is relatively easy and cheap to collect blood and to generate methylation/proteomics data.

What does success look like? Who cares? What is a concrete beneficial capability that could be enabled by this technology?

1. We have a strong value proposition: Protect against failed trial due to biological age skew.
2. Build foundational genomic data base
   a. that allow researchers to assess causality due to the intervention
   b. Create a virtuous cycle:
      i. leverage biomarkers to find interventions that affect biological age.
      ii. Conversely: leverage successful interventions to develop better biomarkers.

Are any risks associated with this project? What do you do to mitigate them? Is it possible to differentially advance safety-enhancing aspects of the technology first?

How much will it cost?

Each methylation array costs less than 200 dollars.

How long will it take?

6 months.

What are the mid-term and final exams to check for completeness?

Follow up zoom meetings.

What are your next steps if awarded a $1k, $2k, or $3k development grant?

- ppt slides outlining guidelines for measurements for clinical trials
  - e.g. proteomics and methylation
- Contact various companies and programs in the US, UK, Europe
  - Foundation Medicine, Marielle Van Kooten
  - Mouse ITP=Steve Horvath
  - FDA=Jim

Morpheia- Continuous Biotracking Implantables

Making continuous, high-resolution and consistent Biotracking accessible

Participants interested in exploring the project (+potential role, e.g. driver, advisor, etc)
Vlad Bouchouev - driver
Timothy Vu - advisor
Nic Palmarini - adoption
mike Sinn - Data Aggregation and Analysis
Bennett Alexander - lab automation / MS student
Lucy Fauth - Engineering Lead

What are you trying to do? Explain it in as few words as possible with zero jargon.
- enable people to collect biometrics in the home
- generate maximum number of studies possible analyzing the relationship between all potential factors on health outcomes that may be surrogates for longevity
- make it matter to the masses
- get as much information as possible as seamlessly as possible for the individual
- standardizing the data for sharing

How is it done today? What are the limitations of the current system?
- consumer wearables (e.g. oura, fitbit)
- testing at healthcare center
- continuous, semi-continuous (e.g. smart scales), bloodwork
- embedded sensors in the cars
- brain-computer interfaces
- limitations: data is not shareable, not trusted, not standardized; people don't have the context of what to do with the information and hence they stop using the device; skin is the barrier to puncturing and getting the blood; stigma with medical devices (e.g. hearing aids)
- to summarize, 3 problems: technology, accessibility (the coolness factor) and education

What is new in your approach and why do you think it will be successful?
- implantable wearables
- incentives to share the data
- virtual sneakers (NFT) that record your steps via wearables - incentivise via reward
- allow people to have control over their data and who it is available to
- allow the person to monetize the data
- standardized fine grained access control (e.g. OF2) for sharing the data and contributing it to studies
- consider using ChatGPT or other LLM (large leverage models) API to automatically generate data mappings and centralize data
- product allowing more control over the features (e.g. opting out) can expand access to users

What does success look like? Who cares? What is a concrete beneficial capability that could be enabled by this technology?
- convincing the widest possible population to adopt our technology with control over data sharing process (full control over your data)
- proficiently share the data with research entities, businesses (e.g. insurance)
- outcome labels (what to expect) for nutritional supplements, drugs and food
- something the users like and are comfortable using
- making society think this is a necessity
-

Are any risks associated with this project? What do you do to mitigate them? Is it possible to differentially advance safety-enhancing aspects of the technology first?

- professional installation by medical device experts

How much will it cost?
-implant + subscription revenue model

How long will it take?
-15 minutes to install and set up by a medical professional with local anesthetic

What are the mid-term and final exams to check for completeness?

-hardware reliability
-upgradavility

What are your next steps if awarded a $1k, $2k, or $3k development grant?
-seed investment
-talent exploration

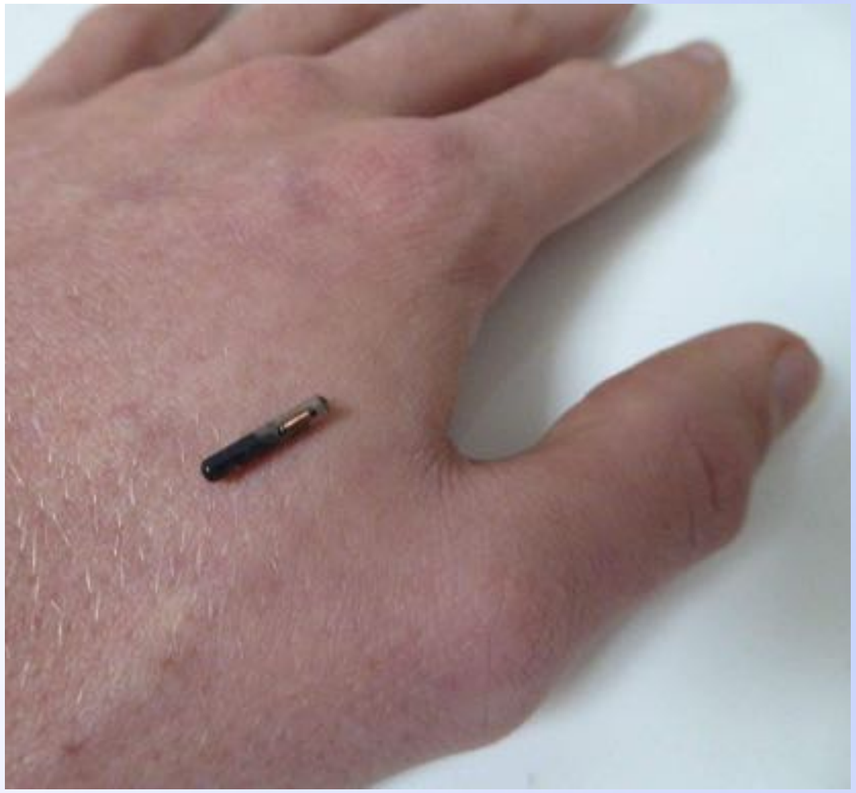
Morpheia- Continuous Biotracking Implantables

Tracking Beyond Wearables

- Traditional metrics- sleep, activity, heartrate
- Track what wearables can’t
- Heart health, select endocrine and biopsy labs, Glucose CGM
- Effortless, 100% adherence

Market Entry → Expansion

- Diabetics
- Elderly care and emergency services
- Open Source community and early adopters
- Mass expansion through network effects



Morpheia- Continuous Biotracking Implantables

Technical Risks

- Power Delivery
  - Safe, Rechargeable Battery
  - Wireless Charging
- Biosensor Longevity
- Upgradeability
- Data Privacy

Existential Hopes

Short term:

Increase Quality Adjusted Life Years (QALY) for preventable disease

Long Term:

Paradigm shift in personalized diagnostic healthcare

Who We Are

NEURALINK

Palantir

Columbia Business School

GRAIL

Penn

KIT Karlsruher Institut für Technologie

FORESIGHT INSTITUTE

Working group prompts for project proposals

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Project title: **Form Consortium for Stage 0 cancer intervention with enhanced cancer surveillance and new treatment modalities.**

Participants interested in exploring the project (+potential role, e.g. driver, advisor, etc)

- Ashish Tripathi, Mark Hamalainen, Lou, Alia Abbas

What are you trying to do? Explain it in as few words as possible with zero jargon.

- **Assuming we can detect cancer at stage 0**, we need to encourage development of Stage 0 cancer interventions. There are no current cancer treatments for stage 0.

How is it done today? What are the limitations of the current system?

- Diagnostics does not detect earlier than Stage 1;
- Questions on value of a tool that can detect earlier; is it in a person's interest to know.
- For some early cancers it is because patients go downhill quickly
- We take prevention measures for cardiovascular, diabetes, why not cancer too?

What is new in your approach and why do you think it will be successful?

- Stage 0 Cancer Detection
- Enhanced surveillance of target organs at a risk of cancer at stage 0

What does success look like? Who cares? What is a concrete beneficial capability that could be enabled by this technology?

- Validated list of stage 0 interventions via a consortium working on collecting and testing in vitro/organoid.
- Positioning to regulatory bodies the benefits of intervention at Stage 0.

Are any risks associated with this project? What do you do to mitigate them? Is it possible to differentially advance safety-enhancing aspects of the technology first?

- Still need to verify precision of the stage 0 cancer diagnostic (promising but work remains)
- Ethics of informing people of a stage 0 cancer (if there isn't yet a treatment)
- Ethics of intervening at stage 0 versus stage 1. Cancer present vs cancer absent.
- Premise of preventative health is to intervening as early as possible.

How much will it cost?

- Hard to give an absolute number, but In principle less than the cost of treatments at a late stage treatment protocol

How long will it take?

- This needs longitudinal studies. Validating Stage 0 diagnostic itself will take a few years.
- Collecting interested parties for the consortium / symposium is feasible in 1 year.

What are the mid-term and final exams to check for completeness?

- What percentage of patients in study with aberrant cells won't develop cancer?
- 1st priority - confirm cancer present vs. cancer absent.
- 2nd priority - Double blind, solid longitudinal study.

What are your next steps if awarded a $1k, $2k, or $3k development grant?

- Form a consortium of people (companies, labs, startups)interested in developing technology for Stage 0 cancer intervention
- Schedule a symposium. Collectively determine potential paths forward
  - Validate the Stage 0 detection in more cases:
    - better controlled group
    - tests in mice/organoid that have naturally developed cancers
    - blood tests from patients (double blinded)
  - Brainstorm new intervention modalities designed specifically for Stage 0.
    - Increasing immunity pre-tumor based
    - Sequence-knife
      - Sequencing the cells as part of the diagnostic already- so use that info to directly target unique mutations.
      - Oisin Biotech
      - Emerald Therapeutics (molecular devices triggered by the presence of a sequence or not)
    - Apheresis of circulating tumor generated immune inhibitors
    - Partial reprogramming (revert the cancer stem cell)
    - Focus on how cell is defending itself, not creating new cancer target. Tn5, looking at how placenta defends itself, use that method.

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Project title

AgeNet: The Longevity AI Atlas

Participants interested in exploring the project (+potential role, e.g. driver, advisor, etc)

Carlos Galicia
JJ Ben-Joseph
Ravi Pandya
Johnny Adams
Guido Putignano
Jordan Baechle

What are you trying to do? Explain it in as few words as possible with zero jargon.

Create a dataset called the Single Cell Longevity Atlas Dataset from the Broad Institute raw data and other sources.

Then create a reference diffusion model from this dataset which maps attributes of the cell (cell type, perturbation, age, ...) to cell state (gene expression vector, or cell images).

Create a service endpoint for the so people can try the model out in the cloud (perhaps on HuggingFace hub).

How is it done today? What are the limitations of the current system?

A lot of existing work is fragmented, e.g. imaging analysis to determine the ageing phenotype of cells. It mostly focuses on one particular type of data. Datasets are not holistic. They focus on one particular type of data, without the possibility of comparing multiple sources.
However, we should still do a review of prior work to ensure we are building on top of existing work rather than duplicating effort.

What is new in your approach and why do you think it will be successful?

It is a specific and well-specified set of executable tasks using the latest well known approaches in artificial intelligence.

What does success look like? Who cares? What is a concrete beneficial capability that could be enabled by this technology?

The project would produce a public dataset and reference model that would be broadly used by researchers in the field.
Short term metrics would be number of downloads and the result of survey on usage.
Long term metrics would be citations in publications that use the model to enable their research.

Are any risks associated with this project? What do you do to mitigate them? Is it possible to differentially advance safety-enhancing aspects of the technology first?

The risks seem lower than other general datasets - it is oriented towards health and longevity, and would be hard to use for harm.

How much will it cost?

$100,000

How long will it take?

Creating the dataset: 2 months
Training a reference model: 1 month

What are the mid-term and final exams to check for completeness?

Mid-term: How does the model approach work on a smaller synthetic dataset where ground truth is known
Final exam: To the validate the model on a completely new dataset that matches the training data, and a survey/feedback on usability by the average scientist.

What are your next steps if awarded a $1k, $2k, or $3k development grant?

Making a proper grant application or funding proposal, some better documentation besides this one slide which can be used to solicit funding from government or philanthropic sources.

The funds will largely be used to hire a technical writer to help polish the proposal.

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Project title: LongevityAction.org

Participants interested in exploring the project (+potential role, e.g. driver, advisor, etc)

Driver: Mark Hamalainen,
Advisors: Christin Glorioso, Aaron King, Aaron Mayer, Nathan Cheng, Anastasia Egorova, Cat Nguyen

What are you trying to do? Explain it in as few words as possible with zero jargon.

Give every person interested in longevity specific options to get involved. Make longevity progress tangible and actionable.

Many of us are frequently contacted by people who want to help, but we often don't have a good answer - provide a resource we can all point people to.

How is it done today? What are the limitations of the current system?

Many of us are contacted by people who want to get involved - but we often don't have a good answer for them.

What is new in your approach and why do you think it will be successful?

Most orgs and companies are internally focused Point people to all the orgs/companies/groups/opportunities.

What does success look like? Who cares? What is a concrete beneficial capability that could be enabled by this technology?

High percentage of visitors end up taking one of the actions (and we'll measure it)

Are any risks associated with this project? What do you do to mitigate them? Is it possible to differentially advance safety-enhancing aspects of the technology first?

No

How much will it cost?

$3000

How long will it take? 2 Months

What are the mid-term and final exams to check for completeness?

Mid:

- Good list of actions, with verified participation of orgs and companies we point people to. Draft here already!
- Draft printed/postcard version with QR code.
- Test deploy at SynBioBeta (hand out postcards and hand out)

Final:

- Website up and running.
- See how many people from SynBioBeta follow through and on which actions.

What are your next steps if awarded a $1k, $2k, or $3k development grant?

- Finish the actions list
- Get website live
- Print postcards with QR code and hand them out at SynBioBeta, on the street, on university campuses, give them to students at local LBF chapters to hand out, etc.

Learn	Longevity Zero to One Course, Bioinformatics Research Network
Network	https://agingbiotech.info/conferences/, LongevityGI
Invest	Longevity Investors Network, Spannr Syndicate
Patronize	Buy art inspired by research to support labs?
Share Your Data	Nonprofit personal health database for research?
Work	LongevityList.com, Spannr.com/jobs
Volunteer	LBF Special Projects; Longevity Global event
Experience	Internships? Residencies?
Donate	Donations mechanism to split evenly between all orgs supporting the campaign?
Follow	Adam Gries, Nathan Cheng
Read	Spannr, Longevity.technology
Listen	Translating Aging, The Drive
Take Surveys	OpenLongevity Attitudes, LBF Bottlenecks
Advocate	Longevity Advocacy Training (talks, social media, IRL), A4Li
Join	Longevity Biotech Fellowship, VitaDAO
Amplify	Send this list to a friend (paper and electronic options)

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Project title: **Nonstop Neurons: HOW TO ADDRESS BRAIN AGING**

Participants interested in exploring the project (+potential role, e.g. driver, advisor, etc)

Tanya; Christin;; Adrian; Larry; Virea; Reason; Joe; Sonia, Lynne, (Lou, Cosmo)

What are you trying to do? Explain it in as few words as possible with zero jargon.

Can we consolidate existing databases - they are currently very fragmented.

Can we promote faster development towards therapies to reverse brain aging by integrating the existing data from an aging-bio perspective?

more concretely:
one possible project: test reduced inflammation in the brain: e.g. CSF1R inhibitors

How is it done today? What are the limitations of the current system?

Exercise and diet – it doesn't work very well, and not well distributed

What is new in your approach and why do you think it will be successful?

- study aging-biology-based risk factors for neurodegeneration
- understand what changes with aging in the brain
- how does brain age differently from other organs?

What does success look like? Who cares? What is a concrete beneficial capability that could be enabled by this technology?

a cure for neurodegeneration. everyone can think well throughout their lifecourse
everyone should care!
concrete beneficial capacity: standard measures of cognitive function

Are any risks associated with this project? What do you do to mitigate them? Is it possible to differentially advance safety-enhancing aspects of the technology first?

Risk: No one works on it.

How much will it cost?

Low hanging fruit projects, such as running clinical trials of CSF1R inhibitors (e.g. Pexidartinib / PLX33970 to clear microglia, could be conducted comparatively cheaply.

Reforming the status of research will be a project of decades and billions in funding.

clincal trial: 30 pts, existing approved drug, $30k/pt → $1m

How long will it take?

Small set of clinical trials: 2-3 years.

Reforming the research community: 20+ years

What are the mid-term and final exams to check for completeness?

have we curated a set of data that is sufficiently internally coherent?

What are your next steps if awarded a $1k, $2k, or $3k development grant?

Lobby?
Can João Pedro de Magalhães (JPM) add something to his database universe? are they approachable and usable enough?
ADRC is the largest federal project, but their tech is behind the curve
a more CZI-like approach?
spatial transcriptomics, etc. – project doesn't exist

$3k: conduct a survey of the 100 top neurodegeneration researchers – what do they need to see from aging perspective? would involve travel, scientific astuteness, openness to breadth of field (pathologists, basic scientists, clinicians, funding bodies? NIA?)

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Project title: Constructive Pessimism

Participants interested in exploring the project (+potential role, e.g. driver, advisor, etc)

- Leon Peshkin
- Brad English
- Raiany Romanni
- Kayla Leung
- Benjamin Anderson

What are you trying to do? Explain it in as few words as possible with zero jargon.

Provide visibility to negative results in the science of longevity. Voice reservations about key scientific directions. Support critical thinking and save the longevity community time, energy and money.

How is it done today? What are the limitations of the current system?

Largely not done today. The current system rewards positive results. Negative results and reservations are published in low impact journals and reduced to backroom gossip. Current landscape is very susceptible to information cascades.

If a reputable scientist is asked for criticisms of a given domain, they can answer with sources but if they publish those answers in a comprehensive overview, it will hurt their career.

What is new in your approach and why do you think it will be successful?

- Funding for scientific writer who will interview people about their reservations regarding research directions.
- In general people are lazy. Researchers and interested parties don't incur the time required to research comprehensive criticisms of a domain of interest, however if there was a comprehensive overview that was considered to be reputable, more would incur the time to educate themselves on critiques.

What does success look like? Who cares? What is a concrete beneficial capability that could be enabled by this technology?

- Demonstrating to skeptics that the field is conscientious.
- Integrations of critical thinking into public debate.
- Normalization of people seeking criticism of their work.
- People in the space are educated about reservations.

Are any risks associated with this project? What do you do to mitigate them? Is it possible to differentially advance safety-enhancing aspects of the technology first?

- Hurting people's feelings.
  - Enroll professional journalists and writers with high standards of journalistic integrity.

How much will it cost?

- $15,000 - $25,000/article

How long will it take?

- 2-3 months/article.
  - Articles can be written in parallel.

What are the mid-term and final exams to check for completeness?

- Publish a preprint of first article on bioxarchive. Leave up for 3 months for peer review, defense commentary. incorporate feedback. Publish.

What are your next steps if awarded a $1k, $2k, or $3k development grant?

- Launch a wiki-style site and sponsor the first article for a constructive write-up critiquing methylation clocks.
  - Interview 10 scientists for anonymous critiques, but include information about their affiliation so that credibility of comments are somewhat vetted.

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Project title: Partial Reprogramming Bounceback and Master Regulators of Aging

Participants interested in exploring the project (+potential role, e.g. driver, advisor, etc)
Yuri Deigin, Alex Pickett, Cosmo Mielke, Alex Chen

What are you trying to do? Explain it in as few words as possible with zero jargon.

Understand how to prioritize partial reprogramming approaches within the broad context of anti-aging therapeutics. There are some signs that partial reprogramming must be repeated through the lifespan of an animal in order to retain therapeutic benefits. Since partial reprogramming ablates known epigenetic markers of aging, it is possible and perhaps even likely that any bounceback effect to the animals biological age is mediated by extracellular signals, such as factors circulating in serum, neuronal signalling to tissue, or even through distributed representations of age located extracellularly, such as in the ECM.

If there is a bounceback effect, it is important to understand the relative degree of bounceback; the stronger the degree of bounceback (ie, the degree ti which the tissue returns to its approximate chronological age), the greater likelihood that it is driven by a central regulatory system of aging rather than purely local or stochastic effects. If such a master regulator does exist, efforts to drug it may be particularly fruitful and worth further consideration by the longevity community.

How is it done today? What are the limitations of the current system?
Partial reprogramming is usually studied with the intent of driving rejuvenation and extending lifespan. There is a certain element of dose-finding, whereby reprogramming inducers are repeatedly administered until the desired effects are achieved. There is some evidence that repeat dosing is required for long-term rejuvenative effects. (Browder et al 2022). To our knowledge, there is no observed in vitro bounceback effect. This suggests that if a bounceback effect is observed in vivo, that it is driven by an explicit signal.

What is new in your approach and why do you think it will be successful?
We suggest deliberate study of 'null' or 'negative' experimental results in partial reprogramming, ie when partial reprogramming fails to achieve a long-term rejuvenative effects despite short-term confirmation of successful reprogramming. In particular, we would like to see whether biological age bounces back in the weeks and months after reprogramming.

If there is no bounceback effect, then we would remain confident that partial reprogramming should be one of the core efforts of the longevity community. If there is a substantial bounce back effect, it is clearly in the longevity community's interest to understand how that effect is mediated.

What does success look like? Who cares? What is a concrete beneficial capability that could be enabled by this technology?

Success would be a definitive answer to those questions, which would be of interest to anyone exploring therapeutics in the longevity landscape. If a bounceback effect is real and durable, investigation of its biological basis could lead to new therapeutic targets. Further experimental directions include understanding what genetic changes are broadly selected for within animals of different lifespan within closely related genuses, understanding how nutrient sensing feeds into aging and life history, and exploring neural or hypothalamic correlates of the clock.

Are any risks associated with this project? What do you do to mitigate them? Is it possible to differentially advance safety-enhancing aspects of the technology first?

Experimental failure. That said, if a bounceback effect is not observed, it should lead to increased confidence in partial reprogramming approaches.

If a bounceback effect is observed, it would enable a program of research to identify central regulators of aging.

How much will it cost?

The minimal animal experiments are several hundred thousand to a million dollars. Further exploitation of results would require both in vivo research and bioinformatic studies.

How long will it take?

Approximately a year to assess the preliminary question depending on availability of animals an the duration of the in life portion of the experiment.

What are the mid-term and final exams to check for completeness?

Getting input from other partial reprogramming researchers to see whether there already exist definitive data that can address the core question.

Getting input from other researchers that these experiments are of interest and justify the expenditure.

What are your next steps if awarded a $1k, $2k, or $3k development grant?

Further fleshing out an experimental protocol and lab setting.

Longevity events of interest

Dinner recommendations for Monday evening’s self-organized dinners

Restaurant	Address	Distance walk (mins)
Barcha Restaurant	28 Fremont St, San Francisco, CA 94105	2
Town Hall Restaurant	342 Howard St, San Francisco, CA 94105	3
North India	123 2nd St, San Francisco, CA 94105	5
Lao Table	149 2nd St, San Francisco, CA 94105	6
Tokyo Hot Chicken San Francisco	101 California St, San Francisco, CA 94111	6
Per Diem - Financial District	43 Sutter St, San Francisco, CA 94104	7
Henry’s Hunan Restaurant	110 Natoma St, San Francisco, CA 94105	7
Credo	360 Pine St, San Francisco, CA 94104	8
Sam's Grill & Seafood Restaurant	374 Bush St, San Francisco, CA 94104	9
Le Central	453 Bush St, San Francisco, CA 94108	10