XPRIZE HEALTHSPAN | HEVOLUTION | SOLVE FWD

INNOVATION LANDSCAPE & 2025 OUTLOOK

PRIZE REGISTRATION & QUALIFYING SUBMISSIONS

JUNE 2025

WE GRATEFULLY ACKNOWLEDGE THE CONTRIBUTIONS OF ALL THOSE WHO MADE THIS REPORT POSSIBLE:

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INTRODUCTION

In an era where advances in life sciences intertwine with the pursuit of prolonged well-being, the XPRIZE Healthspan initiative emerges as a catalyst for innovation in proactive approaches to extend healthy aging.

This initiative is not just about developing cutting-edge therapeutics; it is also about redefining our approach to extending the healthy, quality years of human life. Our focus will be on three systems crucial to healthy aging: restoring muscular, immune, and cognitive function. These systems were chosen through expert opinion about their relevance to aging and longevity, salience to populations likely to use a developed therapeutic, reliability and utility in Phase II geroprotector trials, and practicality for a global competition.

Conventional medicine is largely reactive, focusing on treating symptoms of injury, illness, or disease once they develop. While this approach extends life in populations with access to care, it doesn't address the root cause of age-related diseases – the biological aging processes themselves. Nor does it address the critical need for accessible and personalized approaches to make these solutions feasible and most impactful for the populations most in need of novel therapeutic solutions. As a result, millions grapple with poor quality of life and related economic challenges in their later years.

Here, we embark on a collective endeavor to develop breakthrough, widely accessible therapeutics and biomedical interventions that provide proactive and personalized solutions and medicines that target the upstream mechanisms of biological aging versus specific disease treatments. Therapeutics that target biological aging processes will propel our ability to address physical and cognitive functional decline, enhance resilience in the face of illness or disease, ultimately delay the onset of disability and death.

In addition, we also seek to catalyze the development of therapeutics that restore function in patients aging with facioscapulohumeral muscular dystrophy (FSHD). Aging with FSHD may accentuate the symptoms associated with muscular dystrophy, such as muscle weakness, loss of fitness, and fatigue. While the underlying genetics, molecular causes, and pathobiology of FSHD have been increasingly understood, the gap to novel therapies remains large.

Success would profoundly change our approach to aging, aging with FSHD, and positively affect quality-of-life and healthcare costs. Working across all sectors, we rigorously test solutions with personalized treatment goals that are also scalable and accessible to consumers, thereby creating a future where aging is full of potential.

This report summarizes data collected from Teams who registered for the XPRIZE Healthspan competition between November 2023 and January 2024. Leading up to the primary registration deadline on December 31, 2024. Teams planning to continue in Semi-Finals (Healthspan) or Finals (FSHD) of the competition were asked to complete a Qualifying Submission and complete a survey to share updates about the status of their competition projects, while some Teams opted not to progress. The majority of data in this report is taken from the completed Qualifying Submissions by Teams fully entered in competition at the end of January 2025.

PRIZE OVERVIEW

Launched in 2023 with an audacious goal, XPRIZE Healthspan is a 7-year, $101 million global competition to revolutionize the way we approach human aging. The competition will incentivize Teams to develop and test therapeutics to improve healthy aging and close the gap between life expectancy and healthspan, or the period of life in reasonably good health, with autonomy, independence, and freedom from age-related disability and major chronic disease. Competing Teams will develop and test therapeutics that restore muscle, cognitive, and immune function by a minimum of 10 years, with a goal of 20 years. The winning Team of the $10M FSHD Bonus Prize must demonstrate a therapeutic treatment that restores muscle function in individuals with stable Facioscapulohumeral Muscular Dystrophy (FSHD).

QUALIFYING SUBMISSION		SEMI-FINALS		FINALS
Research & Development		Proof-of-Concept Clinical Studies		1-Year Clinical Trials in Older Adults
Milestone 1 $10M	▷▷ 40 TEAMS	Milestone 2 $10M	▷▷ 10 TEAMS	Grand Prize Up to $81M
$2M	▷ 8 FSHD TEAMS			$8M

PRIZE TIMELINE

FINAL GUIDELINES RELEASED, PRIMARY REGISTRATION
QUALIFIYING SUBMISSIONS CALL
July 2024

SEMIFINALS JUDGING: MILESTONE 2

START FINALS
Healthspan 1-Year Clinical Studies 2026-2029

FINALS JUDGING & WINNERS ANNOUNCED
Grand Prize Healthspan: up to $81M Total Prize Purse

FSHD Bonus Prize: $10M Total Prize Purse

'23   '24   '25   '26   '27   '28   '29   '30

PUBLIC LAUNCH
November 2023

INTENT TO COMPETE OPENS
November 2023

PUBLIC COMMENT PERIOD OPENS
November 2023-June2024

QUALIFYING SUBMISSIONS JUDGING: MILESTONE 1

START SEMIFINALS
Healthspan Proof-of-Concept Clinical Studies

START FINALS: FSHD
2025-2029

FINALS CLOSE FOR JUDGING
Grand Prize: Healthspan + FSHD Bonus

2025
COMPETITION OUTLOOK

PRE-REGISTRATION & GLOBAL INTEREST

Since the launch of XPRIZE Healthspan on November 29th, 2023, over 600 Teams from around the world have initiated registration for the competition. These Teams represent 60 countries from diverse academic, nonprofit, and commercial industries, and a full range of therapeutic pathways to improve healthspan and facioscapulohumeral muscular dystrophy.
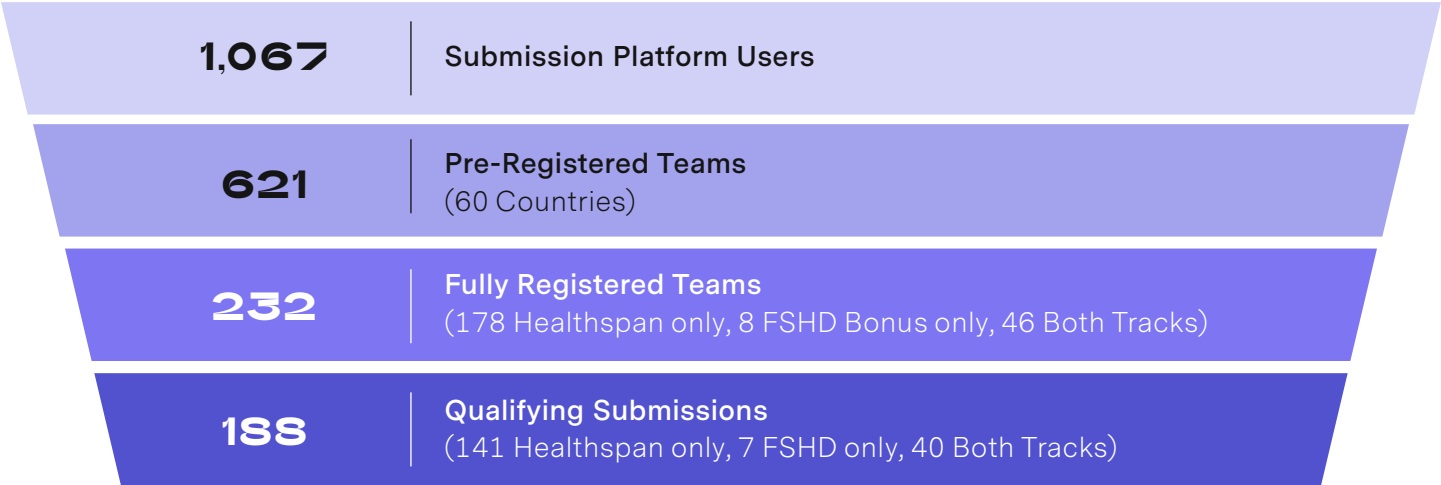
With upwards of 1,000 individual Team members, a broad range of demographics and backgrounds are represented including scientists, clinicians, biomedical engineers, longevity technology leaders, pharmaceutical companies, students, biohacker groups, and other newcomers to the field. The 5 countries with the highest number of Teams with complete pre-registration are the United States (273), China (46), Canada (41), India (30), and Japan (26).

1-5   6-20   21-50   50+
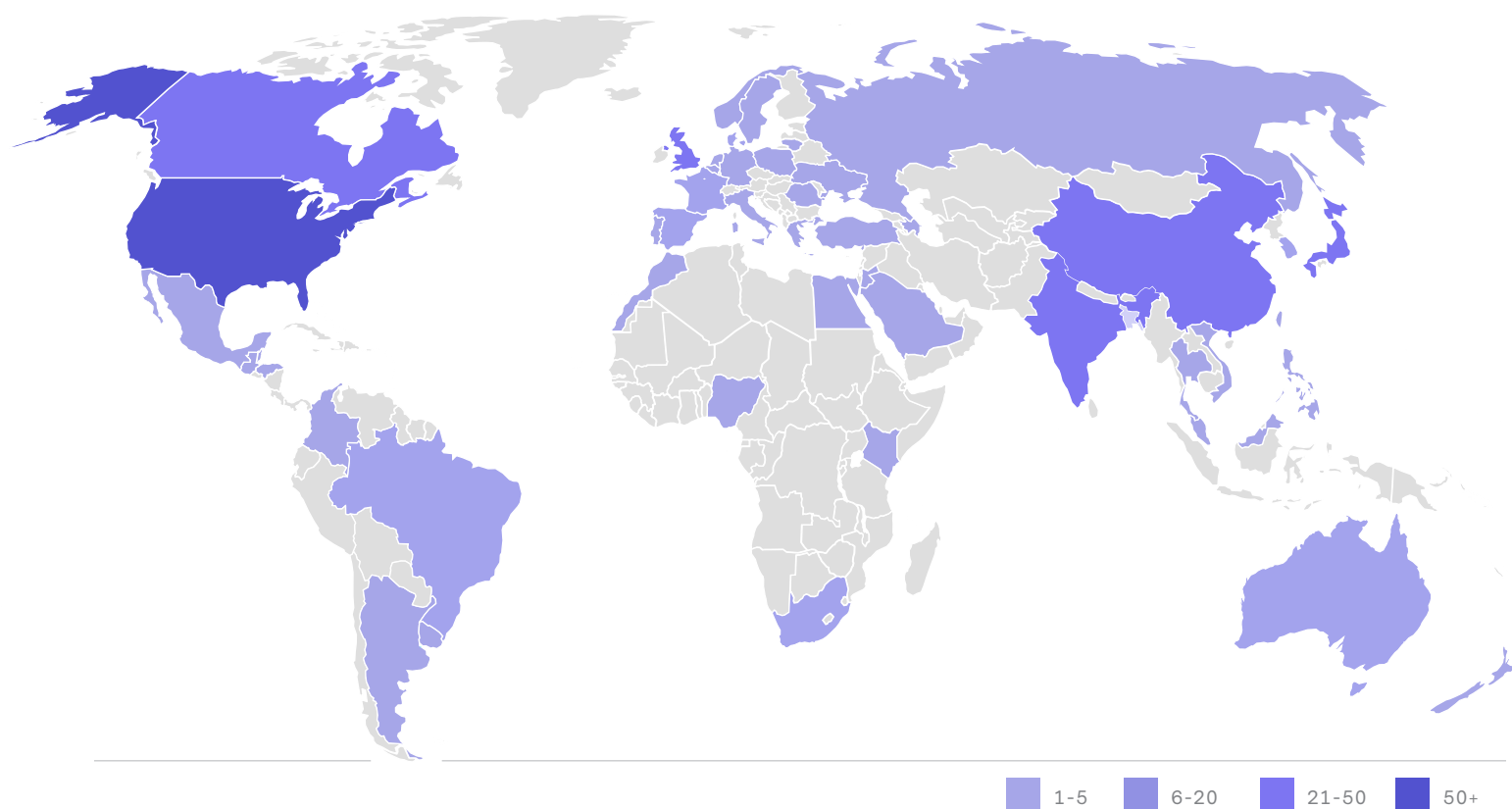
PRIMARY REGISTRATION: BREAKING GROUND

As of January 31, 2025, 621 Teams have signaled an interest or active development of therapeutics by registering to compete in XPRIZE Healthspan, and of these 188 Teams (141 Healthspan, 7 FSHD, 40 dual track Teams) indicate that they are ready to demonstrate a therapeutic solution in clinical trials starting in 2025-2026 by preparing a Qualifying Submission application that details their therapeutic solution, approach to clinical trials, clinical center or environment, and Team composition. The full list of Qualifying Teams is available in Appendix A. These Teams represent a significant portion of the active translational geroscience research space, proactive health and wellness industry, longevity medicine clinics, and longevity biotechnology industry.

These Teams will compete in the Milestone 1 Round of the competition announced in May 2025, where the Top 40 Teams of the Healthspan competition will be announced (Semi-Finalists) and Top 8 Teams of the FSHD Bonus competition will be announced (Finalists) - see Page 52 for Milestone 1 Awardee snapshot; the remaining Qualified Teams will be invited to continue to compete. It is anticipated that additional Teams will join the competition, and late-registration for the competition will not close until 2026 or 2027 at the latest.

1,067	**Submission Platform Users**
621	**Pre-Registered Teams** (60 Countries)
232	**Fully Registered Teams** (178 Healthspan only, 8 FSHD Bonus only, 46 Both Tracks)
188	**Qualifying Submissions** (141 Healthspan only, 7 FSHD only, 40 Both Tracks)

The lines between the Healthspan and FSHD tracks are not solid, though judging and testing of therapeutic solutions between the tracks are independent. Our data suggests that a majority of Teams pursuing FSHD Bonus prize are also pursuing testing of their therapeutic solutions in XPRIZE Healthspan. Of the 54 Teams who submitted an application to the FSHD Bonus Prize, 40 (85%) indicated submissions for both XPRIZE Healthspan and FSHD Bonus; 7 Teams prepared Qualifying Submissions exclusive to the FSHD Bonus.

QUALIFYING SUBMISSIONS: GEOGRAPHIC REPRESENTATION

The Teams entering the competition with completed **Qualifying Submissions** are shown below; of this cohort, 55% are based in North America, 13% in Europe and 28% in Asia. There are relatively few completed submissions in the global south, with only 4% of Teams led by or in partnership with a low- or middle-income country, though such partnerships will be encouraged in the course of competition.

	TOTAL	HEALTHSPAN	FSHD BONUS
N. America	126 (55%)	100 (55%)	26 (55%)
S. America	3 (1%)	3 (2%)	0 (0%)
Africa	4 (1%)	3 (2%)	1 (2%)
Asia	64 (28%)	50 (28%)	14 (30%)
Oceana	3 (1%)	3 (2%)	0 (0%)
Europe	30 (13%)	24 (13%)	6 (13%)
Total	**228**	**181**	**47**

Qualifying Teams represent numerous countries, each with unique considerations for medicines or therapeutic development, testing, resourcing needs, and regulatory landscapes; the ten countries with highest numbers of Qualifying Submissions are shown below.

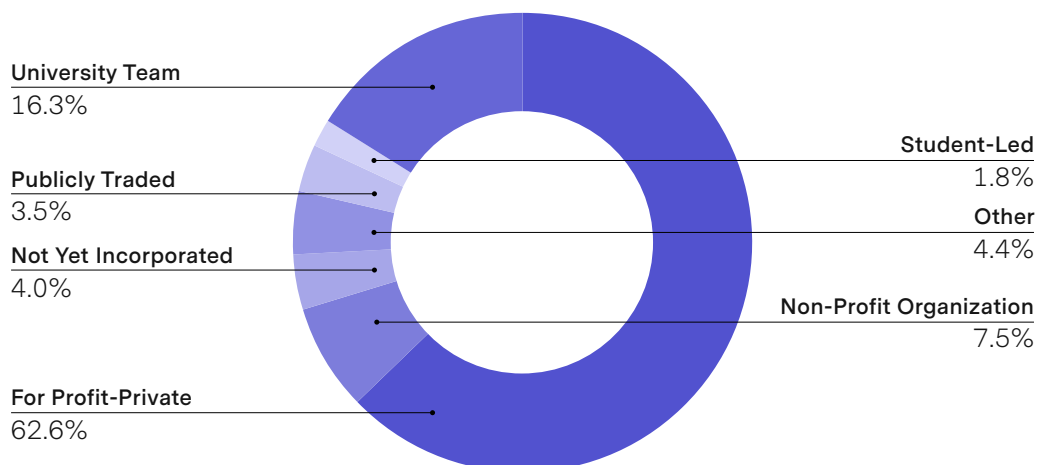|	TOTAL	HEALTHSPAN	FSHD BONUS
United States	115	91	24
Japan	25	19	6
China	22	18	4
Canada	11	8	2
United Kingdom	7	5	2
South Korea	5	4	1
Malaysia	4	2	2
India	4	3	1
Spain	4	3	
New Zealand	3	3	

CLINICAL TRIAL LOCATIONS: HEALTHSPAN TEAMS

The majority of Teams are currently conducting, or plan to conduct, Healthspan clinical trials in the United States, Japan, and western Europe, with additional activity in Canada, Australia, and Asia/Pacific. While most Teams plan to conduct trials in the same region as their headquarters, ~10% plan to do so in another country. Within this group, a significant portion are based in the United States, with 5 of 6 Teams planning to conduct trials in other regions (South Korea, The Netherlands, France, The Bahamas, and Israel). This may be due to regulatory environments, costs, or previously established partner locations.

COMMERCIAL, CLINICAL, AND SCIENTIFIC SECTOR REPRESENTATION

The healthspan field and longevity industry comprises a wide range of interested commercial, clinical, and scientific sectors. We consider these sectors as falling into broad categories, simplified as Academic-Industry or Spin-off, Biotech-Clinic Partnerships, Biotech, Clinic, Consortium, Individual or Small Group, Residential, Student-Led or University. These tracks are described in more detail in later sections of this report.

ALL TEAMS

University Team
16.3%

Publicly Traded
3.5%

Not Yet Incorporated
4.0%

For Profit-Private
62.6%

Student-Led
1.8%

Other
4.4%

Non-Profit Organization
7.5%

HEALTHSPAN TEAMS

University Team
17.8%

Publicly Traded
2.8%

Not Yet Incorporated
4.4%

For Profit-Private
61.1%

Student-Led
1.1%

Other
4.4%

Non-Profit Organization
8.3%

FSHD TEAMS

University Team
10.6%

Publicly Traded
6.4%

Not Yet Incorporated
2.1%

For Profit-Private
68.1%

Student-Led
4.3%

Other
4.3%

Non-Profit Organization
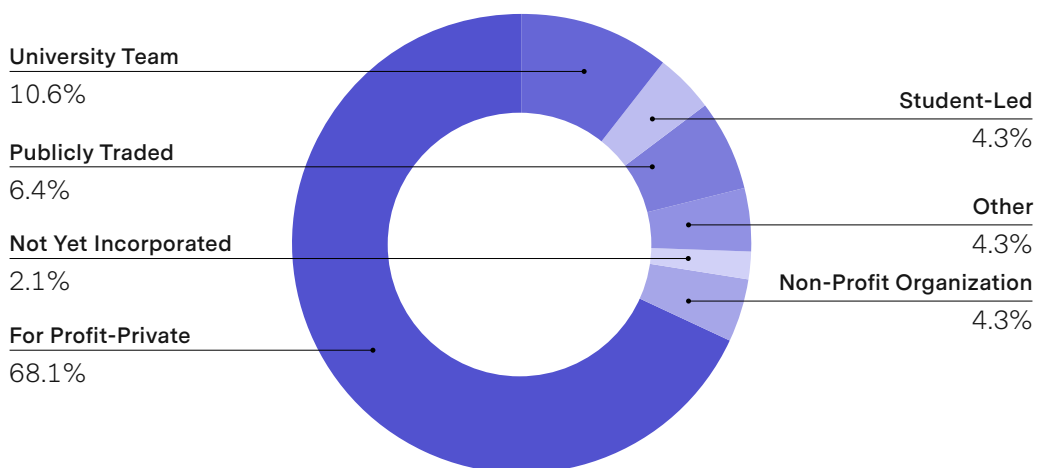4.3%

The competition attracts a diverse range of participants, with a strong emphasis on for-profit ventures. Across all tracks, 63% of Teams are private for-profit entities, while non-profit organizations account for 7%, and publicly traded companies make up 4%. Teams with a primary affiliation as a University represent a significant portion (16%), reflecting strong academic engagement in the innovation pipeline. These trends were roughly consistent across prize tracks, though FSHD participation skews even more toward private sector ventures compared with Healthspan.

TEAMS BY SECTOR

QUALIFYING SUBMISSIONS BY PRIMARY SECTOR IDENTITY

Due to cases of team co-leadership, teams may fit in multiple categories
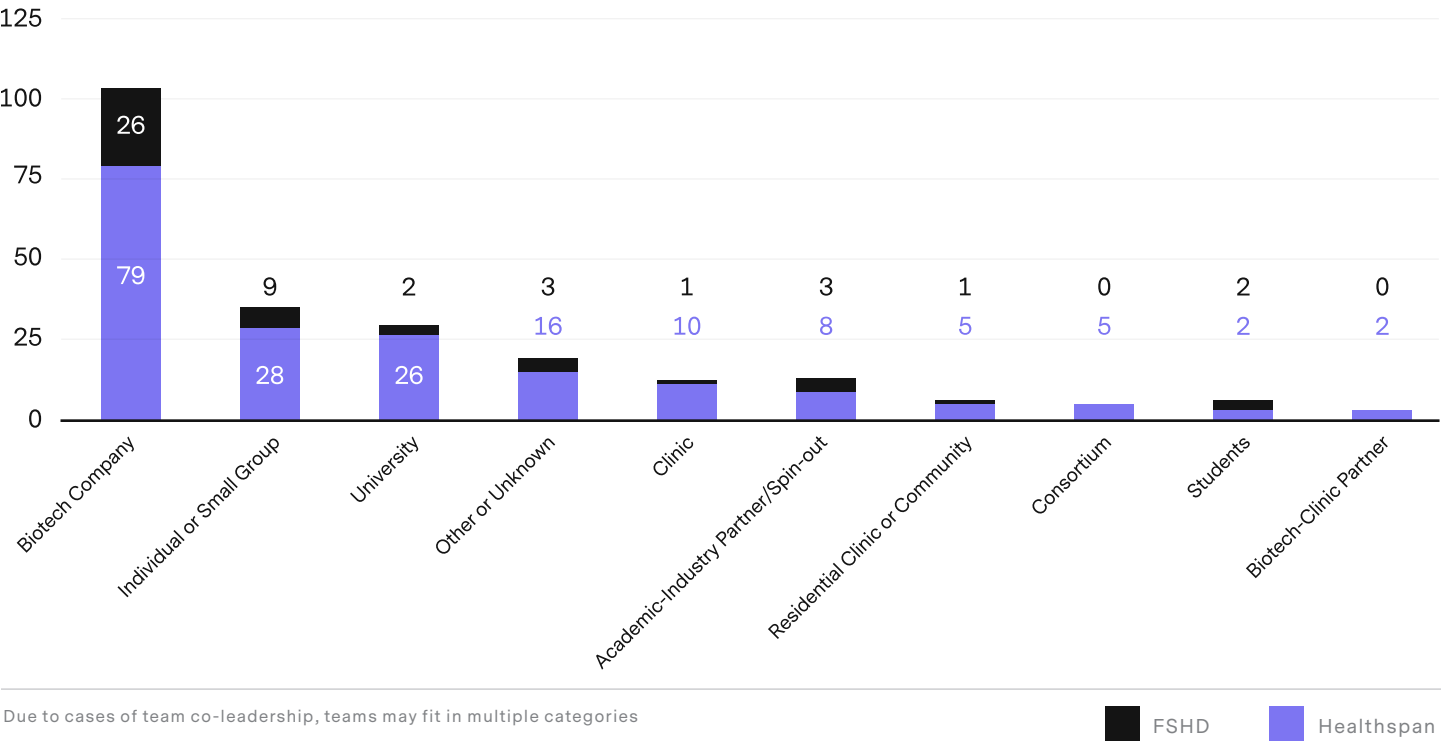
■ FSHD   ■ Healthspan

The competition draws participants from a range of sectors, reflecting the diverse approaches to innovation in Healthspan and FSHD. Biotech companies (including a wide range from start-ups to more established pharmaceutical companies) form the largest share of entrants in both tracks, with 79 Teams in Healthspan and 26 in FSHD. This dominance suggests that the competition primarily attracts Teams focused on translational research and commercial development, particularly within biotechnology.

University-affiliated Teams also play a significant role, with 26 Teams in the Healthspan track and two in the FSHD track; this aligns with the strong academic engagement observed in partnership data and highlights the role of universities in fostering early-stage innovation. Additionally, the presence of academic-industry partnerships or spin-outs suggests that some university-led research Teams are successfully transitioning toward commercialization.

Smaller, independent Teams—categorized as individuals or small groups—make up a notable portion of the competition. This indicates that a substantial number of entrants are still in the early conceptual stages, possibly seeking collaboration or funding to develop their innovations further.
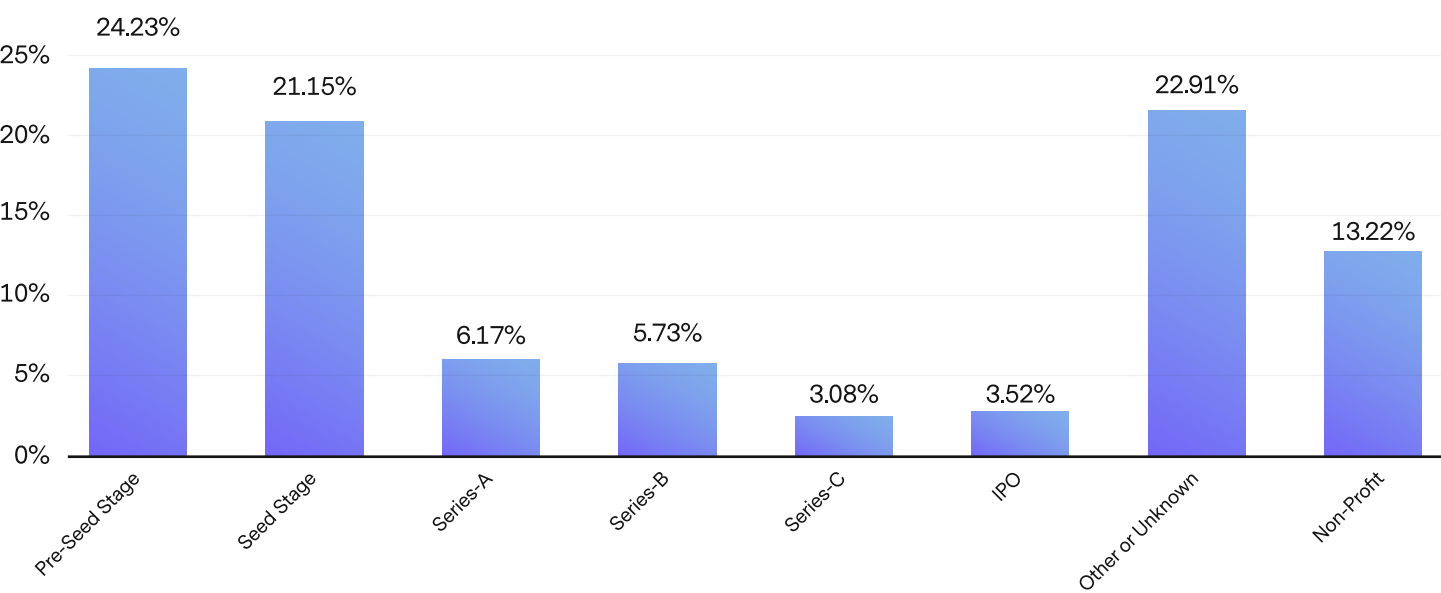
Beyond traditional biotech and academic sectors, the competition includes a range of other participants. Clinics, including residential clinics or community-based entities, represent a small but meaningful subset, particularly in Healthspan - reflecting an interest in multi-modal and lifestyle-based interventions. The presence of consortia and biotech-clinic partnerships, while limited in number, points to emerging collaborative models that integrate clinical and research expertise.

Overall, the sectoral distribution highlights the competition's broad reach across academia, industry, and clinical practice. However, given that Teams may include partnerships spanning multiple sectors, the boundaries between these categories are fluid, reflecting the interdisciplinary nature of innovation.

COMMERCIAL STAGE

The commercialization landscape for innovations within this competition is predominantly in the early stages, with a strong presence of Pre-Seed and Seed-funded ventures. Across all tracks, over 40% of Team entries fall into these categories, highlighting the emerging nature of these fields and the ongoing search for foundational investment.

TEAM COMMERCIAL STAGE AND FUNDING: HEALTHSPAN AND FSHD TRACKS COMBINED

Bar chart values:
- Pre-Seed Stage: 24.23%
- Seed Stage: 21.15%
- Series-A: 6.17%
- Series-B: 5.73%
- Series-C: 3.08%
- IPO: 3.52%
- Other or Unknown: 22.91%
- Non-Profit: 13.22%

HEALTHSPAN TEAM FUNDING STATUS
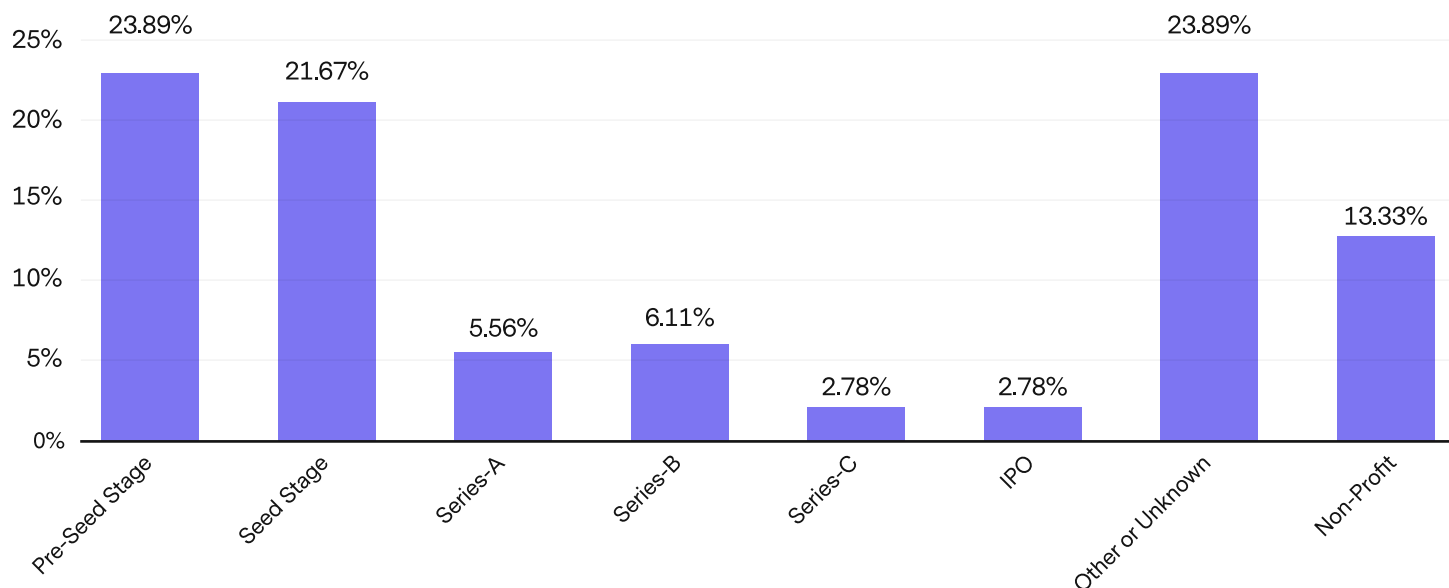
FSHD TEAM FUNDING STATUS
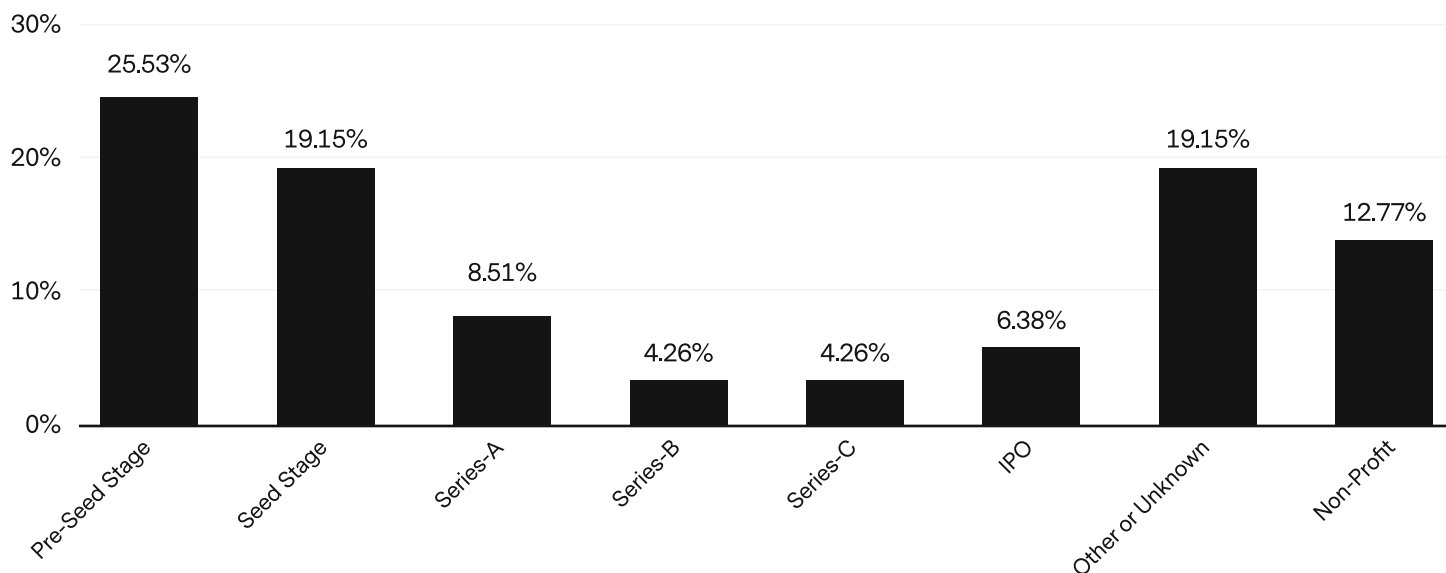
Progression into later funding stages is limited, with Series A and beyond accounting for a smaller share. FSHD exhibits a higher percentage of Series A funding (8.51%) compared to Healthspan (5.56%), suggesting a slightly stronger push toward early commercialization among competition entrants. However, Series B and C funding levels remain relatively low across both tracks, underscoring the nascent nature of investments in these areas.

IPO activity is modest in both tracks, with FSHD Teams (6.38%) showing a slightly higher transition to public markets than Healthspan Team entrants (2.78%).

ACADEMIC ENGAGEMENT: TEAMS AND KEY PARTNERSHIPS

Our teams were queried by survey to describe not only their primary sector identity (e.g. commercial biotech, university, or medical clinic), but to also indicate the key partnerships and collaborations included in their team. Academic participants and partnerships play a significant role in this competition, with 30% of all Teams either led by or in partnership with an academic institution. Healthspan Teams show a slightly higher rate of academic partnerships (31%) compared to FSHD Teams (26%), indicating a strong academic scientific research foundation among the teams' key partnerships.

Among academic participants or partners in both tracks, the vast majority (90%) are with R1 doctoral universities (or their international equivalents). R1 doctoral university is the highest designation given by the Carnegie Classification of Institutions of Higher Education to universities that demonstrate very high levels of research activity, characterized by significant research expenditures and a substantial number of doctoral degrees awarded. Only 4% of partnerships are with R2 universities, and 6% involve high school or middle school Teams.

Breaking it down by track, Healthspan partnerships are most concentrated at R1 institutions (93%), with a smaller proportion of high school/middle school involvement (4%). FSHD is likewise predominantly partnered with R1 institutions, albeit at a lower rate (75%).

SELECT TOP 40 HEALTHSPAN ACADEMIC PARTNERS

The participating academic institutions in this competition largely come from highly ranked universities, with 50 Teams affiliated with institutions ranked within the top 400 globally, according to the US News & World Report[1] rankings. A significantly smaller number of institutions fall into lower ranking tiers, with only four Teams linked to universities ranked between 401 and 801, eight Teams between 801 and 1201, and just four Teams from institutions ranked lower than 1201.

This distribution suggests that participation in this competition is predominantly driven by top-tier research institutions. The high concentration of R1 universities, coupled with their strong global rankings, indicates that much of the innovation pipeline is being shaped by well-established, research-intensive institutions.

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[1] usnews.com/education/best-global-universities/search

UNIVERSITY PARTICIPANT WORLD RANKINGS
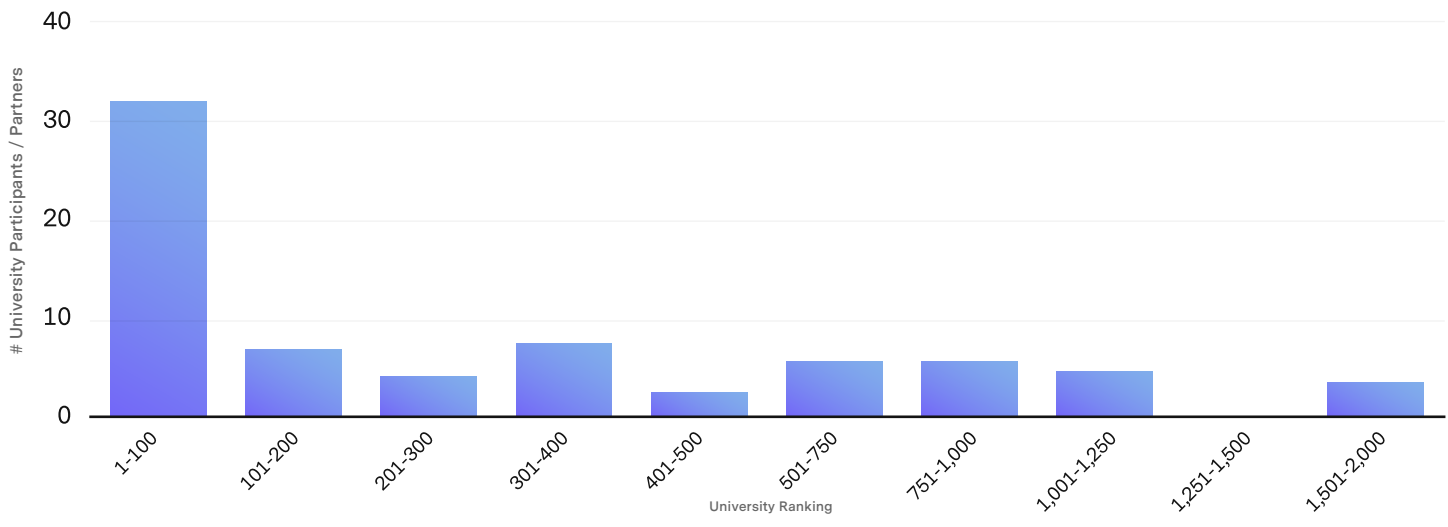
Source: US News & World Report Rankings

Participating working Teams vary widely in size, with the smallest Teams consisting of just one member and the largest Team comprising 100 members. The most common size is 10 Team members, and the average Team size is 8-9 individuals.

Within these Teams, data reveals significant gender diversity trends and stark geographical disparities. In terms of gender identity, 52% of Teams identify one Team workstream lead as female or non-binary, with 15% of Teams identifying multiple female or non-binary workstream leads. The remaining 33% of Teams have all-male Team leadership.

Despite gender diversity across Teams, geographic data reveals under-representation of Teams from Low- and Middle-Income Countries (LMICs). 96% of Teams have no LMIC involvement, while only 3% are LMIC-led. The underrepresentation of LMIC Teams points to an opportunity for more global approaches or partnerships to advance healthspan and FSHD innovation.
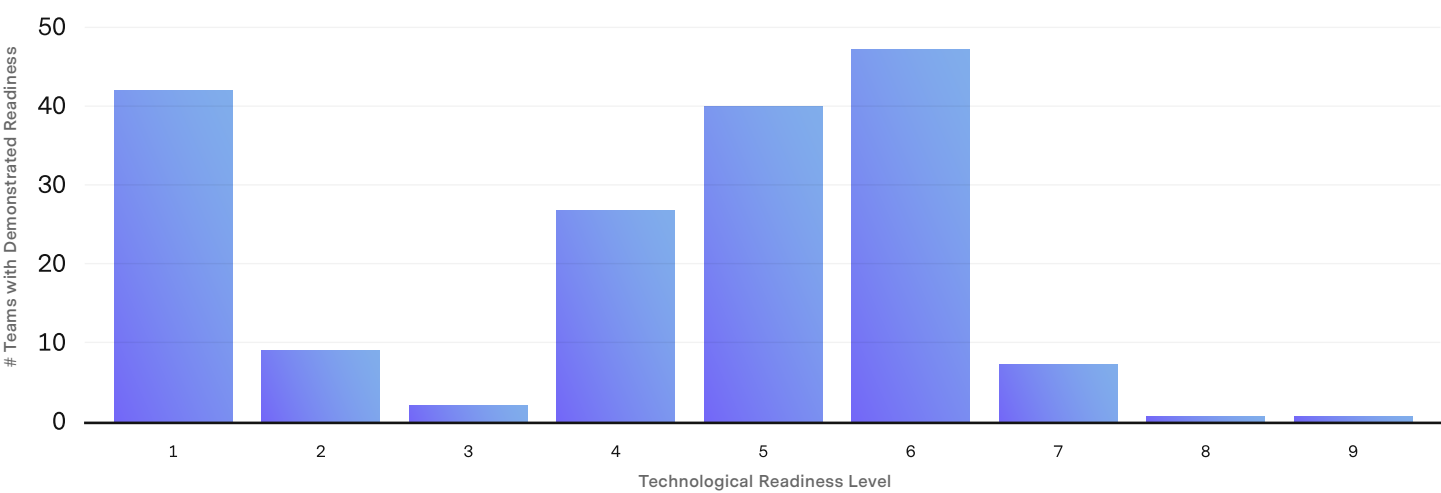
TEAM READINESS
& EVIDENCE

XPRIZE HEALTHSPAN

TEAM READINESS

Technological Readiness Level (TRL) is a framework used to benchmark the state of development of new technologies used in prior XPRIZE Competitions. The TRL scale ranges from 1 (hypothetical models) and 2 (Lab-level research of basic principles) to 9 (Commercially and clinically proven technology). These TRL Categories were adapted for therapeutic solutions for Healthspan and FSHD Bonus based on information provided by Teams in their Technical Applications of the Qualifying Submissions documents.

TECHNOLOGICAL READINESS LEVEL

EVIDENCE CATEGORY	TRL SCORE	TECHNOLOGICAL READINESS LEVEL (TRL) NOTES
Basic Research & Discovery	1	Hypothetical model (no empirical evidence)
	2	Synthetic discovery platform or observational data in clinical cohorts
Pre-Clinical to Clinical Translation	3	Testing in cells, organoids, or tissues or in short-lived animal model
	4	Testing in mammalian models
Clinical Testing[2]	5	Phase 0 study or clinical case studies
	6	Phase I - IIa clinical trial in patient populations
	7	Phase IIb - Phase III clinical trial in patient populations
Clinically Proven	8	Multiple clinical trials conducted with solution or meta-analyses
	9	Clinical guidelines / commercially and clinically proven technology in population proposed for competition

[2] Phase 0 trials test an intervention's safety, tolerability, and drug metabolism, most often in healthy volunteers. Phase II focuses on initial safety and Phase III assesses optimal doses and efficacy in a larger patient group.

XPRIZE has not mandated any specific technology readiness level for winning solutions at the Milestone 1 award stage, but the competition requirements imply a level of technical maturity: the key requirement of the Semi-Final and Final round of the XPRIZE Healthspan and FSHD Bonus competitions is that the therapeutic must be demonstrated in humans in clinical studies. This requires Teams to submit protocols and receive regulatory approvals, and to adhere to local regulations for safety and ethics. While the therapeutic does not need to receive FDA approval to test an investigational agent or equivalent evidence of plausibility or potential effects related to competition were provided by Teams. Competitive candidates at Milestone 1 provided preliminary evidence in the TRL range of 3 (empirical testing in cells, organoids, human tissues, or animal models), to 7 (evidence in clinical trials), although highly innovative solutions with preliminary evidence at lower readiness levels could advance and be awarded at Milestone 1.

DEMONSTRATED EFFECTS TO DATE

The distribution of preliminary demonstrated evidence across biological systems highlights the diversity of approaches within the Healthspan Track. While no single system dominates, a significant portion of Teams provide supportive evidence they collected suggesting primary effects in immune, muscle, or cognitive systems. Notably, 32% of Teams demonstrated evidence in two or more of these systems, while only 3% showed evidence across all three core systems - demonstrating their solution may have a plurality of effect.

The 'Other' category of preliminary evidence most commonly included demonstrated preclinical or clinical effects on 1) epigenetic clocks or similar biomarkers; 2) other physiological systems, such as cardiovascular, pulmonary, metabolic, or kidney function; 3) specific disease classes, including osteoarthritis, chronic kidney disease, cancer, or genetic or progeroid diseases.

The 'None' category included solution sets that were hypothetical only or for which the Team did not provide supportive preliminary evidence collected by their Team. These solutions could also include highly novel machine learning supported approaches and algorithms for drug discovery, repurposing, or screening, which could be tested empirically in subsequent rounds of competition.

HEALTHSPAN TEAMS: PRELIMINARY EVIDENCE BY SYSTEM

Bar chart. Y-axis: # Teams, from 0% to 30%.
- Immune: 17.2%
- Muscular: 15.9%
- Cognitive: 15.1%
- Other: 27.2%
- None: 24.3%
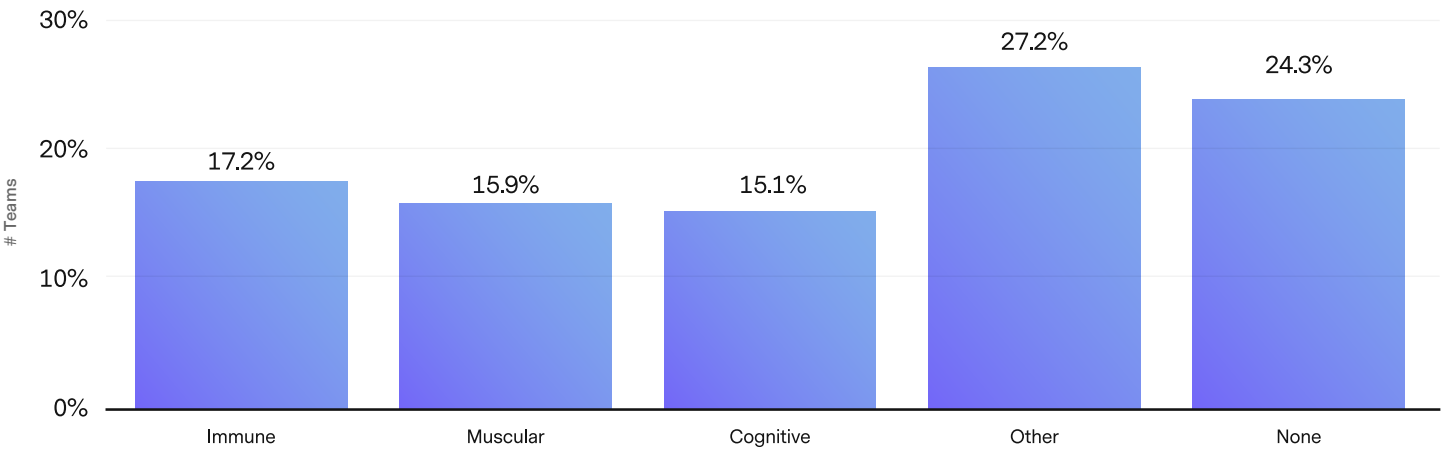
PRIOR HEALTHSPAN DATA & PATIENT POPULATIONS

The preliminary data cited by the Healthspan Teams includes prior trial results from interventions tested in varying patient groups. Notably, the largest portion of the data cited focused on Alzheimer's disease (12%) and mild cognitive impairment (7%), indicating existing emphasis on cognitive aging. Muscular and metabolic health were also represented, with sarcopenia (4%), metabolic syndrome (4%), osteoarthritis (5%) and diabetes (2%) included.

Other systemic conditions including mitochondrial impairment (4%) and cancer (4%) were also present, but less represented.

FSHD DEMONSTRATED EVIDENCE

The distribution of demonstrated evidence in the FSHD track reflects the disease's primary impact on the muscular system, with 46% of Teams reporting evidence in this area - far exceeding those with evidence in other systems. Given FSHD's hallmark of progressive muscular degeneration, this focus aligns with the core pathology of the disease. 8% of Teams included evidence related to the immune system. The immune system has been implicated in contributing to FSHD disease pathology and progression, and the FSHD applications addressing immune function tend to focus on diminishing these contributions in an attempt to slow FSHD disease progression.

Notably, 34% of Team applications did not include demonstrated evidence in any system, suggesting the earlier-stage nature of much of the FSHD Teams' research - where many efforts are in the R&D and pre-clinical phases.

STATUS OF OPERATIONS

Teams are entering competition at varying levels of progress toward goals of testing their therapeutic(s) in clinical trials by 2025-2026 (Healthspan) and 2028-2029 (FSHD). While some have previously completed proof of concept or feasibility studies (e.g. Phase 0 to Phase II) or are currently operating such clinical trials, many are still in the design and development phases. 19-20% of Teams in each track are in the Research & Development testing phases with basic laboratory work or preclinical testing in animal models.

Within the Healthspan track, 50% of Teams cite evidence from Clinical Trials or use clinical case studies for preliminary demonstration of effectiveness.

FSHD evidence shows strong momentum in early development, with 19% in R&D stages and 40% in pre-clinical stages, indicating a significant focus on discovery and translational research. In contrast, Healthspan Teams show further progress, with 50% already in clinical testing - suggesting faster progression toward real-world application.

65% of Teams self-report that they are currently ready to conduct clinical trials (41%) or 'will be ready' for trials by 2026 (24%). Teams provided timeline projections for when they expect to initiate participant recruitment and clinical testing in pursuit of the XPRIZE Healthspan or FSHD Bonus prizes.

REGULATORY APPROVALS STATUS

A critical step for preclinical to clinical translation of therapeutics is regulatory approvals to conduct human subjects research, including ethical approval or applications for an investigational new product to agencies such as the Food and Drug Administration, European Medicines Agency, the Pharmaceuticals & Medical Devices Agency (Japan), National Medical Products Administration (China), or others. Only 7.5% have received approvals, leaving a large number of Teams still waiting on this critical step.

HEALTHSPAN TEAMS: REGULATORY APPROVAL STATUS
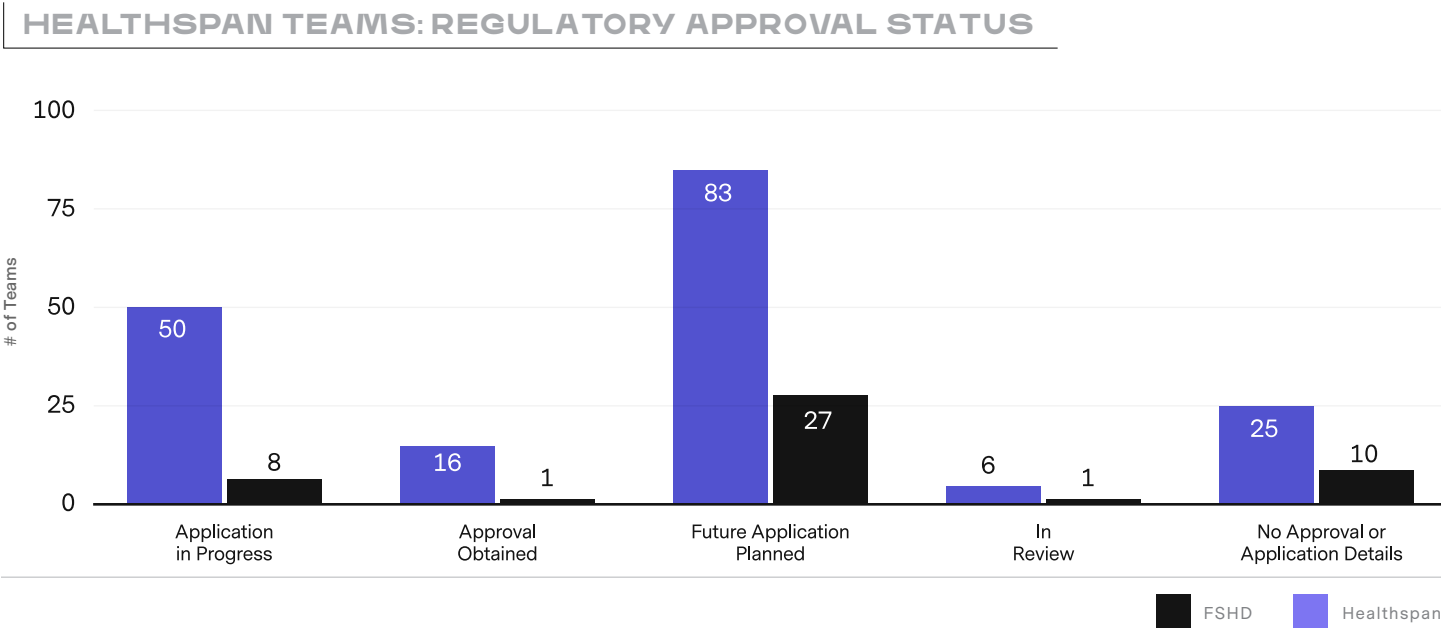
The geographic distribution of regulatory approvals among competition entrants reveals progress trends when compared with Team entrant distribution. For example, while North American Teams represent the largest share of Teams with existing approvals (47%), their proportion is slightly lower than their overall presence in the competition (55%), suggesting that Teams from other regions are advancing with regulatory approvals at comparable or higher rates. European Teams, despite comprising only 11% of total entrants, account for 29% of Teams with existing regulatory approval, suggesting a strong track record in securing regulatory clearance. Meanwhile, Teams based in China show a particularly high approval rate, making up 19% of approved entrants despite representing just 10% of total Teams.

BARRIERS & RESOURCE NEEDS

CLINICAL

## FUNDING, COMPETITION, REGULATORY, TRIALS

AGING, DATA, BARRIERS, LONGEVITY, RESEARCH, TEAM

TIMELINE, COMPLEX, TIMEFRAME, SCALE, RESOURCES, BIOMARKERS, EFFICACY, THERAPEUTIC, FINANCIAL, STUDY, DEVELOPMENT, COSTS, PARTICIPANTS, RECRUITMENT, VALIDATION, MANUFACTURING, SIGNIFICANT, CAPITAL

Self-reported barriers in the Healthspan and FSHD tracks share some common challenges, but also highlight distinct concerns and opportunities unique to each field. Close to 60% of surveyed Teams mentioned "clinical" and "trials" 34% as a major barrier reflecting the challenging nature of running human trials within the constraints of the competition. The most prominent similarity is funding - reported as a barrier by 32% of Healthspan Teams and 47% of FSHD Teams surveyed. This suggests that while resourcing is a significant hurdle across both tracks, it appears to be more acute for FSHD efforts. Both tracks also cited regulatory and clinical trials as obstacles, though these were framed slightly differently, with FSHD Teams more likely to mention recruitment challenges (likely due to the smaller population affected by this rare disease, while Healthspan Teams mentioned FDA, TGA and other regulatory bodies).

While Teams in both tracks noted timeline challenges, FSHD Teams noted unique challenges related to scalability and manufacturing as well as AI optimizations while Healthspan Teams did not. Within the FSHD domain, scalability and manufacturing challenges related to transitioning from prototypes to production were prominent. AI optimization challenges facing the FSHD Teams included model refinement and improving real-time personalization. These challenges were not mentioned by Healthspan Teams. These differences suggest that while both tracks face financial and regulatory barriers, FSHD participants have a greater focus on operational hurdles related to trials, production, and technology refinement, while Healthspan Teams report a focus on broad regulatory and timeline concerns.

REPORTED BARRIERS BY TRACK
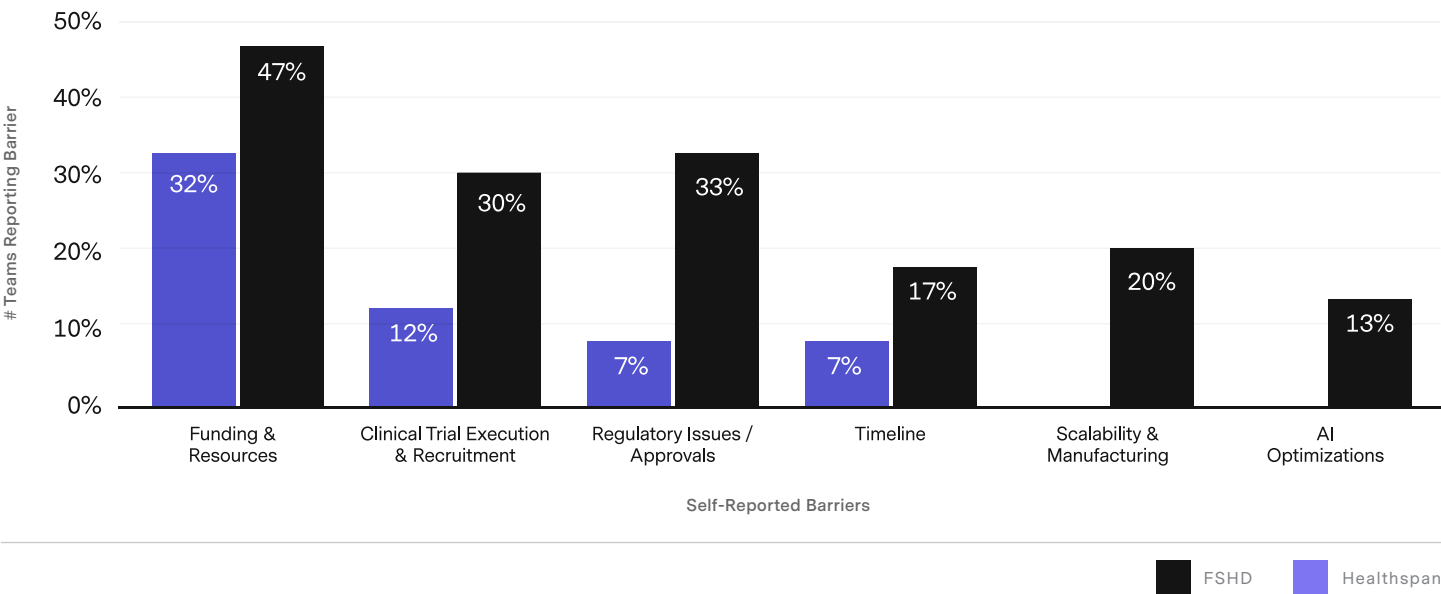
As funding and resourcing is the top concern for both tracks, it is not surprising that 72% of all Teams report that they are currently seeking additional funding, with only 15% reporting they are not and 13% declining to respond. There is no significant variation by track.

Given the importance of funding to Teams, there is broad interest in seeking multiple types of capital. 57% of Teams report seeking at least three different forms of capital, with a clear preference for equity, grants, and strategic partnerships.

Of these, corporate equity and strategic partnerships emerge as the most popular form of funding, with 57% of Teams seeking each. The prevalence of interest in corporate equity suggests that many Teams are looking for long-term growth and value-sharing opportunities, where investors can take an ownership stake in the Team or therapeutic. Similarly, the strong interest in strategic partnerships reflects an interest in shared resources or expertise.

Academic/University Grants are also highly sought (by 42% of Teams), along with Government Funding (51%) and Philanthropic Funding (50%). This may reflect a preference for non-equity funding that may pose less financial risk compared to debt options.

Debt financing, including project-related and convertible debt, is less popular overall, with only 4% and 16% of Teams (respectively) expressing interest. Corporate debt is similarly unpopular, with only 3% of Teams seeking this funding structure.

DESIRED CAPITAL SOURCES (BOTH TRACKS)
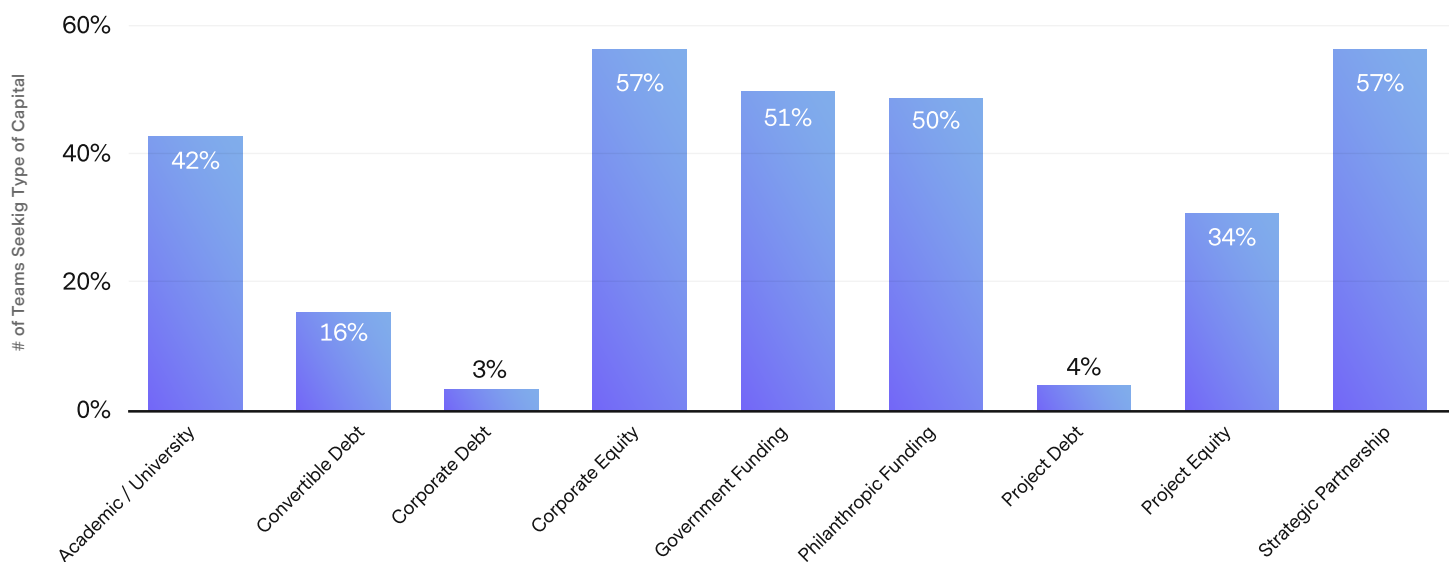
CLINICAL

CLINICAL RESEARCH, PARTNERSHIPS, SUPPORT

DEVELOPMENT, BIOMARKER, PHARMACEUTICAL, REGULATORY, COMPANIES, FINANACIAL, HEALTHSPAN, STRATEGIC, COLLABORATIONS, FINANCIAL, PHARMA

THERAPEUTICS, LABORATORIES, ANALYSIS, HEALTH, LONGEVITY, BIOTECH, RESOURCES, ACADEMIC, NETWORKS, CAPITAL, MARKETING, SCALING, AGING, GRANTS, VENTURE, VALIDATION, COMMERCIALIZATION, EXPERTISE, ANALYSIS, INSTITUTIONS

Funding emerged as a critical need among surveyed Teams (29.9%), with frequent mentions of "investment" (7.7%) and "financial" (11.1%), further emphasizing the financial constraints Teams are experiencing in research and development. Beyond financial support, strategic partnerships are also a significant area of interest, with 23.1% of Teams identifying these as a crucial need across multiple domains. Desired partnerships span collaborations with pharmaceutical companies, academic institutions, clinical research organizations, and corporate/industry partners - with corporate/industry partnerships identified as the top desired partnership.

In addition, the high frequency of "clinical" (23.1%), "trials" (28.2%) suggests a need for partnerships to help translate new products or basic research into clinical testing. Teams requested assistance including access to research sites, study design, and long-term follow-up resources.

"Regulatory" (14.5%) support and technical and scientific support were mentioned consistently, suggesting that many organizations are concerned about navigating the complex approval process, or see this concern as something to consider at a later stage. Industry-specific collaborations, particularly with pharmaceutical companies were mentioned frequently "pharmaceutical" (21.3%) as Teams look towards commercial pathways and ensuring market access post-competition. Teams also mentioned "biomarkers" (9.4%) in connection with identification, validation, and analysis of their proposed interventions.

INNOVATION LANDSCAPE

In the rapidly evolving field of healthy aging and longevity biotechnology, the variety of therapeutic interventions being proposed highlights the importance of modality, mechanism of action, and target system in optimizing healthspan. Modality refers to the specific approach or method being utilized—whether it's pharmacological, biological, lifestyle-based, or a combination of these. Each modality brings its own potential to influence the body's systems in unique ways, and understanding how different methods work together is essential to promoting long-term health.

The mechanism of action of a therapy is equally important, as it dictates how an intervention interacts with the body to promote cellular repair, reduce damage, or stimulate regeneration. For example, therapies such as senolytics aim to clear senescent cells and reduce their pro-inflammatory secretome, while mTOR inhibitors alter nutrient sensing to maintain cellular function. The target system—whether muscular, cognitive, immune, or metabolic—determines where these interventions have the most impact, though ideally a plurality of effects would be evidenced in multiple systems.

FSHD disease pathology is driven by the mis-expression of a toxic gene DUX4, leading to muscle degeneration. Therapeutic strategies for FSHD include muscle strengthening through lifestyle and nutritional approaches similar to those being explored in Healthspan. In addition, innovative direct silencing of the toxic gene, gene editing and/or immune modulation are being explored.

A comprehensive approach, where modalities, mechanisms, and target systems are carefully considered and aligned, is critical in fostering an integrated strategy for extending healthspan. By understanding and addressing the complex interplay of biological systems, these innovative therapeutic interventions aim to ensure that individuals not only live longer but maintain their vitality and functionality throughout their lifespan.

HEALTHSPAN TEAM PROPOSED INTERVENTIONS

The proposed therapeutic interventions for extending healthspan emphasize a range of approaches, with the top 15 approaches in healthspan shown on the following page with nutraceuticals and supplements being the most commonly proposed - whether alone, as a monotherapy, or in combination with other nutraceuticals or modalities. Substances like Nicotinamide Mononucleotide (NMN), resveratrol, and various vitamins and antioxidants are frequently included. Other common approaches include stem cell therapies and extracellular vesicles treatments, or other biologics with a focus on regenerative approaches and maintaining cellular and tissue function over time. Some Teams are exploring gene therapies to reverse age-related changes in gene expression for a precise, molecularly-targeted approach to healthy aging.

While these medical treatments explore innovative approaches to healthy aging, staples like diet and exercise remain a central element in many proposed strategies. Proposed dietary interventions often focus on specific food patterns and nutrients designed to support cellular health, reduce inflammation, and promote metabolic function. Similarly, physical activity, including aerobic exercise, strength training, resistance exercises, and high-intensity interval training, is frequently proposed as a way to enhance vitality.

Many teams propose interventions that are Multi-Modal, combining lifestyle interventions like diet and exercise with nutraceuticals, new or repurposed drugs, gene therapies, stem cell treatments or others. These Multi-Modal interventions may be personalized to the individual to address the multifaceted nature of healthy aging.

TOP HEALTHSPAN PROPSOSED INTERVENTIONS	# OF MENTIONS
Nutraceuticals, Supplements, or Functional Foods	16
Stem Cells or Stem Cell Derived Therapies	13
Hypoglycemics and Obesity Targeting	13
Peptide-Based Therapies	10
mTOR Inhibitors and Rapamycin	10
Exercise (Aerobic, Resistance, High Intensity Interval)	9
Gene Therapies or Gene-Editing	7
Personalized Health Platforms	7
Senolytics and Senotherapeutics	7
Inflammation Targeting and Immunotherapies	6
Herbal Medicines	6
Cognitive and Related Therapies	6
Hormones, Prohormones, or Steroids	4
Hyperbaric Oxygen Therapy	3
Mitochondrial Transplant and Mitochondrial Targeting Treatments	3

MONOTHERAPIES VERSUS MULTIMODAL INTERVENTION APPROACHES

63% of Healthspan Teams proposed monotherapies or targeted combinations within a single modality category (e.g. only biologics or a two-drug senoltyic combination).

The other 37% of proposals include Multi-Modal interventions, and some trends in combinations arise. Lifestyle & Behavioral interventions are often combined with other interventions - particularly Biomonitoring approaches and Nutraceuticals, indicating a trend toward integrated, personalized solutions. Drugs & Small Molecules are often combined with either Lifestyle & Behavioral Intervention or Nutraceuticals & Supplements, suggesting an integrated approach to prevention and therapy. These integrated strategies may reflect a broader recognition of the complexity of healthspan extension and the need for more comprehensive, personalized interventions.

Targeted Combination
17.1%

Other
12.0%

Multi-Modal
29.7%

Monotherapy
41.1%
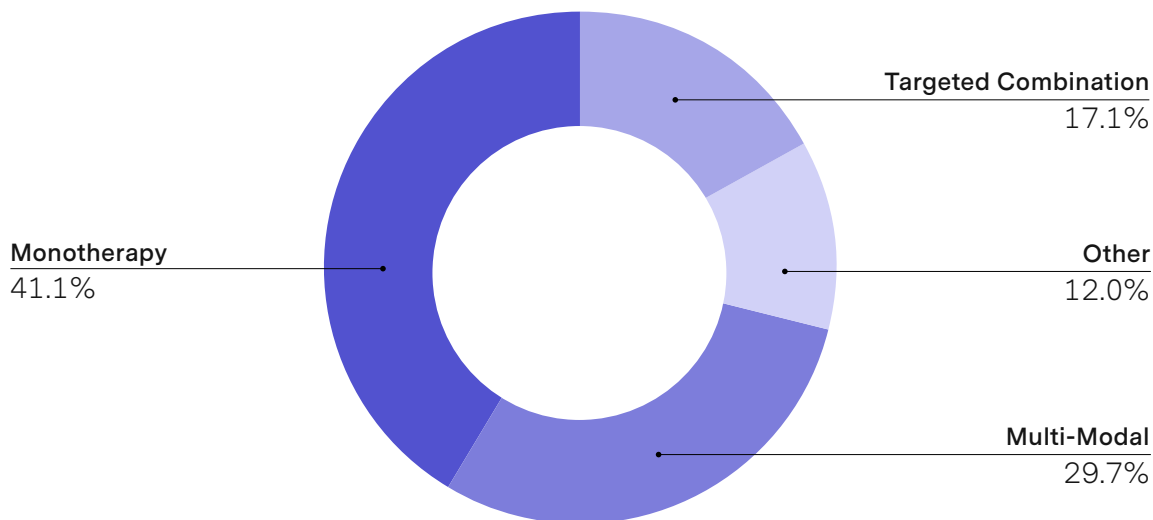
SUMMARY OF PROPOSED THERAPEUTIC SOLUTIONS BY MODALITY

Healthspan Team interventions fall into six primary proposed modalities: Biologics, Devices, Drugs & Small Molecules, Lifestyle & Behavioral Intervention, Nutraceuticals & Supplements, and Personalized & Biomonitoring.

Lifestyle & Behavioral Intervention (included in 56 submissions) and Nutraceuticals & Supplements (55 submissions) are the most frequent modalities, highlighting a significant focus on non-pharmacological and preventive approaches to extending healthspan. Drugs & Small Molecules (53 submissions) and Biologics (46 submissions) follow closely, indicating ongoing pharmaceutical innovation in the healthspan space. Devices (21 submissions) and Personalized & Biomonitoring (39 submissions) are less common but show growing interest in technology and personalized health management.

# of Teams Proposing Modality (multiple counts alowed)

Biologics	Devices	Drugs & Small Molecules	Lifestyle & Behavioral Intervention	Nutraceuticals & Supplements	Personalized & Biomonitoring
46	21	53	56	55	39
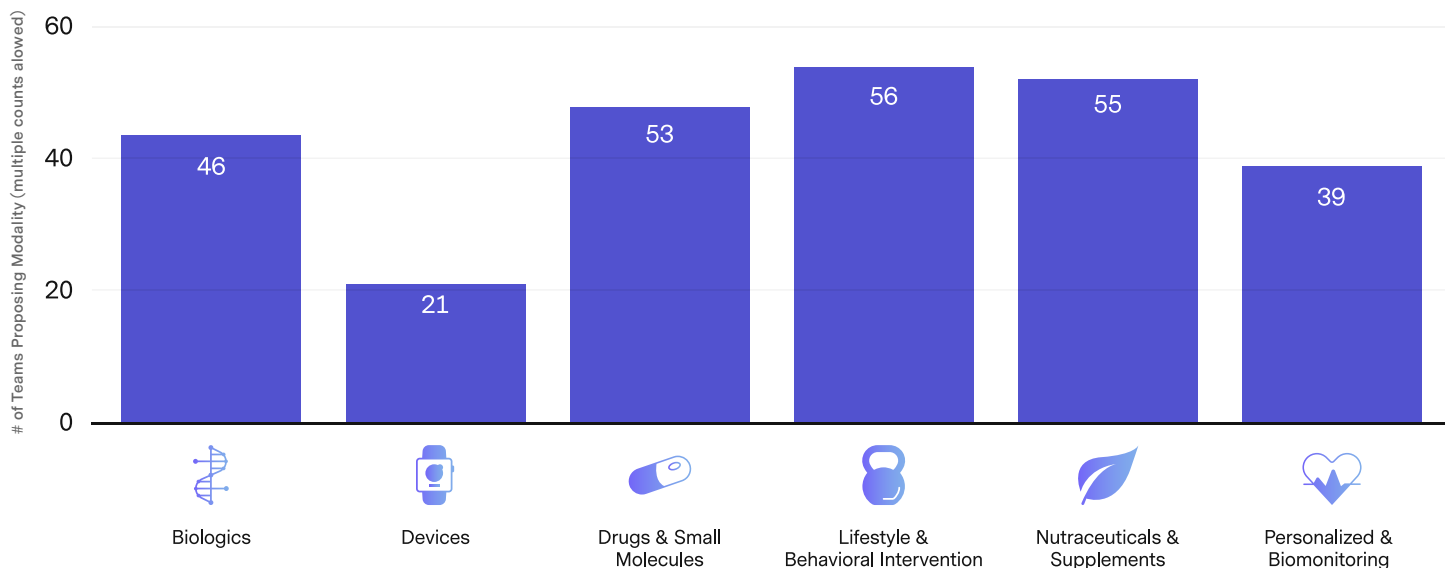
Importantly, an analysis of the Multi-Modal approaches conceived by the Healthspan Teams' show a range of modality combinations, with almost every category of modality proposed in combination with another category. In the heatmap matrix below, the most common combinations of modalities are presented. The more frequent a particular modality dyad is observed, the darker the hue. From the plot, each approach connects to multiple other modalities, suggesting a varied and diffuse set of approaches proposed by teams. Though Multi-Modal strategies are varied, a few trends are evident. First, teams were more likely to propose Lifestyle & Behavioral interventions in combination with other modalities, particularly Nutraceuticals and Functional Foods, approaches that include Biomonitoring for personalized treatment approaches, and Drugs & Small Molecules. Secondly, though AI Screening approaches were not included as a primary modality, we included them here to reflect this novel R&D approach that defies modality category. A small subset of teams used machine-learning assisted screening to identify new or repurposed Drugs & Small Molecules and Nutraceuticals that were proposed for administered alone or as part of a Multi-Modal strategy that included Lifestyle intervention or Biomonitoring. AI screening platforms for discovery of biologics and devices were not common.

Though not shown graphically, a number of Multi-Modal interventions include either Dietary approaches (e.g. caloric restriction, intermittent fasting, time restricted eating, mediterranean or whole foods diets, etc.) and Exercise Interventions (e.g. aerobic, resistance, high intensity interval training, etc.). Both Dietary and Exercise fall within the Lifestyle and Behavioral Intervention modality category and are not regulated by agencies like the FDA. These intervention types were highly prevalent as components of Multi-Modal and combination approaches proposed by Teams, and were paired with almost every category and subcategory of therapeutic solution within the Qualifying Submissions round. This demonstrates the importance Teams and the field places on such strategies for the hypothesized extension of Healthspan and beneficial effects on health and wellness at all ages.

FREQUENCY OF PROPOSED MULTI-MODAL DYADS IN HEALTHSPAN

	Drugs & Small Molecules	Biologics	Devices	Nutraceutical & Foods	Lifestyle & Behavioral	Biomonitoring	AI Screening
Drugs & Small Molecules		9	3	14	14	5	3
Biologics	9		4	8	10	4	0
Devices	3	4		6	11	3	0
Nutraceutical & Foods	14	8	6		27	15	4
Lifestyle & Behavioral	14	10	11	27		20	3
Biomonitoring	5	4	3	15	20		2
AI Screening	3	0	0	4	3	2	

Therapeutic modality dyads were counted. Darker shade reflects greater frequency for the proposed modality dyad

DRUGS & SMALL MOLECULES

Of the Teams proposing drug therapies, a majority (56%) of Healthspan Teams intend to test a repurposed[3] drug rather than a novel therapeutic (44%).

Approximately one-third of teams testing candidate drugs are proposing hypoglycemics and obesity targeting drugs, such as biguanides (metformin), gliflozins (SGLT2 inhibitors), incretin mimetics (GLP-1 agonists), and other insulin sensitizers. mTOR inhibitors such as rapamycin or novel specific mTORC1 inhibitors are also common. The range of team solutions proposed interventions leveraging existing drugs or medications repurposed for their effects on aging biology and newer approaches or novel drugs and small molecules. Proposed drugs span categories, from generic statins, to senolytics and senotherapeutics, inflammasome inhibitors, and neuroprotective agents.

HEALTHSPAN PROPOSED DRUG TYPES

Novel
43.8%

Repurposed
56.3%
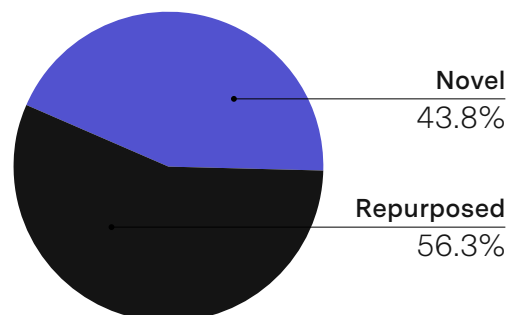
DRUG CATEGORY	# HEALTHSPAN TEAMS PROPOSING
Hypoglycemics and Obesity Targeting (Total)	**13 (Total)**
Metformin	5
GLP1 Agonists or Dual Agonists	2
SGLT2 Inhibitors	2
Acarbose	1
Insulin or Insulin Sensitizers	2
Rapamycin & mTOR Inhibitors (Total)	**8 (Total)**
Rapamycin	5
mTORC1 Inhibitors (other)	3
Senolytics or Senotherapeutics	**8**
Hormones Replacement Therapies, DHEA, Growth Hormone	**4**
Neuroprotective, Anti-neural Degeneration	**4**
Statins	**3**
Novel Inflammasome Inhibitors	**2**
Antiretroviral (Lamivudine)	**2**
Opioid Antagonist (Naltrexone)	**2**
Anti-hyperammonemia	**1**
Actin Polymerization Inhibitor (Cytochalasin D)	**1**
Secretolytic or Pulmonary	**1**
Lithium	**1**
Myostatin Inhibitor	**1**

[3] "Repurposed" drugs refer to medications originally developed and approved for one condition that are used to treat a different condition.

There is wide variance in the type of drugs that Healthspan Teams have proposed for this competition. Similarly, the prevalence of senolytics and senotherapeutics indicates interest in mitigating age-related decline by clearing senescent cells or mitigating their pro-inflammatory and pro-fibrotic secretory phenotype. Similarly, novel inflammasome inhibitors, low dose naltrexone, and lamivudine are also proposed to mitigate chronic inflammation common with advancing age ("inflammaging"). Neuroprotectives reflect interest in neurological health.

Notably, many teams propose combination drug therapies of two, three, and even four drug combinations, particularly for repurposed drugs.

NUMBER OF DRUG PROPOSED PER TEAM

Legend: ■ Repurposed ■ Novel
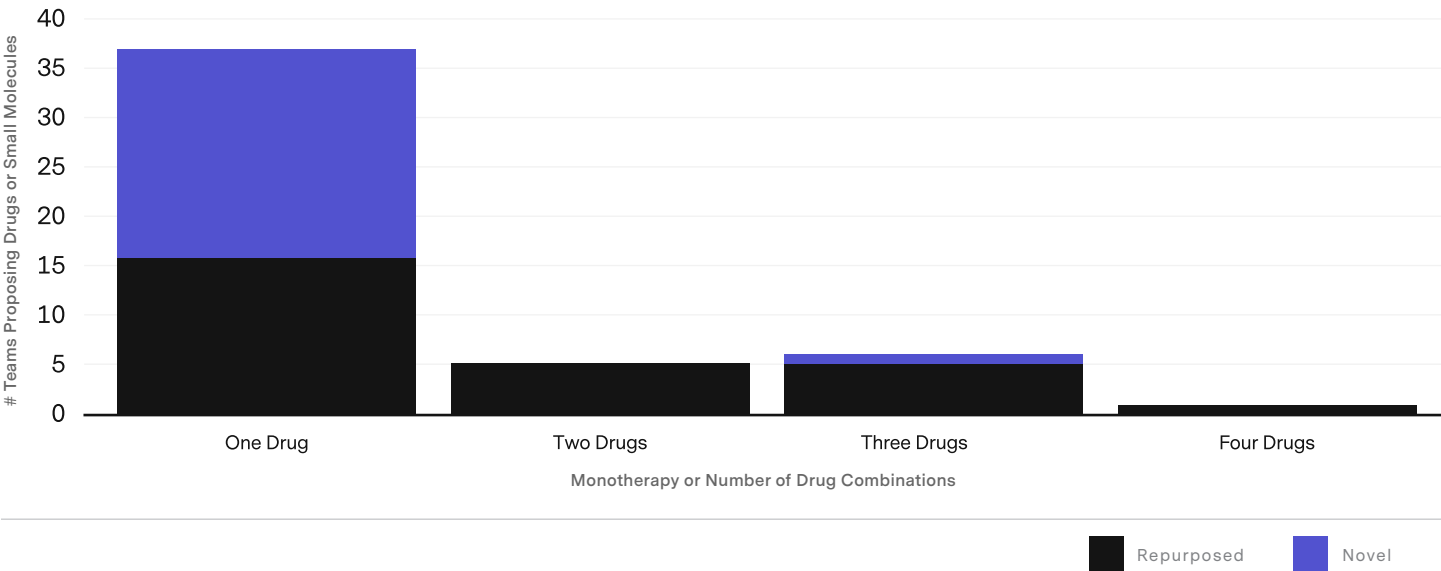
BIOLOGICS

Many Healthspan Teams are exploring biologic interventions. These proposals show a strong interest in stem cell-derived therapies and gene therapies, suggesting that many Teams are focusing on regenerative approaches and genetic interventions to promote healthy aging. Immunotherapies and other immune modulators also proved popular, accounting for >14% of biologic therapies, when subcategories are combined. These include monoclonal antibodies, vaccines, novel inflammasome inhibitors and multi-active biologic immunomodulator.

Epigenetic reprogramming is a widely discussed novel therapeutic approach with speculative effects relevant to healthspan. In brief, epigenetic reprogramming refers to the process of resetting or modifying the epigenetic marks on DNA and histones without changing the underlying genetic sequence. These modifications, such as DNA methylation, histone modifications, and chromatin remodeling, control gene expression patterns and cellular identity. Only three teams propose biologics to induce epigenetic reprogramming. These are not

represented in graphic below, but are included within stem cell therapies and gene therapies classes. The limited applications with reprogramming approaches may be due to timeline restrictions to move into clinical trials, and late-registering teams proposing reprogramming approaches will be encouraged to apply.

HEALTHSPAN PROPOSED BIOLOGICS

- **Blood or Plasma Products** 14.0%
- **Other Biologically Derived Materials** 15.0%
- **Stem Cell Derived** 15.0%
- **Recombinant Proteins** 4.0%
- **Vaccine** 2.0%
- **Monoclonal Antibodies** 3.0%
- **Gene Therapy** 15.0%
- **Other Immunotherapy & Immune Modulators** 9.0%
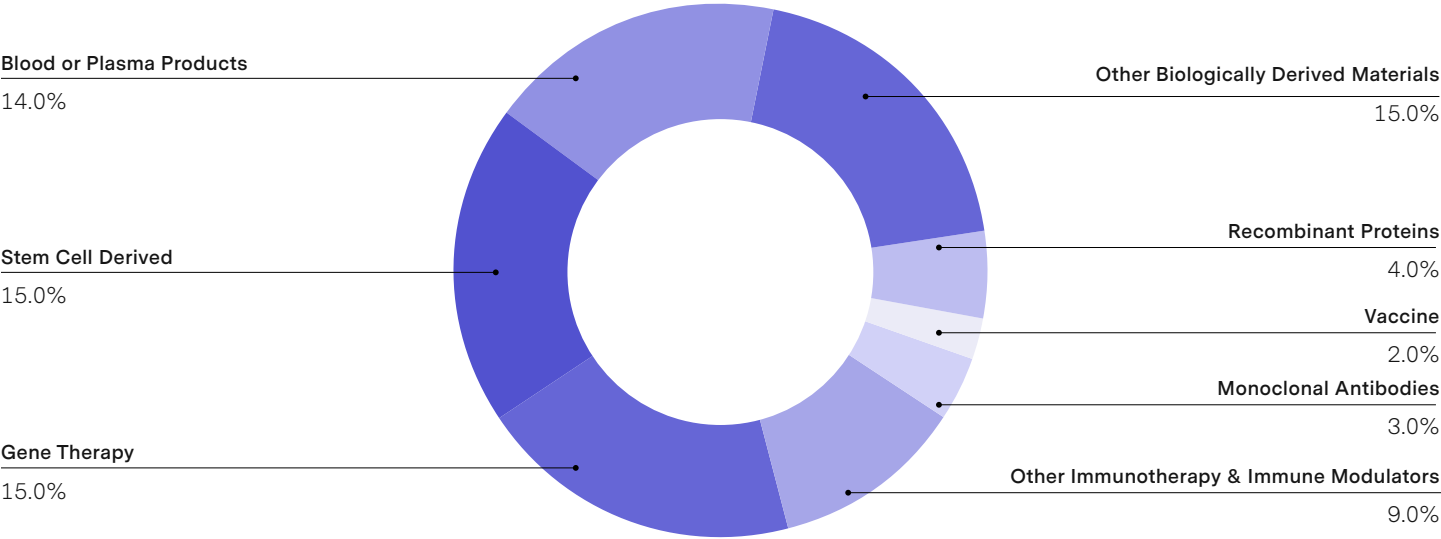
DEVICES

While Devices are not the most frequently proposed intervention among Healthspan Teams, the landscape of proposed device-based interventions is diverse and reflects a range of targets and Stem Cell Therapy or Stem Cell Derived. Electrical stimulation devices are the most frequently proposed, indicating interest in neural stimulation, neuromuscular activation and muscle maintenance as important components of healthy aging. Hyperbaric chambers emerge as another prominent type of device-based interventions, and Teams hypothesize that oxygen therapy can enhance cellular repair, reduce inflammation, and support cognitive health.

HEALTHSPAN PROPOSED DEVICES

# of Teams Proposing Devices
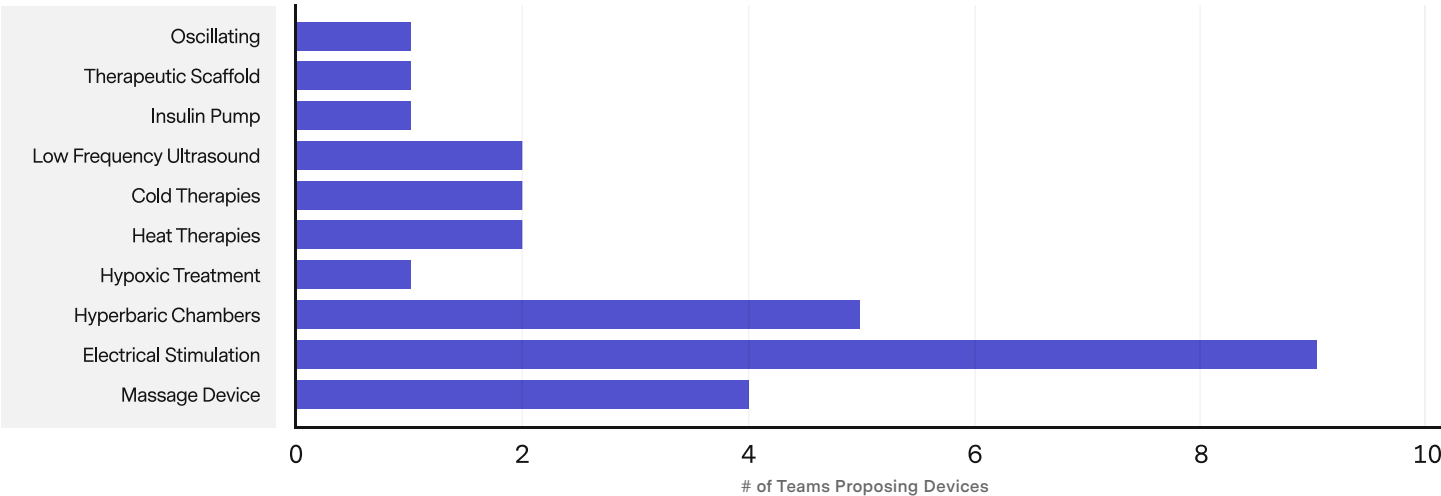
NUTRACEUTICALS

Teams' proposed range of nutraceuticals include a diverse selection of functional foods, proteins, amino acids, herbal products, and metabolism-supporting compounds. Functional foods (e.g., wheatgrass, seaweed, berries) are a commonly proposed category, and teams show significant interest in nutraceuticals such as nicotinamide adenine dinucleotide (NAD+) and NMN supplements, phytochemicals and polyphenols, herbal products, and amino acids.

Most Healthspan Teams advancing nutraceuticals proposed 2-4 different categories of nutraceuticals, vitamins, supplements, or foods with 43% proposing 3 or more. Common combinations involve antioxidants with herbal products and NAD+ supplements, functional foods paired with probiotics and phytochemicals, and omega and fatty acids combined with vitamins and proteins.

HEALTHSPAN PROPOSED NUTRACEUTICALS

# of Teams Proposing Nutraceuticals or Functional Foods
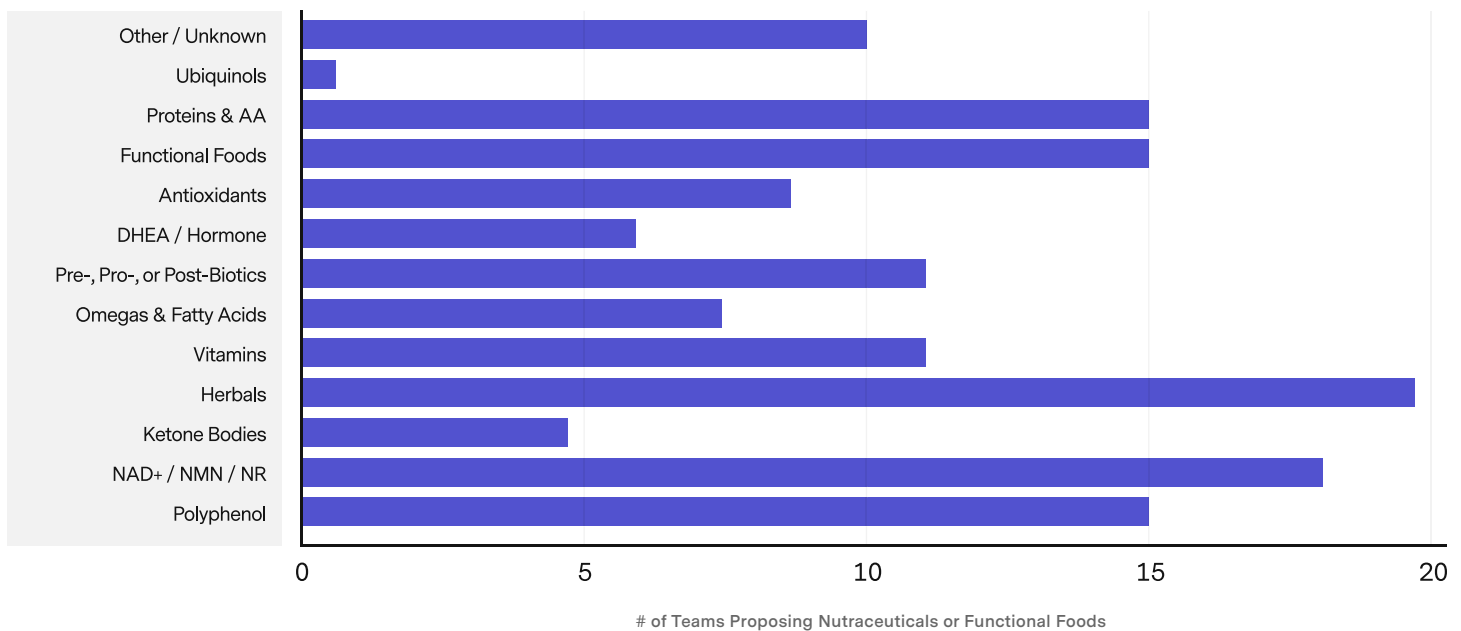
AA (amino acids), DHEA (dehydroepiandrosterone), NAD+ (nicotinamide adenine dinucleotide), NMN (nicotinamide mononucleotide), NR (nicotinamide riboside)

LIFESTYLE & BEHAVIORAL

Healthspan Teams' proposed lifestyle and behavioral interventions emphasize a holistic approach, with exercise (resistance and aerobic) being the most frequently advanced - often proposed together. Other common lifestyle interventions include diet modifications, cognitive training, sleep optimization, and community engagement.

Teams proposing lifestyle and behavioral interventions typically proposed multi-faceted approaches, generally combining 2-4 categories. The most frequent combinations include aerobic and resistance exercise with dietary changes, as well as sleep health paired with meditation, prayer, or breathing exercise.

Less frequently proposed approaches include acupuncture, aromatherapy, fasting-mimicking or keto diets, and protein intake strategies.

HEALTHSPAN PROPOSED LIFESTYLE & BEHAVIORAL INTERVENTIONS

# of Teams Proposing Lifestyle or Behavioral Intervention
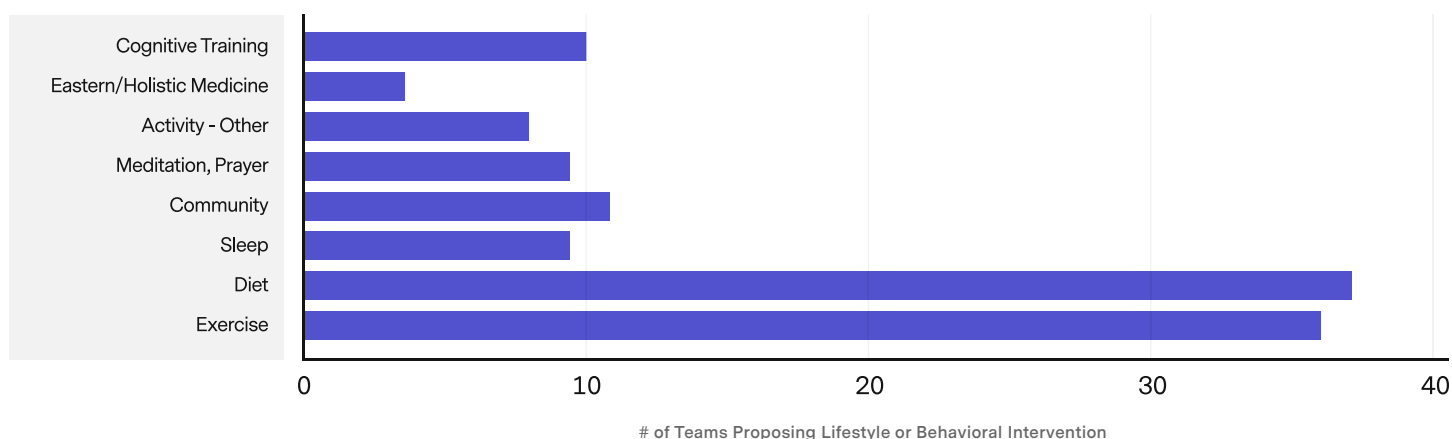
BIOMONITORING

Many teams proposed a personalized and biomonitoring[4] based protocols for their approach to delivering their therapies. Of the 48 Teams incorporating personalized and biomonitoring directed therapies in their proposals, most used to personalize combination or multi-modal therapeutic approaches. Other less frequent approaches included other biomarker or imaging-based approaches in isolation, without a specifically stated intervention beyond screening and monitoring.

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[4] Biomonitoring involves testing body fluids to assess and measure the presence of biochemicals or metabolites in a persons body, their personal health characteristics, activity levels, or other internal or external factors

MECHANISM OF ACTION

Mechanism Categories - Targeted Pathways, Regenerative Medicine, and General Health. Healthspan Teams propose a wide array of mechanisms, reflecting the recognition that healthy aging is a complex process, including General Health, Targeted Biological Pathways, Regenerative & Reprogramming Mechanisms, or Biomarker Platforms and Drug Screening.

HEALTHSPAN MECHANISM OF ACTION

Regenerative & Reprogramming
15.0%

Biomarker Platform
4.0%

Drug Screening
2.3%

General Health
39.9%

Targeted Pathways
38.7%
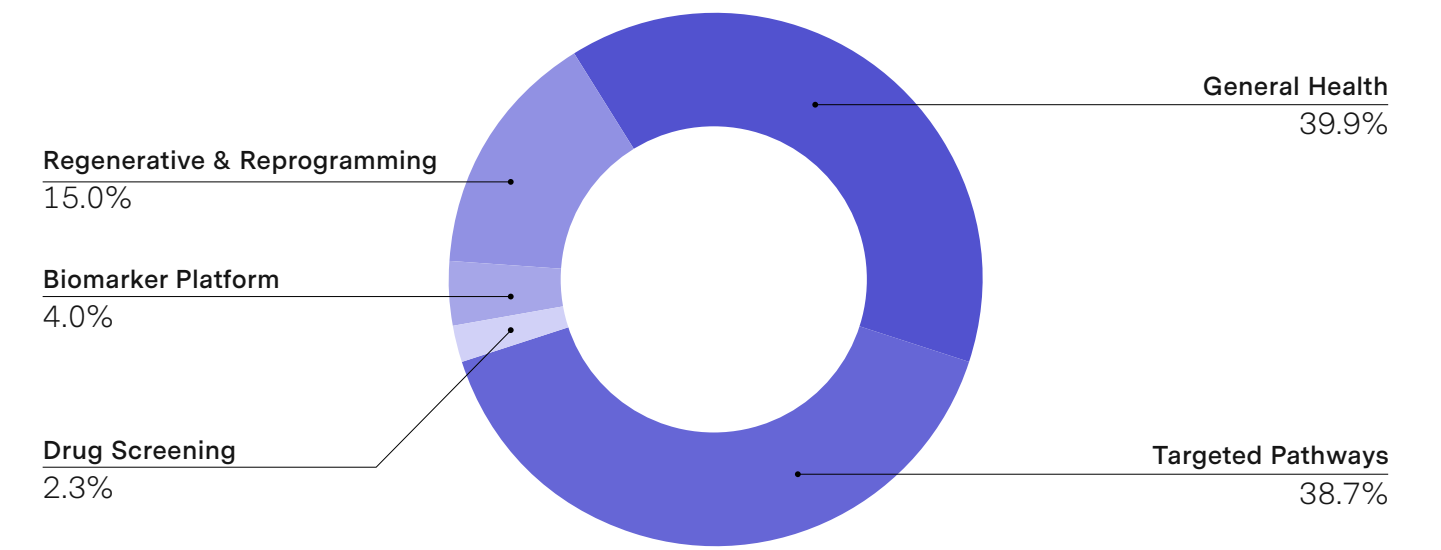
The General Health category is the most prevalent (40% of Teams), and is characterized by multi-modal and holistic approaches that often combine lifestyle interventions, pharmacological agents (e.g., rapamycin, senolytics, metformin), supplements (e.g., quercetin, NMN) and regenerative approaches. Some Teams also integrate these with digital health platforms and AI-driven personalization approaches, reflecting a shift toward data-driven interventions that can be tailored to individual needs.

The Targeted Pathways category (39% of Teams) focuses on specific biological mechanisms that influence aging, such as metabolic, cellular senescence, inflammation, epigenetic alterations, and others detailed in the following section. This is aligned with geroscience and geroprotectors, in which interventions like pharmacologic agents are developed and tested based on their ability to target and modulate biological aging pathways. Several Teams use multi-component drug and supplement combinations, aiming to stack interventions to target biological aging through multiple synergistic pathways for improved efficacy.

While General Health and Targeted Pathways comprise the clear majority of proposed Healthspan mechanisms of action, Regenerative & Reprogramming approaches represent a growing segment (15%). These approaches include gene therapies, epigenetic reprogramming, and novel biomolecular approaches designed to reverse aspects of aging and counter aging's effects at the cellular level.

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[4] Biomonitoring involves testing bodily fluids to assess and measure the presence of chemicals or metabolites in a person's body.

Biomonitoring (4%) and AI Drug Screening (2%) can play a key role in both drug development and assessing interventions. Advancements in these areas can help develop and assess interventions, helping uncover new insights into aging processes and facilitate discovery of new therapeutic targets.

TARGETED BIOLOGICAL MECHANISMS

An ever growing foundation of basic research on aging suggests that there is a fundamental biologic basis underlying aging that increases risk of mortality and adverse health events collectively. The field of geroscience was founded on the idea that unless the biological mechanisms are therapeutically targeted, efforts focused on preventing individual diseases will have limited net impact on a population basis because one disease will be exchanged for another [4]. Thus, interventions that slow the progression of biological aging per se could delay the onset of age-related diseases and death collectively, rather than one at a time.

The geroscience hypothesis has supported remarkable progress in understanding the basic biological mechanisms of aging as well as identifying interventions that can extend healthy lifespan in animal models such as Drosophila, Caenorhabditis elegans, rodents, nonhuman primates, and companion animals. Geroscience research has advanced unifying mechanisms and theories to explain broad biological aging processes and identified pathways that can be targeted to delay or reverse age-related decline. A major catalyst was the proposal of several biological "Hallmarks" or "Pillars" of aging, first proposed by Kennedy et al.[5] [6] The 'Hallmarks of Aging' comprehensive reviews established three criteria that must apply for each mechanistic hallmark of aging: (1) that biological pathway must change in a time-dependent way, reflective of the natural aging process across species, (2) experimental aggravation of the mechanistic pathway may accelerate aging phenotypes and elevate the risk of death, and—most relevant to XPRIZE Healthspan —(3) that targeting the mechanism by therapeutic interventions may slow, halt, or reverse aging phenotypes and extend median or maximum lifespan in animals.[7] We have adapted concepts from the latter, most recent Hallmarks of Aging review as a conceptual framework for the purposes of this Innovations Landscape Report.

Importantly, the specific biological mechanisms outlined below and targeted by Teams in XPRIZE Healthspan are not distinct but are connected and highly interdependent. Thus, the classifications below are inevitably arbitrary, but do create a framework for reporting that is familiar to the field of geroscience.

In our Healthspan competition, 67 of the competing Teams proposed therapeutics that target at least one, and often several, of the biological Hallmarks of Aging; see figure next page for frequency counts of mechanisms targeted by teams therapeutic solutions.. The most frequently targeted mechanisms were Nutrient Sensing & Metabolic pathways (19%) and Immune & Inflammation (15%). These dominant mechanisms were closely followed by approaches targeting Mitochondrial Function (10%) and Cell Signaling / Intercellular Communication (10%), as well as Cellular Senescence, Stem Cell Exhaustion, and Proteostatsis & Autophagy activation (9% each). The remaining solutions included primary targets of Neurogenesis or Neuronal Signaling and Epigenetic Alterations (6% each), Genome Instability (3%), Dysbiosis (2%), and Telomere Attrition (1%).

[5] Kennedy BK, Berger SL, Brunet A, Campisi J, Cuervo AM, Epel ES, Franceschi C, Lithgow GJ, Morimoto RI, Pessin JE, Rando TA, Richardson A, Schadt EE, Wyss-Coray T, Sierra F. Geroscience: linking aging to chronic disease. Cell. 2014 Nov 6;159(4):709-13. doi: 10.1016/j.cell.2014.10.039. PMID: 25417146; PMCID: PMC4852871.

[6] López-Otín C, Blasco MA, Partridge L, Serrano M, Kroemer G. The hallmarks of aging. Cell. 2013 Jun 6;153(6):1194-217. doi: 10.1016/j.cell.2013.05.039. PMID: 23746838; PMCID: PMC3836174.

[7] López-Otín C, Blasco MA, Partridge L, Serrano M, Kroemer G. Hallmarks of aging: An expanding universe. Cell. 2023 Jan 19;186(2):243-278. doi: 10.1016/j.cell.2022.11.001. Epub 2023 Jan 3. PMID: 36599349.

Notably, numerous teams proposed dietary and food-based solutions with purported general probiotic / prebiotic effects, but many of these solutions were part of holistic Multi-Modal approaches better aligned with 'General Health' category above rather than an approach primarily targeting age-related changes in dysbiosis per se, and are not reflected in the targeted mechanisms counts below. Similarly, exercise and caloric restriction or food clocking paradigms affect many of the cellular and molecular mechanisms of aging below.[8][9] However, for the purpose of this report, exercise interventions are categorized as 'General Health' and not reflected below because most were proposed as part of Multi-Modal health approaches or with additional targeted therapeutic solutions.

FREQUENCY OF BIOLOGICAL MECHANISMS TARGETED IN HEALTHSPAN
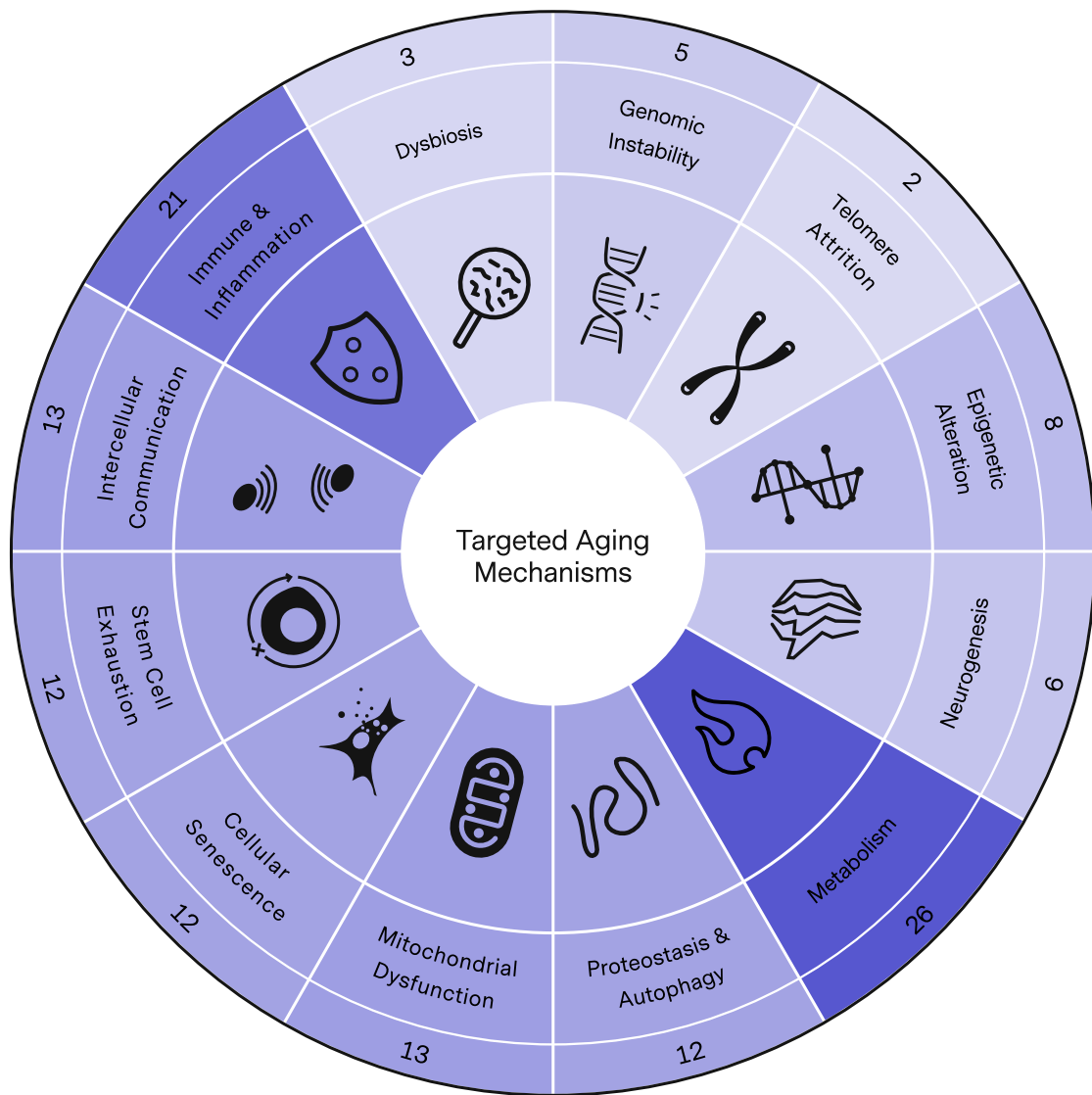
Teams proposed therapeutics that target single or multiple mechanisms linked to biological aging pathways. The number of teams proposing therapuetics that specifically target that mechanism are shown in the outermost circle.

[8] Goh J, Wong E, Soh J, Maier AB, Kennedy BK. Targeting the molecular & cellular pillars of human aging with exercise. FEBS J. 2023 Feb;290(3):649-668. doi: 10.1111/febs.16337. Epub 2022 Feb 7. PMID: 34968001.

[9] Green CL, Lamming DW, Fontana L. Molecular mechanisms of dietary restriction promoting health and longevity. Nat Rev Mol Cell Biol. 2022 Jan;23(1):56-73. doi: 10.1038/s41580-021-00411-4. Epub 2021 Sep 13. PMID: 34518687.

FSHD
BONUS PRIZE

SUMMARY OF PROPOSED INTERVENTIONS BY MODALITY

Like Healthspan, FSHD Teams proposed interventions spanning six primary modalities. Among these, Biologics and Drugs & Small Molecules are the most common, highlighting a focus on approaches to cure, manage symptoms, or modify disease progression.

FSHD INTERVENTIONS BY MODALITY
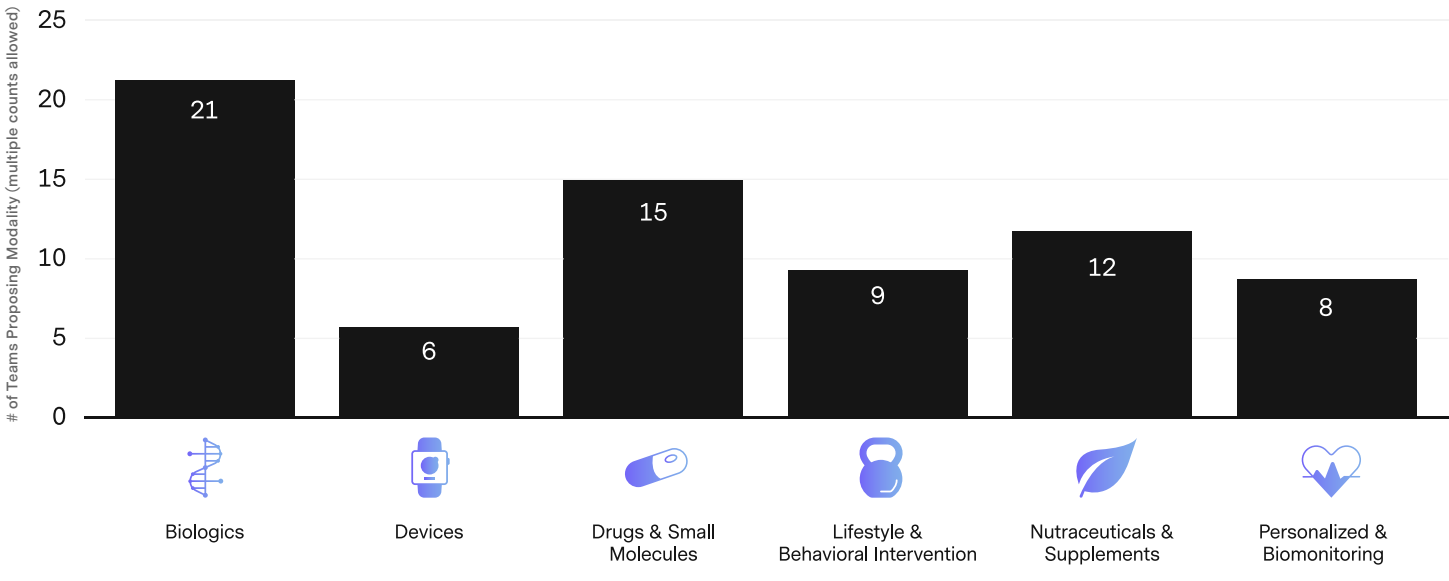
Numbers may include more than one proposed intervention per team.

In contrast to Healthspan Teams, FSHD Teams are relatively less focused on Lifestyle & Behavioral Interventions or Nutraceuticals & Supplements.

The majority of FSHD Teams have proposed single-modality interventions. Among the Teams employing multiple modalities, certain combinations emerge more frequently. Lifestyle & Behavioral Interventions are paired with Nutraceuticals & Supplements in ~27% of Teams using multiple modalities, and Drugs & Small Molecules are paired with Biologics in 20% of Teams with multiple modalities.

FSHD PROPOSED INTERVENTIONS

Multi-Modal
26.0%

Other
11.0%

Targeted Combination
9.0%

Monotherapy
54.0%
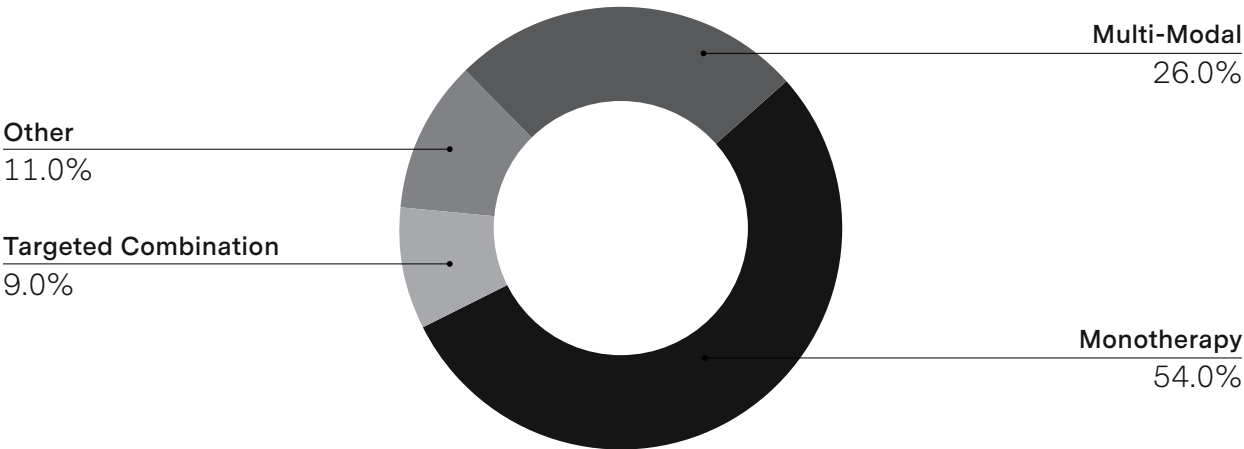
FSHD PROPOSED INTERVENTIONS

The therapeutic landscape for FSHD reveals a diverse array of approaches spanning multiple intervention categories. Looking more closely at the intervention types, Drugs & Small Molecules, Gene Therapies, and Cell Therapies emerge as the most dominant approaches. Within the Drug & Small Molecule category, senotherapeutics and senolytics have a strong presence, suggesting a strong focus on using pharmaceuticals to target the underlying processes in FSHD (DUX4 activation).

Similarly, the strong presence of gene and RNA therapies, including CRISPR-based techniques and RNA-based gene therapies, signals increased interest in genetic editing to modify disease progression at the molecular level by targeting the root cause of FSHD.

In addition to pharmaceutical approaches, several Teams are focused on exercise-based and dietary interventions as a way to use lifestyle changes to preserve muscular and overall health in FSHD patients. While less common than pharmaceutical approaches, device-based therapies also indicate interest in helping patients manage FSHD's physical symptoms using tools like neurostimulation devices and wearable tech.

Overall, Teams' proposed FSHD approaches encompass a wide range of interventions, with targeted therapies (drugs, biologics, gene therapies) rising as the most common.

Within the top 8 FSHD Teams, 4 are direct/indirect DUX4 inhibitory approaches, 3 potential immunomodulatory strategies, and 1 potential muscle preservation strategy.

TOP FSHD PROPOSED INTERVENTIONS	# OF MENTIONS
Other Small Molecules & Drugs (IL6 Inhibitors, DUX4 Inhibitors, etc.)	11
Gene & RNA Therapies (mRNA, CRISPR-based, etc.)	5
Cell-Based Therapies (Stem Cells, Others)	5
Supplements	5
Senotherapeutics & Senolytics	4
Peptide & Protein-Based Therapies	4
Exercise-Based Interventions	3
Regenerative Therapies (Reprogramming, etc.)	3
Neurostimulation Devices	2
Wearable & Smart Devices	2
Immunotherapies	2
Therapeutic Devices	2
Diet-Based Interventions	2
Other Natural & Holistic Lifestyle Interventions	2

DRUGS & SMALL MOLECULES

FSHD PROPOSED DRUG TYPES

Novel
40.0%
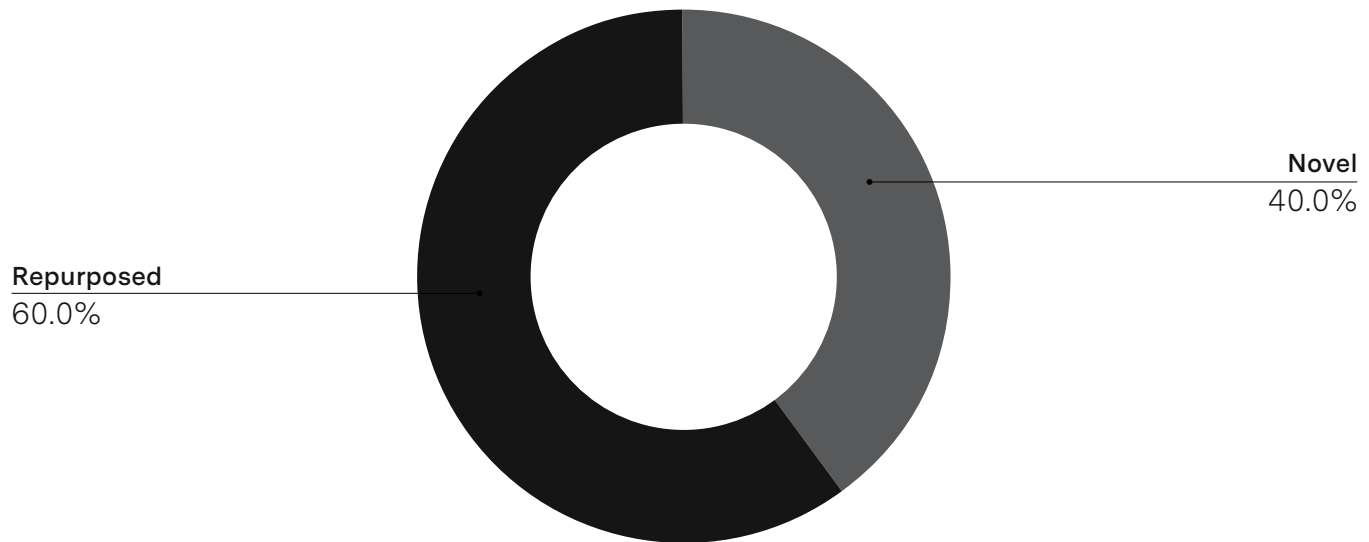
Repurposed
60.0%

The majority of FSHD Teams advancing Drug & Small Molecule therapies propose repurposed drugs. Across repurposed and novel drugs, Hypoglycemics (including Metformin, GLP-1, and SGLT2 inhibitors) make up the largest category (33%), suggesting a growing interest in metabolic modulation as a therapeutic strategy. The remainder of drugs proposed are evenly distributed across Sex Hormones, mTOR inhibitors/immunosuppressives, cytotoxic/senolytic therapies, neuroprotective agents, RNA therapies, and secretolytic/pulmonary therapies. This wide distribution reflects a broad exploratory approach to addressing FSHD.

REPURPOSED DRUG CATEGORY	# FSHD TEAMS PROPOSING
Hypoglycemics and Obesity - Metformin, GLP-1 Agonists, SGLT2 Inhibitors	3
Rapamycin and mTOR Inhibitors	1
Senolytics and Senotherapeutics	1
Hormones Replacement Therapies, DHEA, Growth Hormone	1
Neuroprotective, Anti-Neural Degeneration	1
Secretolytic or Pulmonary	1

BIOLOGICS

Biologics are the competition's most common proposed FSHD therapy type. The proposed biologics span a range of mechanisms, targeting different aspects of FSHD pathology. Gene therapies comprise the largest portion of proposed biologic therapies, reflecting an emphasis on genetic-level interventions to modify or silence DUX4 expression.

Blood and Plasma products are a close second to Gene therapies, with 24% of FSHD Teams pursuing these therapies to promote muscle regeneration and counteract disease progression. Similarly, stem cell therapies are popular (proposed by 20% of Teams), emphasizing another approach to regenerative approaches to repair damaged muscle tissue.

Immunotherapies, monoclonal antibodies, and other biologically derived molecules are less common approaches.

FSHD PROPOSED BIOLOGIC TYPES

Blood and Plasma Products
24.0%

Other Biologically-Derived Therapies
4.0%

Stem Cell Therapies
20.0%

Monoclonal Antibodies
8.0%

Gene Therapy
28.0%

Targeted Therapy
4.0%

Stem Cell Therapies
20.0%
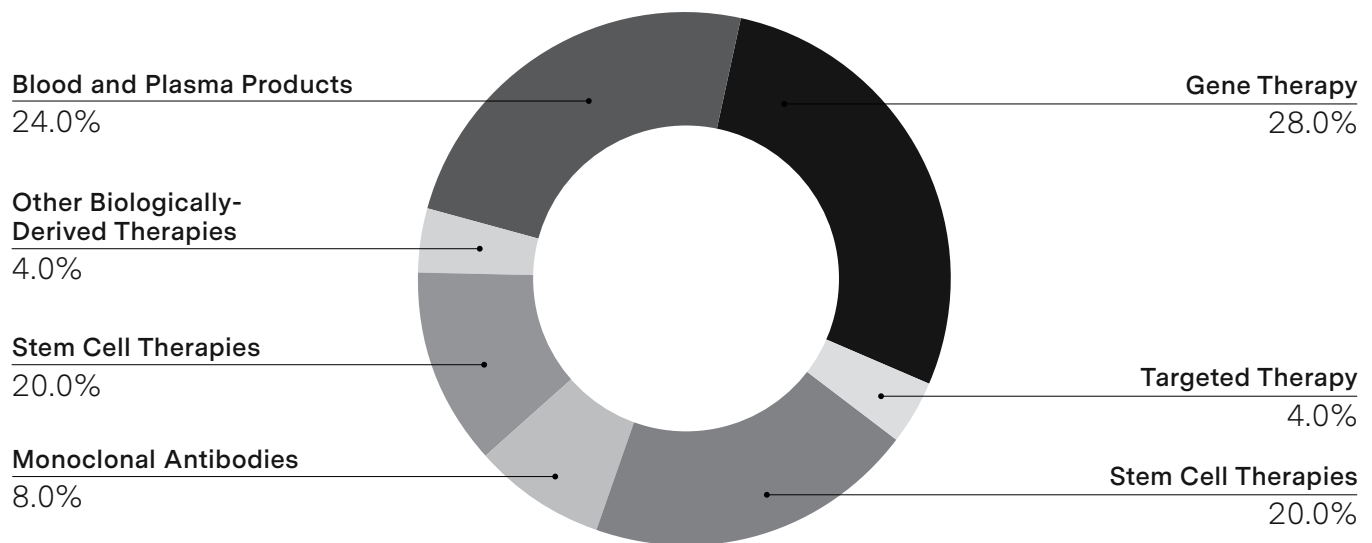
DEVICES

As in the Healthspan track, Devices are less-frequently proposed therapeutics for FSHD. The most common category, Electrical Stimulation Devices, reflects a focus on neuromuscular activation, muscular preservation and rehabilitation. Hyperbaric chambers are another notable area of interest - with enhanced oxygen delivery hoped to support muscle repair. Massage and scaffolds provide approaches for mechanical and structural support for muscular maintenance and/or regeneration.

FSHD PROPOSED DEVICE TYPES

Electrical Stimulation Devices
22.8%

Massage
7.9%

Other
30.7%

Hyperbaric Chambers
14.9%

Therapeutic Scaffold
7.9%

Sauna of Heat Therapies
7.9%

Cold Therapies
7.9%
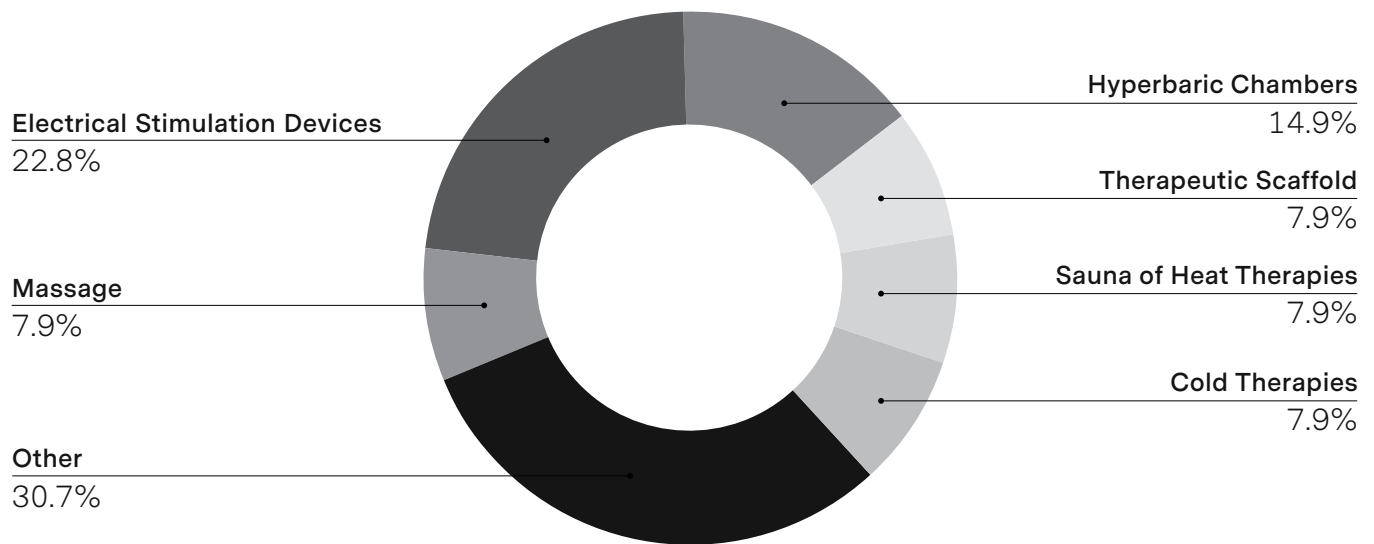
NUTRACEUTICALS

Proposed nutraceutical interventions for FSHD are a smaller but diverse area of exploration (vs. Healthspan proposals), with a focus on cellular metabolism (NAD+ supplements), anti-inflammation (phytochemicals/ polyphenols), and functional foods.

Among the proposed therapies, NAD+ supplements stand out as a key area of interest, and are included in 5 proposals, included in different combination therapies. Other frequently mentioned categories include phytochemicals and polyphenols and herbal products, suggesting interest in natural compounds with antioxidant or anti-inflammatory properties.

Two-thirds of Teams advancing nutraceutical-based interventions have proposed combinations of 2+ categories. NAD+ with supplements, as well as phytochemicals/polyphenols with functional foods and herbal products were the most frequent proposed FSHD nutraceutical combinations.

FSHD PROPOSED NUTRACEUTICALS

NAD+ Supplements
19.0%

Omegas & Fatty Acids
11.0%

Functional Foods
15.0%

Herbal Products
11.0%

Vitamins
7.0%

Pre/Probiotics
7.0%

Phytochemicals & Polyphenols
19.0%

Other/Unkown
11.0%
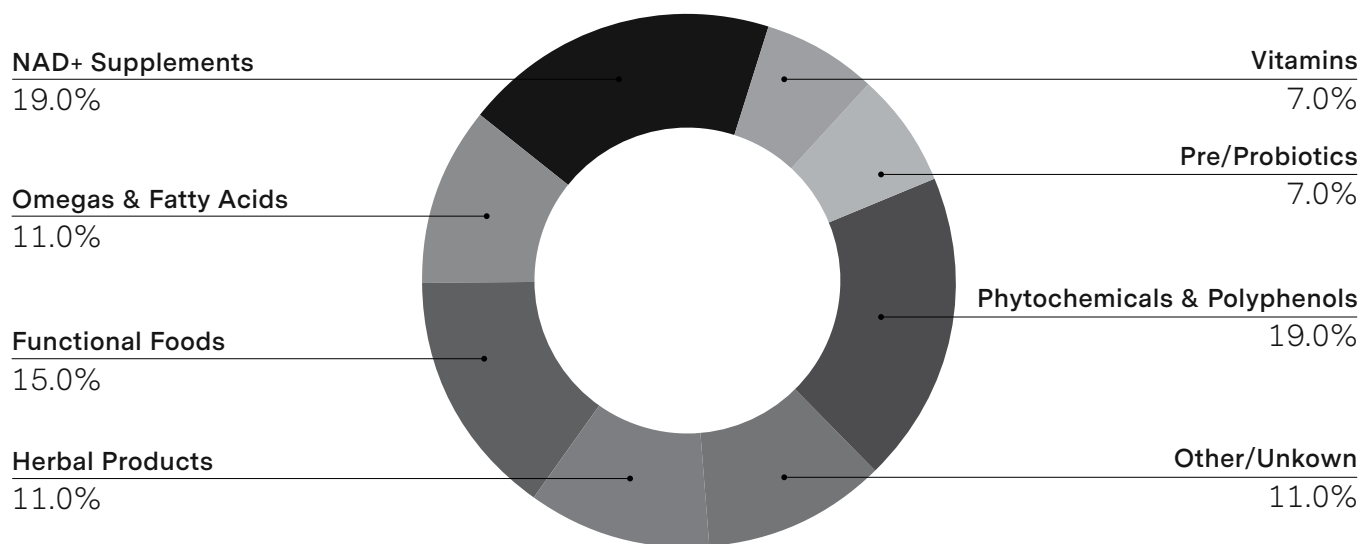
LIFESTYLE & BEHAVIORAL INTERVENTIONS

As with Healthspan, the most commonly proposed lifestyle and behavioral interventions for FSHD focused on aerobic and resistance exercise, often in combination with dietary restrictions. Most FSHD proposals with lifestyle and behavioral components included 2-3 interventions.

FSHD PROPOSED LIFESTYLE & BEHAVIORAL INTERVENTIONS

Diet
25.0%

Activity - Other
16.7%

Eastern/Holistic Medicine
8.3%

Meditation, Prayer
8.3%

Community
4.2%
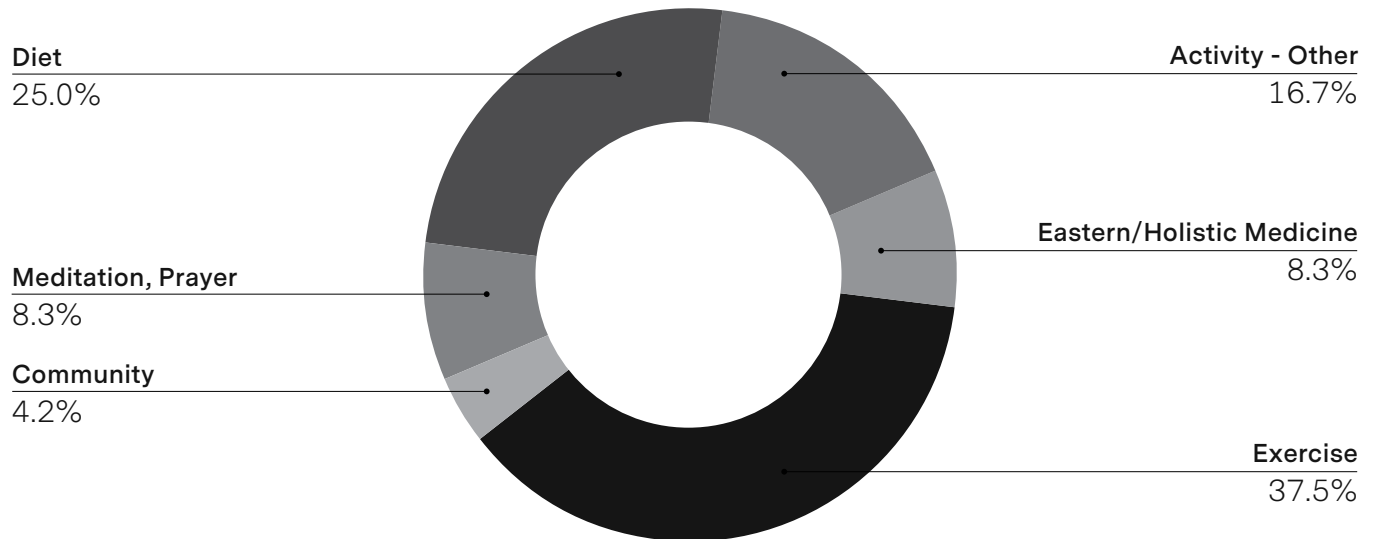
Exercise
37.5%

Many FSHD Team approaches include a combination of aerobic and resistance exercise, with aerobic exercises included in 8 Teams' proposals and resistance included in 4 Teams'. Dietary interventions include a range of calorie restriction (2 Teams), food clocking (1 Team), and other dietary approaches.

BIOMONITORING

Personalized and biomonitoring-based protocols are less common in FSHD proposals than in Healthspan. Of the Teams proposing personalized or biomonitoring approaches, most advanced either one or two approaches, with biomonitoring and other biomarker platforms combined, and personalized protocols paired with biomonitoring.

MECHANISM OF ACTION

FSHD is primarily driven by two genetic pathways: FSHD1, caused by contraction of the D4Z4 repeat, and FSHD2, resulting from mutations in SMCHD1 or DNMT3B - both which lead to the misexpression of the DUX4 gene. While these pathways are well-established, Teams in the FSHD track are exploring mechanisms of action impacting these pathways as well as alternative approaches. Currently, 33% of qualifying FSHD Team submissions have proposed approaches targeting these known pathways (primarily D4Z4, associated with FSHD1), while 67% are pursuing alternative strategies.

FSHD PROPOSED MECHANISM OF ACTION

FSHD-Targeted Pathway
33.0%

Other Pathway
67.0%
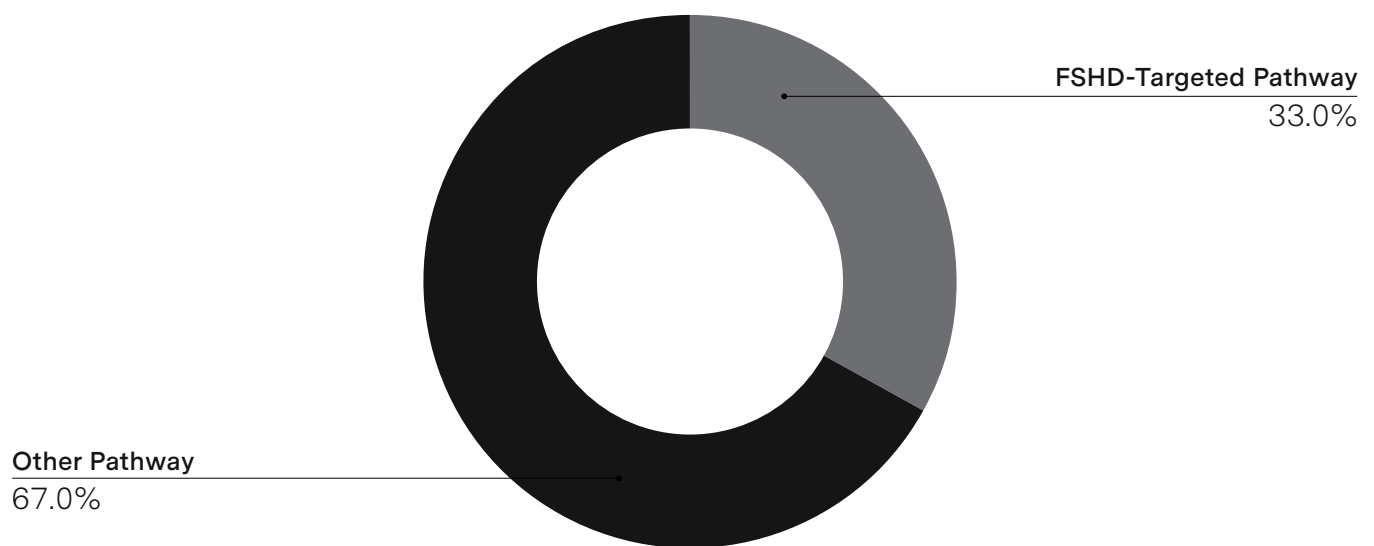
MILESTONE 1 WINNERS

XPRIZE HEALTHSPAN

The first judging summits for both the Healthspan and FSHD tracks have concluded. Following careful review and deliberation by independent judges, the Top 40 Healthspan Semi-Finalist Teams and the Top 8 FSHD Finalist Teams have been selected.

TOP 40 HEALTHSPAN SEMI-FINALIST AWARDEES

Among the Healthspan Top 40, Teams from the U.S. comprised the majority - representing nearly 50% of Semi-Finalists. Japan, with 6 Teams in the Top 40, also stood out - converting ~25% of qualified submissions into Semi-Finalists. Countries like Canada, China, France, India, Malaysia, Netherlands, Singapore, Spain and Switzerland each placed one Team in the Top 40, often outperforming in proportion to their relatively small pools of submissions.

TOP 40 HEALTHSPAN TEAMS
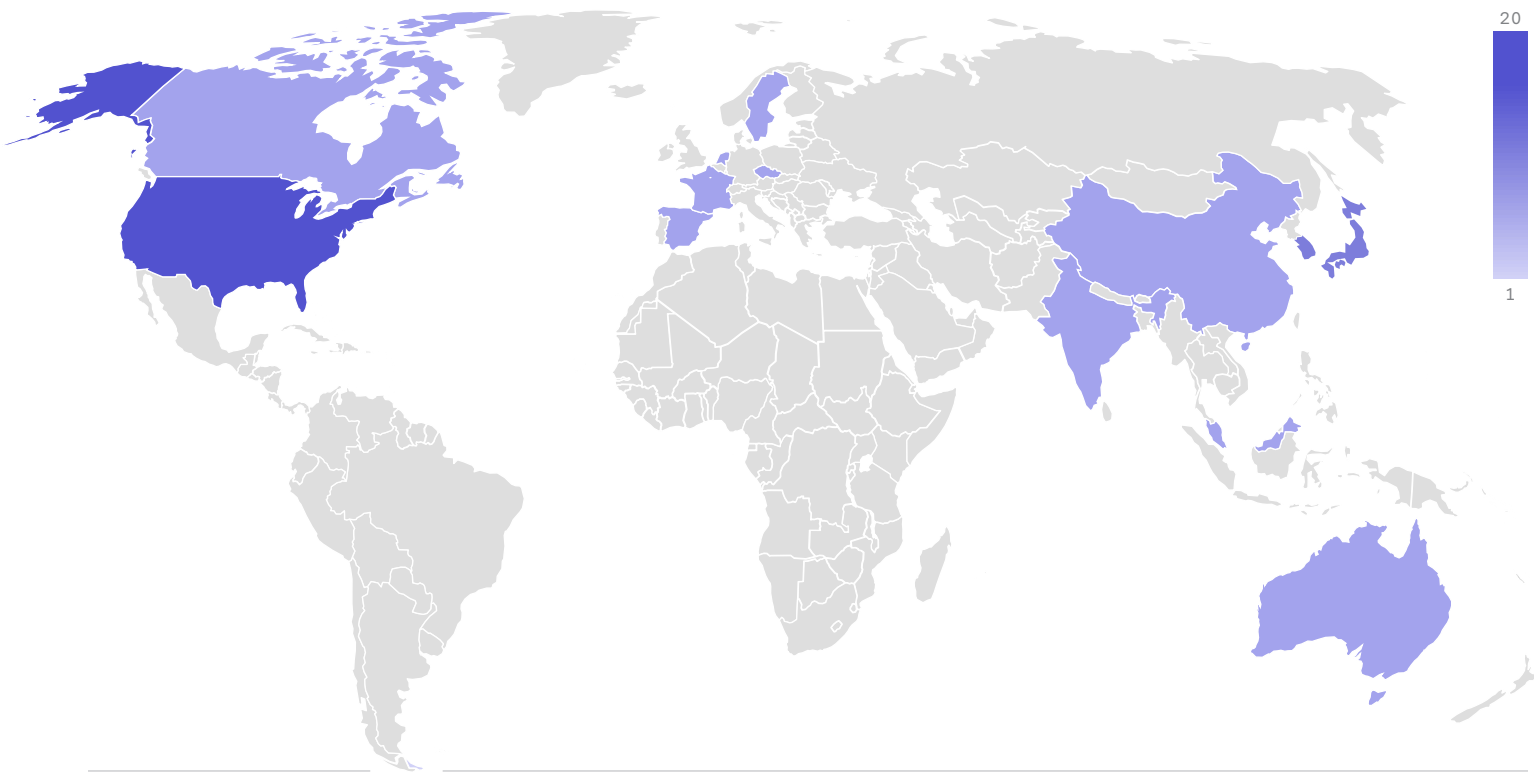
COUNTRIES REPRESENTED IN TOP 40			
United States	19	India	1
Japan	6	Malaysia	1
Australia	2	The Netherlands	1
South Korea	2	Singapore	1
Canada	1	Spain	1
China	1	Switzerland	1
Denmark	1	United Kingdom	1
France	1		

TOP 40 HEALTHSPAN TEAMS BY SECTOR

The sector breakdown of Healthspan Semi-Finalist Teams shows strong representation from Biotech companies and Universities, which together comprise the majority of the Top 40 Teams. Compared to the broader pool of Qualifying Submissions, the Top 40 reflects a notable shift toward Teams with institutional affiliations, with fewer individual or small group entrants moving forward.

TOP 40 HEALTHSPAN TEAM SECTORS

Biotech Company
44.2%

Consortium
4.7%

Academic-Industry Partnership
4.7%

Individual or Small Group
4.7%

Students
2.3%

Clinic
4.7%

University
34.9%
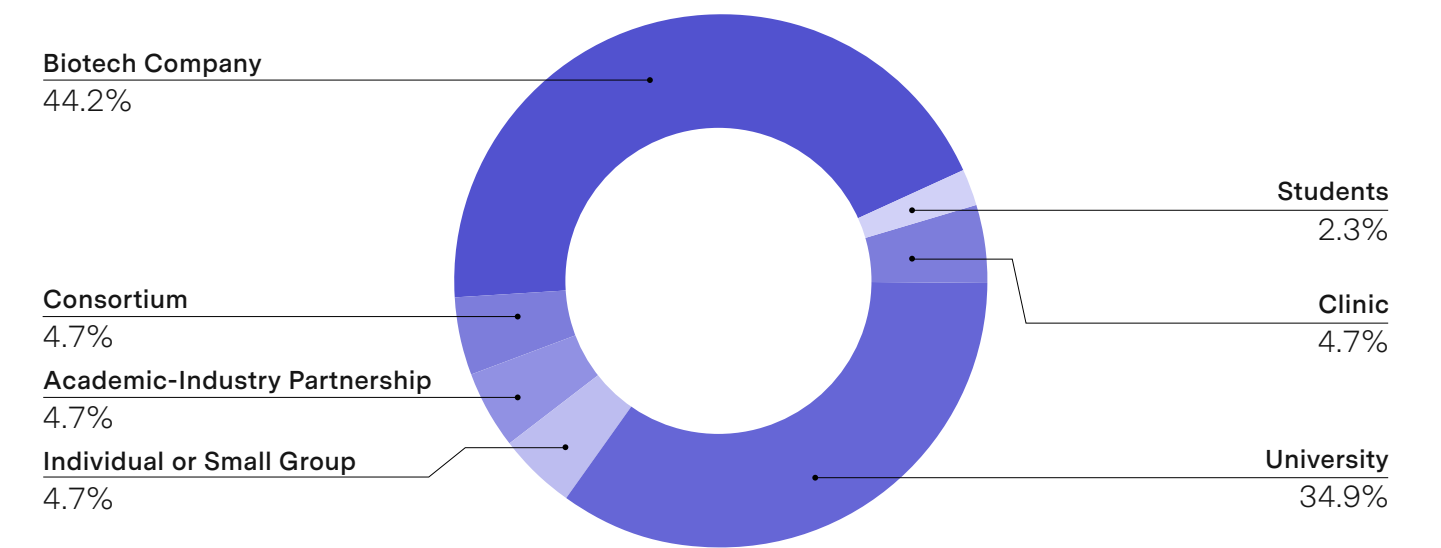
TOP 40 HEALTHSPAN INTERVENTIONS

Within the top 40 Healthspan Teams, the distribution of proposed interventions changes slightly. Nutraceuticals and Stem Cell based therapies remain in the top three most common proposals, outnumbered only by multi-modal interventions. The modalities in figure below show only the primary modality proposed by each of the Top 40 teams; multi-modal interventions are not double counted.

Devices
3%

Multi-Modal
27%

Gene Therapy
2%

Nutraceutical
20%

Repurposed Drug
13%

Stem Cell Therapy
5%

Novel Drug
13%

Extracellular Vesicles
5%

Immunotherapy
5%

Reprogramming
2%

Novel Biologic
5%

Biologics (24% Total)   Drugs (26% Total)
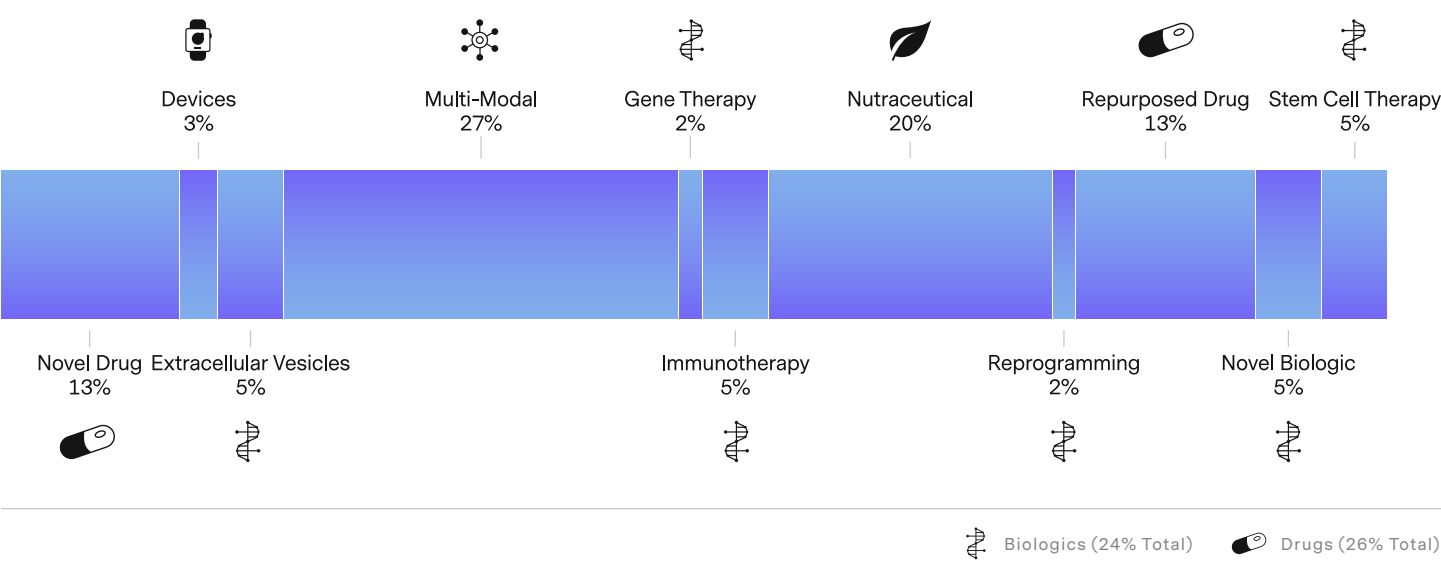
MULTI-MODAL THERAPIES

The categories above are presented as primary therapies only; subcategories contributing to mulit-modal therapies or secondary / adjuvant therapies are not included to prevent double-counting approaches within the Top 40. However, when subcomponents of multi-modal approaches and secondary combinations are considered, a more complete picture of the Top 40 strategies emerges. The majority of Multi-Modal or targeted combination therapies crossed only two modality categories, for example Lifestyle / Behavioral Intervention in combination with one other category (Drug, Device, Biologic, or a Nutraceutical / Functional Food).

Three Top 40 Team proposals included three categories of intervention:

❯ Repurposed drugs + Nutraceuticals + Lifestyle and Behavioral Intervention

❯ Biologic (gene therapy) + Device (bioelectric stimulation) + Exercise

❯ Functional Food and Nutraceuticals + Device (electrical stimulation + Lifestyle and Behavioral Intervention

Of the Teams proposing Multi-Modal approaches, the following were observed:

❯ 100% (11 of 11) included a Lifestyle or Behavioral Intervention component

❯ 64% (7 of 11) included a Functional Food or Nutraceutical component

❯ 45% (5 of 11) included a Novel or Repurposed Drug

❯ 18% (2 of 11) included a Device (electrical stimulation or low frequency ultrasound)

❯ 18% (2 of 11) included a Biologic (gene package injection or klotho mRNA therapy)

DRUGS AND SMALL MOLECULES

Many teams proposed drugs and small molecules, either as a primary approach or monotherapy (26% total) or as part of a multi-modal intervention (15%). Of those proposing drug therapies, the Top 40 approaches were evenly split between novel and repurposed drugs or small molecules. Of those proposing drug therapies, hypoglycemics and obesity targeting drugs were most highly represented, followed by mTOR inhibitors, senolytics, neuroprotective agents, inflammasome inhibitors, and the antiretroviral drug lamivudine.

Novel drugs and small molecules were almost exclusively proposed as a monotherapy excepting a combination novel senolytics and mTORC1 inhibitor. Repurposed drugs were more likely to be administered in combinations with other agents. Only the repurposed drugs metformin and a GLP-1 agonist / dual agonist were proposed as primary drug therapy.

Other repurposed drug combinations included:

❯ metformin with DHEA and growth hormone for thymic rejuvenation

❯ GLP-1 agonist / dual agonist with statins

❯ rapamycin with naltrexone

❯ rapamycin with spermadine and lamuvidine

❯ SGLT2 inhibitor with vortioxetine (neuroprotective) and a senotherapeutic

TOP 40 TEAM DRUG CATEGORY	# TEAMS PROPOSING	ALONE	COMBO
Hypoglycemics and Obesity Targeting (Total)	**4 (Total)**		
Metformin	2	1	1
GLP1 Agonists or Dual Agonists	2	1	1
SGLT2 Inhibitors	1		1
Rapamycin & mTOR Inhibitors (Total)	**3 (Total)**		
Rapamycin	2		2
SGLT2 Inhibitors	1		1
Senolytics or Senotherapeutics	2		2
DHEA and Growth Hormone	1		1
Neuroprotective, Anti-Neuronal Degeneration	2		2
Novel Inflammasome Inhibitors	2	2	
Antiretroviral (Lamivudine)	2		2
Opioid Antagonist (Naltrexone)	1		1
Actin Polymerization Inhibitor (Cytochalasin D)	1		1
Statin	1		1
Novel Mitochondrial Targeting Small Molecule	1	1	
Targeted Protein Degradation Therapy	1	1	
Novel Small Compound - Uncategorized	1	1	

NUTRACEUTICALS AND FUNCTIONAL FOODS

Among the Top 40 Teams, many proposed nutraceuticals, vitamins, herbal supplements, and functional foods. The dominant approach was to combine multiple types of nutraceuticals, supplements, and functional foods - hence the over count of nutraceutical, supplement, and functional foods relative to number of teams.

Exceptions were five Teams who proposed the use of select nutraceuticals or functional foods alone as a targeted primary or monotherapy and not in combination with other nutraceuticals, foods, or multi-modal interventions.

NUTRACEUTICALS & FUNCTIONAL FOODS	# TEAMS PROPOSING	ALONE	COMBO
Functional Foods	7	0	7
Urolithin A	3	1	2
NAD+ and NMN	3	0	3
Ketone Esters	3	1	2
GlyNAC (glycine, N-acetylcysteine)	2	1	1
Flavinols	2	1	1
Other Nutraceuticals or Supplements	13	1	12

🏋 LIFESTYLE AND BEHAVIORAL INTERVENTIONS

As noted previously, all teams proposing Multi-Modal and personalized therapeutic approaches included at least one type of Lifestyle and Behavioral Intervention. Inclusion of exercise training (aerobic, resistance training, or yoga) and dietary approaches (e.g. caloric restriction, balanced or whole foods diet, intermittent fasting, high protein) were by far the most common approaches. Other teams included sleep or circadian protocols, community based components, cognitive training, or music therapies with dance.

The intensities of the proposed Lifestyle and Behavioral Interventions varied greatly, with some Teams opting for vigorous exercise programs, while others adopt general health and community wellness programs as a standard of care for a primary novel intervention.

LIFESTYLE AND BEHAVIORAL INTERVENTION	# TEAMS PROPOSING
Exercise	9
Caloric Restriction or Dietary	7
Sleep and Circadian	3
Community Based or Social	3
Dance or Music Based	1
Cognitive Training	3

TOP 40 FSHD FINALIST AWARDEES

In the FSHD track, the U.S. was heavily represented, accounting for 6 of the 8 Finalist Teams. Japan also performed impressively, with 1 of the 5 qualified submissions selected for a Finalist spot. France's 1 submission made it to the Finals.
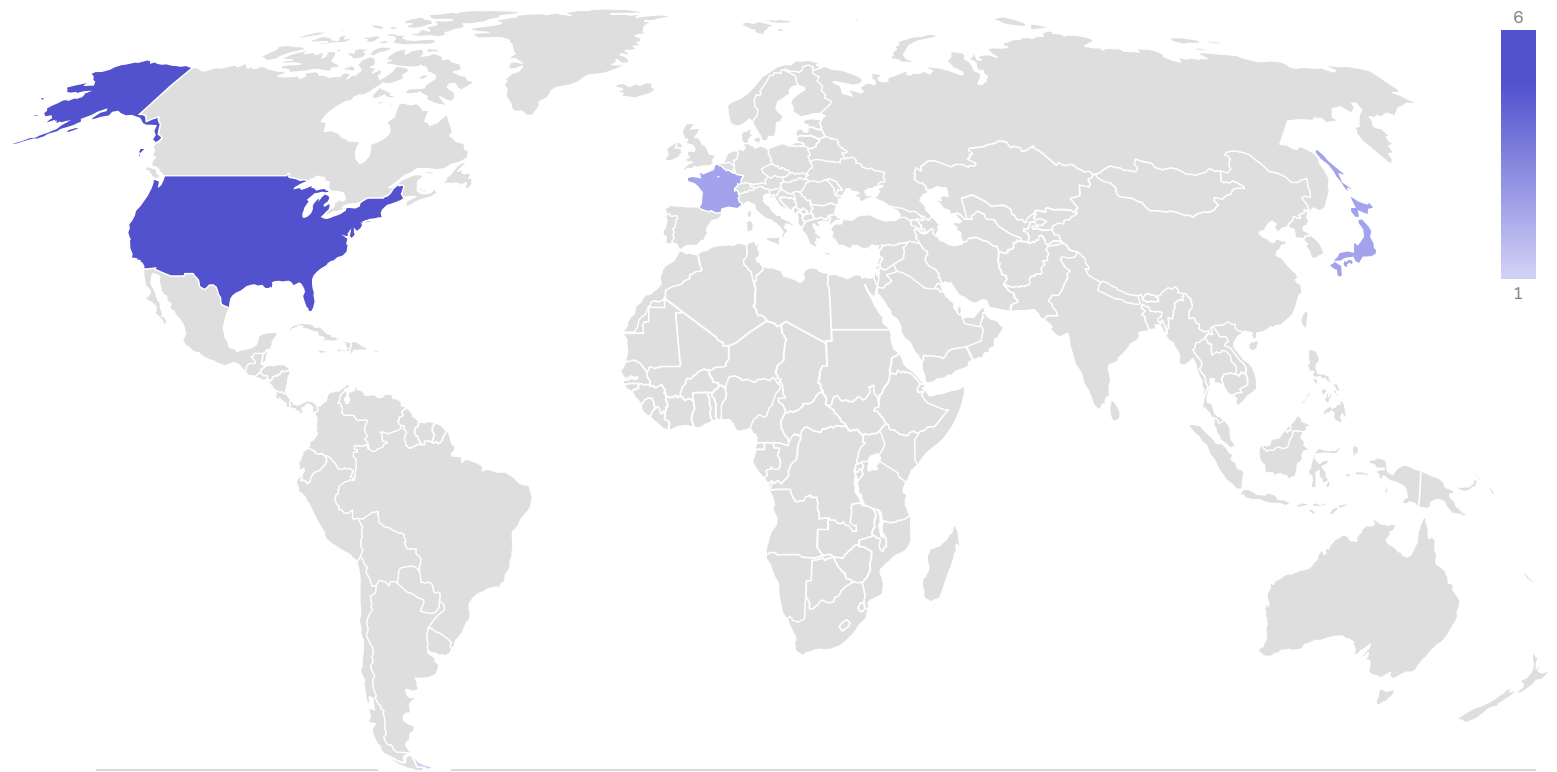
TOP 8 FSHD TEAMS BY SECTOR

Among the FSHD Finalist Teams, there is a clear majority of biotech companies. An individual/small group Team and a University-affiliated Team comprise a small proportion. This mirrors the broader trend seen in the qualifying submissions, where biotech Teams comprised a significant share of total entries.

TOP 8 FSHD TEAM SECTORS

Individual or Small Group
12.5%

Biotech Company
75.0%

University
12.5%
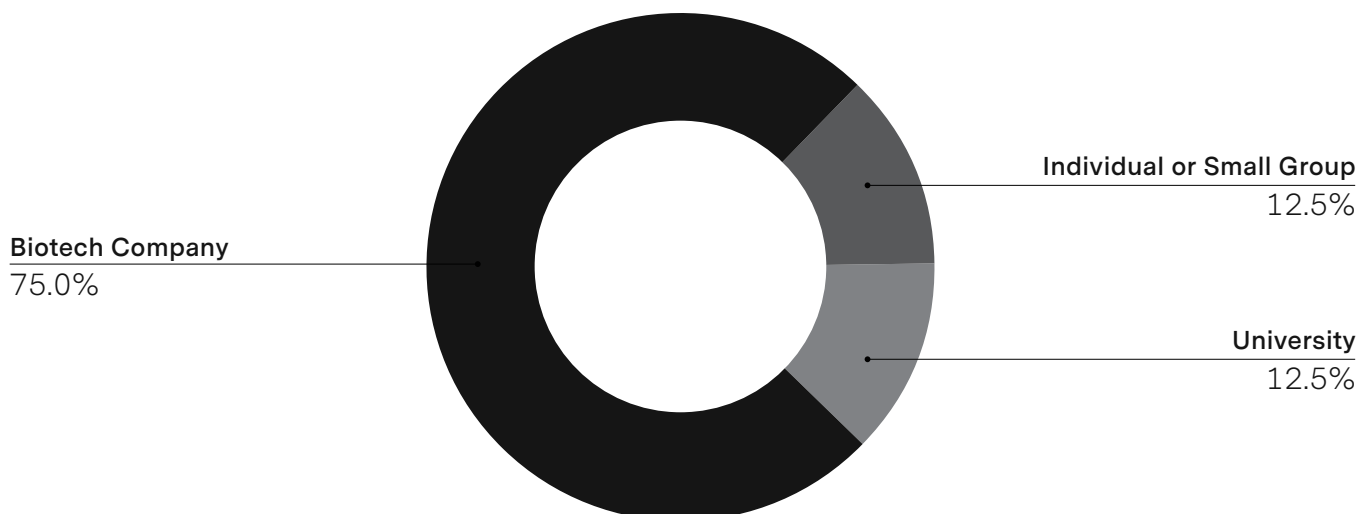
TOP 8 FSHD INTERVENTIONS

As opposed to the Top 40 Healthspan Teams, the distribution of proposed interventions for FSHD Finalists are exclusively Monotherapies. Of these Top 8, 5 Team approaches include Drugs or Small Molecules (1 Repurposed, 4 Novel), and 3 Biologics - all of which are different gene therapies delivered using adeno-associated viral vectors (AAVs).

Though seemingly more similar than the modalities for Healthspan, each of the Top 8 teams differed considerably in rationale, mechanistic target, approach and scientific expertise. Two of the Top 8 Teams will conduct trials in FSHD for the first time, and one Team (ANI Biome) was named as a Finalist for FSHD Bonus Prize and a Top 40 winner for Healthspan Milestone 1, though using different screening and intervention approaches in the two tracks of the competition.

PRIMARY MECHANISMS FOR TOP 8 FINALISTS OF FSHD BONUS PRIZE

DZ4Z Repeat Domains
28.6%

Dysbiosis, Immune & Inflammation
14.3%

DUX4 Expression
28.6%

Genomic Instability & Repair
14.3%

Epigenetic Alteration
14.3%
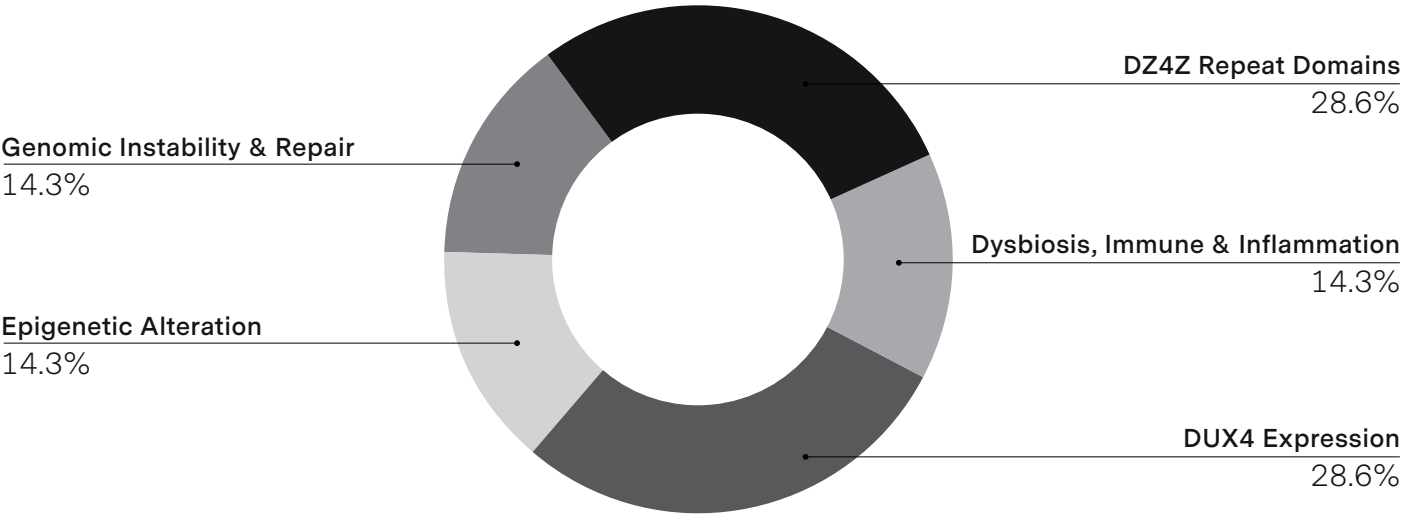
APPENDIX A.

List of Teams with Complete Registration & Qualifying Submissions

HEALTHSPAN

TEAM NAME	LOCATION	TOP 40	TOP 100
2D AntiAging Proteins	US, Taiwan		
5PAudio	Poland, Germany		
A New Dimension	US, UK	✖	✖
ABATE Qr	US, Canada		
Abe Yoando Pharma Co, Ltd.	Japan	✖	✖
ABV Products	US		
Accutar	US		✖
AGE-GRACER	Malaysia		
Ageless - Genome Restoration Collective	Japan		✖
AgelessRx	US	✖	✖
Agemica	UK, US		✖
Alaska International Healthspan	US, Sri Lanka		
Algen	US		
Allen Gee, MD, PhD, FAAN	US		
Alpha and Omega	US		
Alpha Rejuvenation Inc.	US		✖
Altay Therapeutics	US		
Ambrosia Labs	Curaçao		
Amchi Gendynamy Company Limited	China		
ANI Biome	US	✖	✖
ASAGI Labs	Japan		✖
ASIRT Health	US		
ASU Team Healthspan	US		✖
AutoHeal	India		
AutoPhagyGO	Japan	✖	✖
Aviv	US, Israel, United Arab Emirates		✖
Axxium Life	US, The Netherlands		✖

HEALTHSPAN

TEAM NAME	LOCATION	TOP 40	TOP 100
bBHC	South Korea		✖
Beiwe	US		✖
BenchMark-BrainRecovery	US		
BioAge Labs	US	✖	✖
BioArmor	Malaysia	✖	✖
BlueBird Longevity	UK, Switzerland		✖
BOOCS & Plasmalogen	Japan		✖
Boston Healthspan Team	US	✖	✖
BrightCore	Japan, US		
Buckeye Team	US		
Canadian Translational Geroscience Network	Canada	✖	✖
CHANGS	Thailand, China, Germany		✖
Circadian	US		✖
Cura Therapeutics	Canada		✖
Cyclarity Therapeutics	US, Australia		✖
DeAging	Singapore		
Deciduous Therapeutics	US		✖
EFFEPHARM	China, India		✖
EGAceutical	US		
Emen4Sport	US		
Enterprise	US		
Eon Project	Spain		
EpiTransfer	Norway		✖
ERAP Trial Group (Karolinska Institute)	Sweden		✖
Eureka30	US, UK		
Exomed	Australia	✖	✖
ExoNovaX	Japan		✖

HEALTHSPAN

TEAM NAME	LOCATION	TOP 40	TOP 100
Extended Longevity Protocol	US		
Forever Young	US		
FuturVille-VulcanVille	Canada		✖
GI Innovation	South Korea, Australia	✖	✖
Gladden Longevity	US		
Global Health Span Extension-Consortium	Switzerland		✖
Goda Lab	Japan	✖	✖
GOQii Sanjeevini	India	✖	✖
Gplife Healthcare Pvt Ltd	India		
Happyvity	Canada		
Heal Like Me	US		
HealthQuest	US		
Healthy Longevity Clinic	US	✖	✖
Help Patients with Alzheimer's Disease	China, Australia		
HONYA M	Taiwan		✖
Hoskinson Health	US		✖
HumanGood	US		✖
Ilumirra	US		
Immortalite	US		
Immunis	US	✖	✖
Imperio Alquimista	Colombia		
Inheritor of Huang's Legacy	China		
Initiate Age Reversal	New Zealand		
Inner Science	US, Costa Rica		✖
Intervene Immune	US	✖	✖
Japan Longevity Consortium	Japan	✖	✖
JK-NEW	China		

HEALTHSPAN

TEAM NAME	LOCATION	TOP 40	TOP 100
JoeKai	China		
Keymed Biosciences CM383	China		
Kimera Labs	US	✕	✕
Klotho Longevity	US		✕
LIFE IS LONG	Japan		✕
LiGHT Team	US, South Korea		✕
LinkGevity	UK, Poland		✕
Lionheart Health Inc.	US, Mexico	✕	✕
Livvon Longer	US		
LogIN (Longevity Innovator)	Japan	✕	✕
London Longevity Clinic	US, China		
Longeveron Inc.	US	✕	✕
Longevity Extension & Aging Prevention Network	US, Japan		
Longevity Ukraine	Ukraine		
Lono Jaeyak	South Korea	✕	✕
Maharaj Institute Regenrative Foundation	US		
Marcus STAMINA Team	US		
Matter Bio	US		✕
Memory Air	US		✕
Metformin for Healthspan Extension (MetHealthspan)	US	✕	✕
MetroBiotech	US		✕
Minicircle	US, The Bahamas	✕	✕
Minovia	Israel, Germany, US		✕
Mitochondrial All-Stars	US	✕	✕
Mitochondrial Bioenergetics & Ketone Utilization	US	✕	✕
Mito-tags	US	✕	✕
Morris Biotech LLC	US		

HEALTHSPAN

TEAM NAME	LOCATION	TOP 40	TOP 100
MyMenu Moonshot	US		
MyoProtect	Germany		
Nano Innovation	Argentina		
NeuExcell	China		✕
NEXQ	US		
Nextrin	US		
Nishimura Lab	Japan		✕
Nonconformity	US		
NOVOS Labs	US, Thailand		✕
NUS Academy for Healthy Longevity	Singapore	✕	✕
NYC-Vita	US	✕	✕
oRx-20 Age Deceleration Consortium	UK, US		
Pacific Neuroscience Institute	US		✕
Parrots	US		
Pentara Brain Stride	US		
Project Otto	New Zealand		
Project Serotonin	US		
Prometheus Cell Team	China	✕	✕
Propion	US		✕
Qu Biologics - RESILIENCE Team	Canada		✕
R42 Group	US		✕
Reboot Labs	US		
Regenelead	China		
Regenerative Bio Inc.	China		✕
Rejuvenate Bio	US		✕
Rejuvenation Biotech	China		
Rejuvenation Science Institute	Brazil		

HEALTHSPAN

TEAM NAME	LOCATION	TOP 40	TOP 100
Rejuvenation Through Low Frequency Ultrasound	US	✗	✗
Renewal Bio	Israel		✗
reOrigin	China		
RETRO-EPIGERNA	China		✗
RPRGAON-Progeria	South Korea, US	✗	✗
Space Seed	Japan		
Space-Aging Research Institute (SARI)	US		
StatePlusPlus	US		
SUMMITYLE	China		
SynerGen7	Canada		
TAZ Inc.	Japan		✗
Team Everest	US		✗
Team GlyNAC	US	✗	✗
Team Gravity	Japan, US		
Team Infinity	US		
Team Inflammasome	US		✗
Team NovaVita	US		✗
Team Optistasis	US		
Team Sialic Acid	Japan		
Team Twilight	The Netherlands, US		✗
Team XM	China		✗
Tellastella	Japan, Switzerland		
Texavie	Canada		
The EBIMA Trial	US		✗
The Healthy Mind & Body	US	✗	✗
The Immortality Project	US		
The RIGHT Team	US		✗

HEALTHSPAN

TEAM NAME	LOCATION	TOP 40	TOP 100
Thrive Precision Health	US		
TIME TRAVELER	US	✖	✖
Timeline	Switzerland	✖	✖
Tricision Healthy Aging Vaccine	China		
University Hospital Institute (IHU) HealthAge	France, US	✖	✖
Unlimited Bio	Honduras		✖
Virtuleap	Portugal, Spain		
VITA	Spain	✖	✖
Voodoo	US		
Wello	Lithuania		
XI Optimal Genetics	US		
TAZ Inc.	Japan		
YouthGeyzer (YG)	US		✖
YOXLO	The Netherlands, Ireland	✖	✖

FSHD

TEAM NAME	LOCATION	TOP 8
2D AntiAging Proteins	US, Taiwan	
5PAudio	Poland, Germany	
A New Dimension	US, UK	
AGE-GRACER	Malaysia	
Ageless - Genome Restoration Collective	Japan	
Agemica	UK, US	
Algen	US	
Alpha Rejuvenation Inc.	US	

FSHD

TEAM NAME	LOCATION	TOP 8
Altay Therapeutics	US	✖
ANI Biome	US	✖
ASAGI Labs	Japan	✖
ASIRT Health	US	
ASU Team Healthspan	US, France	
Autoheal	India	
Axxium Life	US, The Netherlands	
Beat-FSHD	US	✖
BioArmor	Malaysia	
Cura Therapeutics	Canada	
Epicrispr Biotechnologies	US, New Zealand	✖
Extended Longevity Protocol	US	
Goda Lab	Japan	
Health Quest	US	✖
Immortalite	US	
Keymed Bioscience CM383	China	
Klotho Longevity	US	
London Longevity Clinic	US, China	
Longevity Immunotherapy	US	
Longevity Ukraine	Ukraine	
Lono Jaeyak	South Korea	
MitoFSHD	Belgium	
Modalis Therapeutics	US	✖
NexQ	US	
Nextrin	US	
Pentara Brain Stride	US	
R42 Group	US	

FSHD

TEAM NAME	LOCATION	TOP 8
Regenerative Bio Inc.	China	
Rejuvenate Bio	US	
Rejuvenation Biotech	China	
Rejuvenation Centre	South Africa	
Rejuvenation Trinity	Japan	
SNPM - Chu Nice	France, Canada	✖
Space-Aging Research Institute (SARI)	US, The Bahamas	
SUMMITYLE	China	
Team Armatus Bio	US	✖
Tellastella	Japan, Switzerland	
Texavie	Canada	
Xi Optimal Genetics	US	

APPENDIX B.
Scientific Advisors

NAME	HON.	LOCATION	AFFILIATION (PRIMARY)
Steven Austad	PhD	Endowed Chair in Healthy Aging and Distinguished Professor of Biology	University of Alabama Birmingham
Nir Barzilai	MD	Ingeborg and Ira Leon Rennert Chair in Aging Research Director, Institute for Aging Research	Albert Einstein College of Medicine
Daniel Belsky	PhD	Associate Professor	Columbia University
Peggy Cawthon	PhD	Scientific Director	California Pacific Medical Center Research Institute, University of California San Francisco
Eva Chin	PhD	Executive Director	Solve FSHD
Aubrey de Grey	PhD	Founder, President, and Chief Science Officer	LEV Foundation
William Evans	MD	Professor, Department of Medicine	Duke University
Luigi Ferrucci	MD, PhD	Scientific Director	National Institute on Aging, NIH
George Kuchel	MD	Professor of Medicine, Travelers Chair in Geriatrics and Gerontology Director, UConn Center on Aging	University of Connecticut
Michael Kyba	PhD	Professor of Pediatrics	University of Minnesota
Morgan Levine	PhD	Vice President of Computation	Altos Labs
Patrick Maxwell	MD	Regius Professor of Physic & Head of the School of Clinical Medicine	University of Cambridge
Huong Meeks	MD	Assistant Professor, Department of Pediatrics	University of Utah
Thomas Osborne	MD	Chief Medical Officer	Microsoft
Graham Pawelec	PhD	Professor of Experimental Immunology	University of Tübingen
Thomas Rando	MD, PhD	Director, UCLA Broad Stem Cell Research Center	University of California Los Angeles
Perminder Sachdev	MD, PhD	Sceintia Professor of Neuropsychiatry	UNSW Sydney
Nicholas Schork	PhD	Distinguished Professor and Director of the Division of Clinical Genomics and Therapeutics	Translational Genomics Research Institute
Risa Starr	MBA, MPH	Executive Director	Longevity Biotech Association
Erwin Tan	MD	Director of Thought Leadership	AARP
Roland Thorpe	PhD	Professor of Health, Behavior and Society	Johns Hopkins University
Alex Zhavoronkov	PhD	Founder & CEO	Insilico Medicine

APPENDIX C.

Prize Sponsors

SPONSOR NAME	SPONSORSHIP	REPRESENTATIVE (IF APPLICABLE), ROLE & COMPANY AFFILIATION
Hevolution Foundation	Co-Title Sponsor	Mehmood Khan, CEO
Solve FSHD	Co-Title Sponsor	Eva Chin, Executive Director, Solve FSHD Jason Gaede, President, House of Wilson
GSK	Pharmaceutical Sponsor	
SeneGence	Sponsor	CEO, Kante Group and Chief Strategy Officer, SeneGence
Brett Blundy	Sponsor	Chairman and Founder, BB Retail Capital (BBRC)
Carl Barney	Sponsor	Founder, Prometheus Foundation
Charlie & Lori Epstein	Sponsor	Owner, Yield of Dreams LLC and Vice President, HUB Retirement and Wealth Management
Chris Ouwinga	Sponsor	Chairman, Unit4 NV
Christian Angermayer	Sponsor	Founder, Apeiron Investment Group
Christian Peneff	Sponsor	President, Merx Global Inc.
Daniel Krizek	Sponsor	Portfolio Manager, Surveyor Capital
David Beck	Sponsor	President, Wilson M. Beck Insurance Services (Alberta) Inc.
Howard Morgan	Sponsor	Chair and General Partner, B Capital Group
Kasia Bordier	Sponsor	Co-Founder, Nest-360
Mark Siegel	Sponsor	Founder & President, ReMY Investors & Consultants, Inc.
Peter Diamandis	Sponsor	Founder and Executive Chairman, XPRIZE Foundation
Rob Hamwee	Sponsor	Managing Director, New Mountain Capital
Sergey Young	Sponsor	Founder, Longevity Vision and Co-Founder, BOLD Longevity Growth Fund
Todd Wanek	Sponsor	CEO, Ashley Furniture HomeStores
Howard & Nancy Marks	Sponsor	Co-Chairman, Oaktree Capital Management

INNOVATION LANDSCAPE
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PRIZE REGISTRATION & QUALIFYING SUBMISSIONS