



JUVENESCENCE

Reimagine a lifetime

INVESTOR PRESENTATION

Q1 2022



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Juvenescence is a new kind of biotech company focused on health and prevention.

Focusing on health means beginning our journey with people to stop them becoming patients.

**Our purpose is to
extend Healthspan**



JUVENESCENCE

A disruptive biotech developing novel therapeutics with a deep focus on the science and effects of ageing and age-related diseases



Founders with exceptional track records of value creation

World class science team

Diverse pipeline combines significant potential in Rx with short term revenue

Multiple value creation options

Established in 2017 by three industry leaders with a strong track record of creating shareholder value



Jim Mellon
Chair, Co-founder



Dr. Greg Bailey
CEO, Co-founder



Dr. Dec Doogan
CMO, Co-founder



Founders invested in Portage Biotech with \$4 million to build a cancer immunotherapy portfolio.

That portfolio is now valued at over \$200M.



Portage purchased 54% of Biohaven Pharmaceuticals for USD \$3.5 million in 2014 through Portage Biotech.

Biohaven now trades on NASDAQ at a market cap over **USD \$8B.**



Greg Bailey raised Medivation's initial financing and was a Director from 2005 to December 2012.

Medivation was acquired by Pfizer for USD \$14.3B, delivering over 200x returns to Greg's investors.



Dec Doogan revived **Amarin** after a failed Phase III program, transforming the business with a repurposed FDA approval of Vaspeca™ for hypertriglyceridemia.

Ageing science is a substantial market opportunity



Modifying ageing
will be one of the
**top 10 most disruptive
technologies** for
this decade.



Anti-ageing market
will be worth
\$500 billion.

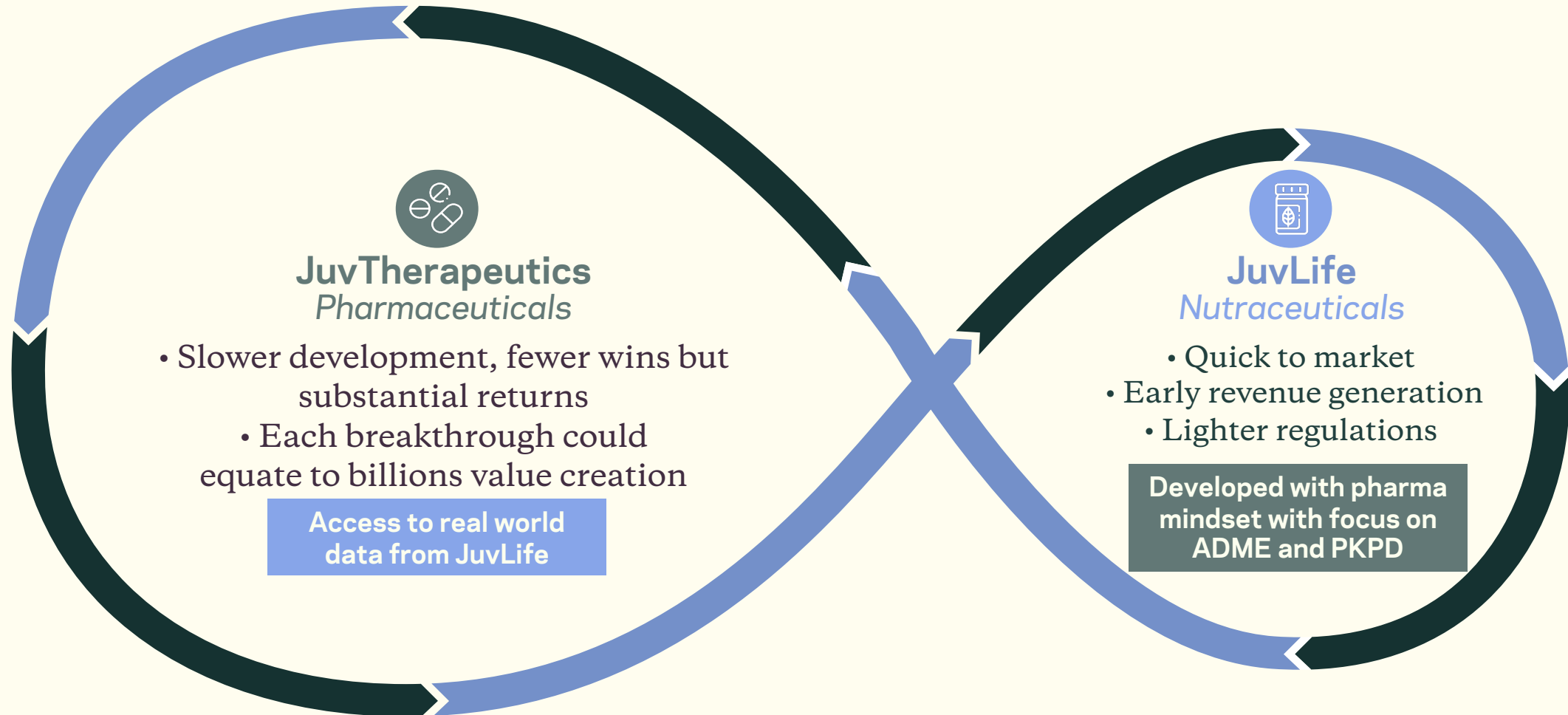


Scientists are working on ways to
re-engineering our biology,
accelerated by the emergence of
**deep learning in clinical trial
research to dramatically improve
drug development.**










Commercial advantages of Juvenescence's unique Nutra-Pharma approach

Bringing pharmaceutical rigor to supplements



An integrated model, each side providing an advantage to the other for mutual gain.

Target indications - Diseases of age represent a huge medical need

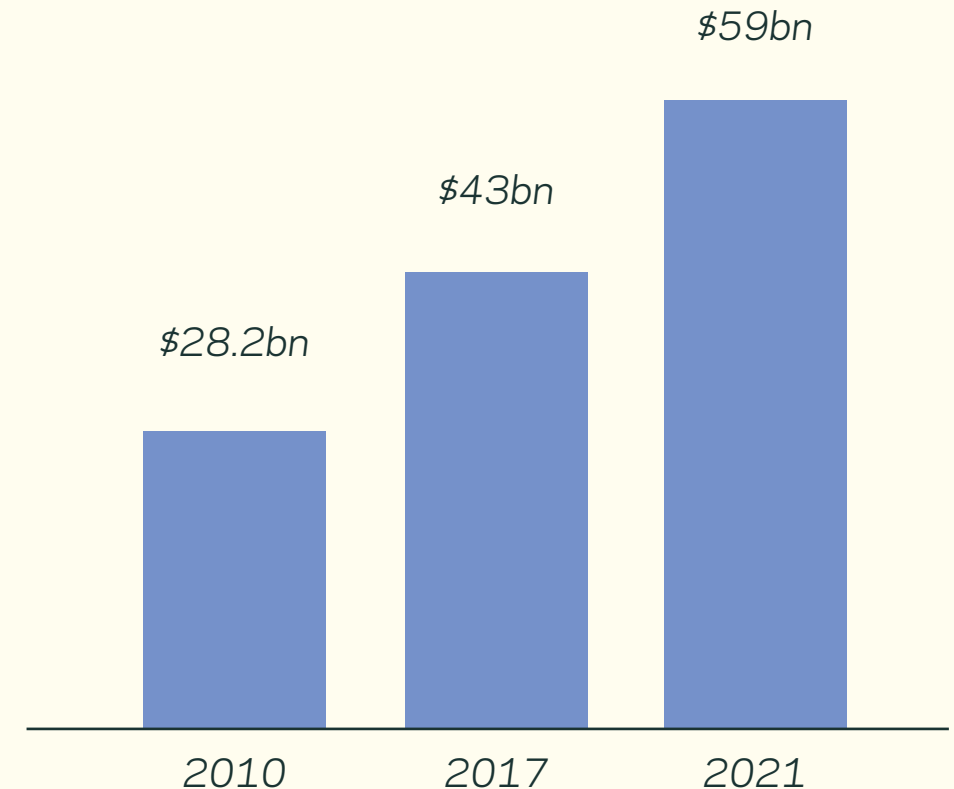
Disease	Global Market	Global Patients
 Heart Disease	\$90bn	520m
 Liver Disease	\$20bn	145m
 Type II Diabetes	\$48bn	20m
 Kidney Disease	\$14bn	697m
 Rheumatoid Arthritis	\$52bn	19m
 Alzheimer's Disease	\$16bn	50m
 Osteoarthritis	\$6bn	300m





Consumer desire to self manage health is driving growth in the supplement market

- Global wellness market is worth more than **\$1.5 trillion** and grows **5% to 10%** each year, per McKinsey.
- **The lines between healthcare and retail will blur even faster in 2022.**
- E-commerce orders increased **129% year-over-year** through mid-April 2020 with **online supplement sales** growing by a stunning 87% year-over-year in 2020.
- Path to \$100 million in net sales per product and at 4X valuation >\$1B based on comparable acquisitions.

Supplement market now worth \$59bn.

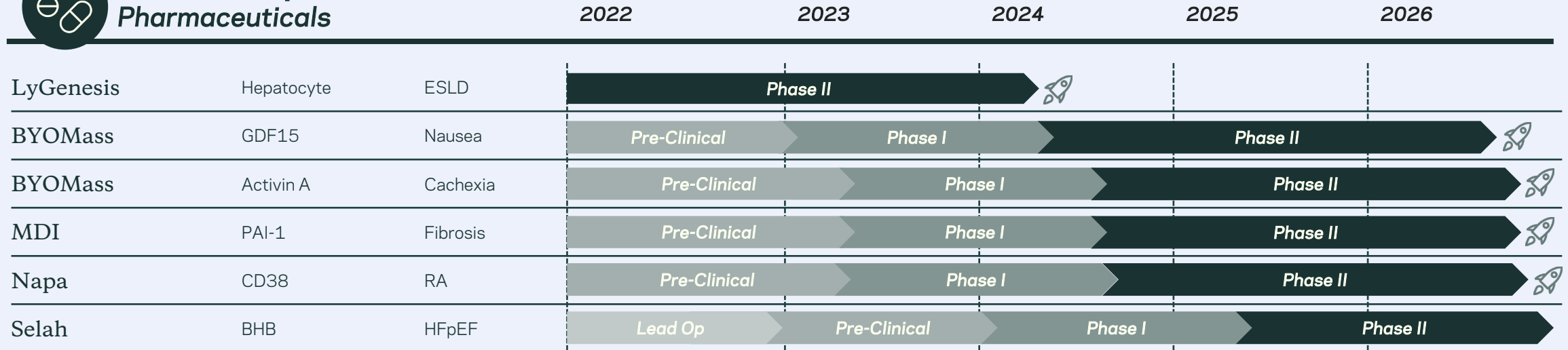


Projects heading into the clinic or onto market

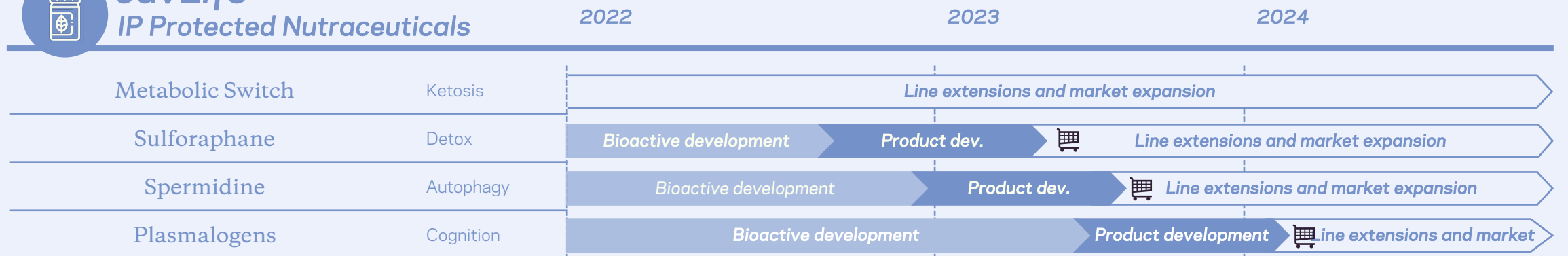
 Monetisation  Marketed



JuvTherapeutics Pharmaceuticals



JuvLife IP Protected Nutraceuticals



Clinical timelines based on GlobalData CT Planner analysis.



JuvTherapeutics

Pharmaceuticals

Small Molecules

Biologics

Cell Therapies



Development team of exceptional drug developers with diverse experience spanning discovery, clinical development, commercial and investment



Dr. Dec Doogan
CMO & Co-founder

Clinician scientist and business leader
Co-founder & CEO - Portage Biotech
Chairman of Biohaven
Former SVP -Worldwide Drug Development at Pfizer
Former CEO - Amarin



Dr. David Roblin
COO

Clinician scientist and business leader
Chair of Scientific Translation - Francis Crick Institute
Former SVP, Head of European R&D - Pfizer
Former VP, Head of EU Clinical Development - Bayer



Dr. Grazia Piizzi
CSO

Organic chemist
Former SVP of Small Molecules R&D & Inflammation - Cygnal Therapeutics
Former Head, Merck Exploratory Science Center



Dr. Steve Felstead
Head of Development

Former Head Clinical Research - Pfizer
Former Therapeutic Area Head, Respiratory Medicine - Pfizer



Dr. Jeff Madwed
Research Project Leader

Biophysicist
Former Director Pre-Clinical Research - Merck
Former Director Pre-Clinical Research - Boehringer Ingelheim

Products the Juv Team were instrumental in developing had peak sales of more than \$30B

Peak Annual Sales

NORVASC®
(amlodipine besylate)
2.5mg, 5mg, and 10mg tablets

\$5 BILLION

SPIRIVA® RESPIMAT®
(tiotropium bromide) INHALATION SPRAY

\$3.9 BILLION

CELEBREX®
(CELECOXIB CAPSULES) 100 mg 200 mg

\$3.3 BILLION

Zoloft®
(sertraline HCl)

\$3.3 BILLION

MICARDIS®
(telmisartan) tablets 20•40•80 mg

\$2.4 BILLION

FLOMAX®
TAMSULOSIN HCl CAPSULES 0.4 MG

\$2.17 BILLION



\$2 BILLION

Zithromax®
(AZITHROMYCIN)

\$1.9 BILLION

VIAGRA®
(sildenafil citrate) tablets

\$1.8 BILLION

Diffucan®
(fluconazole)

\$1.1 BILLION

Nurtec® ODT
(rimegepant)
orally disintegrating tablets 75 mg

\$1 BILLION

GEODON®
(ziprasidone) Capsules

\$854 MILLION

VFEND®
(voriconazole)

\$750 MILLION

Avelox®
moxifloxacin

\$697 MILLION

Vascepa®
(icosapent ethyl)

\$614 MILLION

Revatio®
sildenafil
20 mg tablets

\$285 MILLION

Genotropin®
somatropin (rbe)

\$239 MILLION

Enablex®
(darifenacin)
EXTENDED-RELEASE TABLETS
7.5 mg or 15 mg

\$200 MILLION

SOMAVERT®
(pegvisomant for injection)

\$200 MILLION

Wixela® Inhub®
(fluticasone propionate
and salmeterol inhalation powder, USP)

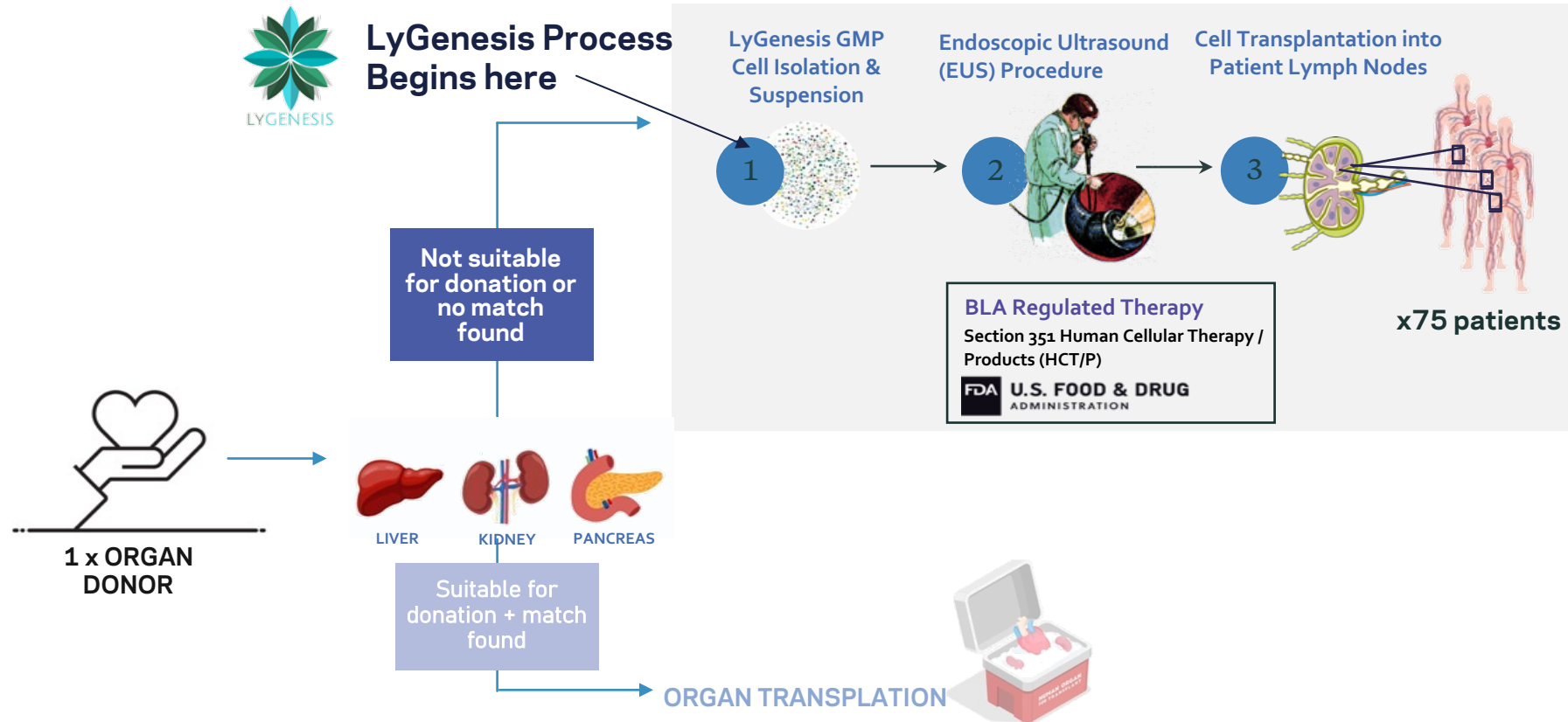
\$200 MILLION

Sirdupla™
salmeterol xinafoate/fluticasone propionate

\$100 MILLION

LyGenesis - Regenerative Medicine

Engrafting allogeneic cells into lymph nodes using outpatient endoscopic ultrasound (EUS) – minor surgery – to generate functional ectopic organs



Phase 2a started Q4 2021, eligible for accelerated approval as early as 2023.

Morphochemicals – Organ Regeneration

Targeting validated targets to spur regeneration in organisms that do not regenerate tissues and organs

[WEBMD HEALTH NEWS]

Scientists Regrow Frogs' Lost Legs. Will Human Limbs Be Next?

By Marcia Frellick

Frog regrows amputated leg after treatment

Nearly complete limb develops over 18 months, raising exciting possibilities for human patients

Scientists regenerated a functional, "almost complete" leg for a frog

[Subscribe to BBC Science Focus Magazine and get 6 issues for just £9.99](#)

The leg regrew after only 24 hours of treatment with a drug cocktail and a silicone 'BioDome'.

By [Sara Rigby](#)
Published: 26th January, 2022 at 19:00

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Frogs regrow amputated legs after treatment with a chemical cocktail

Adult frogs can't usually regrow a lost leg, but they can after treatment with a regenerative cocktail – and the new leg even contains functioning nerves

f t w i r e

HEALTH 26 January 2022
By [Carissa Wong](#)

WYSS INSTITUTE

How We Work Technology

Achieving a milestone, scientists regrow frog's lost leg

January 26, 2022

Frogs briefly treated with a five-drug cocktail administered by a wearable bioreactor were able to regrow a functional, nearly complete limb



Ongoing research will translate this from lower animals to mammals

JuvRegeneration – Stem Cells

partner AgeX

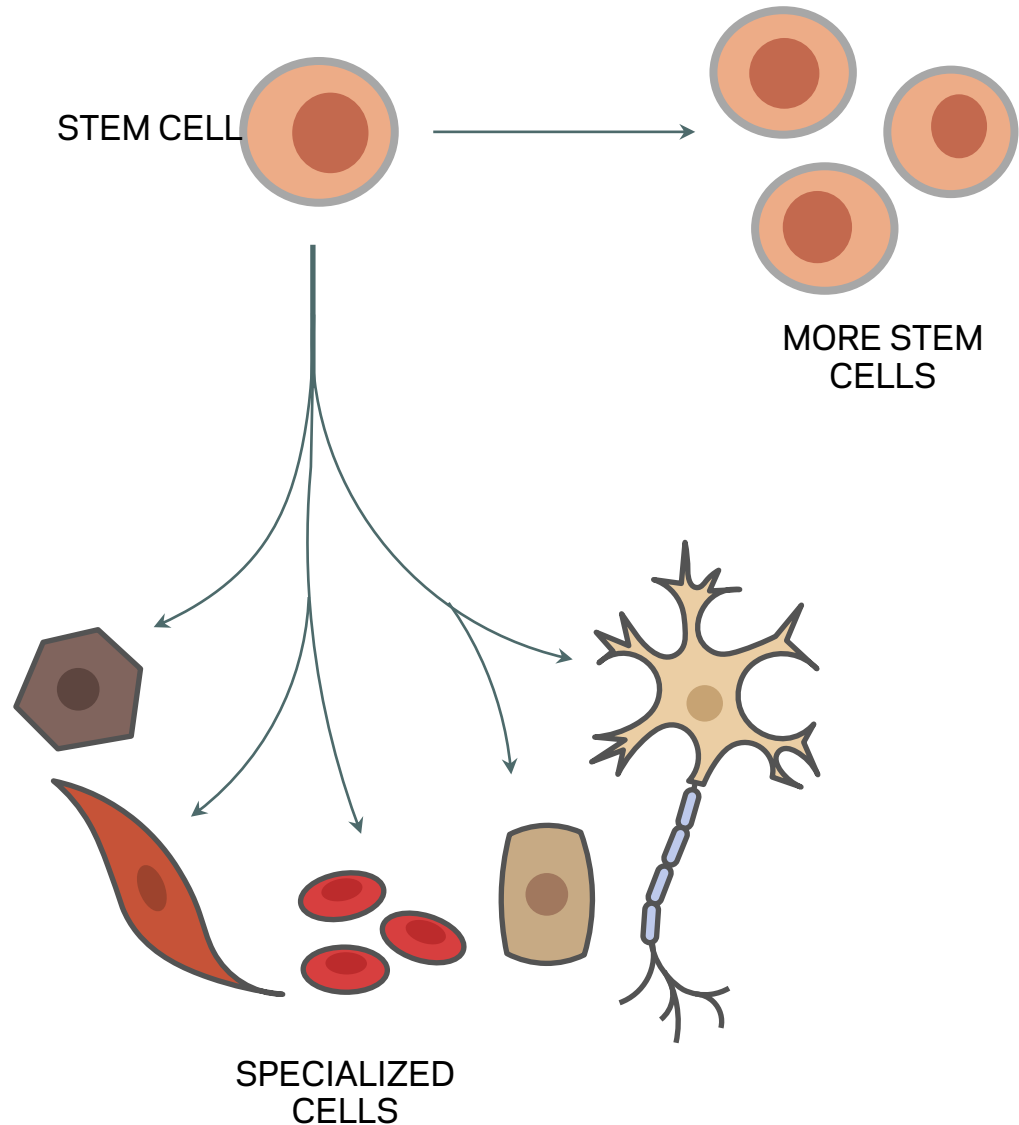
The Dream: replace aging tissue

Three key types of stem cells:

1. Embryonic:
2. **Pluripotent: create all tissues.**
3. Adult / somatic:
Rare and few in number.
Can be induced pluripotent.

200 Cell lines and 100 patents

Industrial manufacturing with no immunosuppression available in every hospital - 1 day old cells.



BYOMass – Platform technology applicable in obesity & fibrotic diseases

Innovation in TGF- β Superfamily Members; BYOMass is a novel platform of biologics and small molecules targeting GDF15 and Activin A



V. Margaret Jackson, Ph.D.

Founder & CEO

Previously
Napa Tx,
Juvenescence,
Pfizer CV/
Metabolic Disease

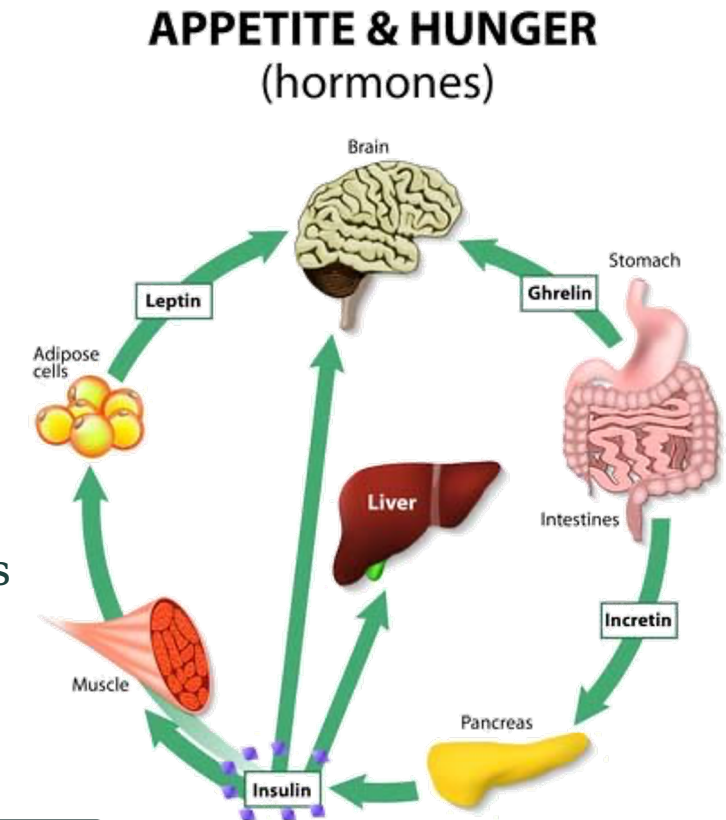
TGF- β superfamily: >30 proteins they regulate tissue morphogenesis and repair, fibrosis, inflammation, neural development, muscle atrophy, appetite, and carcinogenesis.

Creating therapeutics for important unmet needs within obesity, oncology, autoimmune, metabolic and fibrotic diseases.

BYOMass stellar pipeline:

- Biologics: 5 programs targeting obesity, nausea, fibrosis CKD, anorexia-cachexia, osteoporosis
- Small molecules: 2 programs targeting obesity and nausea

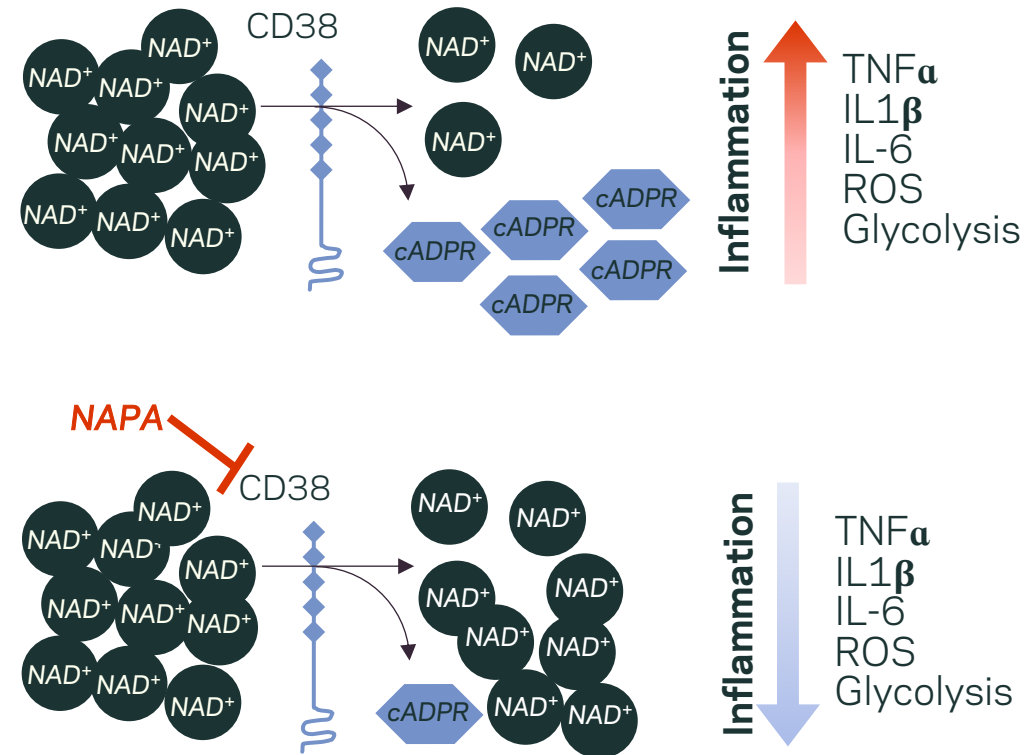
2 clinical candidates nominated. Looking to start Phase 1 trials 1H 2023.



Napa – Reversing Inflammation

Napa have developed an oral potent CD38 inhibitor that elevates NAD⁺ & decreases inflammatory cytokines in RA preclinical models

Napa blocks the activity of CD38 to increase NAD⁺ and inhibit cytokine production.

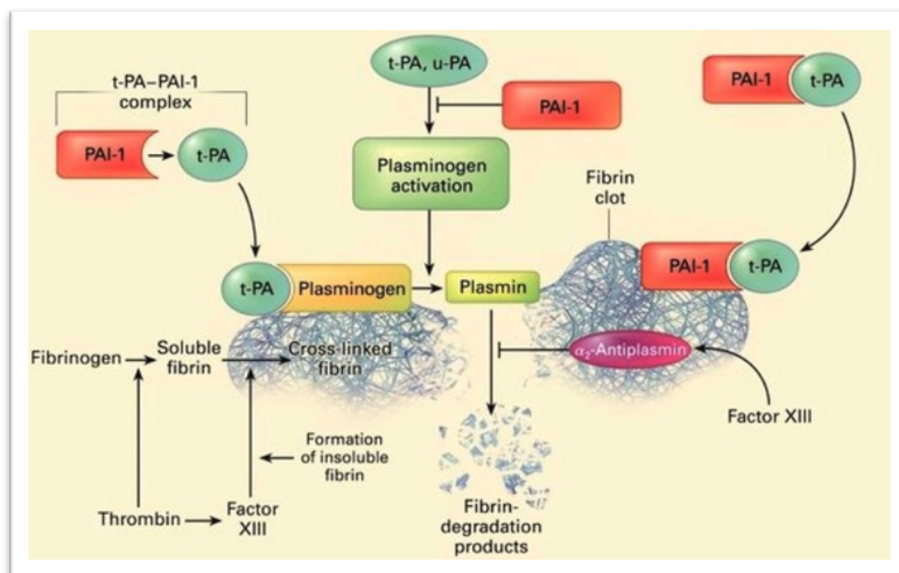


Preclinical experiments completing with potential to enter Phase 1 trials in 2023.

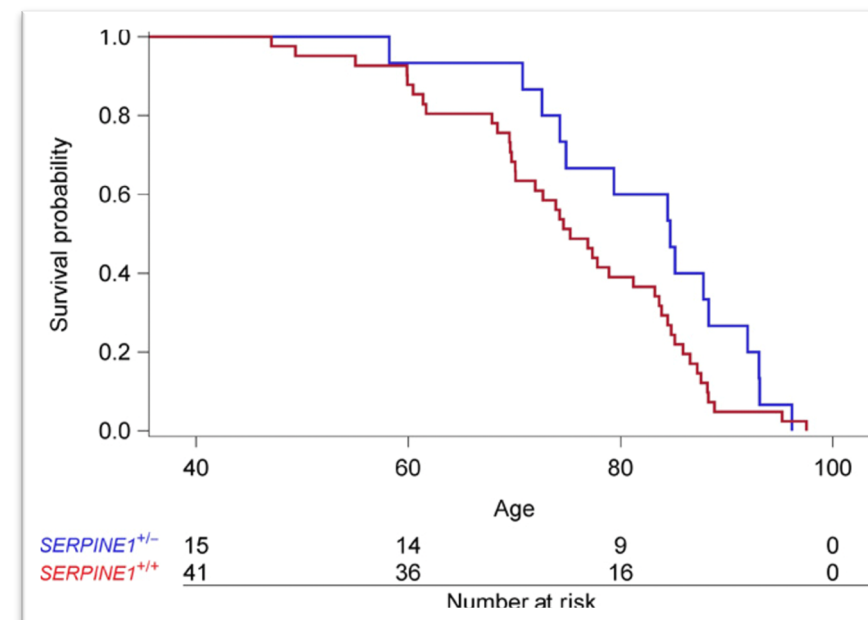
MDI – PAI-1 Inhibition for Fibrotic Diseases & Longevity

Developed a small molecule inhibitor of PAI-1 with efficacy in multiple preclinical models of fibrosis, venous and arterial thrombosis

PAI-1 (Serpine1) is a key regulator of haemostasis and wound healing and is involved in several **fibrotic and cardiometabolic diseases**.



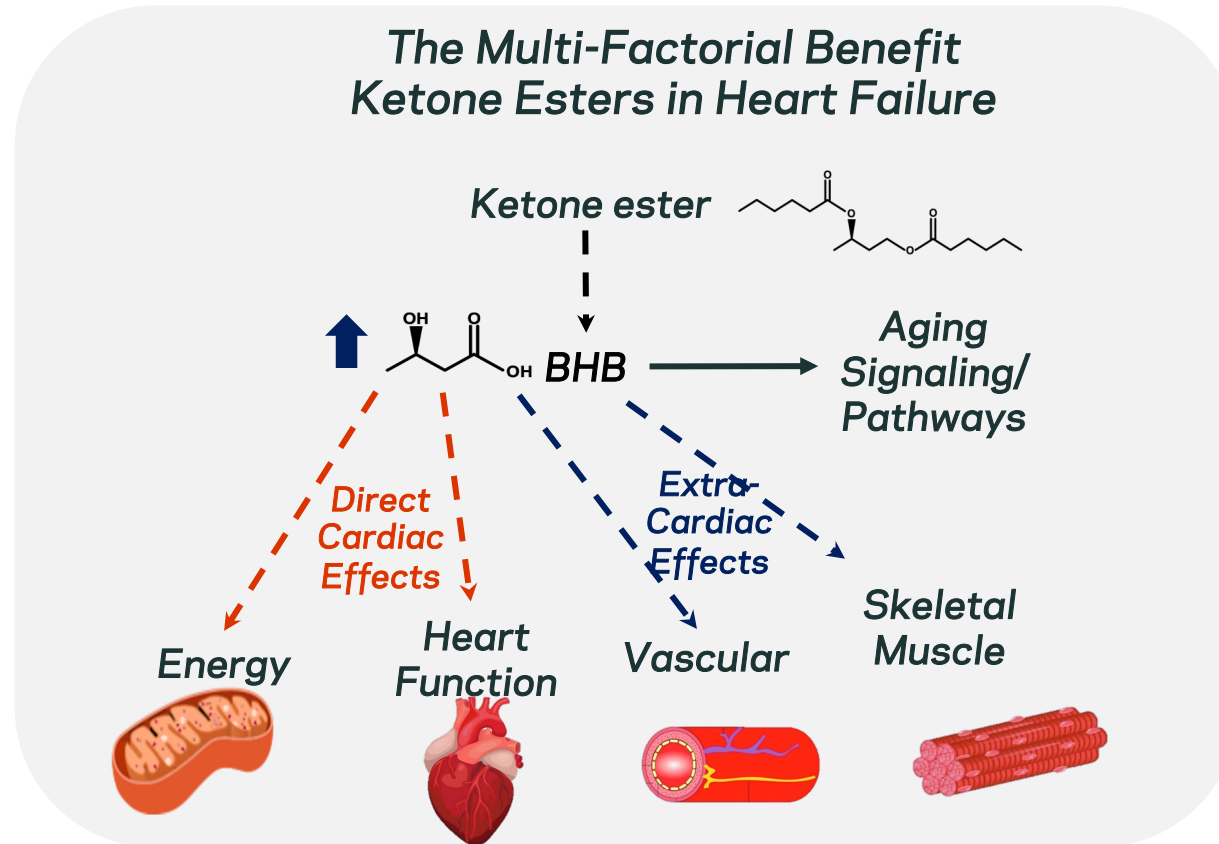
Serpine 1 gene loss of function in heterozygotes from Old Order Amish community shows **decreased mortality** and low expression of **PAI-1**. [Khan et al. Science Adv. 2017]



Aim to complete IND-enabling studies on the lead molecule by Q1 2023.

Selah – Exogenous Ketones Improve the Ageing Heart

Goal to develop a small molecule prescription ketone ester to grow the Juvenescence ketone platform.



Clinical candidate by 3Q 2023 and entering phase 1 trials mid 2024.



JuvLife

IP Protected Nutraceuticals

IP Protected / Clinically Proven Bioactives

Revenue generation

Brand / Consumer engagement



JuvLife management team comprises *industry veterans with strong records* in developing and commercialising nutritional interventions

———— Vision & strategy ———— Commercial ———— Nutrition science ———— Development ———— Brand building —————>



Colin Watts

CEO, The Vitamin Shop
Chief Innovation Officer,
Walgreens
President,
Johnson & Johnson OTC



Tod Henjes

General Manager,
Thermacare
Head of Vitamin
Mineral Supplements,
Pfizer Consumer Health



Dr. Josh Anthony

Founding CSO,
Habit, LLC
VP Global R&D,
Campbell Soup
R&D,
Mead Johnson



Dr. Terry Finocchiaro

Sr. Director,
Pfizer Consumer Health
Director,
J&J Nutrition
Director,
Nutrition F&D Ingredient






Joe McCarthy

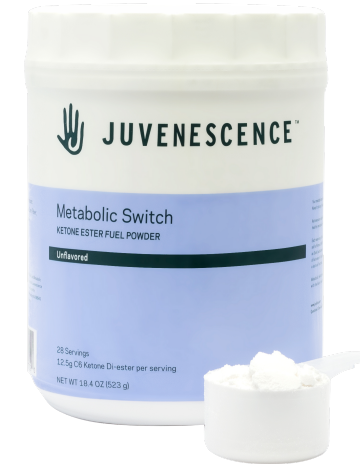
CEO, Publicis NY
VP Global Advertising, Nike
VP Global Advertising,
Johnson & Johnson
SVP, Saatchi & Saatchi



Metabolic Switch: Ketosis & Cellular Energy

Ketone bodies have been shown to have massive health benefits with a huge market opportunity:

	Ketogenic Diet	\$11B
	Heart Health	\$11B
	Cognitive Health	\$7B



Metabolic Switch - novel, patent protected **ketone di-ester** that successfully induces **ketosis** without dieting.




Beverage and powder product options **on the market** now.

\$13M revenue growing to \$50M+ by 2024 & 15% EBITDA rate.

Stabilised Sulforaphane: Activation of Natural Defences

Sulforaphane is a bioactive found in broccoli that is a **potent activator of the major antioxidant response gene NRF2**. Demonstrated clinically to increase clearance of environmental toxins.

Huge opportunity in multiple markets:

	Gut Health	\$9B
	Detox	\$5B
	Antioxidant	\$11B



Sulforaphane is a very unstable compound. Existing products are all very poor quality.



Juvenescence has developed first fully **stabilized natural sulforaphane**. Solvent free extraction, no need to refrigerate and reliable high dose in a single small capsule.

Target launch 1H 2023, to grow to approximately \$35m of revenue by 2025.

Spermidine: Autophagy & Cellular Renewal

Autophagy is the body's cell recycling program. It is essential for good health but declines with age. **Spermidine** is a **bioactive metabolite** that induces autophagy.

Huge opportunity in multiple markets:

	Gut Health	\$9B
	Skin/Hair	\$22B
	Heart Health	\$7B



Juvenescence has developed the world's first high quality **spermidine** supplement.




Advanced synthetic biology production enables **>98% purity** and **20mg dose**.
Market leading competitor ~0.2% purity, 1mg dose and \$20m+ annual revenue.

Target launch in 2H 2023, grow to \$35m by 2025.

Plasmalogens: Maintaining Cellular Membranes

Plasmalogens make up as much as 50% of your cell membranes and are critical to normal function of the brain, heart and immune system. Ageing causes a decline by ~40%.

Multiple market opportunities for replacing plasmalogens:

	Cognitive Health	\$7B
	Heart Health	\$11B
	Infant Formula	\$60B



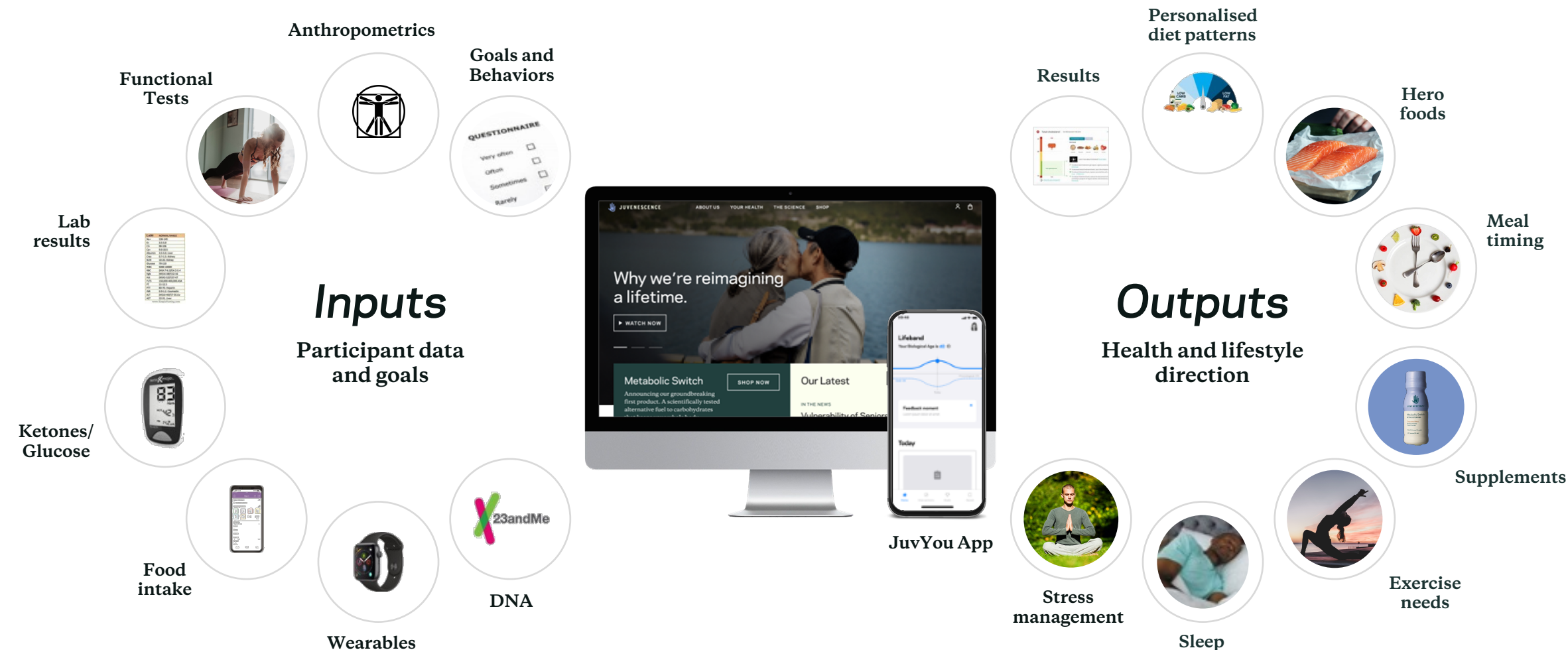
Juvenescence developed solution to replace plasmalogen by supplementing dietary precursors called **Alkylglycerol** specifically **formulated for humans**.

Ethically sourced from synthetically engineered yeast to offer high quality affordable plasmalogens at the dose required

Target launch 2H 2024.

JuvYou (launching soon)

Will be the foundation of our portfolio, creating a direct relationship with people to inform development of new therapies



JuvPet leverages Juvenescence technologies to support the health of companion animals

Lead opportunity

Nutritional Supplement - Cognition

- Human Metabolic Switch launched Q2 2021
- Additional portfolio of ingestible ketone ester compounds for animal health market
- Extensive literature data on health benefits of ketone esters in animals



Further opportunities

BYOMass

Rx - Anorexia

- Large commercial opportunity relevant both in ageing pets and those with metabolic disease
- BYOMass biologic approaches

NAPA Therapeutics

Rx - Insulin Resistance

- Common complication of obesity
- Napa small molecule approach

Chrysea Limited

Nutritional Supplement Immunity & Cardiovascular Health

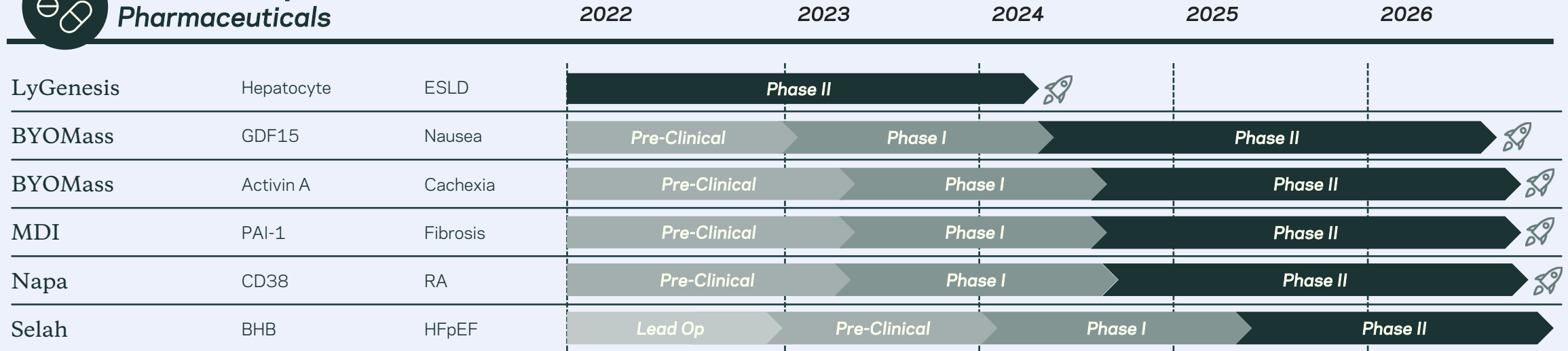
- Opportunities in both young and old animals
- Chrysea Spermidine dietary supplement

Projects Heading into the Clinic or onto Market

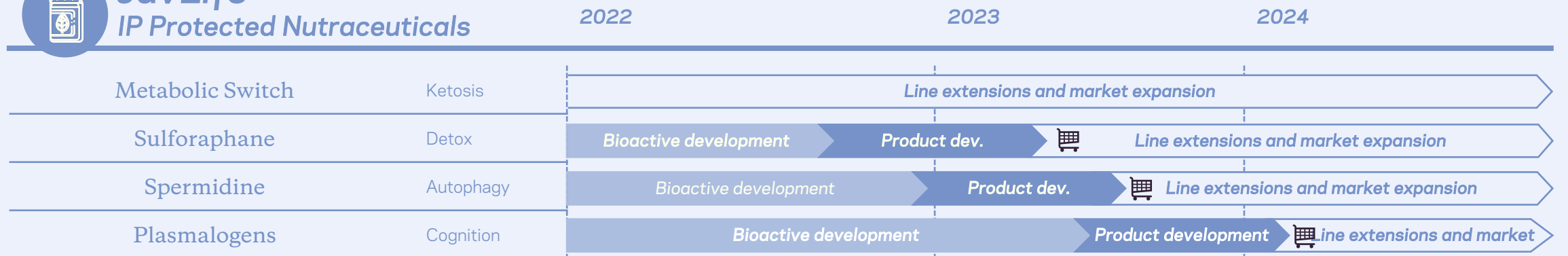
 Monetisation  Marketed



JuvTherapeutics Pharmaceuticals



JuvLife IP Protected Nutraceuticals



Clinical timelines based on GlobalData CT Planner analysis.

Investment Opportunity

**Founders with
exceptional track
records of value
creation**

**World-class science
team**

**Diverse pipeline
combines significant
potential in Rx with
short term revenue**

**Multiple value
creation options**

What does Juvenescence look like in 2023?

MULTIPLE ROUTES TO VALUE

JuvLife



Near-term third-party financing, possible IPO.

JuvPet



Joint ventures with multiple products with domestic pet food companies in 2022.

JuvYou



Roll out in conjunction with corporate health plan or socialised medical system in 2022. AI launch 2023.

JuvTherapeutics



In multiple clinical trials in 2022, read-outs in 2023, based on a successful trial and then licence the candidates in 2024. Quickly initiate further clinical trials on other candidates.

JuvRegeneration



Near-term third-party financing, possible IPO.



JUVENESCENCE™

