

Investor Deck

November 2019

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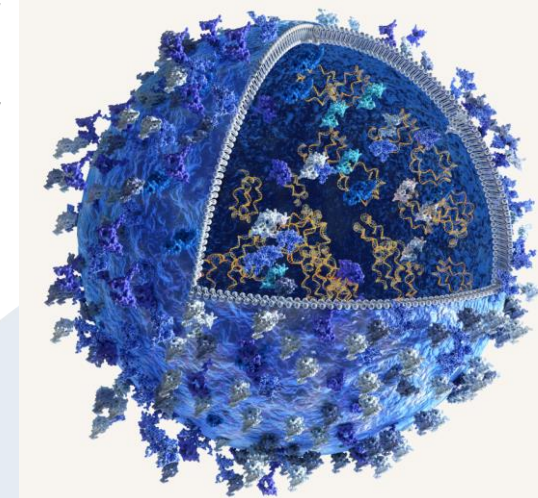
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Cover Page Image: Schematic of exosomes as bio-messengers of regeneration (depicting the secretion of exosomes from an adult stem cell, exosomes in transit and exosomes being taken up by a recipient cell).

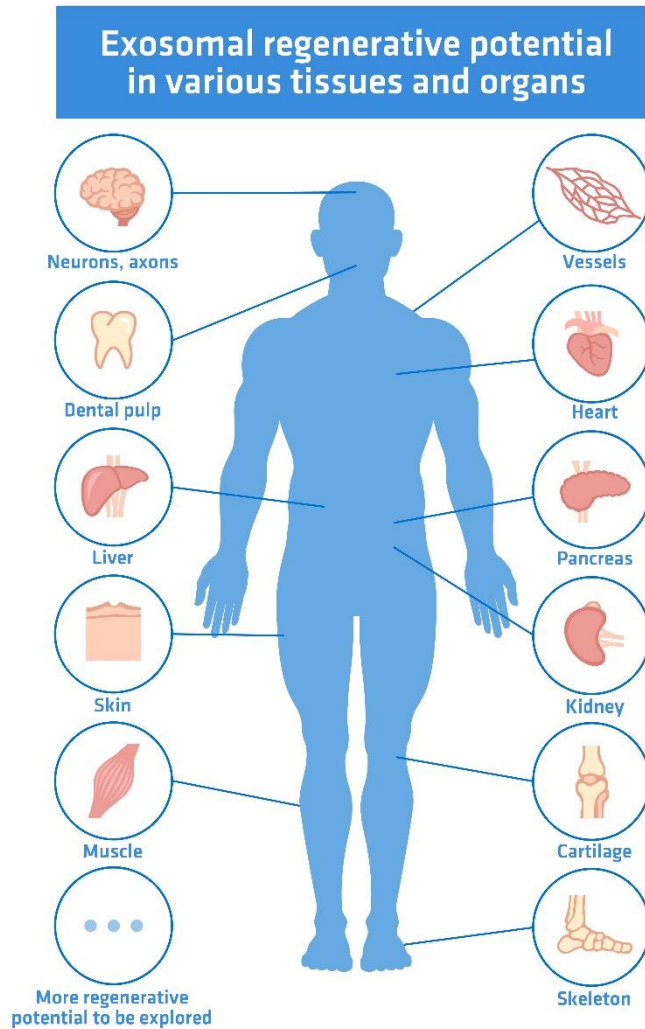
EXOPHARM SNAPSHOT – Clinical-stage company

- Exopharm is the first company able to mass produce exosomes as a proprietary biologic product – also first in clinical trials
- Interest in exosome technology is rapidly increasing - driven by the role exosomes play in communicating biological processes & as vehicles that deliver therapeutic payloads
- Exopharm has developed a proprietary purification step (LEAP) in the manufacturing process of exosomes. No apparent comparable competition as a developer of superior, scalable method for purifying exosomes.
- Founder/MD Dr Ian Dixon co-founded Cynata (CYP) a \$140m company; was the Director of Cell Therapies P/L – that produced Mesoblast's specialised adult stem cells
- Current and future clinical trials in wound healing, dry age-related macular degeneration (AMD) & osteoarthritis
- One of the most important roles of exosomes is enhancing regeneration and reducing degeneration through a number of pathways.
- Exopharm's investment proposition: early & leading position in a promising new field of regenerative medicine
- Listed on ASX Dec '18 @ 20c, ~40c today. Employee numbers from 3 to 20 over this time
- Exopharm's business plan: establish manufacturing, develop prototype products and show safety and efficacy, then licensing deals with multiple partners



A sectional schematic of an exosome.

EXOSOMES AND REGENERATIVE MEDICINE



“Exosomes have attracted the attention of the scientific community in recent years due to . . . ***their great potential to be applied as therapeutic agents.***”

Jing et al 2018 Translational Research Volume 196, June 2018, Pages 1-16
doi.org/10.1016/j.trsl.2018.01.005

Figure also adapted from Jing et al 2018

CLINICAL STAGE COMPANY IN CY '19 – Core programs



Plexaris clinical programs	Study start
Autologous* (matched) wound healing (PLEXOVAL)	CY '19 (study sites initiated and recruitment ongoing)
Allogeneic* (unmatched) wound healing	CY '20
Allogeneic dry AMD	To be determined
Exomere clinical programs	Study start
Allogeneic osteoarthritis (OA)	To be determined
Allogeneic other indication	To be determined

Note: PLEXOVAL: See ASX announcement dated 26 August 2019 for further information on study

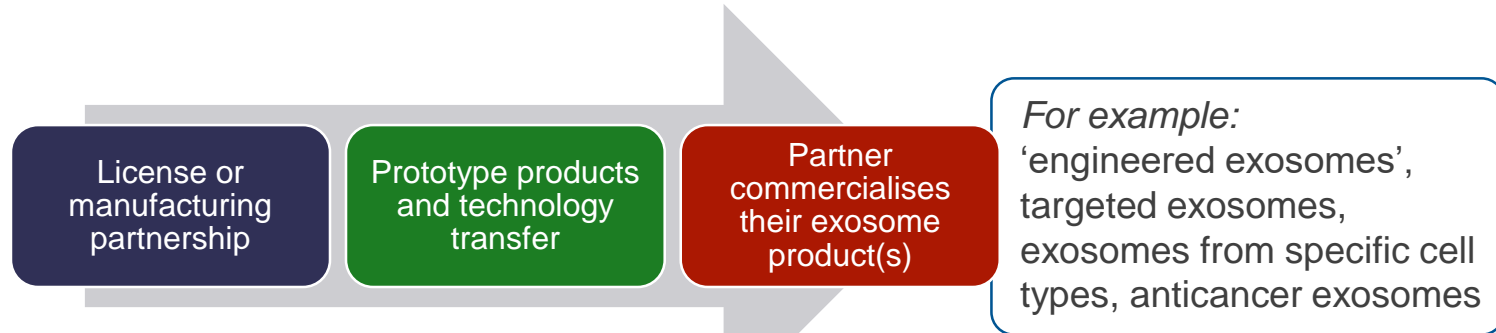
Note. Future clinical programs to build value in the products & technology for potential financial partnership deals. Clinical programs are subject to regulatory approvals and other standard biopharmaceutical development risks

Note. **Autologous means from and into the same person (i.e. matched).*

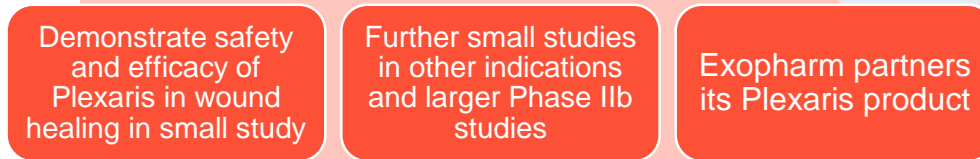
***Allogeneic** means donor and recipient are different people (i.e. unmatched).*

MULTIPLE PARTNERSHIP MODELS

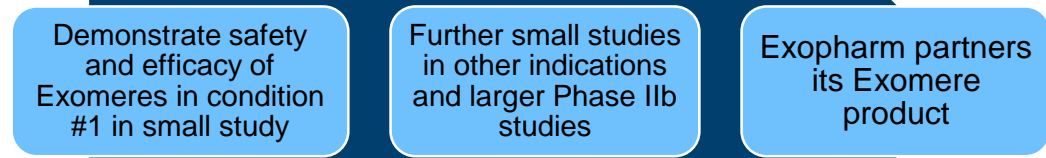
LEAP purification technology & know-how
(incl. LEAP proprietary affinity chromatography ligand)



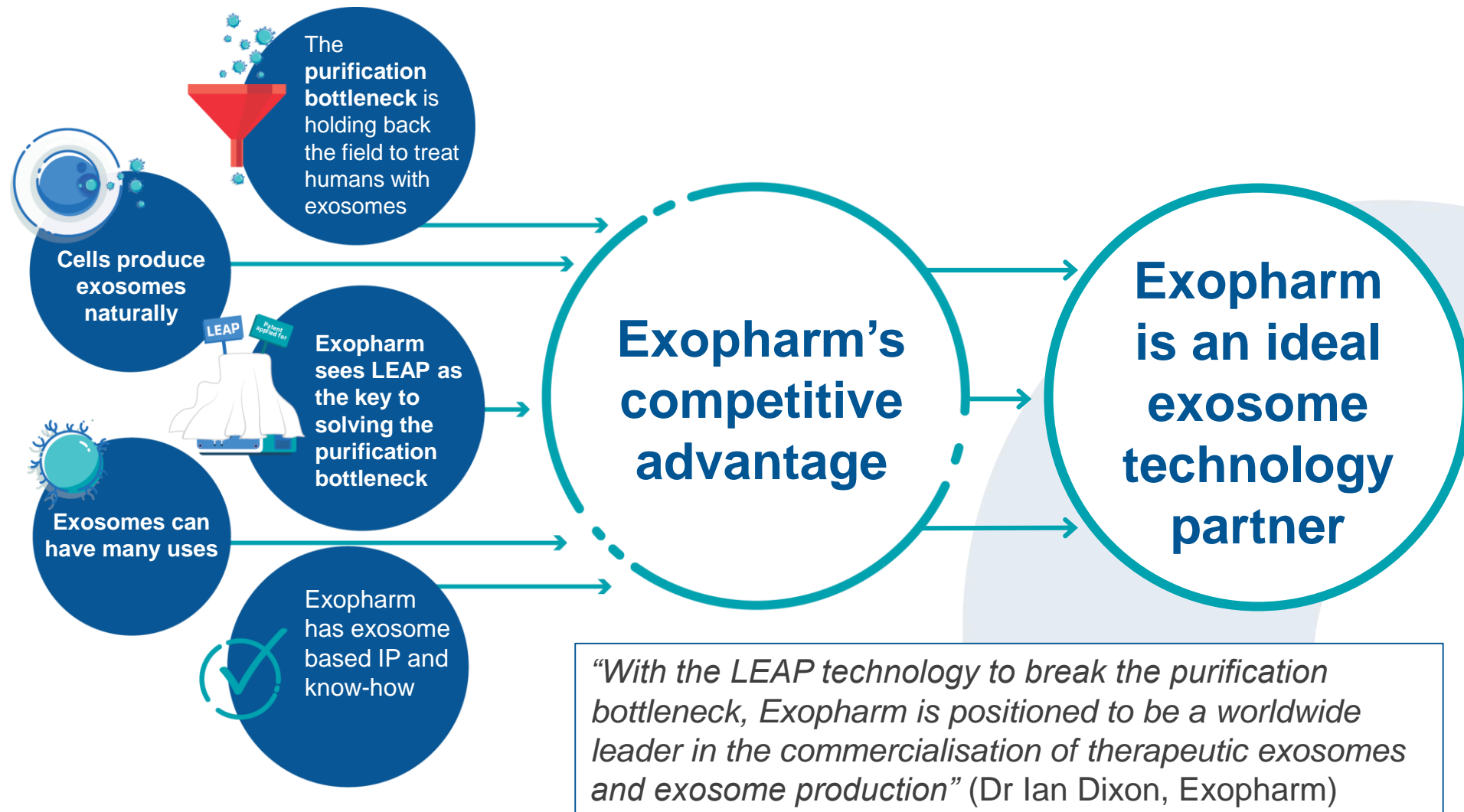
Exosomes from platelets



Exosomes from stem cells



OUR COMPETITIVE ADVANTAGE IN A SNAPSHOT



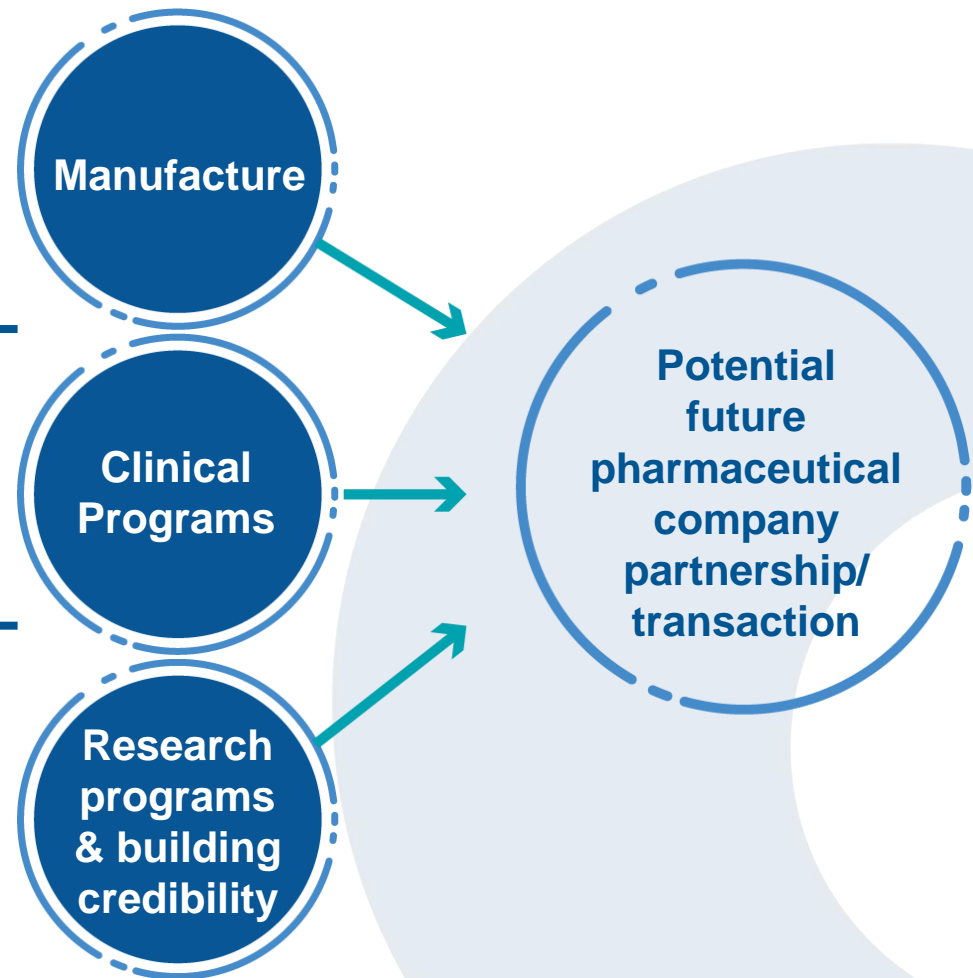
BUILDING AN IMPORTANT INTERNATIONAL COMPANY

Exopharm's Product Development Program and investment focus

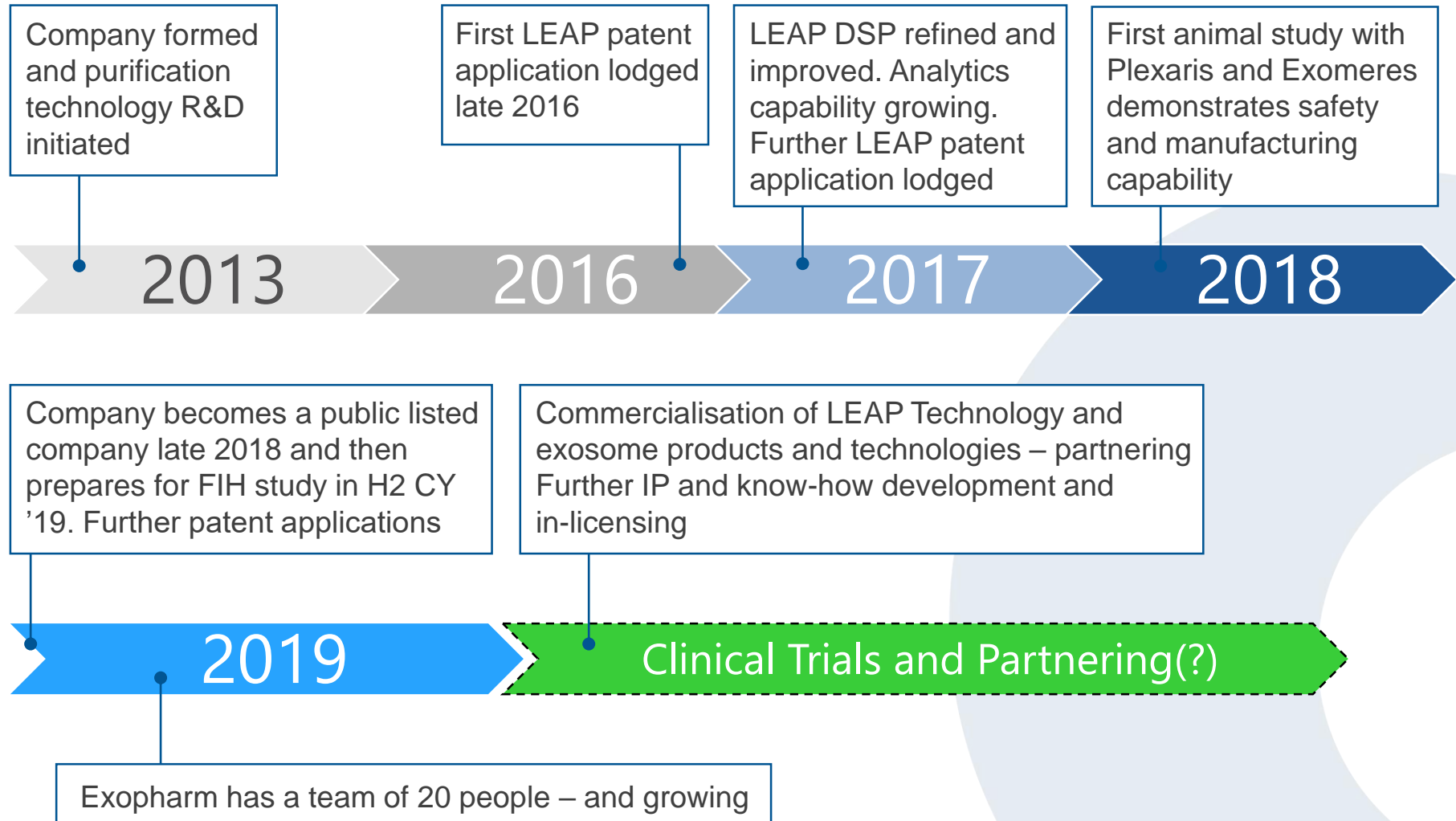
Clinical grade autologous &
clinical grade allogeneic –
both using LEAP technology –

First in human – then further
clinical studies/trials

Studies – publications -
collaborations



EXOPHARM CORPORATE DEVELOPMENT SNAPSHOT



OUR LEADERS



Dr Ian Dixon

Founder, Managing Director & major shareholder

- Founder of Cynata Inc in 2011 – now Cynata Therapeutics Ltd (ASX:CYP) – a clinical-stage stem cell company and a world-wide leader in iPSC-derived cell therapy technology
- Previously Director of Cell Therapies Pty Ltd – company produced Mesoblast's specialised adult stem cells to be used in human pilot trials
- Founded Exopharm in 2013 after identifying the opportunity
- Co-inventor of the LEAP technology after 4 years of R&D and private investment
- PhD in Biomedical engineering from Monash University, MBA and engineering experience
- Non-executive director of Noxopharm Ltd (ASX:NOX) - a listed clinical-stage anticancer company. Also director of Medigard Ltd (ASX:MGZ).

OUR LEADERS (continued)



Dr Gregor Lichtfuss
Founder and Chief Operating Officer

- Co-inventor of the LEAP technology
- Full-time COO of Exopharm
- Managing Exopharm's manufacturing, clinical trials, planning & collaborations
- PhD from Monash University & Burnet Institute
- Business studies at Stanford University USA
- Project development manager behind creation of Cardior Pharmaceuticals GmbH

OUR LEADERS (continued)



Mr Jason Watson

Non-Executive Chairman

- Mr Watson has a Bachelor of Laws with Honours and a Bachelor of Commerce
- Independent Director
- Has assisted companies with significant biotech licensing deals
- Principal of Elementary Law, a legal practice based in Melbourne, Australia



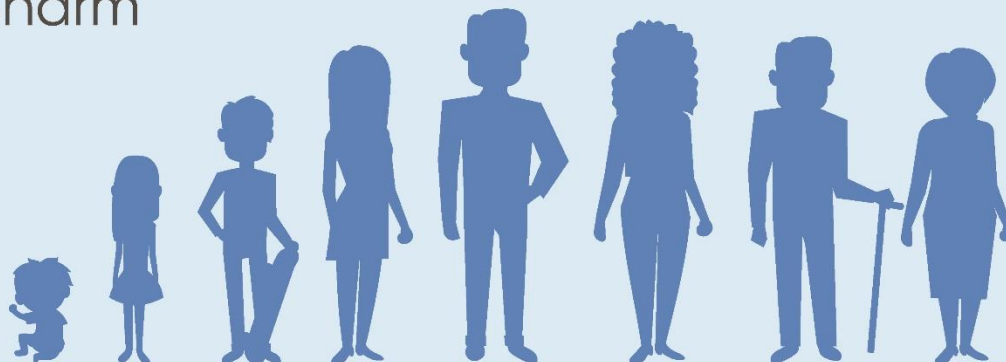
Mr David Parker

Non-Executive Director and Company Secretary

- Mr Parker has a Bachelor of Commerce from Curtin University and has completed a Graduate Diploma of Applied Corporate Governance from the Governance Institute
- Experienced ASX listed company secretary and director

EXPLAINING HEALTH SPAN – LIVING BETTER FOR LONGER

More years of better life

Average Health Span



Extended Health Span



Key:



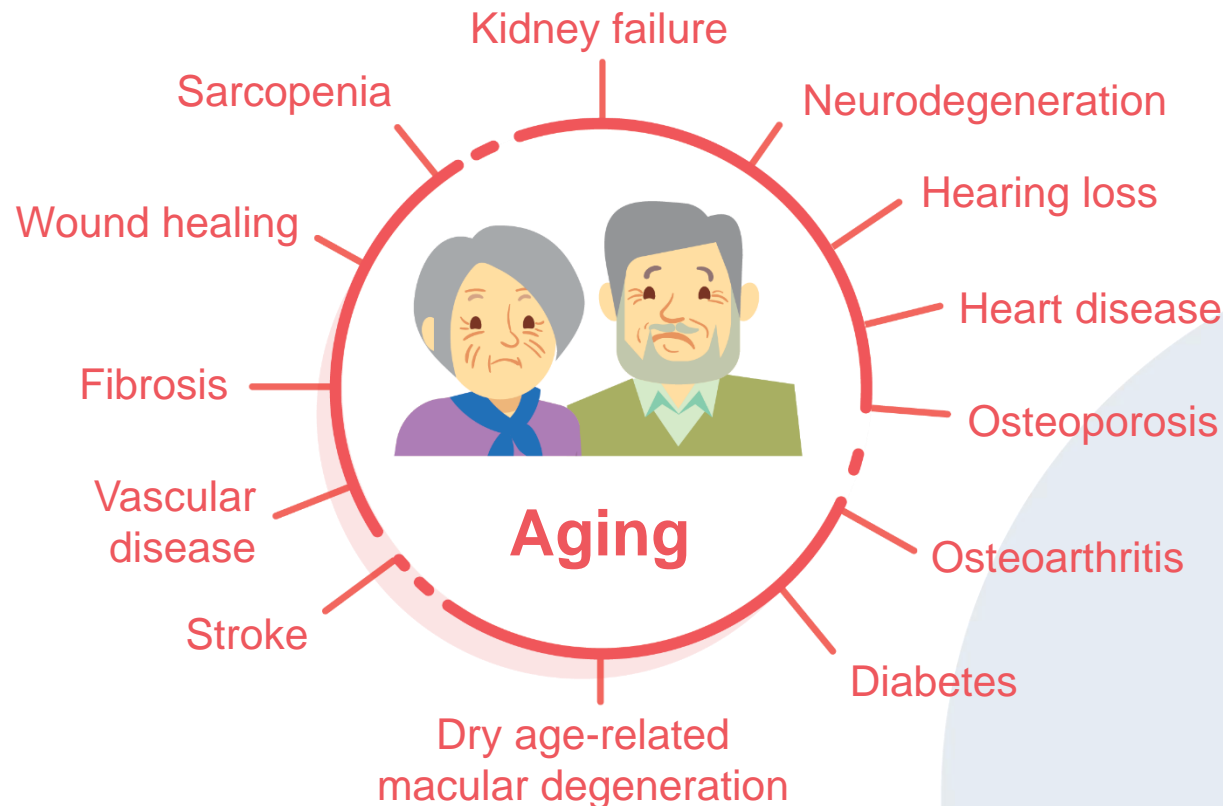
YEARS OF GOOD HEALTH



YEARS OF POOR HEALTH

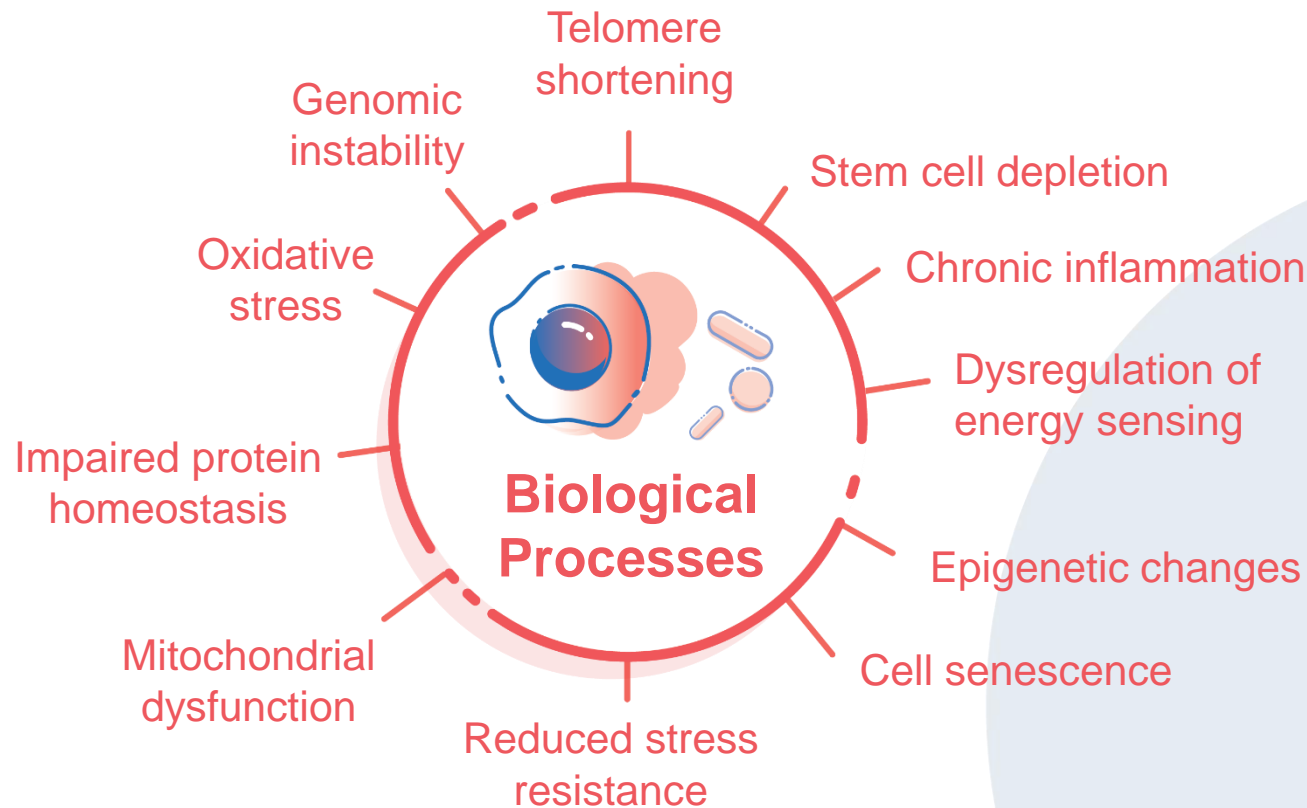
Increased
Health span

MANY MEDICAL CONDITIONS IMPACT HEALTH SPAN



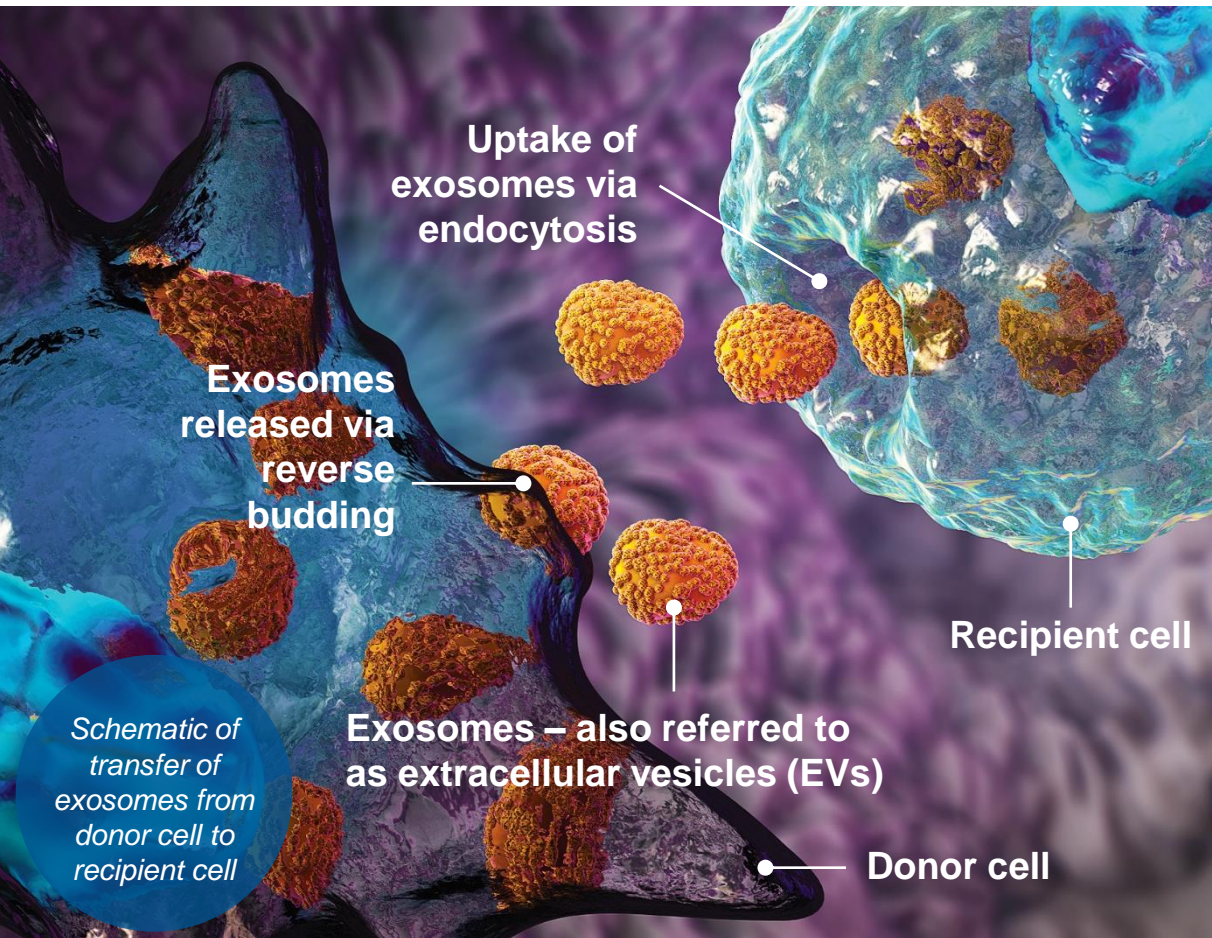
“Aging is the leading risk factor for most serious chronic diseases and disabilities, including strokes, heart disease, cancers, dementias, osteoporosis, arthritis, diabetes, metabolic syndrome, kidney failure, blindness, and frailty.”

MANY COMPLEX BIOLOGICAL PROCESSES NEGATIVELY IMPACT HEALTH SPAN



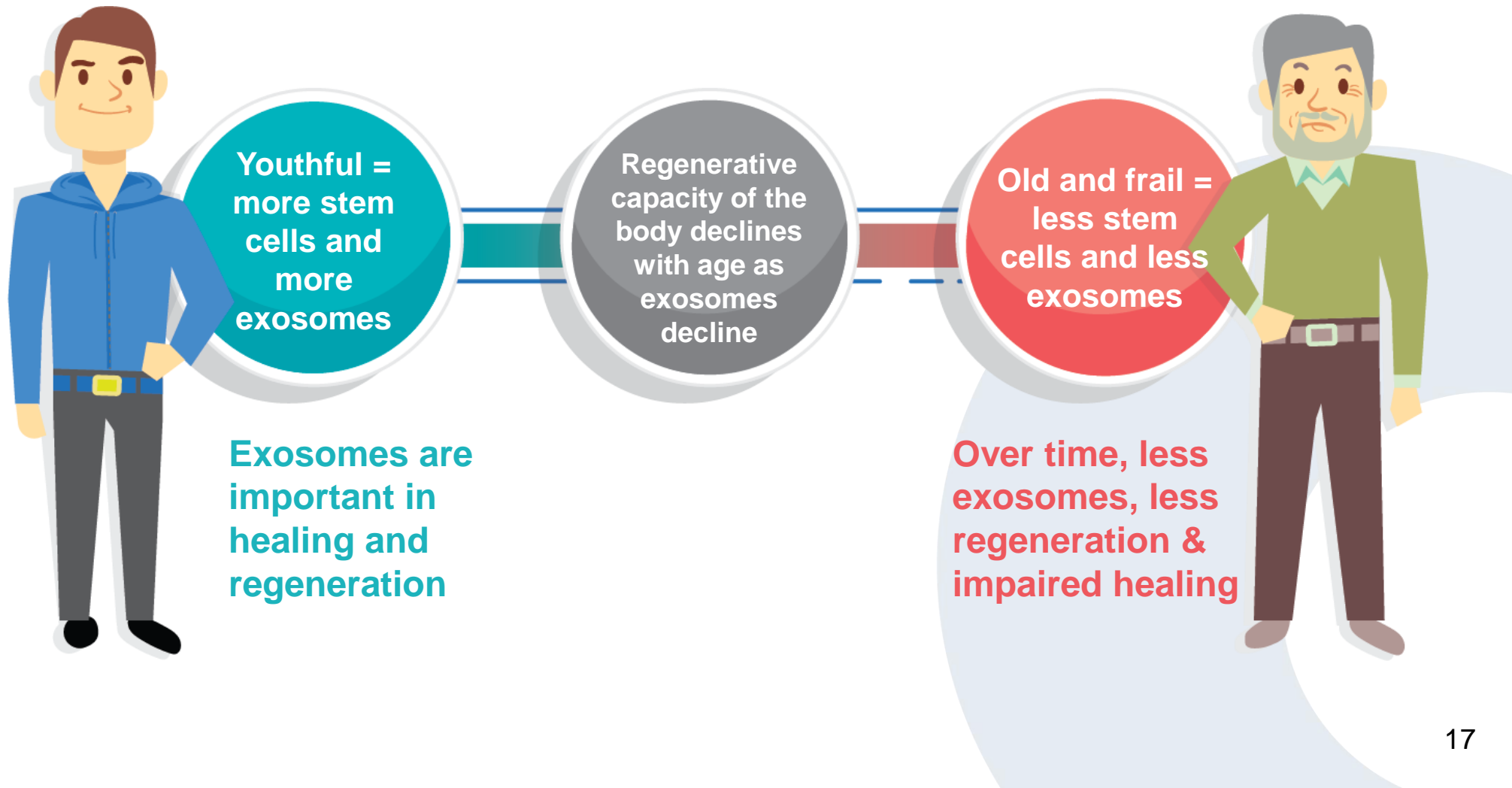
Adapted from The Journal of Physiology 594(8) DOI10.1113/jphysiol.2014.282665

EXOSOMES ARE NATURALLY PRODUCED BY CELLS...



- **Exosomes** are bio-active nanoparticles/vesicles naturally secreted by adult stem cells and other cells
- Exosomes deliver their **multi-modal** cargo to cells in our body and reduce inflammation and promote regeneration and healing by **multiple mechanisms**
- Exosomes can be used to target and deliver therapeutic cargoes (**engineered exosomes**) as novel drugs
- Exosomes can be used as a new form of **diagnostic** from blood, urine, saliva etc

STEM CELLS, EXOSOMES FROM STEM CELLS AND AGING



BOOST THE NUMBER OF EXOSOMES TO IMPROVE HEALTH SPAN ?

Number of
exosomes in
the patient's
body

Decreasing 'good'
exosomes in the
body with age

Boost exosomes in
the patient's body
by treatment

Improved
health span?



✓ Youthful
More exosomes

✗ Aged
Less exosomes

✓ After treatment
More exosomes again

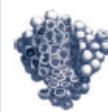
STEM CELLS VS EXOSOMES: EXPERTS SAY THAT EXOSOMES ARE POTENTIALLY BETTER THAN STEM CELLS & CAN REVERSE AGING EFFECTS IN CELLS AND ANIMALS

“These results indicate that exosomes from young mice could reverse the expression pattern of aging-associated molecules in aged mice” doi: 10.2147/IJN.S170680 2018

“In comparison to cell-based therapies, this cell-free regenerative strategy offers a lower risk and potentially higher scalability” doi: 10.3390/cells7080110 2018

“In the cases where cells and their respective exosomes were studied in parallel, exosome treatment has demonstrated a similar or even superior therapeutic capacity to MSC treatment” doi: 10.3389/fcvm2017.00063 2017

“Extracellular vesicles (EVs) are vital mediators of cell-to-cell communication” doi: 10.1177/0963689717723636 2018



STEM CELLS®

REGENERATIVE MEDICINE

Highly purified human extracellular vesicles produced by stem cells alleviate aging cellular phenotypes of senescent human cells

Johns Hopkins University
School of Medicine, Baltimore,
Maryland;

2019

... BUT THE PURIFICATION BOTTLENECK IS PREVENTING PROGRESS

The ‘**bottleneck problem**’:

Trillions of exosomes are naturally produced in the human body, but the purification of these natural nano-scale particles as a proper drug product is a major challenge.

Other experts in the exosome field say:

- “Despite these advances, a major **bottleneck** of MSC derived EV (MSC-EV)-based applications in clinics **is the inefficient production and purification** of clinical-grade EVs”*
- “Currently, there is **no state-of-the-art technology to isolate EVs**, for either therapeutic application or basic research.”**
- “However, **currently very few clinical validation studies** and no clearly defined manufacturing process exist.”***

References

* Liu *et al* Stem Cells, 2019, doi.org/10.1002/stem.2996

** Lener *et al* Journal of Extracellular Vesicles, 2015, 4: 30087

*** Colao *et al* Trends in Molecular Medicine, 2018, 24(3): 242-256

EXOPHARM SEES LEAP AS THE KEY TO SOLVING THE BOTTLENECK PROBLEM

Dr Ian Dixon and his R&D team set out to solve this purification bottleneck problem in 2013

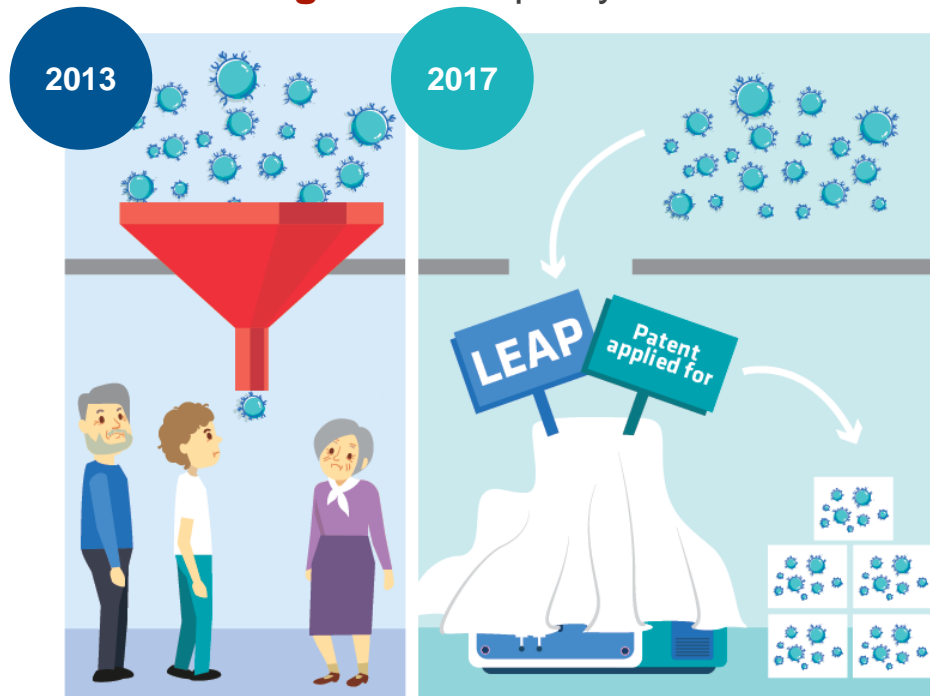
By December 2017 they had invented the LEAP Ligands and lodged a patent application on a family of **LEAP Ligands** that purify exosomes

LEAP = **L**igand-based **E**xosome **A**ffinity **P**urification

Exopharm owns this LEAP IP – patent applications and associated know how.

The LEAP technology:-

- uses a patent-applied-for inexpensive synthetic affinity ligand to bind to and purify exosomes using affinity chromatography;
- is well suited to biomanufacturing processes and equipment; and
- has the potential to give Exopharm a competitive advantage.



ABOUT OUR MANUFACTURING COMPETITIVE ADVANTAGE

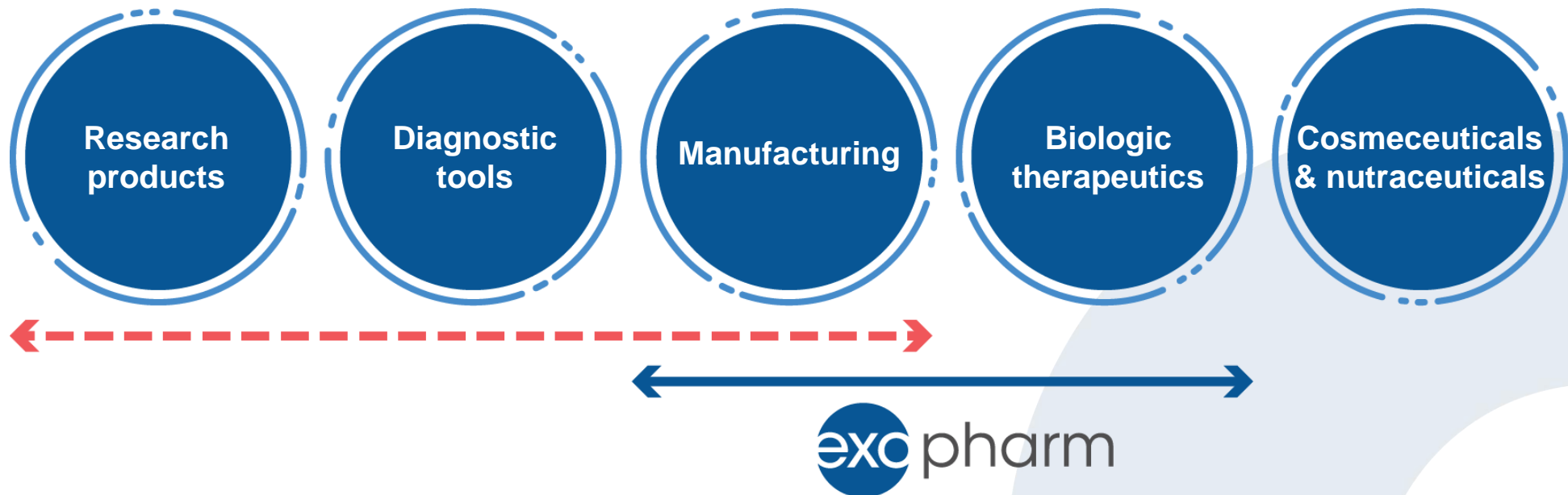
Exopharm owns the LEAP Technology (100%) and has impressive in-house manufacturing capability and know-how in Melbourne.

The central feature of Exopharm's LEAP Technology is the selective binding of the exosomes/vesicles to the LEAP Ligands in a relatively gentle and selective flow-through process called ***affinity chromatography***.

LEAP Technology has advantages over existing technologies :

- Biologic-type product yields
- Scalable
- Specificity and selectivity
- Gentle
- Familiar purification process (affinity chromatography) using a proprietary ligand
- Less contamination
- Patentable (patents are progressing to National phase in various countries)
- Proprietary process gives proprietary product

STEM CELL EXOSOME MARKET SEGMENTS

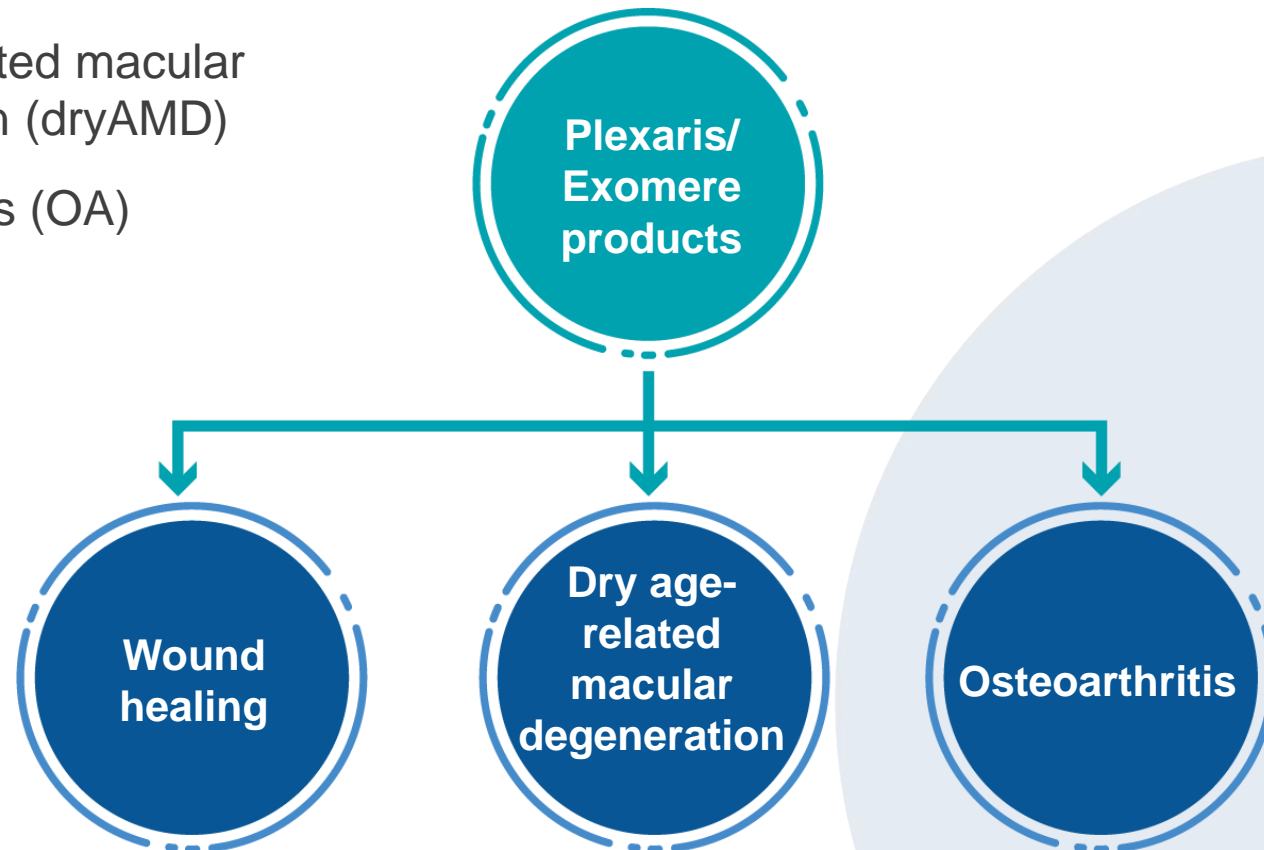


*Stem cell exosome market segments and Exopharm's core areas of commercial interest: Core (**blue line**) and future possible (**orange line**) commercial areas for Exopharm.*

Source: Market segments sourced from BioInformant Stem Cell Exosomes Market Report (See Prospectus for more information)

LEAD INDICATIONS TO PROVE THE TECHNOLOGY

- Wound healing
- Dry age-related macular degeneration (dryAMD)
- Osteoarthritis (OA)



Target medical conditions in the core Exopharm Development Program

DEMONSTRATE PRODUCTS TO DE-RISK AND THEN SEEK PARTNERSHIPS / FINANCIAL TRANSACTIONS

Wound healing

- Plexaris or Exomeres with dermal application to treat wounds
- Small-scale program with manufacture in Melbourne
- Clinical use likely started with an autologous product (PLEXOVAL)
- 6.5 million adults with chronic wounds and 40 million undertaking surgery in USA (2016)

Dry age-related macular degeneration

- Plexaris or Exomeres with localized injection to eye
- Small-scale program with manufacture in Melbourne
- Clinical use likely to start with an autologous product
- Around 140 million globally and 9 million USA (2016)

Osteoarthritis

- Plexaris or Exomeres with localized injection to joint
- Small-scale program with manufacture in Melbourne
- Clinical use likely to start with an autologous product
- 30 million adults (USA) and 2 million adults (Australia)

*Note. **Autologous** means from and into the same person (i.e. matched). **Allogeneic** means donor and recipient are different people (i.e. unmatched).*

Other potential applications – sports injury, cardiac, neurodegeneration

RECENT TRANSACTIONS IN THE FIELD

Company	Funding summary	Comments
Codiak Biosciences	January 2019. “Jazz Pharmaceuticals will use Codiak BioSciences’ engEx™ precision engineering platform to research, develop, and commercialize exosome therapeutics for cancer through a collaboration that could generate more than US\$1 billion for Codiak.”	Focus mainly on cancer, still preclinical
Smith & Nephew	March 2019. Acquired Osiris Therapeutics, Inc. (NASDAQ: OSIR), a company with regenerative medicine products, including skin, bone graft and articular cartilage substitutes for a total equity value of approximately US\$660 million.	Making sales
Exosome Diagnostics	In August 2018 Bio-Techne Corporation (NASDAQ: TECH) completed its acquisition of Exosome Diagnostics, Inc. - consideration includes an upfront payment of US\$250 million plus an additional US\$325 million that can be maximally earned through calendar year 2022 upon reaching certain performance milestones.	Diagnostics
Cynata	Market capitalisation around A\$160m (in July ‘19) with Fidelity International (a global asset manager) and Fuji Film as major shareholders. On 19 July 2019 Cyanata announced an indicative, non-binding proposal at \$2 per share from Sumitomo Dainippon Pharma Co., Ltd.	Cellular therapy
ExoCoBio	In May 2017 ExoCoBio announced that it had raised US\$11m Series A funding within 4 months of its formation	Early-stage company

CORPORATE SUMMARY

Corporate Information

- Formed in May 2013
- Based in Melbourne, Australia
- Staff of around 20 people
- 95,472,000 shares on issue (no other securities)
- Cash at Bank circa \$7.7m (as at 30 September 2019)
- Market Capitalisation @ \$0.40 of circa \$38m
- Listed on the Australian Stock Exchange: ASX:EX1

Intellectual Property

- Key technology is the LEAP purification technology
- LEAP Intellectual Property (IP) including Patent applications owned by Exopharm
- LEAP IP is covered by a Patent Co-operation Treaty (PCT) application and further June '18 provisional patent - LEAP PCT will soon enter 13 jurisdictions in National Phase
- Exopharm has use of US trademarks **Plexaris** and **Exomere** – *others pending*
- Exopharm has other proprietary and confidential know-how

Exopharm Ltd (ASX-EX1)

Dr Ian Dixon MBA

Founder and Managing Director
ian.dixon@exopharm.com

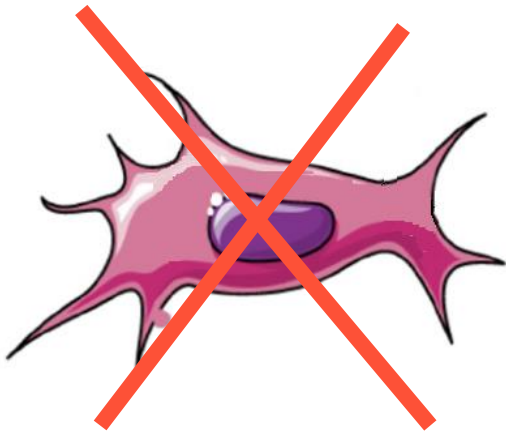
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www.exopharm.com

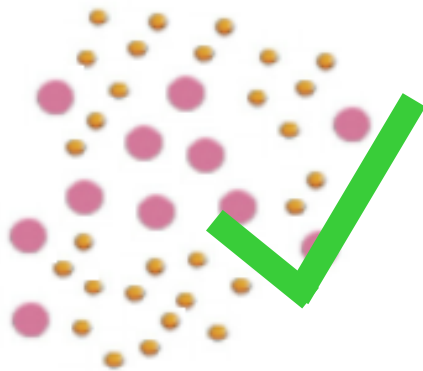
Extending health span

EXTRA SLIDES

CELLULAR THERAPY HAS ITS PROBLEMS



- Cells have problems in transport, storage & thawing at clinic before use
- Unmatched cells can be rejected by the patient's immune system if given multiple times
- Cells can become fibroblasts and cause disease, cells could promote tumour formation or be infected with virus
- The injected cells are typically short-lived (most gone in days), uncontrolled and variable



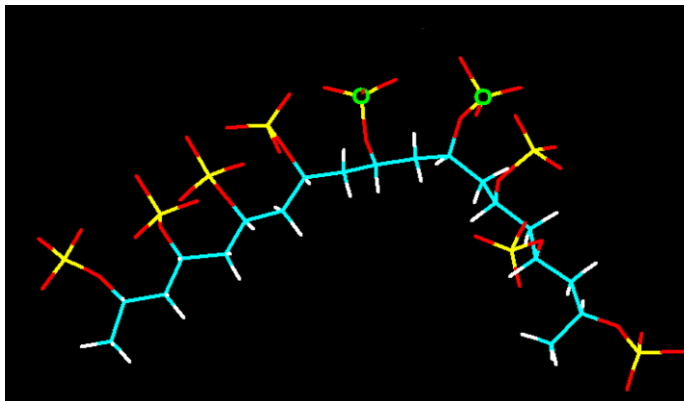
Our **cell-free** approach has many potential advantages over some cellular products

EXOPHARM'S LEAP TECHNOLOGY IS SOLVING THE BOTTLENECK PROBLEM

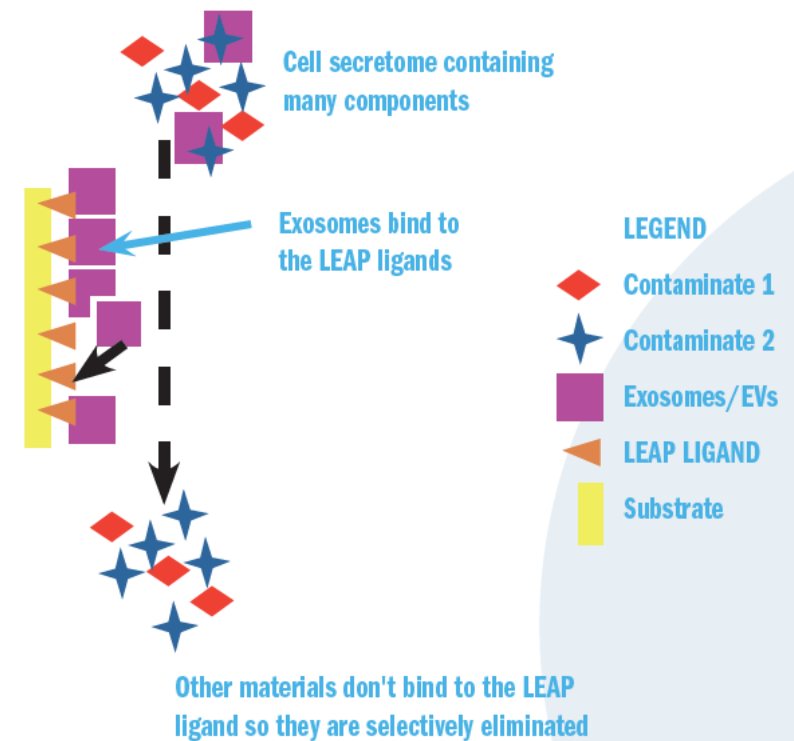
Four years of research undertaken by Exopharm resulted in the invention of LEAP providing a solution for the purification bottleneck problem.

LEAP exosome purification technology is based on the use of a proprietary affinity chromatography ligand (LEAP ligand). Patent applications have been filed for a family of LEAP ligands.

LEAP ligands conform to a template structure and bind to the membrane of vesicles.



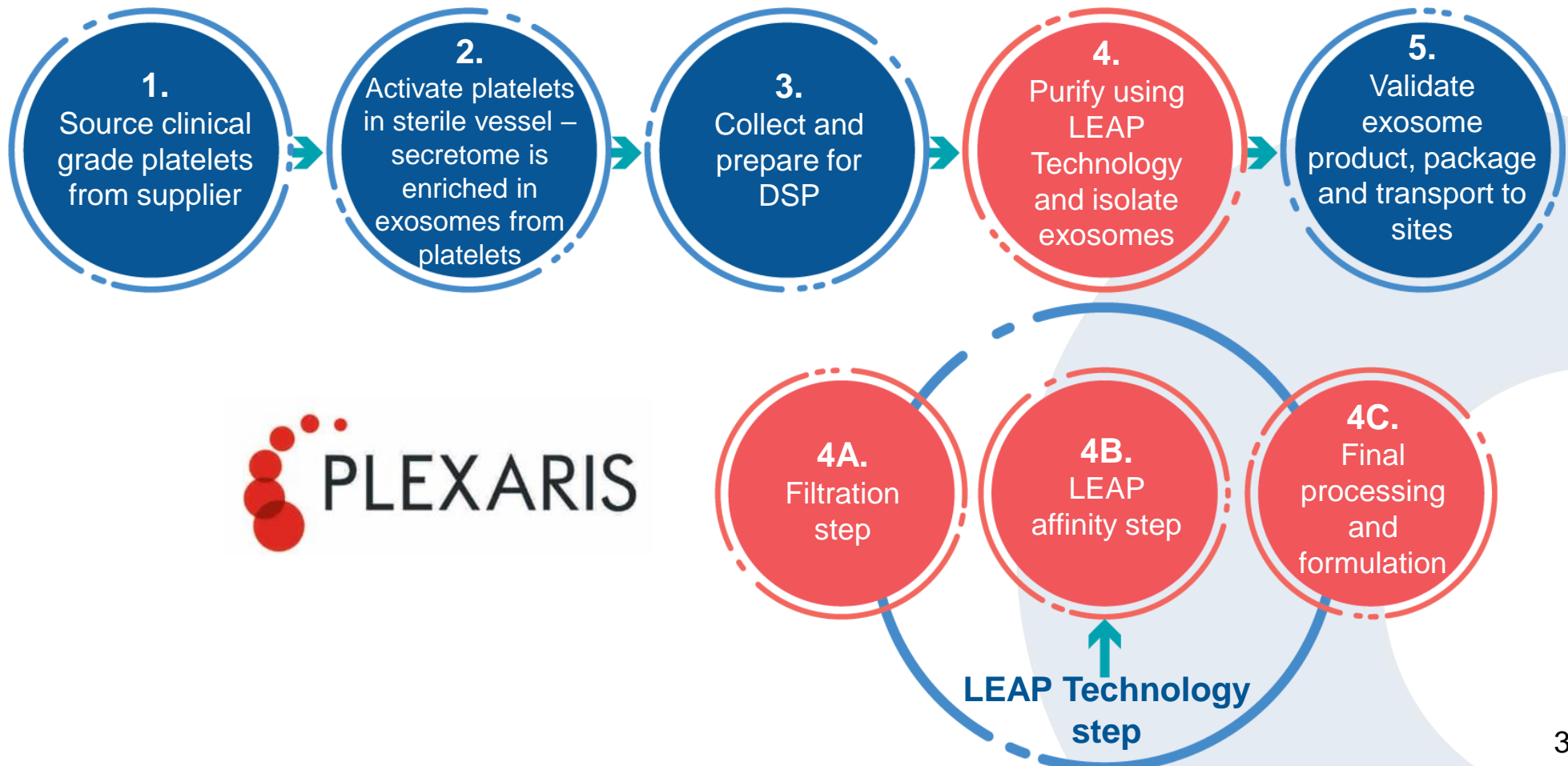
Ligand-based Exosome Affinity Purification (LEAP)



LEAP Manufacturing Process using platelets

Preparation

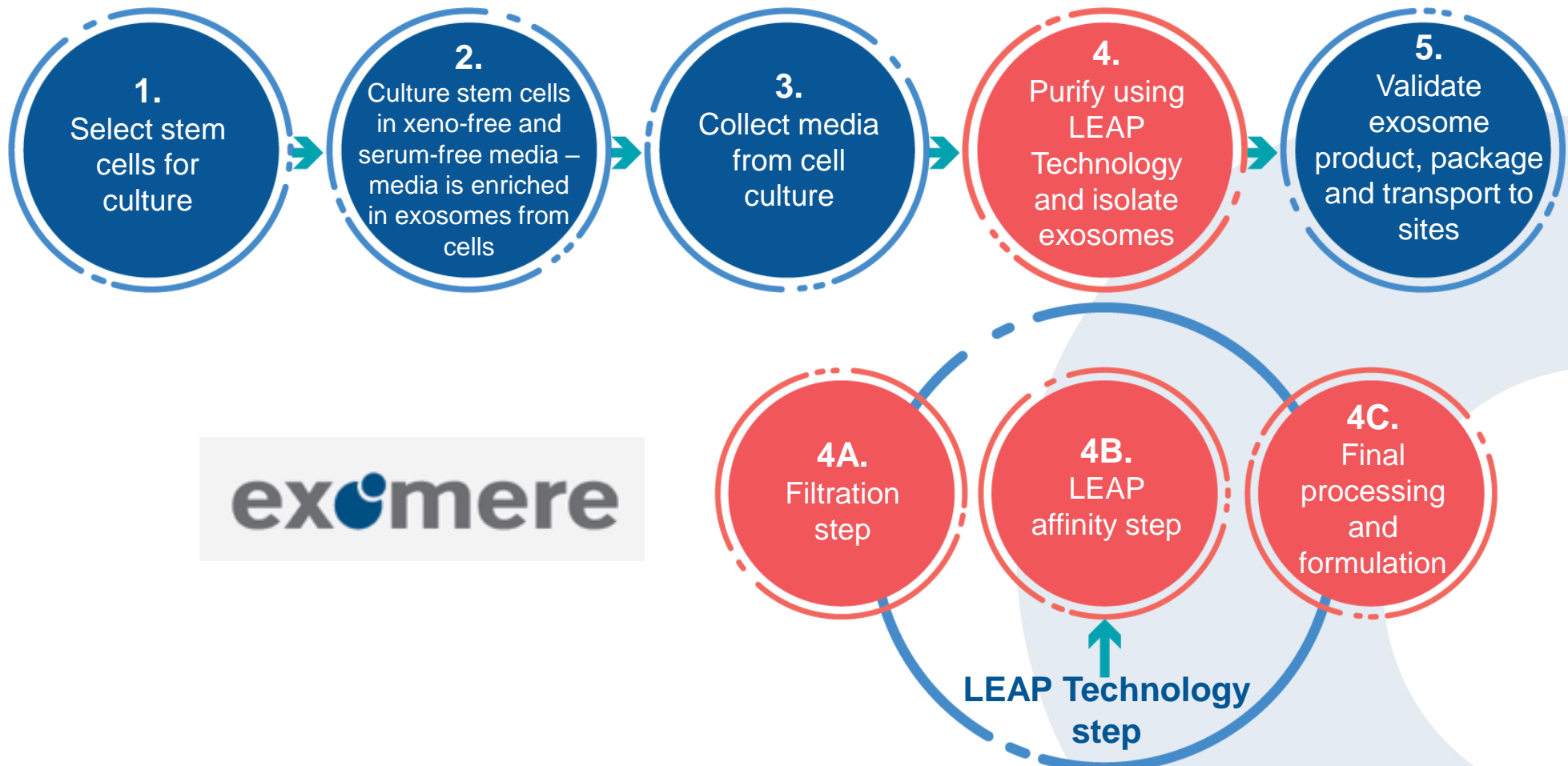
Downstream process (DSP)

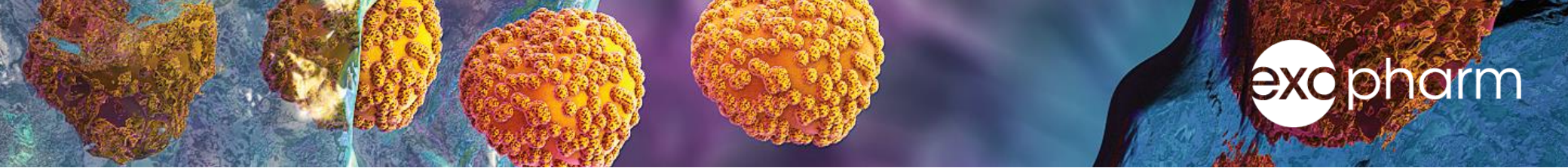


LEAP Manufacturing Process using adult stem cells

Preparation

Downstream process (DSP)





Some of the
Exopharm team
in the Laboratory
at Parkville
Melbourne



exopharm

Lipids

Proteins

Nucleic Acids

Discover more at:
exopharm.com



exopharm