



Felix: A unique device to treat male infertility

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Executive Chairman, Memphasys Limited



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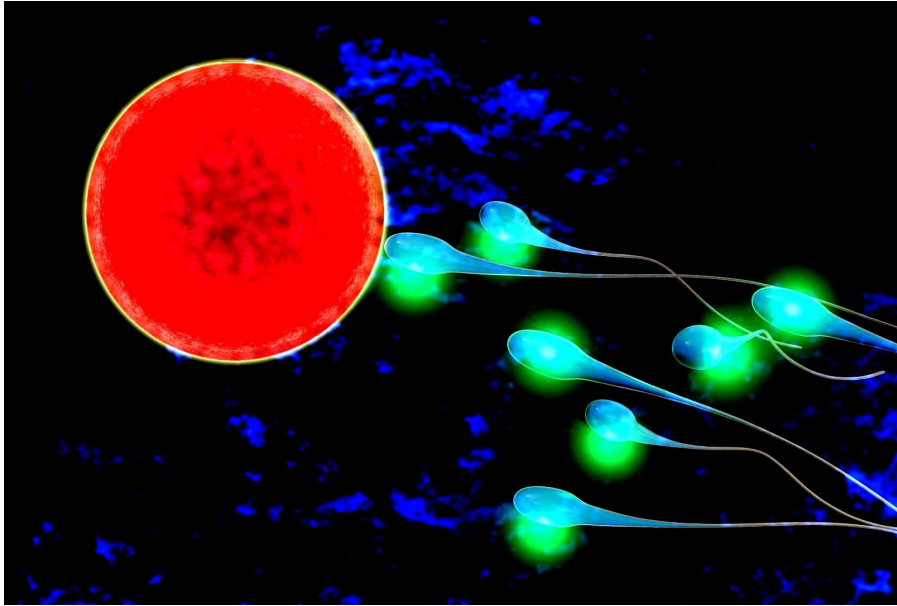
Memphasys Value Proposition



- ✓ **Revolutionary, proven technology for improved IVF treatment**
- ✓ **Addressing the significant global IVF market – anticipated to grow from ~US\$13.7 billion in 2019 to ~\$26.4 billion by 2026¹**
- ✓ **First-mover advantage for unique bio separations technology**
- ✓ **Backed by industry experts and leaders in the field**

1. Global IVF Services Market Revenue, By End User, 2018 – 2026, Global IVF Services Market Report – Allied Market Research (April 2019)

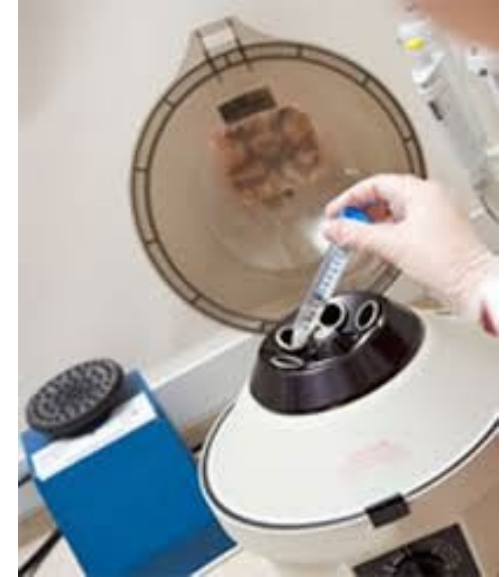
The Problem: Human IVF



- Human fertility rates in decline
- IVF technologies increasingly common but also inefficient
- Average of 2.2 IVF cycles before success
- IVF increases risk of miscarriage *and genetic impairment*

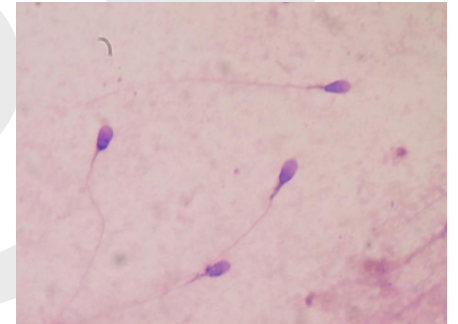
The Problem: Current IVF Methods

- **No standard method for preparing sperm for IVF**
- **Common techniques are:**
 - Swim-up
 - Density Gradient Centrifugation (DCG)
 - Combination of both
- **Costs between \$80 to \$100 per cycle**
- **Each method takes 30 minutes or more to complete**
- **Laborious process involving machines, extensive manual labour and dexterity**
- **Process can inadvertently select DNA-damaged cells, reducing effectiveness and/or passing on genetic damage**



The Problem: Male Infertility

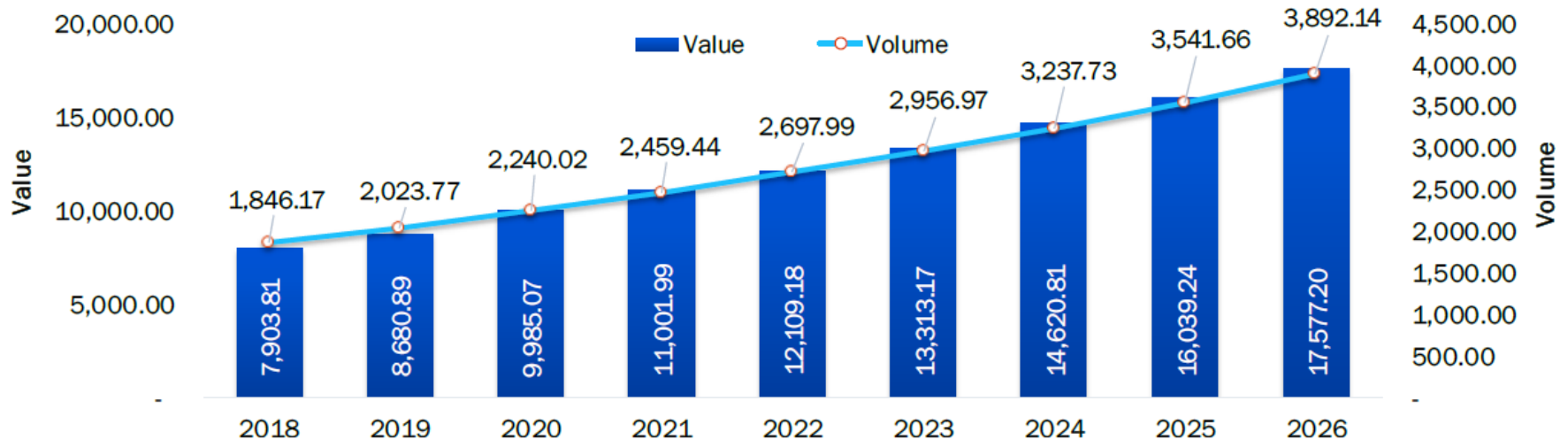
- Infertility affects 1 in 3 men over 40 years old
- Poor sperm quality a factor in approx. 50% of infertility cases
- Sperm quality rather than quantity is the key concern
- No meaningful advances in male sperm preparation treatments since the advent of IVF



The Potential: Rapidly Growing Human IVF Market

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GLOBAL IVF SERVICES MARKET FOR FRESH IVF CYCLES, VOLUME AND VALUE, 2018-2026, (THOUSAND, \$MILLION)



Global IVF Services Market Revenue, By End User, 2018 – 2026, Global IVF Services Market Report – Allied Market Research (April 2019)

The Solution: Memphasys Felix Device



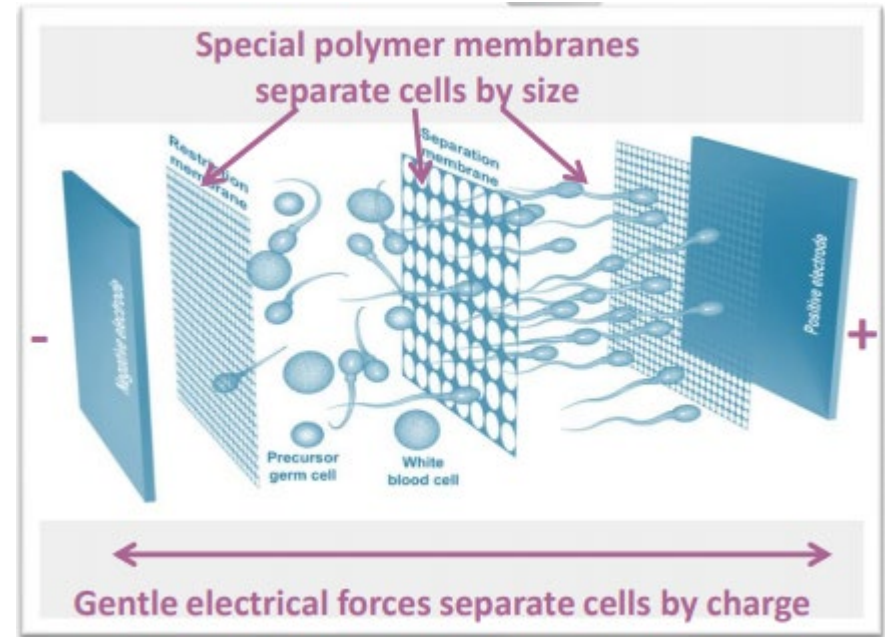
- **A world-first technology to separate best quality sperm with potential to:**
 - **Increase the likelihood of pregnancy and live birth**
 - **Increase the likelihood of a healthy baby**
- **Non-invasive**
- **Quick, efficient and operator independent (6 minutes, fully automated)**
- **Financially attractive**
- **Uses patented intellectual property**



How Does the Felix Device Work?

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- Gentle electric force applied to cartridge sample
- Best quality (negatively charged) sperm attracted to positive electrode
- Sperm separates through polymer membranes to:
 - Separate by cell size
 - Eliminate white cells & other debris



How Does the Felix Device Work?

Prototype cartridge performance on healthy human ejaculate

Sample before treatment



Macrocephalic
(large head)

Dead sperm

viable sperm

After treatment - 6 minutes



- Separation of viable sperm ; no debris
- Intact membranes and acrosomes
- Higher average motility
- Reduced DNA damage

Developed With Global Fertility Expert Dr John Aitken

Memphasys



Current Activities: KOL Assessment Program

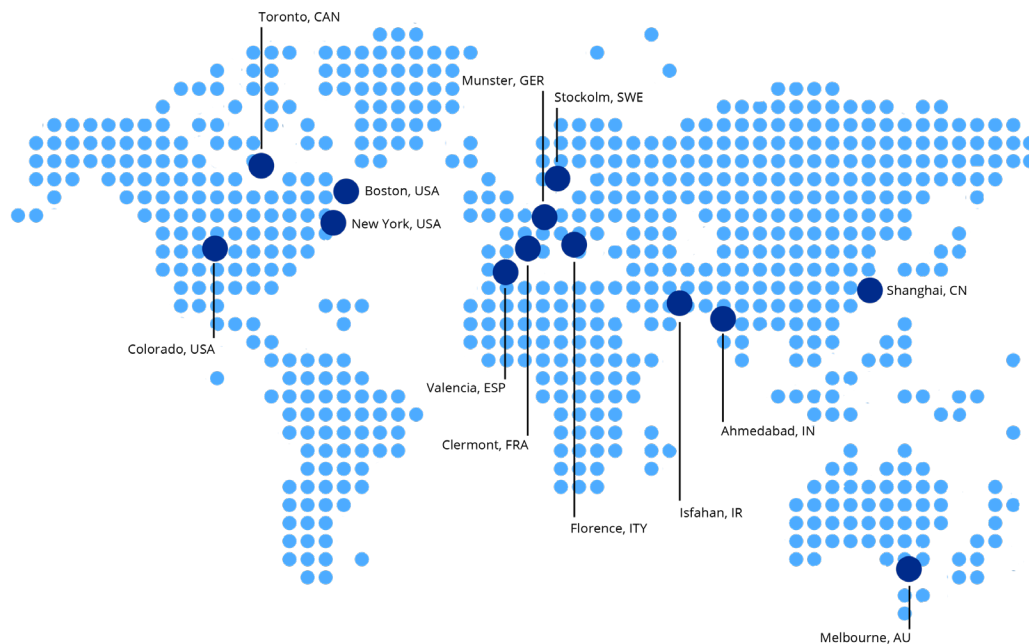
Memphasys

- **Key Opinion Leaders (KOLs) are international leading centres and laboratories in the IVF industry**
- **Selected for**
 - technical and academic expertise
 - geographic market positioning
- **Each organisation has confirmed interest in first assessment of the technology**
- **Felix to be used under strict protocols with results documented for Memphasys' internal use**



KOL Assessment Program

- Currently 13 KOLs are taking part in in-vitro assessments of the Felix device
- In discussions with further high-reputation organisations in strategically important locations

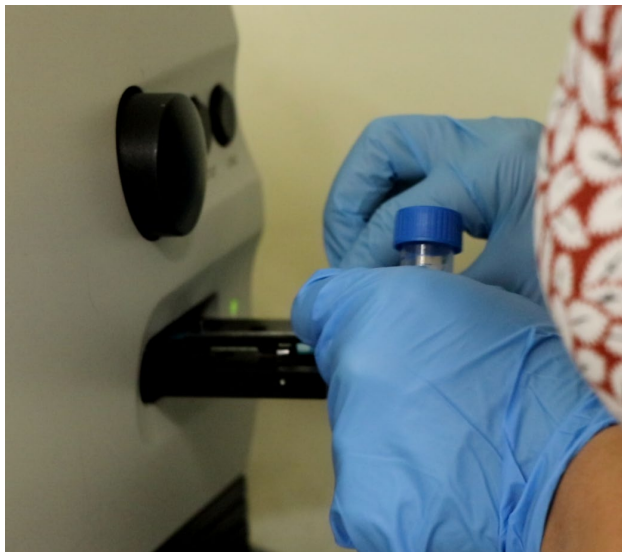


KOL Program Underway



- **Cartridges and consoles for the KOL assessment program in production with devices received by Monash IVF and University of Newcastle ahead of wider rollout**
- **+200 cartridges produced with +2,000 to be delivered in December '19**
- **Provides ready-made potential global customer base ahead of commercialisation**
- **Outcomes to offer validation with real clinical samples with a range of fertility issues**

Key Milestones



Sample assessment at Memphasys facilities

- ✓ **Successfully raised \$4.2 million to support KOL rollout with cornerstone support from major shareholders Andrew Goodall and prominent thoroughbred breeder and trainer Bob Peters**
- ✓ **Memphasys in conjunction with UNSW and Newcastle University awarded 3 year A\$549,452 ARC Linkage Grant for next gen products**
- ✓ **13 KOLs from across Europe, North America, the Middle East, India and Australia secured for in-vitro assessments of Felix**
- ✓ **KOL assessment program underway**
 - Device Verification has started - expected to be complete by year end
 - Subsequent device Validation - expected to be completed by mid-2020

Pathway to Market

- Commercial sales expected to occur in mid to late 2020, following V&V ^{1, 2}
- Initial commercial pathway to focus on selected countries aligned to the Company's commercialisation objectives
- Countries include:
 - Japan
 - India
 - Canada
 - Iran
 - New Zealand



1. Device verification and validation processes, which are required before the device can be commercially available
2. Subject to meeting any requisite legal and regulatory certifications and gaining market support by KOLs in specific targeted jurisdictions for the use of the Felix device in their clinics/ andrology centres

Pathway to Market

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Country	Fresh IVF cycles in 2018	Expected fresh IVF cycles by 2026	% growth rate	KOL in market (Y/N)
Japan	269,110	699,110	+160%	Y
India	169,800	489,840	+188%	Y
Canada	6,360	21,140	+232%	Y
Iran	TBD	TBD	TBD	Y
New Zealand	5,300	11,190	+111%	N (discussions underway)

Corporate Snapshot

Memphasys

ASX Code	MEM
Share price (as at 25/11/2019)	\$0.059
Shares on issue	734.08 million
Market capitalisation	\$44 million
Cash & Cash Equivalents (as at 25/11/2019)	\$3.7 million
Ownership structure – substantial shareholders (as at 25/11/19)	Mr Andrew Goodall 23.4% Peters Investments 27.9% Ms Alison Coutts 10.9%

MEM Share Price for YTD CY2019



Source: ASX website

Investment Highlights

Memphasys

- ✓ Potential to counteract male infertility and disrupt IVF industry
- ✓ International commercial product roll out from mid 2020 (approx. 6-9 months)
- ✓ Significant growing market - predicted to be valued at ~\$26.4 billion by 2026
- ✓ Backed by major industry partners



Appendices: Board of Directors



Alison Coutts – Executive Chairman

Former Chair of CSIRO Health Sector Advisory Council

Chemical Engineering degree and MBA

Co-founder of eG Capital, assisting in biotech IPOs and secondary raisings



Marjan Mikel – Non-Executive Director

Founded Healthy Sleep Solutions, which attracted Resmed (NYSE:RMD) as JV partner



Andrew Goodall – Non-Executive Director

Serves on the Company's Audit and Risk, and Nomination and Remuneration Committees



Shane Hartwig – Non-Executive Director

A CPA and is Chartered Company Secretary with more than 20 years' experience in finance

Founder of Peloton Advisory corporate advisory firm

Appendices: Intellectual Property

Memphasys and/or Uni Newcastle hold patents relating to:

- Specific cell separation technologies
- Specific sperm separation technologies¹

Patents pending:

- Electrophoresis apparatus design for sperm fractionation
- Hydrogel membranes

1. Exclusive, perpetual license from Uni Newcastle



Thank you

Alison Coutts

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