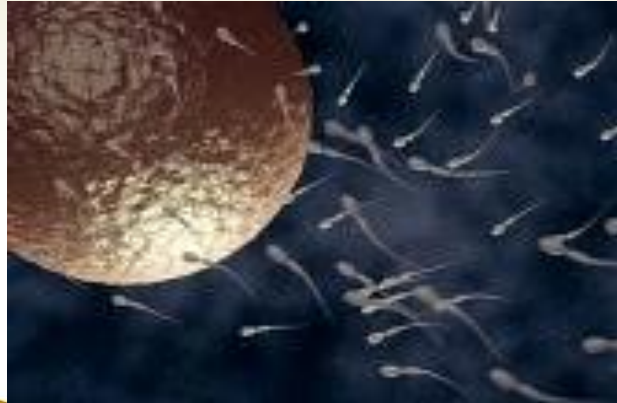


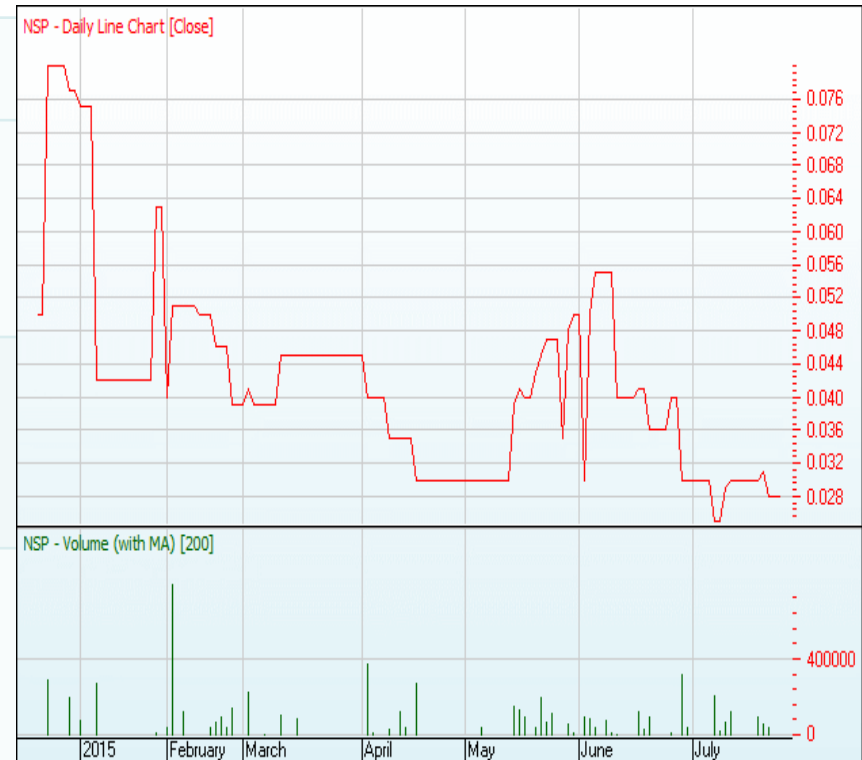
Transforming IVF and Biological Separations



Presentation by Executive Chairman,
Alison Coutts

NuSep (ASX:NSP) key facts

No. shares	237,606,002
Market Cap.	\$7.1 million (@3 cps)
No. of shareholders	Approx. 900
Top holdings	<ul style="list-style-type: none"> • Top : 38.9%* • Top 5: 45.7%



*Andrew Goodall & related parties

WHY INVEST IN NuSEP

- **NUSEP HAS UNIQUE PROPRIETARY TECHNOLOGY IN BIOLOGICAL SEPARATIONS**
 - Proven to work
 - Two major applications: human plasma (through investment in PrIME, which is externally funded) and sperm separation
 - Multiple unique benefits over incumbent technology
- **SPERMSEP**
 - Entering human and animal IVF clinical trials
 - Large, fast-growing global market
 - Close to having a commercial device for sale
 - Relatively small funding required
- **CAPITAL IS REQUIRED FOR**
 - Funding of multi-centre clinical trials
 - Development and market launch of production SpermSep system
 - New membrane development

NUSEP'S UNIQUE TECHNOLOGY

To our knowledge, no other company has

- a **proven proprietary** method for separating cells* (eg sperm cells)
- using a **membrane** that can precisely control pore size (for size separation)
- that can be combined with **electrophoresis technology** (for charge separation)
- in a way that can be scaled up to provide **commercial quantities** of product.
 - NuSep's majority-owned investment, PrIME Biologics Pte Ltd, is focused on separating proteins from human blood plasma using the same core technology developed by NuSep

Human IVF



MALE INFERTILITY: A FACTOR IN NEARLY 50% OF HUMAN IVF CASES

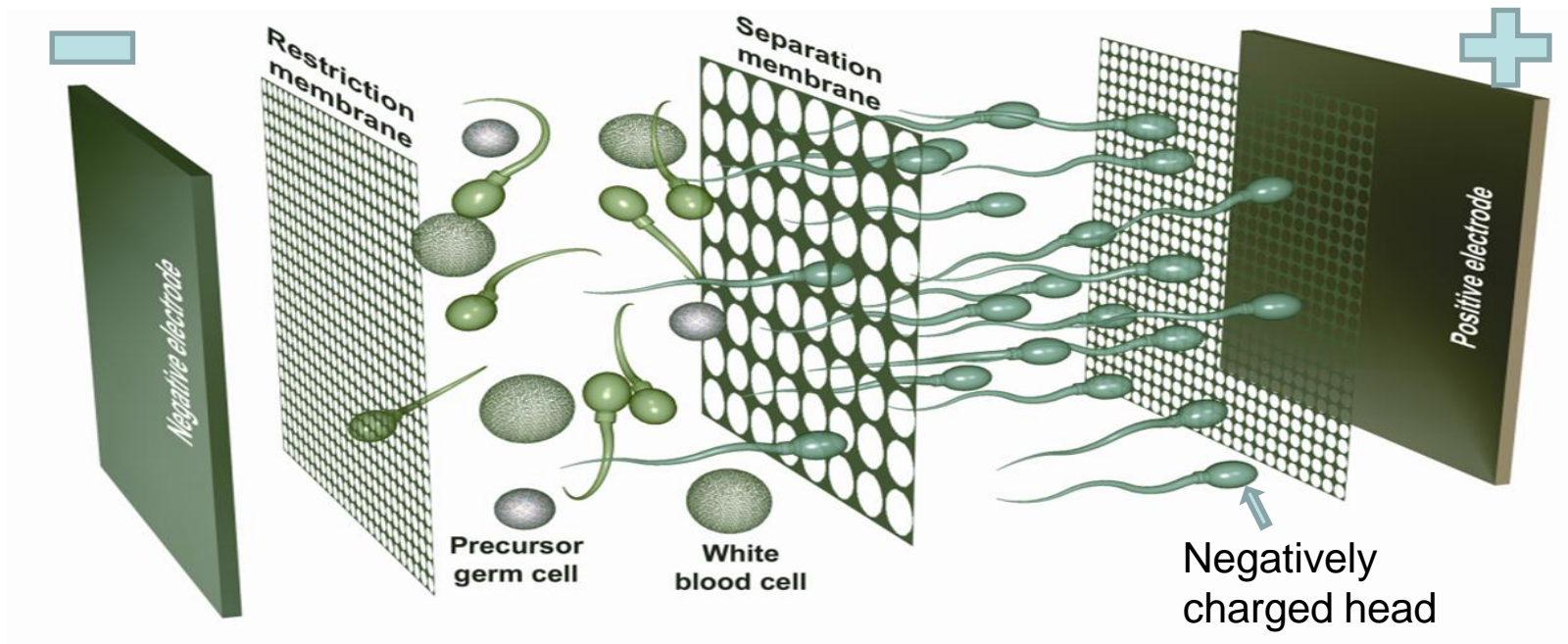
- **Male infertility**
 - highly prevalent
 - increasing for the past few decades
 - Environmental and lifestyle factors?
 - a factor in > 45% of infertile couples
 - affects ~1/3 of men over 40
 - strongly linked with chronic disease eg cardiovascular disease & diabetes

Sperm **quality, rather than **quantity**, is the issue**

WE SEPARATE THE BEST SPERM

... by size (with our membranes) & charge (using electric field)

- The best sperm have a negative charge



A LARGE AND EXPANDING HUMAN IVF MARKET

Couples with fertility issues: ~50m		Australian couples seeking IVF: 1 in 6**
Global IVF clinic business:		
Cycles/year	~15 m	570K in Australia (2010)
IVF babies/year	~350,000	10,500 in Australia (2010)
Numbers of IVF clinics	~3,000	Australia: Dominated by 5-6 companies EU is largest market Asia is fastest growing
IVF market size: - 2012 - 2020 (forecast)	US\$ 9.3 b US \$21.6 b	Australia: AUD\$470m
Cost to patient per cycle	~US\$1.5K ~US\$30K	India USA

Sources: Vitrolife 2013 Annual Report, Cooper/Origio investor Report, Jun 2012

** Industry interviews

DNA DAMAGE

CAUSED BY MOST COMMON SPERM PREPARATION METHODS

- **Birth defects** are about **double in IVF** compared with conventional conception.
- **Density Gradient Centrifuge (DGC)** is most common IVF method & involves two damaging steps for sperm cells.

- | | |
|----------------------------|---|
| 1. Centrifuging | Spinning creates damaging shear forces |
| 2. Separation media | Oxidative damage arises as the separation media - contains trace heavy metals, including copper |



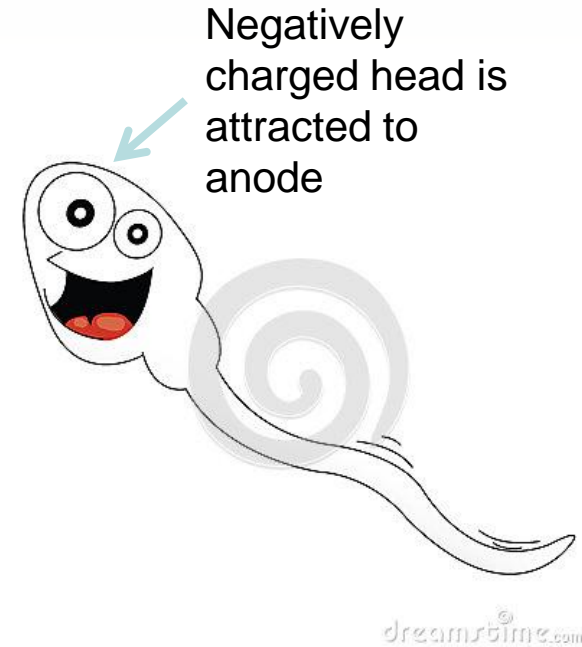
Increased risk:

- Infertility
- Premature birth/ birth defects
- Later onset of disease & disability eg cancers, deafness, mental illness, metabolic diseases, immunity issues etc

- **Swim-up method also damages DNA**

SPERMSEP HAS A COMMERCIAL SOLUTION TO KEY MALE INFERTILITY ISSUES

- **Highly selective of healthy sperm**
 - The highly negatively charged sperm are the 'healthier'
 - First to reach the (positive) anode through the separation membrane, leaving the less viable sperm behind
- **Far less damaging for sperm**
 - Sperm from our technology have significantly less DNA damage than from DGC method
- **Cheaper, quicker, more convenient process**
 - Automated instrument
 - disposable processing cartridges
 - quick (5 mins/sample vs 40 mins/sample),
 - much less manual lab tech time



SPERMSEP CLINICAL TRIAL PROGRAMS

Human IVF

- Already has resulted in 4 live, normal births at Sydney IVF and Westmead Hospital in 2006/7.
- About to start *In-vitro* trials at 4 leading Australian IVF centres under leadership of Uni Newcastle (Prof John Aitken)
- Trial protocols will rigorously test the benefits of NuSep's device over current sperm preparation methods for particularly difficult cases of infertility
 - very low sperm count
 - poor sperm quality (poor motility, morphology, DNA damage)
 - testicular or prostate damage
- Expected duration: Second half of 2015



Animal IVF and AI (Artificial Insemination)





ANIMAL ARTIFICIAL REPRODUCTION IS ALSO A LARGE MARKET

- **Artificial insemination* (AI) dominates the assisted animal reproduction market**
 - USA
 - ~90 %of the nation's dairy cows
 - 70-75% of commercial swine production
 - Europe
 - ~90% of pigs and dairy cows
 - AI in other species
 - Non-thoroughbred horses (AI is illegal with thoroughbreds for racing)
 - Goats, camels, zoos, greyhounds, endangered species, etc
- **Although still niche, IVF is rapidly gaining traction**
 - NuSep is initially concentrating on animal IVF as it is high margin and well suited to NuSep's technology

*sperm directly inserted into uterus

SPERMSEP WILL FOCUS ON REPRODUCTION IN ELITE ANIMALS AND WHERE SPERM QUALITY IS AN ISSUE

- We are trialling SpermSep in cows with our partner, MiniTube Germany and we are continuing equine work with Uni Newcastle
- MiniTube are the largest provider of AI equipment globally and also undertake preeminent research in Animal Reproduction

	 Cow IVF	 Horse IVF
Aim	<ul style="list-style-type: none">▪ Provide a new method of preparing frozen bovine semen▪ Implant multiple embryos in “foster” cows to produce multiple births (not the usual one per year)	<ul style="list-style-type: none">• Improve ability to rapidly separate the most viable sperm*• To successfully implant embryos with high quality sperm

*equine semen is poor as it has not been traditionally selected for reproduction quality.

Membrane Separation Technologies

- We are developing a new polymer membrane which could well replace our present polyacrylamide membranes
- It would have major advantages in bio-compatibility, raw material cost, sterilisation ability and scale up
- It could also have wide bio-separation application, beyond SpermSep

PrIME

- Independent Singapore-based investment spun out of NuSep in mid 2014
- NuSep presently holds 68% in B class shares and is attempting to sell those shares to fund its other operations
- Has a production facility in Singapore and is seeking cGMP accreditation
- Is using the core NuSep technology to separate immunoglobulins and albumin from blood plasma in partnership with G. E. Healthcare
- Technology has been proven at bench scale to work using NuSep's device and membranes

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