Investment Brief for Improving Pregnancy Rates Using Assisted Reproduction Technologies

NSW AREA HEALTH SERVICES

Office of Commercialisation

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Improving Pregnancy Rates Using Assisted Reproduction Technologies

Summary

A novel drug treatment to improve the pregnancy rate for in vitro fertilization and artificial insemination by improving the viability of embryos.

Market

The IVF market continues to grow rapidly as it is estimated there are over 80mill people worldwide with fertility issues. This technology is unique.

It also has application in livestock production.

Benefits

IVF is an expensive technology which has a low rate of success (10-20%). An increase in the success rate would enable wider access and reduce the cost to the healthcare system from failed IVF treatment.

The Opportunity

After several years of intensive research, Associate Professor Chris O'Neill from the University of Sydney and Royal North Shore Hospital has discovered how to dramatically improve the viability of embryos produced using assisted reproductive technologies (ART), by treating them with a small molecule drug. This is a breakthrough to improve pregnancy rates (currently a low 10-20%) during infertility treatment.

It also applies to livestock production where rapid genetic improvements are facilitated by ART, yet 40% of cattle embryos continue to die in vivo – a significant deterrent to its economic use.

Value Proposition

This invention addresses the problem of poor pregnancy rates when using assisted reproduction therapies such as human IVF or artificial insemination (AI)/embryo transfer in animal breeding. Its ability to make healthier babies resulting in more successful pregnancies, will improve the cost-benefit of artificial reproduction technologies. This will significantly increase the worldwide market.

Potential Market Applications for the Technology

Infertility is a problem for 80 million people worldwide or about one in ten couples. This invention has the potential to be used in all ART treatments which numbered about 7.8 million in 2000. Markets are relatively immature and doubling every two years. The target market is the specialised infertility clinic/laboratory and obstetricians specialising in infertility.

A further market is in embryonic stem cells.

With regard to livestock production, if this technology improves the success of artificial insemination by only 10-15%, it will create a major market expansion. The target market is the large AI/ART companies in Agriculture. Proof-of-concept in bovines would be the initial market entry point.

Cook Australia P/L is a very interested potential partner.

Competitors

This is a breakthrough discovery for assisted reproduction technologies and there are, as yet, no competitors. Attempts at treatment of various stressors on the embryo have had only limited success and have not been able to reduce embryo death. Safety of the proposed treatment is the primary concern and this can be determined in planned animal studies over the next 2 years.

Sustainable Advantage

Medical treatment of the embryo is a new therapeutic strategy. As such it will have to sustain exhaustive tests to ensure there is no biological risk for the embryo. If successful, the

drug will effectively treat a defect in embryos that is induced by the assisted reproduction process and results in the disappointingly low pregnancy rates (10%-20%). It will be alone in its ability to do this for the immediate future.

Further development of the IP is feasible and could lead to additional blocking patents.

Status of Intellectual Property

International (PCT) Patent Application No. PCT/AU2004/001121 'Methods for Enhancing Embryo Viability' Christopher O'Neill (inventor) was filed on 20 August, 2004. The IP is owned exclusively by Northern Sydney Area Health Service (now called Northern Sydney and Central Coast Area Health Service). The patent application is undergoing an International Preliminary Examination. It has entered the National phase in Europe, the US, Canada, China and Australia.