AusBiotech Investment
AUSTRALIA'S BIOTECHNOLOGY ORGANISATION

BIASSEX™ P/L

Company profile

Back in 2009 the founder of BIASSEX P/L, Mr. Josef Pfistershammer, through his livestock management experiences, recognized that no reliable, economically viable manner existed re the sex biasing of either natural matings and/or AIs (i.e. artificial inseminations) with either fresh or already frozen/chilled and future unsexed semen to achieve that keenly sought-after next generation of mainly female replacement progeny in dairies and piggeries. BIASSEX P/L was set up to solve this problem. Emeritus Prof. Pat Carnegie is honorable Chairman and Lindsay Wolrige is non-executive Director, with David Mellor as our Company Secretary. Our ABN is: 8813 3164 128

Functional semen sexing is critical to the efficiency of livestock herd management and genetic improvement and will be an important contributor to productivity and global food security in coming years. For this purpose, we have entered into a commercial arrangement with a local laboratory to develop two bispecific monoclonal anti-male sperm hybridomas. The resultant bsmAbs are conjugated to bio-degradable micro-particles that are only 5x8 microns in size, akin to sperm heads, and coated with protective cholesterol, also like sperm. These constructs enhance the bsmAbs' transport along the female reproductive tract towards the ovary by the oestrous uterine peristalsis. Up there they biologically skew any reproduction towards the female gender due to the "non-self" recognition by the egg's outer layers of sperm with Abs attached. The aim is to produce over 85% female progeny. To this end we are developing our S(ex)-B(iasing) DEVICES, such as the pre-mating S-B STRAW and S-B TUBE, the S-B EXTENDER, with the latter facilitating the production of compulsorily "S-B" marked Straw or Tubes by semen processors.

With our lodged patent application, we claim proprietary rights to:

1) A greatly improved applicability of the immunogenic action of anti-male sperm specific bispecific monoclonal antibodies by assuring their positioning in the upper uterine tract, the infundibulum and ampulla to have them in the very same place as capacitating sperm. Here the latter are stripped off their protective sugar and lipid coatings by enzymes and lipoproteins released by the mucus lining of the uterine tubes, thus laying bare antigens on the sperm surface that would without capacitation not be accessible to antibody/antigen interactions. The claimed gender biasing improvement stems from conjugating our bsmAbs onto micro-particles that resemble sperm in shape and size (i.e. 5x8µm – <10 µm to pass readily through the narrow Interstitium at the beginning of the oviduct). The ovary's ipsilaterally associated fallopian tube during oestrus exhibits peristaltic waves, muscle contractions akin to swallowing, that transport the sperm and our conjugated antibody constructs up towards the very distal end of that uterine tube, to the very ovary enwrapping infundibulum. Should un-conjugated antibodies alone be inserted into the uterus, then that is where they remain due to them being far too small to be affected by the uterine peristalsis (e.g. size ratio of Abs to sperm of 1,000:1 & a minimal quantity ratio of 10:1 of micro-particles to sperm and 100 bsmAbs per micro-particle, thus inserting a minimum of 5 Billion bsmAbs/straw).

2) Coating the conjugation constructs with cholesterol and glucose not only mimics the sperm but it also assists in protecting them from phagocytic actions and from agglutinating with each other, whilst they might linger in the uterus body for up to 18 days waiting for the next oestrus. During the capacitation phase of the sperm those sterol-binding albumins, lipoproteins, as well as proteolytic and glycosidasic enzymes and heparin from the tubular wall all act together near the ovary to liberate the conjugated antibodies, so they can do what they are designed to do, bind to sex specific sperm antigens; the Agarose micro-particles gradually dissolve.

3) We also claim proprietary rights to the fact that we will be creating bispecific monoclonal anti-male sperm antibodies from the pertinent pair of hybridomas (i.e. bsmAbs) as they relate to our findings.

Speaker Profile

Josef Pfistershammer, CMV, CEO and Product Development Director of BIASSEX P/L. 'Inventor of the year' (1987), with over 40 years of cattle industry experience. He graduated as "Candidate Medicine Veterinaire" (CMV) from the University of Vienna, Austria. He invented and produced the BUDDEX dehorner, with sales into over 25 countries; awarded two BIF grants regarding his tissue-collecting INTEGRI-System eartags product line. As BIASSEX's major shareholder he will initially manage the company's affairs and will also be responsible for developing its wide range of devices and vaccines.