



NovaUCD

Technology Transfer Opportunity

Novel Modulators of Fertility

OPPORTUNITY:

Novel modulators of fertility.

Description of Technology:

A set of novel genes has been found to be associated with the development of bovine ovarian follicles. The genes were identified in micro array studies examining ovarian cells of dominant and subordinate follicles.

Initial gene silencing experiments with one selected novel gene identified this particular candidate as a suppressor of follicle development. Potentially, these novel genes may be used to modulate fertility given their role as positive or negative regulators of follicle development.

Value Proposition:

Ovarian follicle development or folliculogenesis typically follows a wave like pattern which peaks in the establishment of a dominant, oestradiol-producing follicle over a number of subordinate and regressing follicles. This wave is regulated by hormones and growth factors. Faulty regulation of this process severely affects fertility and animal reproduction. The manipulation of ovarian follicle development is thus a key target in bovine fertility treatment.

The only existing fertility treatment methods are based on administration of exogenous hormones which together with the endogenous hormones alter regulation of folliculogenesis. These methods are highly variable and often have unpredictable effects on individual animals.

In contrast to this, the identified novel modulators are intracellular molecules which determine the fate of ovarian cells and the follicle. Targeting these molecules is likely to produce more specific and predictable results for the modulation of follicle development. In addition to their therapeutic application as fertility modulating drugs or targets of such drugs, these molecules can be used for diagnostic purposes to assess the fertility status of cattle or as screening targets.

These genes may also play a similar role in human fertility. Further applications in the human fertility market sector can therefore be anticipated.

Market:

Animal health, pharmaceutical industry.

Inventors:

Professor Alexander Evans, Dr Niamh Forde, Professor Patrick Lonergan and Dr Anna Zielak UCD School of Agriculture, Food Science and Veterinary Medicine, and Dr Monika Mihm, University of Glasgow.

Publications:

Zielak AE et al., (2007), Mol Reprod Dev., epub.

Status:

The invention is at proof of concept stage. The function of the identified regulators has in part been confirmed in knock-down studies and further experiments to evaluate their mechanism of action are ongoing. Two priority patent applications were filed in October.

Opportunity Sought:

Available for licensing or co-development with a suitable industrial partner.

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