

NECLEOCEPTIN™

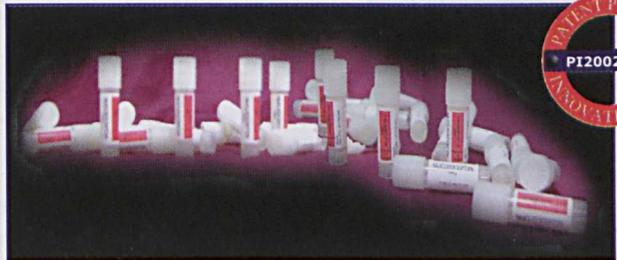
Novel Polynucleotide Vaccine for an Effective Fertility Control in Animals



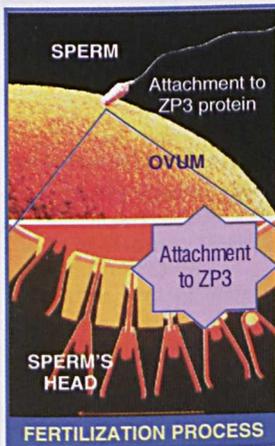
A new mode of fertility control, immunocontraception has been adopted as tool to solve the problem of overpopulation. Immunocontraception can be achieved by vaccinating animals with gamete proteins or reproductive hormones. The former are tissue specific; which means, other tissues will not be affected after treatment, therefore is of preference. One of the most useful gamete antigens is zona pellucida (ZP) protein, an extracellular matrix covering the mammalian oocytes. It composes of three sulphated glycoproteins, ZP1, ZP2 and ZP3, mediating sperm contact with the oocyte. Given the fact that the availability of intact ZP3 is always limited and purified natural protein is less stable compared to nucleic acid, polynucleotide vaccination will be an excellent alternative.

Award Winner

NUCLEOCEPTIN™ a polynucleotide vaccine has been developed by our group that carries the gene that encodes ZP3 protein for direct injection to animal. The anti-fertility vaccine constructed is comprised of a mammalian expression vector containing gene sequence encoding ZP3 protein.



Novel Polynucleotide Vaccine Nucleoceptin™



Administration of this vaccine facilitates *in vivo* expression of ZP3 protein, which in turn stimulates the development of specific cellular and humoral immune responses directed against the destruction of self-ZP3 protein of oocytes. Animals immunised with NUCLEOCEPTIN™ were infertile. The reduction in average litter size of at least 90% is due to assured prevention of follicle development. Ovaries of animals treated with NUCLEOCEPTIN™ showed direct prevention of mature follicles formation. Excessive depletion of the functional follicles was accompanied by an increase in the number of oocyte-free cell clusters. The ovaries became atrophic and eventually ended up with premature ovarian dysfunction and sterility. Alterations in ovarian function were also evidenced when the immunosterilised animals no longer sensitive to intensive exogenous hormonal (hCG) stimulation. . None of the treated animals showed sign of recovery over extended period.

The NUCLEOCEPTIN™ has been proven as an excellent irreversible contraceptive vaccine. Its application in fertility control is assured. The application is only via a simple injection. Expensive and complicated invasive procedures like surgery and castration can now be avoided.

NUCLEOCEPTIN™ is a patent pending PI20020030 invention.

For further information, kindly contact:

Professor Dr. Mohd Azmi Mohd Lila
Virology Research Laboratory
Faculty of Veterinary Medicine
Universiti Putra Malaysia
43400 UPM, Serdang, Selangor
Malaysia

Tel: +603-8946 8305

Fax: +603-8948 6317

E-mail: azmi@ibs.upm.edu.my azmi@vet.upm.edu.my