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# Cellular and Molecular Mechanisms in Reproductive Immunology

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## Editor Note

Reproductive immunology is a field of medicine which studies the interactions between reproductive tissues and the immune system. It offers solutions to various reproductive disorders associated with immune dysfunctions, such as infertility problems of men and women, recurrent miscarriages, cancers of reproductive tissues, fibroids, and various pregnancy complications. *Reproductive Immunology: Open Access (RIOA)* is an international, peer-reviewed, journal that publishes new articles in all the related topics of reproductive immunology. The main goal of the journal is to provide a forum for researchers and clinicians to disseminate new research findings and concepts related to the field of reproductive immunobiology. Here, we highlight several novel findings recently published in RIOA.

Using a genome-wide association study (GWAS), Sugimoto et al. [1] provide novel insights into the role of friend leukaemia integration 1 (FLI-1), a member of the ETS gene family of transcription factors, in regulation of conception rates in Holstein cows. They have shown that cows with higher conception rates have the GA polymorphism in the FLI-1 5' untranslated region and express higher levels of FLI-1 transcripts with the GA polymorphism. Furthermore, they have shown that cows with the deletion polymorphism had lower conception rate after embryo transfer and had higher serum levels of perforin, a product of natural killer cells, which might have contributed to the lower conception rate in these animals.

McCracken and colleagues [2] have discovered a potential mechanism of suppression of the maternal Th1 immunity during

normal pregnancy. They have shown that pregnancy derived Fas ligand (FasL) exosomes in maternal plasma regulate p65 levels in circulating T-cells through Fas activation, and that the suppression of p65 subunit of the nuclear factor kappa-light-chain-enhancer of activated B cells (NF- $\kappa$ B) in T-cells underlies the suppression of maternal Th1 immunity during pregnancy.

In a case report, Carbone et al. [3] have demonstrated an innovative approach to immunomodulation in women with recurrent pregnancy loss and immunological abnormalities. Although the safety and efficacy of this approach needs further evaluation in large clinical trials, the authors have successfully demonstrated the tolerability and clinical efficacy of subcutaneous immunoglobulin therapy for unexplained abortion and multiple sclerosis.

## References

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3. Carbone J, Sarmiento E, Fernandez-Cruz E (2016) Subcutaneous Immunoglobulin Therapy in a Woman with Spontaneous Pregnancy Loss and Multiple Sclerosis. *Reproductive Immunol Open Acc*.