Abstract: Antisperm antibodies can cause infertility by interacting with spermatozoa through immunoglobulin binding protein thereby blocking their penetrance of cervical mucus and/or by interfering with sperm-egg interaction. However, these antibodies appear not to be cytotoxic to embryos since a high implantation rate and consequently high pregnancy rate were achieved by IVF-ET treatment of women with antisperm antibodies. Also the finding that these antibodies do not appear to cause any deleterious clinical symptoms and have yet be associated with infertility suggested that sperm antigens are promising candidates in the development of immunocontraceptives. Some synthetic peptides corresponding to segments of human sperm antigens have effectively induced infertility in female rats when administered as an immunogen. Different peptides, adjuvants and routes of administration should be studied to determine the optimum conditions for inducing high antisperm antibody titers in the host. Moreover, identification of various steps and factors that are involved in regulating the production of antisperm antibodies such as immunoglobulin binding factor may open new paths in the treatment of immunological infertility and at the same time lead to a more effective immunocontraceptive. 


Keywords: antisperm antibody, infertility, contraception, immunoglobulin binding factor, sperm antigen
Impairment of sperm motility

Blocking sperm penetrance of cervical mucus

Blocking of sperm-zona interaction
Inhibition of implantation of blastocyst and embryo growth

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In vitro
In vitro exposure to antisperm antibodies results in intracellular and extracellular changes in spermatozoa. The spermatozoa exhibit alterations in their surface structure and function, which may lead to infertility.

Immunoglobulin binding factor family

The immunoglobulin binding factor family is a group of proteins that bind to immunoglobulins. These proteins play a role in modulating the immune response and are involved in various biological processes. The family includes several members, each with specific functions.

Immunosuppressive activity of immunoglobulin binding factor

The immunoglobulin binding factor family members exhibit immunosuppressive activity, which is crucial in maintaining immune tolerance. This activity is mediated through various mechanisms, including modulation of immune cell function and regulation of cytokine production.

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**Figure**: A diagram showing the immunosuppressive activity of the immunoglobulin binding factor family. The figure illustrates the binding pattern and molecular weight of the factors. The molecular weight of 16 kD is indicated for comparison.

**Legend**: a, b, c, d, e represent different samples or conditions, with e showing the strongest immunosuppressive activity.
Localization of immunoglobulin binding factor in the female reproductive tract

Activation of immunoglobulin binding factor

Increase of SI (%)
Suppression of antibody production against sperm by immunoglobulin binding factor and its breakdown

A schematic diagram illustrates the role of the immunoglobulin binding factor (IgBF) in suppressing antibody production against sperm. IgBF interacts with B cells and proteasomes, leading to inhibition of antibody production. This process involves the breakdown of IgBF, further suppressing the immune response. The diagram highlights the local production of IgBF and its role in regulating the immune system's response to sperm antigens.

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