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Sperm-Based antifertility vaccine: Future contraceptive candidate for males

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Conventional methods of contraception have mainly relied on reducing female exposure to sperm by intra-uterine devices, the contraceptive pill, hormone injections and implants, barrier methods etc. Interruptions of sperm transport, either by vasectomy or percutaneous injection of liquids that form cure-in-place plugs, are attractive options for male contraception.However, this procedure can be associated with surgical complications, unwanted immunological consequences and other pathological conditions. Condom use has been promoted as an easy to-use but several continued hurdles have hindered the provision of condoms. New forms of contraception are therefore required, as many of these traditional methods are largely inappropriate, with limited acceptability and reliability. Methods such as immunocontraception provide an effective and modern contraceptive modality, a key factor in the global issue of regional population growth as well as agricultural, medical, economic and social development. Development of sperm-based contraceptive vaccine targets the following five areas: (1) inhibition of sperm production, (2) interference with sperm function, (3) interruption of sperm transport, (4) prevention of sperm deposition, and (5) prevention of sperm–egg interaction. Of these, an approach that will arrest the fertilizing ability of spermatozoa, either in the testis, the epididymis or the vas deferens, is likely to find better compliance than those methods that suppress sperm production. Although whole spermatozoa can produce an antibody response that is capable of inducing infertility in humans, they cannot be used for the development of a vaccine since there are several proteins on the sperm surface that are likely to be shared with various somatic cell plasma membranes. Thus, only those antigens that have been carefully analyzed for sperm specificity such as Sperm-associated antigen 9, PH20, Human sperm acrosome membrane protein 32, Fertilisation antigen1 and testis-specific antigen1 should be employed for the development of an anti-sperm contraceptive vaccine. In conclusion,sperm based vaccine can offer simple and reliable method of preventing the pregnancy and can emerge as a future contraceptive for males.

Biography

Ms Gundeep Kaur has completed her B.Sc Degree with distinction from Kurukshetra University, Kurukshetra and has been awarded “Roll of Honor” for her outstanding achievements during course of Graduation. She is doing her post-graduation studies from National Dairy Research Institute, Karnal, Haryana, India. She has consistent academic record with distinction. She has been awarded as Junior Research Fellow by Indian Council of Agricultural Research. She has published seven abstracts in International conferences and has delivered four oral presentations in several National Conferences.