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by Muhammad Anas

ABSTRACT BOOK

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Cross-reaction Between *Staphylococcus aureus* Protein and Human Sperm Protein at Female of Infertile Couple with Non-specific Vaginitis

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ABSTRACT

The cause of idiopathic infertility approximately 10-30% and allegedly much related to immunological disorders and previous infections. We explore the contribution of *Staphylococcus aureus* (*S. aureus*) at women infertile couples with Non-specific vaginitis (VNS) whether cross-react to human sperm. Biocomputational and Invitro study. Five *S. aureus* protein have homology sequences by 26-44% and homology structures ranging from 0.314 to 26.40 Å to human sperm. Analysis of antigenicity, all of the molecule obtain high antigenicity properties and all of *S. aureus* protein express their epitope, only 80 % molecule of human sperm protein express their epitope. So all of the proteins almost confirmed that they allow it to be recognized by the same antibodies. Two isolates of *S. aureus* from fertile female partner (*S. aureus*_fertile) and infertile female partner (*S. aureus*_infertile) is used to collect its outer membrane protein (OMP). The humoral adaptive immune response occurs in female of fertile and infertile couple experiencing VNS due to *S. aureus*. The molecular weight (MW) of OMP of *S. aureus*_fertile that was recognized by the s-IgA mucus of the uterine cervix of female of fertile couple was 52 kDa while the OMP of *S. aureus*_infertile was recognized by the s-IgA mucus of the uterine cervix of female of infertile couple was 49 kDa. The 49 kDa and 52 kDa of *S. aureus* OMP are immunized into mice to produce specific antibody, IgG_fertile and IgG_infertile. They obtain cross-reaction between OMP of *S. aureus* MW 52 kDa and 49 kDa to OMP of human sperm. **Conclusion**: Non-specific Vaginitis due to *S. aureus* may trigger an adaptive immune response with s-IgA antibodies produced cross-reacting with OMP of human sperm protein.

Keywords: infertility, cross-reaction, *S. aureus*, sperm, s-IgA

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Abstract

Background: The cause of idiopathic infertility approximately 10-30% and allegedly much related to immunological disorders and previous infections. We explore the contribution of *Staphylococcus aureus* (*S. aureus*) at women infertile couples with Non-specific vaginitis (VNS) whether cross-react to human sperm. **Design**: Biocomputational and Invitro study. **Result**: Five *S. aureus* protein have homology sequences by 26-44% and homology structures ranging from 0.314 to 26.40 Å to human sperm. Analysis of antigenicity, all of the molecule obtain high antigenicity properties and all of *S. aureus* protein express their epitope, only 80 % molecule of human sperm protein express their epitope. So all of the proteins almost confirmed that they allow it to be recognized by the same antibodies. Two isolates of *S. aureus* from fertile female partner (*S. aureus*_fertile) and infertile female partner (*S. aureus*_infertile) is used to collect its outer membrane protein (OMP). The humoral adaptive immune response occurs in female of fertile and infertile couple experiencing VNS due to *S. aureus*. The molecular weight (MW) of OMP of *S. aureus*_fertile that was recognized by the s-IgA mucus of the uterine cervix of female of fertile couple was 52 kDa while the OMP of *S. aureus*_infertile was recognized by the s-IgA mucus of the uterine cervix of female of infertile couple was 49 kDa. The 49 kDa and 52 kDa of *S. aureus* OMP are immunized into mice to produce specific antibody, IgG_fertile and IgG_infertile. They obtain cross-reaction between OMP of *S. aureus* MW 52 kDa and 49 kDa to OMP of human sperm. **Conclusion**: Non-specific Vaginitis due to *S. aureus* may trigger an adaptive immune response with s-IgA antibodies produced cross-reacting with OMP of human sperm protein.

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