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Sperm and seminal plasma proteins, detection of sperm quality

Research topics

The long-term research programme of the laboratory (formerly Laboratory of Biology and Biochemistry of Fertilization) concentrates on studying the molecular mechanism of fertilization, especially in connection with the male reproductive tract and spermatozoa. The recent results include characterization of several novel sperm and seminal plasma proteins. Newly developed monoclonal antibodies were used for differential diagnostics of sperm pathology and for selection of useful methods of assisted reproduction in human and veterinary medicine.

Current grant support

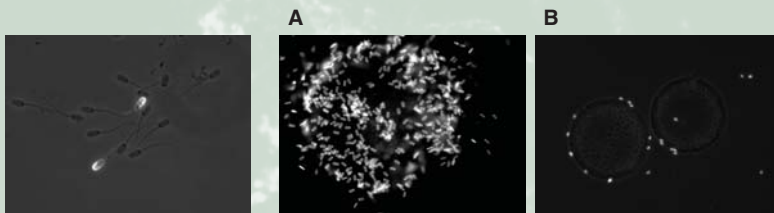
GA CR (303/04/P070, 204/05/HO23, 303/05/0614, 303/06/0895, 305/06/0427, 524/06/0817); IGA Ministry of Health (NR/7838-3, NR/8932-3), Ministry of Education, Youth and Sports (Center of Molecular Methods for Monitoring the Diffuse Pollution of the Environment (1M06011); NPVI: (Project 2B06151), international collaboration project EUREKA No OE211 EKDEQ)

Selected recent papers

1. Tepla O, Peknicova J, Koci K, Mika, J, Mrazek M, Elzeinova F. Evaluation of reproductive potential after intracytoplasmic sperm injection of varied human semen tested by antiacrosomal antibodies. **Fertil Steril**. 2006;86:113-120.
2. Jonáková V, Maňásková P, Tichá M. Separation, characterization and identification of boar seminal plasma proteins. **J Chromatogr B**. 2007;849:307-314.
3. Maňásková P, Pěkníková J, Elzeinová F, Tichá M, Jonáková V. Origin, localization and binding abilities of boar DQH sperm surface protein tested by specific monoclonal antibodies. **J Reprod Immunol**. 2007;74:103-113.
4. Čapková J, Elzeinová F, Novák P. Increased expression of secretory actin-binding protein (SABP) on human spermatozoa is associated with poor semen quality. **Hum Reprod**. 2007;22:1396-1404.
5. Peknicova J, Pexidrova M, Kubatova A, Koubek P, Tepla O, Sulimenko T, Draber P. Expression of β -tubulin epitope in human sperm with pathological spermogram. **Fertil Steril**. 2007;88:1120-28.

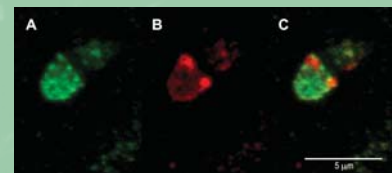


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Sperm surface protein (DQH) (Immunofluorescence with monoclonal antibodies)

Sperm-egg binding. Hoechst staining of control spermatozoa (A) and sperm treated with antibody against sperm surface protein (DQH) (B) to zona pellucida of oocyte. Reduced sperm binding (B).



Double staining of acrosomal and cytoskeletal proteins in the human sperm head. Immunofluorescence with monoclonal antibodies Hs-14 against acrosome proteins (green) – (A), TU-12 against β -tubulin (red) – (B) and co-localization with both antibodies (C).