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From protein domain dynamics to new diagnostic markers for gamete selection that enhance human assisted reproduction success

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Katerina Hortova is Head of the Group of Reproductive Biology at the Institute of Biotechnology, Academy of Sciences in Prague, Czech Republic. She is also Assistant Professor at the Dept. Zoology, Faculty of Science at Charles University.

She completed her PhD in Developmental Biology at Charles University while also completing some of her studies at the University of Sheffield, Dept. Molecular Biology and Biotechnology in the UK.

Her research interests include sperm-egg interaction and fusion; selecting markers associated with human infertility and designing diagnostic kits for clinical practice; sperm preparation for fertilization, capacitation and acrosome reaction; and epigenetic regulation of early embryogenesis, epigenetic markers associated with human infertility.

Dr. Hortova's scientific work has been widely recognised in the field of Reproductive Biology with several key publications. She, with her colleagues described sperm cooperation for the very first time in rodent and it was published in *Nature (2002)*. The current major achievement is a discovery of interaction between CD46 and beta1 subunit of integrins in sperm during sperm capacitation and acrosome reaction suggesting that these proteins are an important part of sperm network involved in gamete interaction. Published results are being of interest beyond the field of Reproduction, covering areas of neuro-physiology, immunology, cell biology and even cancer research, by stretching the understanding of the membrane fusion process in general published in *Sci Rep (2016).* The published data has also a great value for detection new aspects contributing to ever-so-growing human infertility, and these proteins plan to be part of new detection kits used in Centres of assisted reproduction, which is the current main focus of her team.

DATE

THURS 7 JUNE

TIME

12.00PM – 1.00PM

LOCATION

TRF BUILDING LEVEL 2, SEMINAR ROOMS 1 AND 2