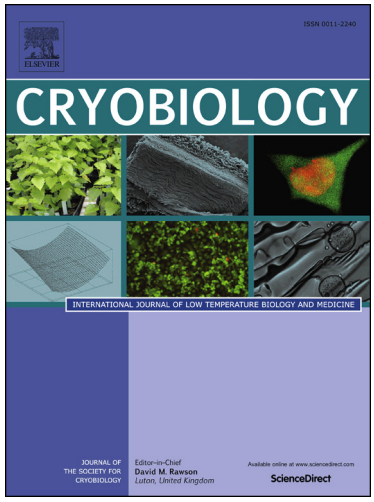

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Association of Heat shock protein 90 with motility of post-thawed sperm in bulls

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Abstract

The correlation between the 90 kDa heat-shock protein (HSP90) and sperm quality following the process of freezing-thawing in bulls has not been studied clearly. Therefore, the objective of the present was to clarify the relationship between HSP90 level and semen parameters during the process of cryopreservation in bulls. Semen samples from 5 Holstein bulls were obtained by artificial vagina. Characteristics of these semen at three stages (fresh, after equilibration and frozen-thawed), including motility, plasma membrane integrity and acrosome integrity were evaluated. The mRNA expression level of HSP90 at the three stages was evaluated by using quantitative Real-Time PCR. Meanwhile, the protein level of HSP90 expression at the three stages was detected according to western blot. The results showed that sperm parameters evaluated in fresh semen was the highest in the three groups. Sperm parameters in semen after equilibration were lower than those in fresh semen ($P > 0.05$) and higher than those in post-thawed semen ($P < 0.05$). Sperm parameters in frozen-thawed semen were the lowest among the three groups ($P < 0.05$). This study indicated that HSP90 expression is proportional to sperm quality. HSP90 expression level in fresh semen was significantly higher than that in frozen-thawed semen ($P <$