GMR Genetics and Molecular Research
Online Journal
ISSN:1676-5680

Proacrosin activation mechanisms in capacitated and frozen-thawed boar spermatozoa

J.J. Cui, Y. Tian, Y. Liu, H.L. Huang and Y. Jin

Agricultural College of Yanbian University, Yanji, Jinlin, China

Corresponding author: Y. Jin
E-mail: yijin@ybu.edu.cn

Genet. Mol. Res. 13 (4): 9915-9920 (2014)
Received January 6, 2014
Accepted March 20, 2014
Published November 27, 2014
DOI http://dx.doi.org/10.4238/2014.November.27.20

ABSTRACT. The main objective of the current study was to explore the different activation mechanisms of capacitation and freeze-thawed spermatozoa. Using SDS-PAGE and Western blotting, the conversion process of boar proacrosin during freeze-thawing and capacitation of spermatozoa was analyzed. The results revealed that capacitated spermatozoa exhibited a greater fluorescence area than that of the freeze-thawed spermatozoa, which were smaller than those of the fresh group. Fresh spermatozoa displayed 45- and 35-kDa protein bands, while those of freeze-thawed andcapacitated spermatozoa displayed 45-, 35- and 28-kDa bands. In summary, these data indicate that proacrosin is activated, thus becoming α- and β-acrosins and a 28-kDa protein during capacitation and freeze-thawing.

Key words: Boar sperm; Proacrosin; Freeze-thaw; Capacitation; SDS-PAGE; Western blotting

