



Activation of proacrosin accompanies upregulation of sp32 protein tyrosine phosphorylation in pig sperm

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ABSTRACT. This study investigated the relationship between acrosin activation and pig sperm proacrosin binding protein (sp32) phosphorylation levels. Differently processed pig spermatozoa (fresh semen sperm, capacitation sperm, acrosome reaction sperm, capacitation-like sperm, and thawed sperm) were subjected to sodium dodecyl sulfate polyacrylamide gel electrophoresis and Western blot analysis. The fresh semen and capacitation sperm groups both produced proacrosin protein bands of 55 kDa; however, the result of the fresh semen sperm group was clearer than that of the capacitation sperm group. The thawed sperm group showed a shallow strip at 55 kDa. The capacitation and acrosome reaction sperm groups produced obvious proacrosin protein bands at 35 kDa, and the strips of the capacitation sperm group were again clearer. A faint band was visible at 32 kDa in the acrosome reaction sperm group. The capacitation, thawed, and acrosome reaction sperm groups showed significant strips in sp32, and the bands of the acrosome reaction sperm group were shallower than those of the 2 other groups. The capacitation and thawed sperm groups produced significant strips at 40 kDa, and the capacitation sperm group produced an additional strip at 55 kDa. In conclusion,

sp32 phosphorylation levels can promote proacrosin activation into the active acrosin.

Key words: Pig sperm; Proacrosin; Acrosin; sp32; Phosphorylation