

Morphology

The Importance and Application of Testicular Angiotensin Converting Enzyme (tACE) as a Marker for Evaluation of Mammalian Spermiogenesis and Fertility

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Two isoforms – somatic (sACE) and testicular (tACE) are known. The aim of the present study is to reveal the role of tACE as a marker for germ cell differentiation, in particular for spermatid development. The specific pattern of tACE protein expression was studied in normal and experimental condition (spontaneous hypertension, androgen withdrawal, hyperglycaemia). Normally, tACE could serve as a marker for developmental stage of germ cell differentiation. In experimental pathological conditions that lead to male infertility, tACE was proven as a useful marker for evaluation of spermiogenesis. Testicular ACE provides precise evaluation for retention of the first spermatogenesis and spermatid depletion in adulthood. The summary of our data obtained so far characterized tACE as a proper cellular marker for elongating spermatids and mature spermatozoa. Our review provides new vision for tACE as unique tool for evaluation for stage-specific changes in spermiogenesis and in particular stage in spermatid elongation.

Key words: angiotensin converting enzyme (ACE), testis, spermatogenesis, spermatids, germ cells.