

Journal of Andrology, Vol 19, Issue 6 754-760, Copyright © 1998 by The American Society of Andrology

JOURNAL ARTICLE

Protein kinase CK2 activities in human prostatic and seminal-vesicle secretions and seminal plasma

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Human prostatic secretion and seminal plasma contain certain protein kinase activities. Protein kinases play important roles in regulating a vast variety of cellular functions. The objective of this study was to determine whether one of these protein kinase activities in human prostatic secretion and seminal plasma is due to CK2, a messenger-independent, serine/threonine protein kinase that has considerable potential as a regulatory enzyme. By employing an anti-CK2 antibody and a CK2-specific peptide substrate, we have established that CK2 is present in these secretions. Approximately 70% of the CK2 activity present in seminal plasma of normozoospermic men (n = 49) is correlated to the number of sperm originally present in the semen. Further, both the prostate gland and the seminal vesicles are sources of CK2 activity in the seminal plasma of vasectomized men (n = 38). Although there was considerable variation between individuals in CK2 activity, the variation in repeat semen samples of the same vasectomized men (n = 6) was within 21%. There was no correlation of CK2 activity in seminal plasma with age for vasectomized (27-48 years, n = 38), oligozoospermic (28-43 years, n = 24), or normozoospermic men (26-48 years, n = 49). These data suggest that the majority of CK2 activity in the seminal plasma of normozoospermic men originates from sperm but that the prostate and seminal vesicles are accessory sex-gland sources of this enzyme.

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