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Identification and distribution of Pz-peptidases A and B in human semen

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Human semen was fractionated into fluid, particle and spermatozoal constituents using Percoll density gradient centrifugation followed by additional separation steps. All of the fractions isolated possessed both Pz-peptidase A and Pz-peptidase B activity. The effects of inhibitors on the Pz-peptidase A and B activities of all seminal fractions were similar, suggesting that hydrolysis of the Pz-peptidase was attributable solely to these two enzymes. Estimates of the activities in intact spermatozoa indicated that 1.6 +/- 0.5 mU of Pz-peptidase A and 1.6 +/- 0.7 mU of Pz-peptidase B were present per billion spermatozoa. The predominant source of Pz-peptidase B activity in semen was the ultra-low density particle fraction (110,000 X g pellet from seminal plasma), which contained 86% of the recoverable Pz-peptidase B activity. Pz-peptidase A and B activities of fluid and particle fractions isolated from azoospermic ejaculates from vasectomized donors were similar to the activities of the corresponding fractions from normal semen. This suggested that much of the Pz-peptidase A and B activities of semen originated in accessory gland secretions. The effects of EDTA, Zn2+ and Cu2+ on soluble Pz-peptidase A and B activities of particle-free seminal plasma suggested that neither was involved in the liquefaction of semen.

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