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Complexes of Gelatinases and Tissue Inhibitor of Metalloproteinases in Human Seminal Plasma

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Previously reported data have indicated the existence of two kinds of matrix metalloproteinases (MMP-2 and MMP-9) in human seminal plasma (Shimokawa et al, 2002). Here we report the existence of complexes of gelatinases and tissue inhibitor of metalloproteinase-1 (TIMP-1) and TIMP-2 in human seminal plasma. After the seminal plasma supernatant was separated on a gel-filtration column chromatography of GCL-2000-sf-cellulofine. Western blot analysis showed these proteins were recognized by two antibodies to TIMP-1 and TIMP-2, but not to TIMP-3 or TIMP-4. These bands were consistent with standard recombinant full-length TIMP-1 and TIMP-2 proteins. These bands had molecular weights of approximately 29 and 21 kd for TIMP-1 and TIMP-2, respectively. These proteins existed as complexes of proMMP-9/TIMP-1, proMMP-2/TIMP-2, MMP-2/TIMP-2, free TIMP-1, and TIMP-2 in human seminal plasma. The partially free TIMPs were degradeted by some proteinases in human seminal plasma. These results indicate two kinds of TIMPs (TIMP-1 and TIMP-2) and their complexes with progelatinases in human seminal plasma.

Key words: Human seminal plasma, matrix metalloproteinase