Affinity sites for ?-glucuronidase on the surface of human spermatozoa

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Glycosidases secreted by the epididymis become bound to the surface of spermatozoa during their transit through the epididymal duct. They are believed to play a role in mammalian fertilization. In the present report, we demonstrate that ?-glucuronidase binds to the surface of ejaculated human spermatozoa with high affinity and in a saturable manner. The binding is Ca2+ independent, inhibited by either mannose-6-phosphate, phosphomannan fragments from the yeast Hansenula holstii and ?-mannosidase from the Dictyostelium discoideum, suggesting that phosphomannosyl receptors are involved in the recognition of the enzyme. The catalytic site of the enzyme is not involved in the binding. The localization of the ?-glucuronidase binding-sites is restricted to the surface of the sperm head. These results suggest that the spermatozoa could be the target for glycosidases present in the seminal plasma.