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## JOURNAL ARTICLE

# Sperm surface fibronectin. Expression following capacitation

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The Arg-Gly-Asp (RGD) amino acid sequence plays a role in many cell-to-cell and cell-to-matrix adhesion systems, as a recognition sequence for cell membrane receptors termed integrins. Receptors of the VLA subfamily of integrins recognize fibronectin, laminin, and collagen. Given the authors' findings that fibronectin-derived, RDG-containing peptides competitively inhibit sperm-olemmal adhesion and penetration in both heterologous (human-hamster) and homologous (hamster-hamster) gamete interactions, the expression of fibronectin on the surface of fresh, capacitated, and acrosome-reacted human spermatozoa was studied. The majority of fresh spermatozoa did not display fibronectin on their plasma membrane (0 to 16% positive), as demonstrated by the lack of binding of both monoclonal and polyclonal anti-fibronectin antibodies. In contrast, a significantly greater proportion of spermatozoa (varying between 18% to 100% for different donors) incubated overnight under capacitating conditions reacted with anti-fibronectin antibodies. The induction of an acrosome reaction with progesterone did not alter the proportion of sperm displaying fibronectin or its distribution on the sperm surface. A physiologic role of fibronectin in sperm-olemmal interaction was suggested by the effects of anti-fibronectin antibodies on sperm oolemmal adhesion and penetration of hamster eggs by human spermatozoa, which were both significantly reduced (P less than 0.001).

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