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Localization of tubulin and microtubules of in vivo fertilized rabbit oocytes

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The presence of tubulin throughout what appears to be sperm penetration tunnels of in vivo fertilized rabbit oocytes was demonstrated by both immunofluorescence and transmission electron microscopy, using fluorescein and peroxidase-labeled antibodies, respectively. In approximately half the fertilized oocytes examined, intact microtubules were found at the point of entry of the spermatozoon into the zona pellucida, while amorphous deposits were found throughout the remainder of the tunnel, starting at the point of entry into the matrix of the corona radiata cell layer, and continuing to the perivitelline space. These continuous deposits of tubulin suggest that, in the rabbit, acrosomal microtubule-like structures may perform a role in mammalian fertilization, possibly as an enzyme binding or delivery system, although other functions are possible. No deposition of actin was detectable in these tunnels.

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