

# Ultrastructure of a 4-cell human embryo developed in vivo

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The infrastructure of a 4-cell human embryo undergoing development in vivo is described. The embryo recovered from the Fallopian tube 130 h after a single episode of intercourse and 70 h after the luteinizing hormone peak in plasma, was partially surrounded by cumulus cells. The blastomeres, of even size, were nucleated and had a similar distribution of cytoplasmic organelles. No signs of abnormality or cellular degeneration were observed. Transmission electron microscopy of serial sections revealed the presence of primitive desmosomes between cells, abundant vesicles within the blebs of the outer sheet of the nuclear membrane, blebbing of the inner sheet of the nuclear membrane and close association between the inner sheet of the nuclear membrane and the intranuclear annulate lamellae. Nucleolar precursors lacking the structural organization of mature nucleoli were also found. Similarities and differences between this and other preimplantation human embryos reported earlier are analysed.