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EFFECT OF ^3H -TdR ON MOUSE EMBRYOS *IN VITRO* COMPARED WITH ^{125}I -UdR
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The biological toxicity of radionuclides which decay by nuclear β -emission has been studied extensively in recent years. Particular interest has centered around the consequences of radioisotope decay following incorporation of β -emitter such as ^3H into the DNA of proliferating cells. Mammalian embryonic cell is a typical proliferating, and one of the most radiosensitive cells. We have already reported that, compared with tritiated water, organically-bound tritium including tritiated thymidine (^3H -TdR) is extremely toxic to mouse preimplantation development *in vitro*. Furthermore, a preliminary study showed that there was an appreciable difference in the toxicity between methyl- ^3H - and 6I- ^3H -thymidine. This finding suggests, if it is true, that a positional effect exists in the β -decay toxicity of tritium incorporated into the DNA of embryonic cells.

The present study was designed further to investigate the positional effect of β -decay in embryonic cells by comparing ^3H -TdR with ^{125}I -UdR in effect. ^{125}I -UdR was more toxic to the embryonic cells than ^3H -TdR.

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