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87 Cell Lineage, Determination and Differentiation in Earliest Developmental Stages

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Refined techniques (improved in vitro culture, microsurgery) and the introduction of new model systems (like, in the mammal, the teratocarcinoma cell system) have recently allowed to collect much new information on cell lineage, determination and differentiation at the earliest developmental stages. An overview will be given over present concepts about the mechanisms involved. Attention will be focused on specific heuristic problems posed by embryos which exhibit considerable regulative capacities, as found in mammals. The relationship between undetermined state and pluri- or mulitipotency will have to be considered. Theories proposed for the mechanisms of determination of trophoblast and embryoblast during cleavage and blastocyst formation will be summarized and the reason for their highly controversial nature will be discussed, asking to what extent the type of experimental approach used may predetermine the type of answer obtained.

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