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Genetic backdrop to cleavage embryo anomalies

Only around 50% of human embryos develop beyond the cleavage stage in vitro. Following embryo transfer at the blastocyst stage, aneuploidy is the primary cause of implantation failure and early pregnancy loss demonstrating that genomic imbalance of one or more chromosomes prevents development at peri-implantation stages. The reasons for the high incidence of cleavage stage developmental arrest now appears that catastrophic genomic events in early cleavage may cause developmental arrest, blocking the embryos ability to form a blastocyst. This evidence suggests that most failure following human in vitro conception may have an underlying genetic basis rooted in the first few days of embryo development.