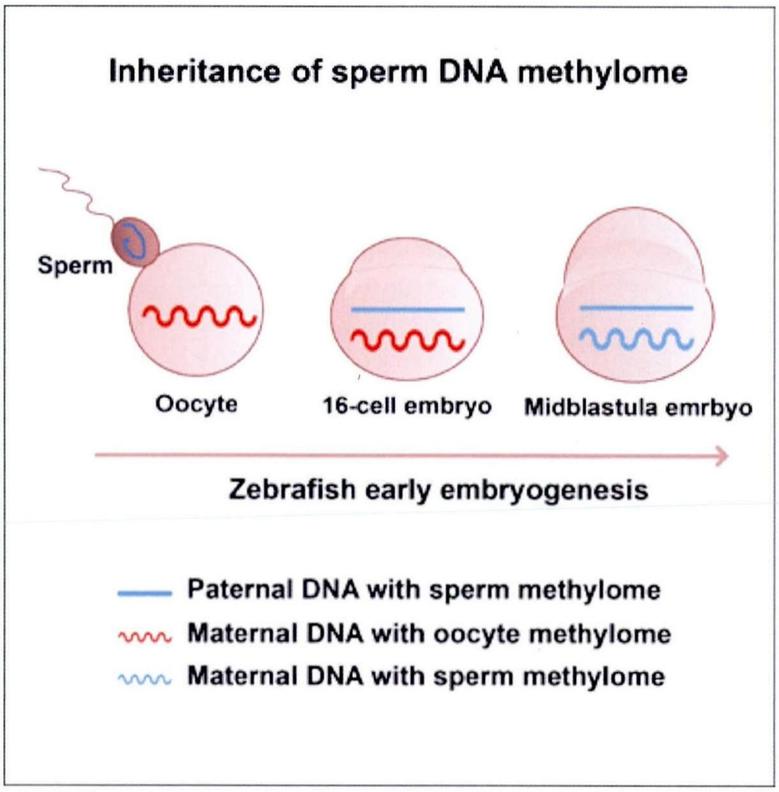
# Sperm DNA methylome is inherited during zebrafish early embryogenesis

A recent study showed that besides DNA sequences, sperm DNA methylome is also inherited in zebrafish early embryos. This was discovered by a team led by Professor Liu Jiang from Beijing Institute of Genomics, Chinese Academy of Sciences. The findings were published as a cover story in *Cell* (**2013**, 153 (4): 773—84).




It has been known that bisexual organisms inherited half of the DNA from each parent. However, epigenetic reprogramming of parental genomes following fertilization is important to ensuring compatibility for totipotency and development thereafter. DNA methylation is one of the major epigenetic modifications. The study made a couple of quite interesting and surprising findings. For example, the paternal methylome remains stable until MBT stage, while the maternal genome undergoes significant reprogramming and resets to a pattern similar to that in sperm. This observation raises interesting questions that the global DNA demethylation in embryogenesis in mammals apparently is not required for vertebrate development. Moreover, inheritance of the sperm methylome facilitates the epigenetic regulation of zebrafish embryogenesis.

In summary, zebrafish inherits sperm methylome, which challenges the commonly accepted notion that sperm mainly provides one set DNA to progenies, while oocyte provides the majority of the other information for early embryogenesis. This study also sets stage for further research on how epigenetic information was inherited from both parents, and the role of epigenetic inheritance in evolution.

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