Activation of an Origin of Replication Visualised by Cryo-EM

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In eukaryotes, DNA loading and activation of the MCM replicative helicase are temporally separated to ensure that chromosomes are copied only once per cell cycle[1]. Before replication initiation, MCM is loaded onto duplex DNA at replication origins forming an inactive head-to-head double hexamer[2]. Upon S phase transition, helicase activation occurs in two steps, involving limited opening of the double helix first, and then topological separation of the two DNA strands[3,4]. I will describe how imaging *in vitro* reconstituted reactions informs the mechanism of origin activation.

References:

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