

Parallel World: Can polymerases go against the grain?

Initiative: "Experiment!" (beendet)

Ausschreibung: Explorative Phase

Bewilligung: 01.03.2021

Laufzeit: 1 Jahre 6 Monate

Projekt-Website: <https://www.th-wildau.de/forschung-transfer/forschung/institute-of-life-sciences-and-biomedical-technologies/molbiotec/>

The current paradigm of nucleic acid polymerase reactions is that DNA synthesis is exclusively initiated from antiparallel-oriented template primer duplexes, yet new XNA-based experiments hint at the possibility that some polymerases are flexible enough to copy a natural nucleic acid template in the reverse direction and/or initiate from a 5' end from a parallel-hybridized primer. This project addresses the question whether polymerases are able to accept a non-canonical parallel-stranded primer template complex as a substrate to initiate nucleic acid synthesis. Such a previously undetected property of polymerases would have a strong impact in understanding early evolution of the genetic code, gene regulation and repair mechanisms that may contribute to the generation of diversity in the immune system.

Projektbeteiligte

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