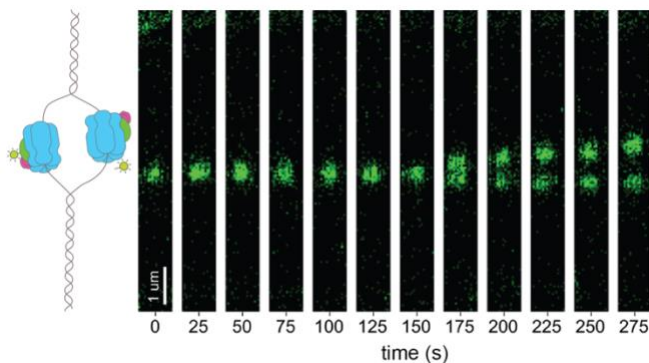


Exciting Opportunity for Two Postdoctoral Researchers!

Join our new lab at the University of Oxford to work on single-molecule studies of eukaryotic replication!



Data showing how two individual replicative CMG helicases (labeled in green) that are bound to DNA split apart and exhibit bidirectional motion. Such an event recapitulates at the *in vitro* single-molecule level the firing of replication origins as it occurs in cells.

Ready to embark on a scientific "single-molecule" mission to understand DNA replication at the single-molecule level? We are looking for two enthusiastic Postdoctoral Research Assistants to join the [Nynke Dekker Lab](#), arriving at the University of Oxford by this summer 2024. The group will be located at the state-of-the-art [Kavli Institute for Nanoscience Discovery](#) and is known for developing single-molecule techniques (McCluskey Optics Express 2021; Liu ACS Photonics 2024) and applying them to the study of DNA and RNA replication (Sánchez Nat Commun 2021; Janissen Mol Cell 2021; Ramírez Montero Nat Commun 2023; Sánchez Nat Commun 2023).

Understanding DNA replication is important, because during our lifetimes we copy approximately a lightyear's worth of DNA, and how the different components of the molecular machinery (the replisome) work together to achieve this successfully is an area of highly active research. In our lab, we take on the exciting challenge of **understanding the dynamics of DNA replication** by studying the activity of eukaryotic replisome at the single-molecule level on both bare DNA and chromatin.

Taking on this challenge represents an interdisciplinary team effort that brings together biologists, biophysicists, biochemists, and data scientists within the group. This research, carried out together with collaborators at the University of Oxford, the Francis Crick Institute, the Hubrecht Institute, and elsewhere, should lead to new discoveries and insights that inform our quantitative understanding of DNA replication and advance this exciting field while contributing to the next generation of *in vitro* single-molecule methods.

The first post is on **Single-molecule biochemistry and biophysics of DNA replication** (4-year post). You will use your knowledge of ensemble biochemistry and protein purification to design experiments in DNA replication; develop novel biochemical approaches that enable experiments in DNA replication at the single-molecule level; come up with suggestions to expand the interdisciplinary skillset as necessary for the benefit of the project; perform both ensemble and single-molecule experiments that enhance our understanding of DNA replication; and develop your quantitative analysis skills and use these to analyze your data. The ideal candidate should have a PhD in biochemistry or closely related field, and strong skills and interest in DNA-protein interactions, DNA replication, and protein biochemistry. Strong experience in protein purification, and experience with single-molecule methods is a plus. [Click here for details](#).

The second post is on **Single-molecule biophysics of DNA replication** (4-year post). You will develop and employ novel advanced biophysical instrumentation based on optical trapping and/or fluorescence microscopy to study DNA replication; develop and employ simulations and data analysis routines to analyze your data; and develop an interdisciplinary skillset by acquiring a practical knowledge of protein purification, ensemble biochemistry, and sample preparation to support your biophysical studies. We are particularly interested in experimentalists passionate about microscopy and its applications to biological systems. The ideal candidate should have a PhD in biophysics, microscopy, or a related field, and experience in optical tweezers or single-molecule fluorescence microscopy instrumentation, scientific programming, and data analysis. [Click here for details](#).

Candidates for both positions will be expected to exhibit strong interpersonal communication skills to help establish a scientifically outstanding and warmly communicative interdisciplinary team at the University of Oxford and publish their results together with other biophysicist and biochemist members of the lab. They will have the opportunity to obtain teaching experience and improve their leadership skills while guiding undergraduate and graduate student members of the lab.

Apply by noon 5 April 2024

Any enquiries? Email Prof Nynke Dekker at nynke.dekker@physics.ox.ac.uk. We hope to hear from you!