

invites to a seminar by

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Eukaryotic DNA replication: learning from the lagging strand

1st of February 2018 at 12 p.m.

Venue: Centre of New Technologies, Banacha 2C,
Lecture Hall 0142 (Ground floor)

Host: Prof. Magda Konarska

Prior to each division, eukaryotic cells must replicate their entire genome accurately and in a timely fashion. DNA replication is mediated by hundreds to thousands of replisomes – dynamic macromolecular assemblies containing all the enzymatic activities required for synthesis and processing two daughter strands. Genetic and biochemical work has described the composition of the replisome, identifying key enzymes and broadly defining their roles at the replication fork. However, in part due to a lack of direct readouts of replisome function *in vivo*, the precise roles and dynamic behavior of many replisome components have proved difficult to study in their native context. Additionally, because the genome is a functional biomolecule rather than simply an information storage medium, the DNA double helix is decorated with potential obstacles to replication, and represents a very heterogeneous substrate for replication. We seek to define how the replication machinery overcomes these impediments in order to replicate large, chromatinized genomes.

We use the enrichment and analysis of lagging-strand replication intermediates to study both replisome enzymology and the dynamics of DNA replication *in vivo*. We predominantly work in the model unicellular eukaryote *S. cerevisiae*, but have recently begun to apply our genome-wide methods to investigate replication dynamics in human cell lines.