

# MICROBIOLOGIE, INFECTIOLOGIE ET IMMUNOLOGIE

Université   
de Montréal

## CONFÉRENCE

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#### **A novel essential protein required for replication also promotes chromosome partitioning in *Caulobacter crescentus***

We used a combined genetic and biochemical approach to identify a novel protein (OpaA) that binds to the chromosome replication origin and regulates replication in *Caulobacter crescentus*, a model organism for bacterial cell cycle studies. OpaA is restricted to the alpha-proteobacteria and in this group it is a highly conserved protein, being encoded in almost all sequenced genomes. We show that the OpaA protein is essential for viability and is required for the initiation of chromosome replication. Fluorescence microscopy and ChIP-qPCR show that OpaA distribution in the cell and on the chromosome is dynamic with respect to the cell cycle. OpaA represents a novel class of DNA-binding proteins and its high abundance in *C. crescentus* suggests additional roles elsewhere in the genome. We used ChIP-seq to identify the genomic binding targets for OpaA and found that it interacts preferentially with the chromosome partitioning locus (*parS*). We show that OpaA is involved in the early stages of chromosome partitioning. We hypothesize that the partition-associated dynamics of this protein promote the coordination of the connected processes of chromosome replication and partitioning.

**Jeudi 24 mars 2016 à 11h30**  
**Pavillon Claire-McNicoll, salle Z-255**

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