2006

Proteomic dissection of DNA polymerization

Jennifer L. Beck
University of Wollongong, jbeck@uow.edu.au

Thitima Urathamakul
University of Wollongong, thitima@uow.edu.au

Stephen James Watt
University of Wollongong

Margaret Sheil
University of Wollongong, msheil@uow.edu.au

Patrick M. Schaeffer
Australian National University

See next page for additional authors

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Abstract

DNA polymerases replicate the genome by associating with a range of other proteins that enable rapid, high-fidelity copying of DNA. This complex of proteins and nucleic acids is called the replisome. Proteins of the replisome must interact with other networks of proteins, such as those involved in DNA repair. Many of the proteins involved in DNA polymerisation and the accessory proteins are known, but the array of proteins they interact with, and the spatial and temporal arrangement of these interactions is a current research topic. Mass spectrometry is a technique that can be used to identify the sites of these interactions and to determine the precise stoichiometries of binding partners in a functional complex. A complete understanding of the macromolecular interactions involved in DNA replication and repair may lead to discovery of new targets for antibiotics against bacteria and biomarkers for diagnosis of diseases such as cancer in humans.

Keywords

Proteomic, dissection, DNA, polymerization, CMMB

Disciplines

Life Sciences | Physical Sciences and Mathematics | Social and Behavioral Sciences

Publication Details

Beck, J. L., Urathamakul, T., Watt, S., Sheil, M., Schaeffer, P. M. & Dixon, N. E. (2006). Proteomic dissection of DNA polymerization. Expert Review of Proteomics, 3 (2), 197-211.

Authors

Jennifer L. Beck, Thitima Urathamakul, Stephen James Watt, Margaret Sheil, Patrick M. Schaeffer, and Nicholas E. Dixon

Paper unavailable