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Meeting report:

Eukaryotic DNA Replication Meeting 2000, La Jolla, CA, USA

From the 6-10 September 2000 I attended the Eukaryotic DNA Replication Meeting 2000, held at the Salk Institute in La Jolla, CA, thanks to travel grants awarded by the James Rennie Bequest, the University of Edinburgh and the British Society for Cell Biology.

This was the first meeting of its kind intended to fill the gaps between the Cold Spring Harbor Conferences on DNA Replication that are held every other year.

Around two hundred registrants participated from all over the world and work was presented in 50 platform talks and 80 posters.

The talks were grouped in eight sessions. The first three focussed on origins and initiation of DNA replication with emphasis on the structure and function of the origin-binding Origin Recognition Complex (ORC) and the connected spatial and temporal organisation of origin activities.

The following two sessions, DNA Polymerases and Replication Format, covered events and proteins involved in elongation of DNA replication. Rajiv Dua from Judith Campbell's lab and Michael Christman from Zhenghe Wang's lab spoke about the evidence for the possible involvement of pol ε and pol κ, respectively, in sister chromatid cohesion. Two talks focussed on the mechanism whereby RF-C opens the PCNA ring in order to load it onto DNA. David Jerulzalmi, the Rockefeller University, New York, showed crystal structures of the complex of the *E. coli* homologues of RF-C and PCNA explaining the mechanism of conformational changes which lead to clamp opening. Toshiki Tsurimoto presented electron microscopy pictures of RF-C in the presence and absence of ATP and its different conformations. Karen Fien from Thomas Melendy's lab presented evidence that Cdc45, a protein required for activation of the pre-replicative complex, is part of a replication factor-protein complex needed for DNA polα-primase priming of Okazaki fragments. Xavier Gomes from Peter Burgers' lab talked about 'Two modes of FEN1 binding to PCNA regulated by DNA', which had recently been published. FEN1 is involved in Okazaki fragment processing and its activity is greatly stimulated by PCNA. It interacts with the interdomain connector loop (IDCL) of PCNA and binds PCNA via the

p21-like PCNA-binding motif. Dr. Gomes from Peter Burgers' lab showed that in the absence of DNA FEN1 interacts with PCNA through the IDCL, when PCNA encircles DNA, however, the C-terminal domain of PCNA seems to be responsible for stimulating FEN1 activity.

Session 6 and 7 were titled Genome Stability and Chromosome Dynamics respectively. Susan Forsburg, one of the organisers of the meeting, gave a very interesting talk about the Hsk1/Cdc7 kinase, essential for the activation of DNA replication. She described a fission yeast hsk1 mutant and its phenotypes. Cristina Cardoso talked about 'Dynamics of DNA replication factories'. Her lab examined replication foci in mammalian cells via the localisation pattern of PCNA-GFP and DNA ligase I-GFP. The results suggest that replication foci assemble and disassemble rather than move throughout the nucleus.

The meeting concluded with a session on telomeres and termination.

In the poster session where I presented my work, "The N-terminal PCNA binding motif is essential for nuclear DNA ligase I function in fission yeast", I got the chance to speak to several people, among them members of HY Seo's lab (South Korea), Susan Forsburg's lab and Peter Burgers, Washington University School of Medicine.

Most importantly, Cristina Cardoso from the Max Delbrück Center for Molecular Medicine in Berlin, Germany, gave me several useful suggestions for my future work and new ideas.

Attending this international conference on Eukaryotic DNA replication has given me invaluable insights on the focus and level of research of leading scientists in my field and I am grateful to the James Rennie Bequest for enabling me to participate at this conference.

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