Stellingen

Behorende bij het proefschrift

Focus on DNA Repair Replication

1. The UV-induced prolonged localization of RFC1 at sites of Nucleotide Excision Repair replication, beyond stable loading of PCNA, suggests additional functions of this clamp loader in NER.
   This thesis

2. DNA repair synthesis is activated by the 5'incision of ERCC1-XPF and precedes the XPG-induced 3'incision during *in vivo* Nucleotide Excision Repair.
   This thesis

3. Replication Protein A, the protein with the highest single strand binding affinity that is involved both in the pre- and post-incision steps of Nucleotide Excision Repair, displays the highest exchange rate of all the NER factors measured at damaged sites.
   This thesis

4. The prolonged and focal accumulation of the DNA Damage Response factors at sites of DNA damage is not a proof that these factors are actively processing the lesions.
   This thesis; Soria et al, Cell Cycle 2009, 8:3340-8

5. Live cell protein studies, when complemented with biochemical and classical cell biological analyses, allow us to characterize the dynamic behavior and interactions of various factors involved in replication and repair mechanisms.
   This thesis

6. PCNA, the maestro of the replication fork, functions as a binding platform for DNA replication and translesion synthesis polymerases. It is difficult to reconcile the proposed toolbelt model and the dynamic protein interactions with such a small molecule as PCNA.
   Freudenthal et al, Nat struct mol biol, 2010, 17: 479-84; Moldovan et al, Cell 2007, 129:665-79; Maga and Hubscher, J Cell Sci 2003, 116: 3051-60; Lehmann, DNA repair 2006, 5:404-7 and this thesis

7. Replication Protein A stands at the crossroads between DNA replication, DNA damage processing and DNA damage signaling.
   Carr, Science 2003; Zou and Elledge, Science 2003, 300: 1542-8

8. Mechanistic insight into the DDR process allowed selective interference with DDR in some tumor types and illustrates the high therapeutic potential in cancer treatment by obtaining basic knowledge.
   Jackson, Bartek, Nature 2009, 461:1071-8; Helleday et al, Nature Rev Cancer 2008, 8: 193-240; Martin et al, Curr Opin Genet Dev 2008, 18: 80-6

9. Error-prone translesion synthesis and error-free recombinational pathways act coordinately and with differential contributions to bypass UV-induced lesions at stalled replication forks in eukaryotes.
   Daigaku et al, Nature 2010, in press; Kannouche et al, Mol Cell 2004, 14: 491-500; Li et al, PNAS 2002, 99: 4459-4462; Chiu et al, PLOS Genetics 2006, 2(e)116; Masutani et al, EMBO J 2000, 19:3100-3109; *Kawamoto et al, Mol Cell 2005, 20: 793-799.*

10. Through their interactions with several replication factors, histone chaperones play a crucial role in the chromatin remodeling processes that regulate DNA replication.
    Ransom,et al, Cell 2010, 140: 183-9 ; Groth et al, Science 2007, 318: 1928-3

11. It takes two to tango

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Audrey Marie Gourdin, 2010