Identification and characterization of novel factors in the DNA damage response

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Stellingen behorende bij het proefschrift:

Identification and characterization of novel factors in the DNA damage response

1. ZNF384 functions as a "Ku-adaptor" by binding to DNA and Ku to promote the repair of DNA double-strand breaks via canonical non-homologous end-joining (this thesis).

2. PARP1-dependent chromatin unfolding facilitates DNA binding of ZNF384 at DNA double-strand breaks (this thesis).

3. The non-specific lethal (NSL) complex member KANSL3 suppresses R-loop induced DNA replication stress (this thesis).

4. The RNA processing factor ERI1 maintains the stability of stalled replication forks (this thesis).

5. Zinc finger proteins have broad implications in human disease and, given their druggability, may have potential for use in targeted therapies (Cassandri, M. 2017 Cell Death Disc and Sievers, Q. 2018 Science).

6. DNA sequence and DSB-type dictate the repair of Cas9-induced DNA double-strand breaks via non-homologous end-joining (Schimmel, J. 2021 Nat Commun, Allen, F. 2019 Nat Biotech and Shen, M. 2018 Nature).

7. A wealth of R-loop regulators has been identified, but how their dysfunction contributes to human disease remains largely enigmatic (Richard, P. 2017 J Mol Biol).

8. Given the success of targeting DNA repair defects in homologous recombination (HR)-deficient cancer, it should be considered as a first-line treatment rather than a last-resort treatment (O'Connor, M. 2015 Mol Cell).

9. There is still a long way to achieve ethnic diversity in science and we should therefore continue to strive for equal opportunities for all.

10. Starting a postdoc abroad is extremely stimulating, but without 'a doctorate' there is a chance to end up in academic no man´s land, which prohibits career opportunities.