Propositions belonging to the thesis

Ionizing Radiation Quality and Dose Effects on DNA Double Strand Break Repair

1. By increasing the dose of high-LET irradiation, the induced DNA damage leads to depletion of the 53BP1 protein pool and resection of DNA ends. (this thesis)

2. External alpha particle irradiation using an americium source is an easy to implement and inexpensive alternative to high-LET devices cell biological research. (this thesis and Kouwenberg et al. 2018, *Radiation Measurements,* 113:25-32)

3. Polymersomes aggregate in lysosomal compartments after microtubule mediated post-uptake processing. (this thesis)

4. Multiple individual DNA ends are present in one nuclear DNA damage focus after α-particle irradiation of which one or more can be resected, followed by RPA protein accumulation. (this thesis)

5. DNA-PK_{CS} affects expansion of ionizing radiation induced nuclear 53BP1 foci over time. (this thesis)

6. By combining realistic cellular geometry, DNA damage scoring parameters, and biological repair models, Geant4-DNA can be used to predict the biological response along radiation tracks. (Shakata et al. 2020, *Sci Rep* 10*,* 20788)

7. Current focus on the consequence of high-LET irradiation is limited to the induction of complex DNA damage; thereby neglecting the consequences at the cellular or organismal scale. The addition of bioinformatics and biomics approaches could give a better understanding of the radiation effects of high-LET irradiation. (Mavragani et al. 2019, *Cancers (Basel)*, 11:1789)

8. The Covid-19 pandemic causes reduced philanthropic support, which disproportionately affects early-career investigators who rely on it. (COVID-19 Hits Cancer Research Funding, Cancer Discov 2020;10:756)

9. Zolang het aantal wetenschappelijke publicaties een maat is voor de competentie van een wetenschapper zal dit een nadelige invloed hebben op kennisoverdracht en visie binnen het wetenschappelijk onderzoek. (Vrij naar Rawat en Meena 2014, *J Res Med Sci*, 19:87-9)

10. Het is duidelijk dat in de Verenigde Staten het spreekwoord “je moet een aap niet de garenwinkel injagen” onbekend is. (Naar proefschrift M.J. Roobol-Bouts December 2005)

11. “An understanding of the natural world is a source of not only great curiosity, but great fulfilment.” – Sir David Attenborough

Stefan Roobol, 2021