Propositions

1. While NHEJ preserves genome stability in somatic tissues, this repair pathway is highly toxic in meiotic cells
   (this thesis)

2. Several well-conserved mRNA processing factors control NHEJ activity in *C. elegans*
   (this thesis)

3. A single persistent DNA secondary structure can spawn multiple genomic rearrangements during animal development
   (this thesis)

4. The key role of polymerase Theta during DNA double strand break repair is to create complementary sequences that allow annealing of broken DNA ends
   (this thesis)

5. Both COM-1 and MRE-11 promote DNA end resection parallel to the nuclease EXO-1 and antagonize CKU-70/CKU-80 during meiotic prophase
   (derived from Lemmens et al. 2013 and Yin et al. 2014)

6. The most conservative, error-free manner of dealing with G4 quadruplex structures during proliferation is by unwinding them prior to or concomitant with DNA replication
   (derived from León-Ortiz et al. 2014)

7. While DSBs are potent inducers of checkpoint arrest and apoptosis, a single DSB is not enough to sustain cell cycle arrest in human cells
   (derived from Deckbar et al. 2011)

8. Elevated levels of genomic instability promote genetic heterogeneity among and within tumors and are strongly associated with poor clinical outcomes
   (derived from Burrell et al. 2013).

9. While DNA damage-induced cytotoxicity assays provide important clues on the biological significance of DNA repair factors, it provides marginal insight on the underlying repair mechanism when the type of DNA damage or the developmental context of the exposed cells is unknown
   (Bennie Lemmens).

10. Scientists spend a lot of energy in reproducing and validating experiments, especially when ran into unexpected results, yet one should have these high standards also when the observations are in line with the hypothesis
    (Bennie Lemmens)

11. The most exciting phrase to hear in science, the one that heralds new discoveries, is not “Eureka!” but ‘That’s funny…”
    (Isaac Asimov)

12. “Perfect genomic stability” sounds much better than it is; the capacity to blunder slightly is the real marvel of DNA
    (Bennie Lemmens; Lewis Tomas)