

**Stellingen behorend bij het proefschrift "DNA Damage and Aging – the role of transcription-blocking lesions-" door Lieneke Uittenboogaard**

- 1) Stochastic DNA damage events can be linked to genes that determine longevity through transcription-blocking lesions (*this thesis*)
- 2) DNA lesions may influence the aging phenotype depending on the nature of the damage, while the severity of the defect seems to influence the rate of phenotype development. (*this thesis*)
- 3) Although both transcription-blocking and replication-interfering lesions can cause acceleration of aging phenotypes, they seem to elicit different molecular responses. (*this thesis*)
- 4) Multi-factorial processes, like aging, demand interdisciplinary efforts in order for answers to be found. (*this thesis*)
- 5) Even though high-throughput "-omics" approaches have significantly advanced the field of aging research, it remains a challenge to distinguish causal from consequential changes. (*this thesis and [1]*)
- 6) With all the additional functions attributed to many Nucleotide Excision Repair (NER) proteins it seems surprising that they are still available to participate in NER itself.
- 7) Statistical significance is considered to represent truth and biological relevance, but does not prove either.
- 8) By expressing the main value of science in terms of direct revenues, current politics fail to recognize the extremely large contribution of scientific advancement to society.
- 9) While multiplayer online gaming is considered to be a waste of time by many people, it can aid in solving computationally-limited scientific questions. [2] & <http://fold.it/portal/>
- 10) Altruistic behaviour evolves depending on costs, benefits and relatedness. Even though altruism is defined as an "unselfish concern for the welfare of others", in reality we may be merely trying to ensure survival of our genes. [3]
- 11) Reaching our goals requires some creative thinking and flexibility, but given that we are scientists, this should not be too difficult [4]

References

1. Kaeberlein, M., *Aging-related research in the "-omics" age*. Sci Aging Knowledge Environ, 2004. **2004**(42): p. pe39.
2. Cooper, S., Khatib, F., Treuille, A., Barbero, J., Lee, J., Beenen, M., ( . . . ), Players, F., *Predicting protein structures with a multiplayer online game*. Nature, 2010. **466**(7307): p. 756-60.
3. Waibel, M., Floreano, D., and Keller, L., *A quantitative test of Hamilton's rule for the evolution of altruism*. PLoS Biol, 2011. **9**(5): p. e1000615.
4. Wyman, C., *Balancing responsibilities*. EMBO Rep, 2006. **7**(1): p. 2.