

Ageing, Cancer and Sex

How and why ageing occurs is a historically long-lasting, enigmatic question. In the last 20 years, we have witnessed tremendous advances in understanding how ageing occurs. The blueprint of our body is encoded by the chemical substance called DNA, and the DNA exists as a long string-like molecule with two ends in the body. According to these studies, the end of the string, (we call it "telomere"; tel means the end), plays a key role in at least some aspect of ageing. If ageing is indeed related to the existence of the DNA end, why doesn't our DNA form a circular ring, as a necklace? Actually, bacteria contain such ring-shaped DNAs and replicates perpetually. I would like to discuss why we choose the linear DNA, instead of a circular one, to encode the blueprint, at the cost of suffering ageing.

Reference:

Ishikawa, F. and T. Naito. Why do we have linear chromosomes? - a matter of Adam and Eve. *Mutation Res.*, 434: 99-107 (1999).

Curriculum Vitae

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| 1984 | Research Associate, Carcinogenesis Division, National Cancer Center Research Institute |
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| 1990 | Post-doctoral Fellow (Supervisor: Thomas R. Cech), University of Colorado at Boulder |
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