

## Stellingen behorende bij het proefschrift

### Life Cycle of the X Chromosome

#### Through meiosis and embryonic development in mammals

1. Postmeiotic sex chromatin repression (PSCR) represents a downstream consequence of meiotic sex chromosome inactivation (MSCI), so that X- and Y-linked genes which are postmeiotically activated can be considered as genes that “wake up” from MSCI rather than “escape” from PSCR. (*this thesis*)
2. Application of round spermatid injection into oocytes (ROSI) in mouse, followed by detailed analyses of the consequences for gene expression and epigenetic regulatory processes in pre-implantation embryos, but also at later stages of development, could help us to identify critical parameters for the evaluation of human sperm epigenome quality. (*this thesis*)
3. The epigenetic state of the X chromosome of round spermatids exerts a profound effect, in mouse, on X chromosome inactivation in pre-implantation embryos in the absence of a paternal *Xist* gene. (*this thesis*)
4. The nucleosome remodelling associated with meiotic sex chromosome inactivation (MSCI), and involving exchange of histone variants, evolved before the split between metatherians and eutherians. (*this thesis*)
5. Detailed analysis of meiotic sex chromosome inactivation (MSCI) and postmeiotic sex chromatin repression (PSCR) in different mammalian species may lead to identification of candidate X-linked fertility genes which are implicated in the most conserved and biologically relevant features of these processes. (*this thesis*)
6. Scientific journals often prefer to publish manuscripts expressing a clear take-home message, which generates an incentive towards scientific fraud, because investigators are stimulated to translate the “colorful” reality of Nature’s complexity into “black-and-white” messages.
7. In an ideal world, as financial remuneration of politicians allows them to focus on public demands without worrying about their income, scientists can focus more on research and teaching without worrying about gain of funding.
8. Experimental reproducibility of the results reported in scientific articles, by following the provided Materials and Methods section, quite frequently proves to be extremely challenging due to lack of sufficiently specific and detailed methodological reporting.
9. Although the mouse model has proven to be of enormous value to gain knowledge about biological mechanisms and basic aspects of human diseases, analysis of additional mammalian species is important to better understand various peculiarities of mouse and human.
10. Basic research does not directly benefit mankind, and often it even may not fully satisfy intellectual curiosity of the researcher. Yet, like the singing of the Sirens, it remains irresistibly attractive.
11. Il senso della ricerca sta nel cammino fatto e non nella meta; il fine del viaggiare é il viaggiare stesso e non l’arrivare. [The meaning of research lies in the journey and not in the destination; the purpose of travelling is the journey itself and not the arrival.] (Tiziano Terzani, In Asia, 1998)