**Propositions of the thesis:**

**"Embryonic stem cell proteins and microRNAs in the etiology of germ cell cancer"**

1. Embryonic stem cell microRNAs and pluripotency factors play a major role in the pathogenesis and clinical behavior of germ cell cancers. (this thesis)

2. High expression levels of the miR-371-3 and miR-302/367 clusters in germ cell cancers lead to a short $G_1$-S phase of the cell cycle, associated with an increased sensitivity to DNA damaging agents. (this thesis)

3. DICER1 RNase IIIb domain mutations are infrequent in testicular germ cell cancers. (this thesis)

4. Embryonal Carcinoma (EC) identity depends on combined expression of OCT3/4 and SOX2. (this thesis and Looijenga *et al.* Cancer Res, 2003; 63:2244-50, De Jong *et al*. J Pathol, 2008; 215:21-30)

5. MiR-371-3 and miR-367 levels are higher in serum of germ cell cancer patients compared to controls. (this thesis)

6. Single nucleotide polymorphisms (SNPs) in mature microRNAs within the seed sequence can strengthen or reduce binding between the microRNA and its mRNA target. (Ryan *et al.* Nat Rev. 2010; 10: 389-402)

7. Mir-371–373 and mir-302/367 clusters are expressed in human embryonic stem (ES) cells, while mir-290–295 and mir-302/367 are expressed in mice ES cells. The members of the clusters share a common seed sequence, which is the key determinant of target gene recognition. In addition, each cluster includes one member with a different seed sequence, suggesting that they have shared different functions in pluripotency and early embryonic development. (Lipchina *et al.* Cell Cycle. 2012; 11:8, 1517-1523)

8. MicroRNAs, like protein-coding genes, are also direct transcriptional targets of the pluripotency factors. (Vidigal *et al.* Cancer Biology. 2012; 22:428-436)

9. Studies of stem cell biology will give insight into the origin(s) of cancer and will ultimately yield new approaches to fight this disease. (Reya *et al.* Nat Rev.2001; 414:105-11)

10. Treatment of metastasis should be targeted not only against the cancer cells themselves, but also against the homeostatic factors that promote cancer cell growth, survival, angiogenesis, invasion and metastasis. (Fidler *et al.* Nat Rev. 2003; 3:453–8)

11. "Science is a way of thinking much more than it is a body of knowledge." (Carl Sagan)

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