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# Modelling metastatic melanoma in zebrafish

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Propositions

Accompanying the PhD thesis

**“Modelling metastatic melanoma in zebrafish”**

1. Zebrafish models of metastatic uveal melanoma predict patient therapy response.
   -*This thesis, chapter 4*

2. Melanin protects melanoma cells in circulation and therefore is a crucial, target in the treatment of metastatic melanoma.
   -*This thesis, chapter 5*

3. Ferroptosis inducers are highly potent anti-cancer compounds *in vivo*, specifically targeting disseminating cancer cells.
   -*This thesis, chapter 5*

4. Not only peer reviewed academical publications but also widely available (open access) dissemination of data/tools/findings are required to validate the contribution of science to the general public.
   -*This thesis, chapter 6*

5. Despite recent therapeutic advances in cancer treatment, metastasis remains the principal cause of cancer death.
   -*Ganesh & Massagué Nat. Med. 2021*

6. Inhibition of the cystine/glutamate antiporter (system $x_c^-$) or glutathione peroxidase 4, create a void in the antioxidant defenses of the cell, ultimately leading to iron-dependent, oxidative death, namely ferroptosis.
   -*Dixon et al.* Cell *2012 (paraphrasing)*

7. Ferroptosis is induced in blood and inhibits metastasis of melanoma cells.
   -*Adapted from Ubellacker et al. Nature 2020*

8. Induction of ferroptosis can be exploited to curb the spread of, and kill, responsive metastatic cancers.
   -*Adapted from Hadian & Stockwell, Cell, 2020*

9. All models, and therefore all model species, are wrong (but some are useful).
   - *adapted from George P. Box*

10. Not only are zebrafish great for cancer biology, they are also beautiful, a powerful teaching aid and a great source of inspiration.

**Arwin Groenewoud, Leiden, 7 June 2022**