A spontaneous model of melanoma in zebrafish as a tool to evaluate the impact of inflammation in tumor development

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Recently, the zebrafish, *Danio rerio*, has emerged as a new model organism in studies of cancer biology, with many molecular and cellular components that operate during tumorigenesis in mammals seemingly conserved in fish. Also, it offers other important advantages as a tumor model organism. Their embryos are small in size, develop outside their mother and are nearly transparent allowing for melanocytes to be tracked during all stages of their development. The early developmental processes of melanocyte transformation and the methods for their early detection are important for disease eradication. On the other hand, inflammation and cancer have a profound yet ambiguous relationship. Chronic inflammation exerts protumorigenic effects but inflammatory cells may also kill tumor cells and immunosuppression increases cancer risk. In this study, we evaluated the impact of inflammation in promoting melanoma *in vivo* using a spontaneous model of melanoma in zebrafish (*kita*: eGFP-HRAS-V12), in combination with *spint1a* (*hai1a*) deficiency, which promotes chronic skin inflammation. Preliminary data showed that skin inflammation increases oncogenic transformation and accelerates the onset of melanoma. Mechanistically, inflammation promoted dedifferentiation increasing tumor aggressiveness. Transcriptomic studies revealed several genes that may be involved in the response of melanoma cells to the inflammatory microenvironment and, therefore, help to the design of new anti-inflammatory-based therapies to counteract tumour growth and dissemination.