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Temperature, personality and TRP channels in zebrafish (*Danio rerio*)

Different individuals prefer different temperatures. Recent research has shown that zebrafish (*Danio rerio*), a widely used model fish species, can be grouped into different personalities, proactive and reactive, and that different personalities have different thermal preferences. The bold, risk-taking 'proactive' individuals prefer higher temperatures, whereas their shy, less risk-prone 'reactive' counterparts prefer colder ones. The underpinning molecular mechanism responsible for this difference in thermal preference are unknown. In a previous study we have shown that the transient receptor potential (TRP) A1 paralog, *trpa 1b*, found in zebrafish plays a role in thermal choice and when measured in the brain of proactive and reactive individuals there are significant differences. In order to explore the possible function of TRP channels in thermal choice we used the reactive behavioural phenotype, which lower thermal preference, expressing emotional fever. Emotional fever (EF) is a fever response characterized with a transient rise in body temperature occurring under stress as described by Rey et al. (2015). By using this experimental system we hypothesized that reactive individuals expressing EF would up-regulate key TRP channels as they increased their thermal set points. Preliminary analyses using rtQPCR to assess *trp ala*, *alb*, *v1*, *v4* and the brain activity markers *cfos* and *bdnf* did not highlight any significant differences in reactive zebrafish expressing EF when compared to normal conditions. Therefore our hypothesis that TRP channels are regulated at the transcriptional level during acute changes in thermal preference was not substantiated. This study has advanced our understanding of the relationship between thermal preference, animal personality and the regulation of TRP channels.