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Forebrain activation during social exposure in wild-type guppies

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Abstract

The neural mechanisms regulating social behaviour have received extensive attention in recent years, with much focus on 'complex' forms of sociality. Comparatively little research has addressed fundamental social behaviour, such as grouping, which impacts multiple determinants of fitness, such as foraging and avoiding predation. We are interested in the degree to which brain areas that regulate other forms of sociality are also involved in grouping behaviour, and so we investigated shoal-elicited activation of the brain in the guppy (*Poecilia reticulata*). Guppies are small, social fish that live in the rivers of Trinidad and, like many social fish, exhibit preferences for larger shoals. We first confirmed that our study population of wild-type guppies preferred to join a larger shoal, and then investigated the activation of four brain regions proposed to be involved in social behaviour and reward (the preoptic area, the dorsal part of the ventral telencephalon, the ventral part of the ventral telencephalon, and the supracommissural