

Nicotinic antagonist UFR2709 inhibits nicotine reward and decreases anxiety in Zebrafish

Viscarra F.

González-Gutierrez J.

Esparza E.

Figueroa C.

Paillali P.

Hödar-Salazar M.

Cespedes C.

Quiroz G.

Sotomayor-Zárate R.

Reyes-Parada M.

Bermúdez I.

Iturriaga-Vásquez P.

Zebrafish is becoming a popular animal model in neuropharmacology and drug discovery, mainly due to its ease of handling and low costs involved in maintenance and experimental work. This animal displays a series of complex behaviours that makes it useful for assessing the effects of psychoactive drugs. Here, adult zebrafish were used for assessment of the anxiolytic and anti-addictive properties of UFR2709, a nicotinic receptor (nAChR) antagonist, using two behavioural paradigms to test for addiction, the novel tank diving test to assess anxiety and the conditioned place preference (CPP). Furthermore, the expression of nAChR subunits $\alpha 4$ and $\alpha 7$ was measured in the zebrafish brain. The results show that UFR2709 exhibits an anxiolytic effect on zebrafish and blocks the effect evoked by nicotine on CPP. Moreover, UFR2709 significantly decreased the expression of $\alpha 4$ nicotinic receptor subunit. This indicates that UFR2709 might be a useful drug for the treatment of nicotine addiction. © 2020 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the

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Anxiety

Conditioned place preference (CPP)

Nicotinic receptor

Novel tank test (NTT)

Reward

Zebrafish