Formyl peptide receptor pathway as novel target for emotional disorders

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Formyl peptide receptors (FPR) belong to a family of sensors of the immune system that detect microbe-associated molecules and inform various cellular and sensorial mechanisms to the presence of pathogens in the host (Gallo et al., 2014). Here we demonstrate that Fpr2/3-deficient mice show a distinct profile of behaviour characterised by reduced anxiety in the marble burying and light-dark box paradigms, increased exploratory behaviour in an open-field, together with superior performance on a novel object recognition test. Pharmacological blockade with a formyl peptide receptor antagonist, Boc2, in wild type mice reproduced most of the behavioural changes observed in the Fpr2/3(-/-) mice, including a significant improvement in novel object discrimination and reduced anxiety in a light/dark shuttle test (Antunes et al., 2012). These effects were associated with reduced FPR signalling in the gut as shown by the significant reduction in the levels of p-p38. Collectively, these findings suggest that homeostatic FPR signalling exerts a modulatory effect on anxiety-like behaviours. These findings thus suggest that therapies targeting FPRs may be a novel approach to ameliorate behavioural abnormalities present in neuropsychiatric disorders at the cognitive-emotional interface.

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References

Antunes M et al., (2012).Cogn. Process13,93–110.
Gallo I et al., (2014). PLoS One. 17, 9.