

***Sex difference in dopamine D1-D2 receptor complex expression and signaling affects depression- and anxiety-like behaviors.***

Hasbi, A., Nguyen, T., Rahal, H., Manduca, J.D., Miksys, S., Tyndale, R.F., Madras, B.K., Perreault, M.L., George, S.R.

Sex differences in mood disorders, including depression and anxiety, are well known. The dopamine system is believed to play a pivotal role in depression, and anxiety-related symptoms and sex differences in the dopamine system have been known. Hasbi and colleagues (2020) examine dopamine D1 and D2 receptor heteromers and show a greater prevalence of the heteromers in the striatum of female rats and monkeys versus males. Pharmacological activation of the D1-D2 heteromers appears to be anxiogenic and pro-depressive while disturbing the heteromers reverses these responses. Further experiments demonstrated that the D1-D2 heteromers function via different signaling pathways in males and females. These findings provide a novel mechanism by which the dopamine system may contribute to the sex differences in depression and anxiety.

<https://doi.org/10.1186/s13293-020-00285-9>