

**P001** Assessing the function of the human GABA  $\rho$ 1 receptor using the flexstation: identification of a tyrosine residue important to receptor function

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GABA<sub>c</sub> receptors are members of the Cys-loop family of pentameric ligand gated ion channels (LGICs), which also includes the GABA<sub>A</sub>, 5-HT<sub>3</sub>, glycine, and nicotinic acetylcholine receptors. The GABA  $\rho$ 1 receptor is homo-pentameric, and its pharmacology suggests that it is a subclass of the GABA<sub>c</sub> receptor type. Function of the GABA  $\rho$ 1 receptor has been investigated using electrophysiological recordings in mammalian cells and *Xenopus laevis* oocytes, but its existence as an ionotropic protein also permits its investigation by the FLEXstation, using a membrane potential dye. GABA  $\rho$ 1 receptors were expressed in HEK293 cells, and on addition of agonist GABA and partial agonist muscimol robust responses were recorded. Analysis of the data yielded pEC<sub>50</sub> values in agreement with previously published data. GABA  $\rho$ 1 receptors which were mutant at tyrosine 102(Y102S, Y102W, Y102A) were also expressed, and yielded pEC<sub>50</sub> values which were significantly different from wildtype. We conclude therefore, that the FLEXstation is a suitable instrument for characterising GABA  $\rho$ 1 receptor responses, and that Y102 is a critical residue for correct receptor function.