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**Short communication**

## Characterization of an antiproliferative effect of imidazoline receptor ligands on PC12 cells

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**Abstract:**

The present study aimed at investigating the influence of imidazoline receptor ligands on the proliferation of PC12 cells and the involvement of the sphingosine-1-phosphate (S1P) signaling system in this effect.

In cultured PC12 cells, S1P (0.3–100 nM) and the I<sub>1</sub>-imidazoline receptor ligands moxonidine (0.3 and 1 mM), agmatine (1 mM), idazoxan (10–100 μM) and efaroxan (1–100 μM) concentration-dependently reduced protein contents which were used as estimates for cell number. The antiproliferative effects elicited by the compounds were abolished after knock-down of S1P<sub>1</sub>, S1P<sub>2</sub> or S1P<sub>3</sub> receptors by RNA interference indicating an involvement of S1P receptors. In conclusion, the present data add further evidence to the recent finding that effects of imidazoline receptor ligands in PC12 cells are mediated by homo- and heterodimers of members of the S1P receptor family.

**Key words:**

imidazoline receptor, sphingosine-1-phosphate receptors, PC12 cells, cell proliferation, RNA interference

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