**Introduction**

Melanocortins stimulate the central oxytocin systems which regulate social behaviours. Alterations in central oxytocin has been linked to neuropsychiatric disorders such as autism and anxiety, and melanocortins have been proposed for therapeutic treatment. Naturally occurring melanocortins including alpha-melanocyte stimulating hormone (α-MSH) potently stimulate oxytocin release from the dendrites of oxytocin cells, but inhibit their electrical activity. α-MSH has a poor penetrance through the blood-brain barrier. Here we investigated whether Melanotan-II (MT-II), a synthetic melanocortin agonist, affects the electrical activity of supraoptic neurons (SON) oxytocin and vasopressin when given intravenously.

**Methods**

**MT-II Induces Fos expression in the SON**

A typical example of the increase in firing rate in an oxytocin neuron in response to i.v. administration of MT-II. (B) Mean change in firing rate of 8 oxytocin cells after MT-II i.v. in 30-s bins (a signed-rank test).

**MT-II also enhances electrical activity in vasopressin neurons**

A typical example of the increase in firing rate in a vasopressin neuron in response to i.v. administration of MT-II. (B) Mean change in 6 vasopressin cells in response to MT-II i.v. in 10-min bins (a signed-rank test).

**Conclusions**

Intravenous (i.v.) administration of MT-II induces neural activation in oxytocin and vasopressin cells of the SON. As oxytocin neurons are electrically inhibited in response to direct application of melanocortin agonists, the actions of intravenous MT-II are likely to be mediated indirectly.

**References**


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