



### References on the Administration of Endorphins Using ALZET® Osmotic Pumps

**Q2343:** R. Dutia, *et al.* beta-Endorphin Antagonizes the Effects of alpha-MSH on Food Intake and Body Weight. *Endocrinology* 2012;153(9):4246-4255

**ALZET Comments:** Endorphin, beta, (1-31); Saline, sterile; CSF/CNS; Rat; 2001; 1003D; 3, 7 days; Animal info (Sprague Dawley, male, 200-250 g); pumps replaced.

**P7890:** N. Boyadjieva, *et al.* Role of beta-endorphin, corticotropin-releasing hormone, and autonomic nervous system in mediation of the effect of chronic ethanol on natural killer cell cytolytic activity. *ALCOHOLISM-CLINICAL AND EXPERIMENTAL RESEARCH* 2006;30(10):1761-1767

**ALZET Comments:** Endorphin, B; corticotropin releasing hormone; CSF, artificial; CSF/CNS (paraventricular nucleus of hypothalamus); Rat; 2002; 16 hours; Controls received mp w/ vehicle; peptides; animal info (male, Fischer, 160-175g.).

**P7316:** M. Dokur, *et al.* Beta-endorphin modulation of interferon-gamma, perforin and granzyme B levels in splenic NK cells: Effects of ethanol. *Journal of Neuroimmunology* 2005;166(1-2):29-38

**ALZET Comments:** Endorphin, B-; CSF/CNS (paraventricular nucleus); Rat; 2002; 18 hours; Controls received mp w/ aCSF; immunology; peptides.

**P6917:** M. Dokur, *et al.* Modulation of hypothalamic beta-endorphin-regulated expression of natural killer cell cytolytic activity regulatory factors by ethanol in male Fischer-344 rats. *ALCOHOLISM-CLINICAL AND EXPERIMENTAL RESEARCH* 2004;28(8):1180-1186

**ALZET Comments:** Endorphin, beta; CSF, artificial; CSF/CNS (paraventricular nucleus); Rat; 2002; 6 days; Plastics One bilateral guide cannula used with a Y-connector; bilateral infusion;

**P5512:** C. Hill, *et al.* The effects of beta-endorphin (beta-END) on cardiovascular and behavioral dynamics in conscious rats. *Brain Research Bulletin* 2002;59(1):29-34

**ALZET Comments:** Endorphin, B-; CSF, artificial; CSF/CNS; Rat; 12 days; Cardiovascular.

**P6696:** N. I. Boyadjieva, *et al.* beta-endorphin modulation of lymphocyte proliferation: Effects of ethanol. *ALCOHOLISM-CLINICAL AND EXPERIMENTAL RESEARCH* 2002;26(11):1719-1727

**ALZET Comments:** Endorphin, B-; CSF, artificial; CSF/CNS (paraventricular nucleus of hypothalamus); Rat; 2002; 16 hours; Controls received mp w/ vehicle; peptides; mp connected w/ two infusion cannulae using a Y-connector.

**Q6818:** N. Boyadjieva, *et al.* Chronic Ethanol Inhibits NK Cell Cytolytic Activity: Role of Opioid Peptide  $\beta$ -Endorphin. *The Journal of Immunology* 2001;167(10):5645-5652

**ALZET Comments:**  $\beta$ -endorphin; naltrexone; CSF, artificial; CSF/CNS (bilateral paraventricular nuclei); Rat; 2002; 4 hours; 16 hours; Dose (100 ng of  $\beta$ -EP/0.5  $\mu$ l/h); Controls received mp w/ vehicle; animal info (Male Fischer-344 rats of 150–175 g body weight); naltrexone is an opiate antagonist; Brain coordinates (1.8 mm behind bregma, 1.5 mm lateral to the midline, and 7.7 mm below the skull surface); bilateral cannula used: The osmotic pump was implanted was connected with two infusion cannulae (bilateral guide cannula) using a Y-connector;

**P5752:** N. Boyadjieva, *et al.* Chronic ethanol inhibits NK cell cytolytic activity: role of opioid peptide beta-endorphin. *J Immunol* 2001;167(10):5645-5652

**ALZET Comments:** Endorphin, B-; Naltrexone; CSF, artificial; CSF/CNS (paraventricular nucleus); Rat; 2002; 4,16 hours; Controls received mp w/ vehicle; naltrexone is an opiate antagonist; used a Y-connector to connect pump with a bilateral cannula; bilateral infusion;

**P3465:** I. H. Jonsdottir, *et al.* Chronic intracerebroventricular administration of b-endorphin augments natural killer cell cytotoxicity in rats. *Regul. Pept* 1996;62(113-118

**ALZET Comments:** Endorphin, B-; Enkephalin, leucine-; Enkephalin, methionine-; Dynorphin A; SC; CSF/CNS; Rat; 2001; 2ML1; 6 days; controls received saline infusion; peptides; ALZET brain infusion kit used.



**P3710:** S. M. Tolpygo, *et al.* Comparative analysis of effects from prolonged peripheral and intracerebral exposure to B-endorphin. *Bul. Exp. Biol. and Med* 1995;120(1):1079-1082

**ALZET Comments:** Endorphin, B-; Saline, physiological; SC; CSF/CNS; Rat; 2001; 7 days; controls received mp w/ saline; peptides.

**P0812:** T. Shimazu, *et al.* Chronic infusion of norepinephrine into the ventromedial hypothalamus induces obesity in rats. *Brain Research* 1986;369(1/2):215-223

**ALZET Comments:** Acetylcholine chloride; Cefalotin; Cholecystokinin tetrapeptide; Epinephrine HCl; Bombesin; Endorphin, B-; Enkephalin, methionine-; Norepinephrine HCl; Saline; Sodium bisulfite; CSF/CNS (hypothalamus); Rat; 2002; 5-20 weeks; Cholinergic agent; pumps replaced periodically; mp connected to perm. steel cannula in hypothalamus; cannula fitted w/removable protector; (see p.217); agents infused sep. (cefalotin infused w/each agent); long-term study; peptides.

**P0509:** L. C. Saland, *et al.* Chronic infusion of opiate peptides to rat cerebrospinal fluid with osmotic minipumps. *Anat. Rec* 1984;210(115-123

**ALZET Comments:** Endorphin, a-; Endorphin, ovine B-; Enkephalin, methionine-; Naloxone HCl; Saline; CSF/CNS; Rat; 2001; 1-2 days; comparison of agents effects; peptides.

**P0173:** R. Schulz, *et al.* Are there subtypes (isoreceptors) of multiple opiate receptors in the mouse vas deferens. *Eur. J. Pharmacol* 1981;76(61-66

**ALZET Comments:** Endorphin, a-neo-; DsThr; Dynorphin; Enkephalin analog DADLE; FK-33824; MR-2034; MRZ; Normorphine; Sufentanil; Water; SC; mice; 2001; 6 days; peptides; MRZ is 5,9-dimethyl,2'S-5,9-dimethyl-2'-hydroxy-2-(2-methoxy-propyl)-6,7-benzomorphan, a kappa opioid agonist.

**P0001:** E. Wei, *et al.* Physical dependence on opiate-like peptides. *Science* 1976;193(1262-1263

**ALZET Comments:** Morphine sulfate; methionine-enkephalin; endorphin, B-; Water; CSF/CNS (frontal cortex); CSF/CNS (periaqueductal gray); Rat; 70 hours; peptides; dependence; 1 ul/hr pumps used.

**R0003:** E. Wei, *et al.* Chronic, intracerebral infusion of morphine and peptides with osmotic minipumps, and the development of physical dependence. Presented at the International Narcotics Research Conference, July 22, Aberdeen, Scotland 1976;

**ALZET Comments:** Endorphin, a-; Endorphin, B-; Enkephalin, leucine-; Enkephalin, methionine-; Morphine sulfate; no duration posted; no comment posted.