



## References on the Study of Obesity, Appetite & Satiety Using ALZET® Osmotic Pumps

### 1. Agouti-related Peptide

**P9223:** G. M. Sutton, *et al.* The Melanocortin-3 Receptor Is Required for Entrainment to Meal Intake. *Journal of Neuroscience* 2008;28(48):12946-12955

**ALZET Comments:** Agouti-related peptide (82-131); CSF, artificial; CSF/CNS; Mice; 1002; 14 days; Controls received mp w/ vehicle; ALZET brain infusion kit used; dental cement and stay screws used; peptides; post op. care (Buprenorphine); animal info (male, B6, 8 wks old).

**P8331:** M. A. Joppa, *et al.* Central infusion of the melanocortin receptor antagonist agouti-related peptide (AgRP(83-132)) prevents cachexia-related symptoms induced by radiation and colon-26 tumors in mice. *Peptides* 2007;28(3):636-642

**ALZET Comments:** Agouti-related peptide (83-132); Saline, sterile; CSF/CNS; Mice; 1003D; 72 hours; Controls received mp w/ vehicle; cancer (colon adenocarcinoma); peptides; animal info (male, BALB/C, 6 weeks old, 22 grams); Research Diets D12689B.

**P9007:** J. J. G. Hillebrand, *et al.* AgRP<sub>(83-132)</sub> and SHU9119 differently affect activity-based anorexia. *European Neuropsychopharmacology* 2006;16(6):403-412

**ALZET Comments:** SHU9119; agouti-related protein (83-132), human; Saline, sterile, isotonic; CSF/CNS; Rat; 1007D; 4, 6 days; Controls received mp w/ vehicle; ALZET brain infusion kit 2 used; peptides; post op. care (Buprenorphine, temagesic); animal info (female, Wistar wu); melanocortin antagonist.

**P5827:** M. J. H. Kas, *et al.* Agouti-related protein prevents self-starvation. *Molecular Psychiatry* 2003;8(2):235-240

**ALZET Comments:** Agouti-related protein; Saline; CSF/CNS; Rat; 1007D; 4-5 days; Controls received mp w/ vehicle; ALZET brain infusion kit used; peptides; catheter tubing filled w/ saline to allow 2-3 day delayed infusion; Agouti-related protein is a suppressor of melanocortin receptor activity.

**P5583:** C. Fekete, *et al.* Agouti-related protein (AGRP) has a central inhibitory action on the hypothalamic-pituitary-thyroid (HPT) axis; Comparisons between the effect of AGRP and neuropeptide Y on energy homeostasis and the HPT axis. *Endocrinology* 2002;143(10):3846-3853

**ALZET Comments:** Neuropeptide Y; Agouti-related protein; CSF, artificial; CSF/CNS; Rat; 1003D; 3 days; peptides; cannula was implanted then occluded with a dummy cannula for one week prior to infusion to allow for recovery; AGRP is an appetite stimulant.

### 2. CART (55-102)

**P7017:** Y. H. Choi, *et al.* CART peptide: central mediator of leptin-induced adipose tissue apoptosis? *REGULATORY PEPTIDES* 2004;121(1-3):155-162

**ALZET Comments:** CART (55-102); leptin, recomb. rat; CSF, artificial; CSF/CNS; Rat; 1007D; 5 days; Controls received mp w/ vehicle; dose-response; peptides; mp primed overnight; catheter connecting mp to cannula filled with 12 ul aCSF to give 24 hours lag time before agent delivery.

**P5040:** F. Rohner-Jeanrenaud, *et al.* Chronic central infusion of cocaine- and amphetamine-regulated transcript (CART 55-102): effects on body weight homeostasis in lean and high-fat-fed obese rats. *International Journal of Obesity* 2002;26(143-149)

**ALZET Comments:** CART (55-102); Saline; Ascorbic acid;; CSF/CNS; Rat; 2001; 6 days; controls received mp w/ vehicle; in vitro stability verified by HPLC: 72% of agent was stable after 7 days (p. 145); peptides; ALZET Brain Infusion Kit used; CART is Cocaine-and Amphetamine-Regulated Transcript; pumps primed for at least 20 hours (p. 144).



### 3. Corticotrophin-releasing Factor

**Q7285:** X. F. Li, *et al.* Role of the posterodorsal medial amygdala in predator odour stress-induced puberty delay in female rats. *J Neuroendocrinol* 2019;e12719

**Agents:** Corticotropin-releasing factor **Vehicle:** CSF, artificial; **Route:** CSF/CNS (posterodorsal medial amygdala); **Species:** Rat; **Pump:** 1002; **Duration:** 14 Days;

**ALZET Comments:** Dose (0.2 nmol/day); Controls received mp w/ vehicle; animal info (Sprague-Dawley prepubertal rats); Brain coordinates (2.5 mm posterior to bregma (AP), 3.2 mm lateral (ML) and 7.8 mm below the surface of the dura (DV)); Cannula placement verified via histological verification;

**Q3356:** A. J. Park, *et al.* Altered colonic function and microbiota profile in a mouse model of chronic depression. *NEUROGASTROENTEROLOGY AND MOTILITY* 2013;25(9):733-E575

**Agents:** Corticotropin releasing hormone **Vehicle:** Saline; **Route:** CSF/CNS; **Species:** Mice; **Pump:** Not Stated; **Duration:** 28 days;

**ALZET Comments:** Controls received mp w/ vehicle; animal info (female, C57BL/6, 8-10 weeks old); behavioral testing (Step down test, tail suspension test, open field); peptides; cyanoacrylate adhesive; Corticotropin-rel. factor aka Corticotropin releasing hormone; Plastics 1 cannula, DURECT PE 60 tubing.

**Q00128:** J. S. Kinsey-Jones, *et al.* Corticotrophin-Releasing Factor Alters the Timing of Puberty in the Female Rat. *Journal of Neuroendocrinology* 2010;22(2):102-109

**Agents:** Corticotropin-releasing factor; astressin-B **Vehicle:** CSF, artificial; **Route:** CSF/CNS; **Species:** Rat; **Pump:** 2002; **Duration:** 14, 14 days;

**ALZET Comments:** Controls received no treatment/surgery; peptides; no stress (see pg. 105); animal info (female, Sprague-Dawley, 28 days old); dose-response (fig. 1); neuroendocrinology

**Q0128:** J. S. Kinsey-Jones, *et al.* Corticotropin-Releasing Factor Alters the Timing of Puberty in the Female Rat. *Journal of Neuroendocrinology* 2010;22(2):102-109

**Agents:** Corticotropin-releasing factor; astressin-B **Vehicle:** CSF, artificial; **Route:** CSF/CNS; **Species:** Rat; **Pump:** 2002; **Duration:** 14, 14 days;

**ALZET Comments:** Controls received no treatment/surgery; peptides; no stress (see pg. 105); animal info (female, Sprague-Dawley, 28 days old); dose-response (fig. 1); neuroendocrinology

**P9948:** O. J. Bosch, *et al.* The CRF System Mediates Increased Passive Stress-Coping Behavior Following the Loss of a Bonded Partner in a Monogamous Rodent. *Neuropsychopharmacology* 2009;34(6):1406-1415

**Agents:** Corticotropin-releasing factor, d-phe; CP-154526; astressin-2b **Vehicle:** Not Stated; **Route:** CSF/CNS; **Species:** Prairie vole; **Pump:** 1007D; **Duration:** Not Stated;

**ALZET Comments:** ALZET brain infusion kit 3 used; cyanoacrylate adhesive; animal info (naive, adult, male, female, 70-100 g); catheter contained ringers solution for delayed delivery of 44 hours

### 4. Dexfenfluramine

**Q0904:** S. M. Banas, *et al.* Deconstructing Antiobesity Compound Action: Requirement of Serotonin 5-HT(2B) Receptors for Dexfenfluramine Anorectic Effects. *Neuropsychopharmacology* 2011;36(2):423-433

**Agents:** Dexfenfluramine **Vehicle:** Not Stated; **Route:** SC; **Species:** Mice; **Pump:** Not Stated; **Duration:** 5 weeks;

**ALZET Comments:** Controls received mp w/ vehicle; animal info (8 wks old, male, 8-12 wks old, 5-HT2B/-); obesity

**P9671:** N. Desbards, *et al.* Dexfenfluramine discontinuous treatment does not worsen hypoxia-induced pulmonary vascular remodeling but activates RhoA/ROCK pathway: Consequences on pulmonary hypertension. *European Journal of Pharmacology* 2009;602(2-3):355-363

**Agents:** Dexfenfluramine **Vehicle:** Water, sterile; **Route:** IV (jugular); **Species:** Rat; **Pump:** 2ML4; **Duration:** 28 days;

**ALZET Comments:** Controls received mp w/ vehicle; animal info (female, Wistar, 250-275 g.)



**P7822:** J. Callebert, *et al.* Evidence for a control of plasma serotonin levels by 5-hydroxytryptamine<sub>2B</sub> receptors in mice. *Journal of Pharmacology and Experimental Therapeutics* 2006;317(2):724-731

**Agents:** Dexfenfluramine; RS-127445 **Vehicle:** Not Stated; **Route:** Not Stated; **Species:** Mice; **Pump:** Not Stated; **Duration:** Not Stated;

**ALZET Comments:** Controls received mp w/ vehicle; comparison of IP injections vs. mp; cardiovascular; animal info (129PAS wt or 5-HT<sub>2B</sub>-R(-/-), 6wk old, 20-25g, male, female)

**P5548:** J. M. Launay, *et al.* Function of the serotonin 5-hydroxytryptamine 2B receptor in pulmonary hypertension. *Nature Medicine* 2002;8(10):1129-1135

**Agents:** RS-127445; dexfenfluramine **Vehicle:** Not Stated; **Route:** Not Stated; **Species:** Mice; **Pump:** Not Stated; **Duration:** Not Stated;

**ALZET Comments:** Controls received mp w/ vehicle; RS-127445 is a highly selective, high affinity 5-HT<sub>2B</sub> receptor antagonist; dexfenfluramine is an amphetamine-derived appetite suppressant

**P4569:** J. Bratter, *et al.* Effects of prenatal co-administration of phentermine and dexfenfluramine in rats. *European Journal of Pharmacology* 1999;369(R1-R3)

**Agents:** Phentermine; dexfenfluramine; **Vehicle:** water;; **Route:** SC;; **Species:** Rat (pregnant);; **Pump:** 2002;; **Duration:** 14 days;;

**ALZET Comments:** controls received mp w/vehicle; teratology; phentermine and dexfenfluramine infused together in the same pump;

## 5. Ghrelin

**Q7523:** D. Gupta, *et al.* beta1-adrenergic receptors mediate plasma acyl-ghrelin elevation and depressive-like behavior induced by chronic psychosocial stress. *Neuropsychopharmacology* 2019;44(7):1319-1327

**Agents:** acyl-ghrelin, GHRP-2 **Vehicle:** Saline; **Route:** SC; **Species:** Mice; **Pump:** 1002; **Duration:** 28 days;

**ALZET Comments:** Dose (4 mg/kg/day-acyl ghrelin, 400 ug/kg/day-GHRP-2); Controls received mp w/ vehicle; animal info (Male, C57BL/6, 8-10 weeks old); behavioral testing (CSDS and Social Interaction Test, ); dependence;

**Q7326:** R. Yu, *et al.* Activation of mTORC1 signaling in gastric X/A-like cells induces spontaneous pancreatic fibrosis and derangement of glucose metabolism by reducing ghrelin production. *EBioMedicine* 2018;36(304-315)

**Agents:** Ghrelin, acyl- **Vehicle:** saline; **Route:** SC; **Species:** Mice; **Pump:** 1002; **Duration:** 14 days;

**ALZET Comments:** Dose (11 nmol/kg/d); Controls received mp w/ vehicle; animal info (4-week-old, male, C57BL/6J);

**Q7833:** Q. Wang, *et al.* Ghrelin Restores the Disruption of the Circadian Clock in Steatotic Liver. *Int J Mol Sci* 2018;19(10):

**Agents:** ghrelin, acyl **Vehicle:** Saline; **Route:** SC; **Species:** Mice; **Pump:** 1002; **Duration:** 2 weeks;

**ALZET Comments:** Dose (11 nmol/kg/d); Controls received mp w/ vehicle; animal info (16 weeks, male, C57BL/6J); replacement therapy (ghrelin); Therapeutic indication (ghrelin is able to restore the derangement of the circadian clock in steatotic liver by increasing the expression amplitude and shifting the expression peak of clock genes);

**Q7090:** Poretti MB, *et al.* Reproductive performance of male mice after hypothalamic ghrelin administration. *Reproduction* 2018;156(2):121-132

**Agents:** Ghrelin, acyl- **Vehicle:** CSF, artificial; **Route:** CSF/CNS (hypothalamus); **Species:** Mice; **Pump:** 1007D, 2006; **Duration:** 7 days, 42 days;

**ALZET Comments:** Dose (0.5 umol/h/day- 1007D, 0.15 umol/h/day-2006) Controls received mp w/ vehicle; animal info (Adult male mice, 60 days old, 30 g); Brain coordinates (relative to bregma: anterior 0.15 mm, lateral 0.05 mm, vertical 5.5 mm); cyanoacrylate adhesive; dependence;

**Q7915:** A. K. E. Hornsby, *et al.* Circulating unacylated-ghrelin impairs hippocampal neurogenesis and memory in mice and is altered in human Parkinson's disease dementia. *BioRxiv* 2018;



**Agents:** ghrelin, unacylated- **Vehicle:** saline, sterile, heparinized, BSA buffered; **Route:** IV (jugular); **Species:** Mice; **Pump:** 1007D; **Duration:** 7 days;

**ALZET Comments:** Dose (48µg/day); sterile isotonic saline containing BSA (1mg/ml) and heparin (5U/ml) used; Controls received mp w/ vehicle; animal info (6 months, C57BL/6 and GOAT-null); UAG is considered an inactive precursor to acyl-ghrelin; neurodegenerative (Parkinson's); replacement therapy (ghrelin);

## 6. Glucagon-like Peptide 1

**Q7188:** B. Jones, *et al.* Targeting GLP-1 receptor trafficking to improve agonist efficacy. *Nat Commun* 2018;9(1):1602

**Agents:** Glucagon-like peptide-1 receptor agonist **Vehicle:** Glucagon-like peptide-1 receptor agonist; **Route:** SC; **Species:** Mice; **Pump:** 2004; **Duration:** 2 weeks;

**ALZET Comments:** Dose (0.24 nmol/kg/day); animal info (Male C57BL/6 J mice; 8–10 weeks); Glucagon-like peptide-1 receptor agonist aka GLP-1R agonist; stress/adverse reaction: (see pg. 10);

**Q5950:** C. Quarta, *et al.* Molecular Integration of Incretin and Glucocorticoid Action Reverses Immunometabolic Dysfunction and Obesity. *Cell Metabolism* 2017;26(4):620-632 e6

**Agents:** Glucagon-like peptide-1, Dexamethasone **Vehicle:** Saline; **Route:** CSF/CNS; **Species:** Mice; **Pump:** 1002; **Duration:** 14 days;

**ALZET Comments:** Controls received mp w/ vehicle; Dose (GLP-1: 0.1 mg/24h; Dexa: 0.0219mg/ml); animal info (20 week-old male C57bl6j); post op. care (meloxicam for post-surgical pain (3 mg/kg); ALZET brain infusion kit 3 used; Brain coordinates (anteroposterior: 0.5 mm from bregma, lateral: -/+1;2 mm to bregma and dorsoventral: 2.1 mm below skull); Therapeutic indication (obesity);

**Q5841:** A. Karmaker, *et al.* Is OM-3 synergistic with GLP-2 in intestinal failure? *J Surg Res* 2017;207(7-12

**Agents:** Glucagon-like peptide-2 **Vehicle:** Saline; **Route:** SC; **Species:** Rat; **Pump:** Not Stated; **Duration:** 7 days, 14 days, 28 days;

**ALZET Comments:** Controls received mp w/ vehicle; animal info (200-250g); Rats underwent 80% bowel resection ; Therapeutic indication (Intestinal failure, bowel adaptation, intestinal adaptation); Dose (100 µg/kg);

**Q5381:** K. Kohashi, *et al.* A Dipeptidyl Peptidase-4 Inhibitor but not Incretins Suppresses Abdominal Aortic Aneurysms in Angiotensin II-Infused Apolipoprotein E-Null mice. *Journal of Atherosclerosis and Thrombosis* 2016;23(4):441-454

**Agents:** Angiotensin II; Glucagon-like peptide-1; Glucose-dependent insulinotropic polypeptide **Vehicle:** Saline; **Route:** SC; **Species:** Mice; **Pump:** 1002; **Duration:** 4 weeks;

**ALZET Comments:** Controls received mp w/ vehicle; animal info (Apoe -/- mice, 9 weeks old); functionality of mp verified by plasma levels, blood pressure; pumps replaced every 2 weeks; cardiovascular; atherosclerosis; peptides; Pathophysiology similarities btwn abdominal aortic aneurysms, atherosclerosis; blood pressure measure via tail-cuff method; Dose (2000 ng/kg/min AngII, 2.16 nmol/kg/day GLP-1, 25 nmol/kg/day GIP); Resultant blood pressure (Start: 104 mmHg, End: 118 mmHg);

**Q5548:** K. Kohashi, *et al.* A Dipeptidyl Peptidase-4 Inhibitor but not Incretins Suppresses Abdominal Aortic Aneurysms in Angiotensin II-Infused Apolipoprotein E-Null Mice. *Journal of Atherosclerosis and Thrombosis* 2016;23(4):441-454

**Agents:** Angiotensin II, Glucagon-like peptide-1, Glucose-Dependent Insulinotropic Polypeptide **Vehicle:** Saline; **Route:** SC; **Species:** Mice (knockout); **Pump:** 1002; **Duration:** 4 weeks;

**ALZET Comments:** Controls received mp w/ vehicle; animal info (13 weeks old); pumps replaced every 2 weeks; Multiple pumps per animal (2); one for either Ang II, GLP-1 or GIP; enzyme inhibitor (Dipeptidyl Peptidase-4 inhibitor); Therapeutic indication (Abdominal aortic aneurysm); Dose (Angiotensin II: 2000 ng/kg/min, Angiotensin II + GIP: 25 nmol/kg/day, DPP-4i: 6 mg/kg/day);

## 7. Leptin



**Q7682:** Z. Wang, *et al.* Role of SOCS3 in POMC neurons in metabolic and cardiovascular regulation. *American Journal of Physiology Regulatory, Integrative, and Comparable Physiology* 2019;316(4):R338-R351

**Agents:** Leptin **Vehicle:** Saline; **Route:** IP; **Species:** Mice; **Pump:** 1007D; 1002; **Duration:** 7 days; 14 days;

**ALZET Comments:** Dose (4 ug/kg/min); animal info (6–17 wk of age, male and female mice); cardiovascular;

**Q7524:** R. B. S. Harris. Low-dose infusions of leptin into the nucleus of the solitary tract increase sensitivity to third ventricle leptin. *American Journal of Physiology Endocrinology and Metabolism* 2019;316(5):E719-E728

**Agents:** Leptin **Vehicle:** Saline; **Route:** CSF/CNS; **Species:** Rat; **Pump:** 1004; **Duration:** 14 days;

**ALZET Comments:** Dose (5, 10 ng/day); 0.9% saline used; animal info (Male, Sprague-Dawley, 275-300 g); bilateral cannula used; dependence;

**Q8021:** M. T. Hackl, *et al.* Brain leptin reduces liver lipids by increasing hepatic triglyceride secretion and lowering lipogenesis. *Nat Commun* 2019;10(1):2717

**Agents:** Leptin; LpR **Vehicle:** Saline; CSF, artificial; **Route:** IP; CSF/CNS (third ventricle); **Species:** Rat; **Pump:** 2004; **Duration:** 2 weeks;

**ALZET Comments:** Dose (0.3 ug/day); 0.9% used; Controls received mp w/ vehicle; animal info (10 weeks old, Male, Sprague Dawley); dependence; LpR AKA Leptin Receptor Antagonist;

**Q7976:** O. S. Dallner, *et al.* Dysregulation of a long noncoding RNA reduces leptin leading to a leptin-responsive form of obesity. *Nat Med* 2019;25(3):507-516

**Agents:** Leptin **Vehicle:** PBS; **Route:** SC; **Species:** Mice; **Pump:** Not stated; **Duration:** 14 days;

**ALZET Comments:** Dose (0.5 µg/h); Controls received mp w/ vehicle; animal info (12 weeks, female, C57BL/J6 Lep(ob)/Lep(ob)); replacement therapy (leptin);

**Q6983:** C. Caballero-Eraso, *et al.* Leptin acts in the carotid bodies to increase minute ventilation during wakefulness and sleep and augment the hypoxic ventilatory response. *J Physiol* 2019;597(1):151-172

**Agents:** Leptin **Vehicle:** Saline; **Route:** SC; **Species:** Mice; **Pump:** Not Stated; **Duration:** 2 days;

**ALZET Comments:** Dose (120 µg/day); Controls received mp w/ vehicle;

## 8. Melanin-concentrating Hormone

**Q5840:** Y. Kawata, *et al.* A novel and selective melanin-concentrating hormone receptor 1 antagonist ameliorates obesity and hepatic steatosis in diet-induced obese rodent models. *European Journal of Pharmacology* 2017;796(45-53

**Agents:** Melanin-concentrating hormone **Vehicle:** Water, distilled; **Route:** CSF/CNS (lateral ventricle); **Species:** Mice; **Pump:** 1002; **Duration:** 2 weeks, 14 days;

**ALZET Comments:** Controls received mp w/ vehicle; animal info (11 weeks-14 weeks); functionality of mp verified by measuring blood plasma parameters; Therapeutic indication (Obesity, non-alcoholic fatty liver disease); Dose (2.5 µg/mouse/day);

**Q2601:** M. Imbernon, *et al.* Central Melanin-Concentrating Hormone Influences Liver and Adipose Metabolism Via Specific Hypothalamic Nuclei and Efferent Autonomic/JNK1 Pathways. *Gastroenterology* 2013;144(3):636-U254

**Agents:** Melanin-concentrating hormone **Vehicle:** Not Stated; **Route:** CSF/CNS; **Species:** Rat; **Pump:** 2001; 1007D; **Duration:** 7 days;

**ALZET Comments:** Control animals received mp w/ saline; animal info (Sprague Dawley, male, 8-10 wks old, 250-300 g)

**Q0432:** M. Glick, *et al.* Chronic MCH infusion causes a decrease in energy expenditure and body temperature, and an increase in serum IGF-1 levels in mice. *Endocrine* 2009;36(3):479-485

**Agents:** Melanin-concentrating hormone **Vehicle:** CSF, artificial; **Route:** CSF/CNS; **Species:** Mice; **Pump:** 2002; **Duration:** 14 days;



**ALZET Comments:** Controls received mp w/ vehicle; peptides; cyanoacrylate adhesive; animal info (12 wks old, C57BL/6); cannula placement verified post mortem with Evans Blue dye; endocrinology

**P9273:** M. Ito, *et al.* Antagonism of central melanin-concentrating hormone 1 receptor alleviates steatohepatitis in mice. *Journal of Endocrinology* 2008;198(2):309-315

**Agents:** Melanin-concentrating hormone 1, receptor antagonist **Vehicle:** Water, distilled; propylene glycol; **Route:** CSF/CNS; **Species:** Mice; **Pump:** 2004; **Duration:** 4, 8 weeks;

**ALZET Comments:** Controls received mp w/ vehicle; pumps replaced after 2 or 4 weeks; no stress (see pg. 311, 314); ALZET brain infusion kit used; peptides; post op. care (Cefamezin); animal info (male, C57BL/6, 10 wks old, 16 wks old, 1 year old); animals received mp w/vehicle for 2 or 4 weeks, then mp with agent or vehicle for 2 or 4 more weeks; dental cement used; cannula placement confirmed at end of experiment with Evans blue dye

**P8300:** M. M. Messina, *et al.* Cardiovascular effects of melanin-concentrating hormone. *REGULATORY PEPTIDES* 2007;139(1-3):23-30

**Agents:** Melanin-concentrating hormone **Vehicle:** PBS; BSA; **Route:** CSF/CNS; **Species:** Rat; **Pump:** 1002; **Duration:** 10 days;

**ALZET Comments:** Controls received mp w/ vehicle; dose-response (fig. 1); comparison of acute icv infusion vs. mp; peptides; post op. care (Bupivacaine); animal info (male, Long-Evans, 330g.)

## 9. Melanotan

**Q7634:** B. P. Tooke, *et al.* Hypothalamic POMC or MC4R deficiency impairs counterregulatory responses to hypoglycemia in mice. *Mol Metab* 2019;20(194-204)

**Agents:** Insulin; Melanotan **Vehicle:** PBS; **Route:** SC; CSF/CNS (Paraventricular Nucleus of Hypothalamus); **Species:** Mice; **Pump:** 2002; 1002; **Duration:** 14 days;

**ALZET Comments:** Dose (10 U/kg/day); Controls received mp w/ vehicle; Brain coordinates (bregma: anteroposterior, 0.70; mediolateral, 0.22; dorsoventral, 4.80 mm); bilateral cannula used; diabetes; BIK: Plastics1, 3280PD/V/SPC;

**Q6887:** E. Minakova, *et al.* Melanotan-II reverses autistic features in a maternal immune activation mouse model of autism. *PLoS One* 2019;14(1):e0210389

**Agents:** Melanotan-II **Vehicle:** Water, sterile; Saline; **Route:** CSF/CNS (left lateral ventricle); **Species:** Mice; **Pump:** 1007D; 1002; **Duration:** 7 days; 14 days;

**ALZET Comments:** Dose (2.5 µg/day); Controls received mp w/ vehicle; animal info (Four- to six-month-old male MIA and male control C57BL/6J mice weighing 25-30g); behavioral testing (self-grooming test; three chamber test; Exploratory behavior; marble burying); ALZET brain infusion kit 3 used; Brain coordinates (posterior 0.20 mm, left 0.8 mm, ventral 2.5 mm); cyanoacrylate adhesive; neurodegenerative (Autism spectrum disorder);

**Q7126:** A. A. da Silva, *et al.* Control of appetite, blood glucose, and blood pressure during melanocortin-4 receptor activation in normoglycemic and diabetic NPY-deficient mice. *American Journal of Physiology Regulatory, Integrative, and Comparable Physiology* 2018;314(4):R533-R539

**Agents:** Melanotan II **Vehicle:** Saline; **Route:** CSF/CNS (left lateral ventricle); **Species:** Mice; **Pump:** 1007D; **Duration:** 7 days;

**ALZET Comments:** Dose (200 µg/kg/day); Controls received mp w/ vehicle; animal info (male, 20-24 week old); antagonist aka melanocortin 3/4; diabetes;

**Q7746:** I. Cote, *et al.* Activation of the central melanocortin system in rats persistently reduces body and fat mass independently of caloric reduction. *Canadian Journal of Physiology and Pharmacology* 2018;96(3):308-312

**Agents:** Melanotan II **Vehicle:** CSF, Artificial; **Route:** CSF/CNS (lateral ventricle); **Species:** Rat; **Pump:** Not Stated; **Duration:** 28 days;

**ALZET Comments:** Dose (2 µg/day); Controls received mp w/ vehicle; animal info (10 months, male, F344BN, 360-480g); MTII is a synthetic analog of alpha-MSH; Brain coordinates (1.3 mm posterior to bregma, 1.9 mm lateral to midsagittal suture, depth of 3.5 mm); Cannula placement verified via a stereotaxic device; Original mini-pumps were replaced after



recovery from the surgery through a small incision (1 cm); Therapeutic indication (long-term reduction of body mass independent of caloric reduction);

**Q5824:** I. Mosialou, *et al.* MC4R-dependent suppression of appetite by bone-derived lipocalin 2. *Nature* 2017;543(7645):385-390

**Agents:** Melanotan II, Lipocalin 2 **Vehicle:** Saline; **Route:** CSF/CNS (third ventricle); **Species:** Mice; **Pump:** 1002; **Duration:** 14 days;

**ALZET Comments:** Controls received mp w/ vehicle; animal info (10-12 weeks old); ALZET brain infusion kit 2 used; Therapeutic indication (Bone); Dose (0.125 mg ml<sup>-1</sup>, );

## 10. Neuropeptide Y

**Q4685:** R. Zhang, *et al.* Long-Term Administration of Neuropeptide Y in the Subcutaneous Infusion Results in Cardiac Dysfunction and Hypertrophy in Rats. *Experimental Neurology* 2015;37(94-104

**Agents:** Neuropeptide Y **Vehicle:** PBS; **Route:** SC; **Species:** Rat; **Pump:** 2004; **Duration:** 30 days;

**ALZET Comments:** Controls received mp w/ vehicle; animal info (male, Wistar, 250-300g); functionality of mp verified by plasma levels; cardiovascular; peptides; pumps primed in 37C saline for 40 hours;

**Q1862:** F. Xie, *et al.* Long-term Neuropeptide Y Administration in the Periphery Induces Abnormal Baroreflex Sensitivity and Obesity in Rats. *Cellular Physiology and Biochemistry* 2012;29(1-2):111-120

**Agents:** Neuropeptide Y **Vehicle:** PBS; **Route:** SC; **Species:** Rat; **Pump:** 2004; **Duration:** 4 months;

**ALZET Comments:** Controls received mp w/ vehicle; animal info (Wistar, male, 230-270 g, 3-4 mo old); long-term study; pumps replaced monthly

**Q1861:** F. Xie, *et al.* Neuropeptide Y Reverses Chronic Stress-induced Baroreflex Hypersensitivity in Rats. *Cellular Physiology and Biochemistry* 2012;29(3-4):463-474

**Agents:** Neuropeptide Y **Vehicle:** PBS; **Route:** SC; **Species:** Rat; **Pump:** 2004; **Duration:** 3 months;

**ALZET Comments:** Controls received mp w/ PBS; animal info (Wistar, male, adult, 230-250 g); long-term study; pumps replaced monthly

**Q2311:** J. C. Morales-Medina, *et al.* The selective neuropeptide Y Y(5) agonist [cPP(1-7),NPY(19-23),Ala(31),Aib(32),Gln(34)]hPP differently modulates emotional processes and body weight in the rat. *Behavioural Brain Research* 2012;233(2):298-304

**Agents:** Neuropeptide Y Y5 agonist **Vehicle:** Saline; **Route:** CSF/CNS; **Species:** Rat; **Pump:** 2002; **Duration:** 12, 14 days;

**ALZET Comments:** Control animals received mp w/ saline; animal info (Sprague Dawley, Wistar, male, 150-170 g, olfactory bulbectomized); neuropeptide Y Y5 agonist also known as [cPP1-7,NPY19-23,Ala31,Aib32,Gln34]hPP

**Q3005:** R. Matyal, *et al.* Neuropeptide Y improves myocardial perfusion and function in a swine model of hypercholesterolemia and chronic myocardial ischemia. *Journal of Molecular and Cellular Cardiology* 2012;53(6):891-898

**Agents:** Neuropeptide Y **Vehicle:** Heparin; BSA; **Route:** IA; **Species:** Swine; **Pump:** 2ML4; **Duration:** 5 weeks;

**ALZET Comments:** Animal info (swine model of metabolic syndrome with chronic myocardial ischemia, six-week-old, male; Yorkshire miniswine); ischemia (arterial)

## 11. Peptide YY

**Q6119:** Y. C. Shi, *et al.* Y5 receptor signalling counteracts the anorectic effects of PYY3-36 in diet-induced obese mice. *J Neuroendocrinol* 2017;29(10):

**Agents:** Peptide YY (3-36) **Vehicle:** Disodium hydrogen phosphate, NaCl, Tween 80; **Route:** SC; **Species:** Mice; **Pump:** 2004; **Duration:** 21 days;



**ALZET Comments:** animal info (diet-induced obese wild-type, Y5R knockout); stability verified by (Peptide YY “was stable and functional over the period of the experiment”); Obesity and diabetes;

**Q6707:** N. Nishizawa, *et al.* Antiobesity Effect of a Short-Length Peptide YY Analogue after Continuous Administration in Mice. ACS Medicinal Chemistry Letters 2017;8(6):628-631

**Agents:** Peptide YY, (3-36) **Vehicle:** Not Stated; **Route:** SC; **Species:** Mice; **Pump:** Not Stated; **Duration:** 3 days;

**ALZET Comments:** Dose (0.3 or 1 mg/kg/day); animal info (29-week-old DIO C57BL/6J mice); peptides;

**Q6347:** N. Nishizawa, *et al.* Highly potent antiobesity effect of a short-length peptide YY analog in mice. Bioorganic & Medicinal Chemistry 2017;25(20):5718-5725

**Agents:** Peptide YY analog **Vehicle:** DMSO; Saline; **Route:** SC; **Species:** Mice; **Pump:** Not Stated; **Duration:** 2 weeks;

**ALZET Comments:** Dose (0.1 mg/kg/day); 10% DMSO used; animal info (34-week-old male DIO C57BL/6J mice); Therapeutic indication (obesity);

**Q4478:** T. M. Kilian, *et al.* Rational Design of Dual Peptides Targeting Ghrelin and Y(2) Receptors to Regulate Food Intake and Body Weight. JOURNAL OF MEDICINAL CHEMISTRY 2015;58(4180-4193

**Agents:** Peptide 1a; peptide YY (3-36), peptide 2a, peptide 5a **Vehicle:** Not Stated; **Route:** SC; **Species:** Mice; **Pump:** Not Stated; **Duration:** 14 days;

**ALZET Comments:** Controls received mp w/ saline; animal info (female, C57BL6JRj); peptides;

**Q4504:** L. S. Dalboge, *et al.* A Hamster Model of Diet-Induced Obesity for Preclinical Evaluation of Anti-Obesity, Anti-Diabetic and Lipid Modulating Agents. PLoS One 2015;10(U2299-U2312

**Agents:** Peptide YY(3-36); neuromedin U **Vehicle:** Saline; **Route:** SC; **Species:** Hamster; **Pump:** 2ML4; **Duration:** 14 days;

**ALZET Comments:** Controls received mp w/ vehicle; animal info (male, Golden Syrian hamster, 6 weeks old); peptides; obesity;