Recent References (2017-Present) on the Administration of Leptin Using ALZET® Osmotic Pumps

Q10855: S. Yuan, *et al.* Ras Drives Malignancy Through Stem Cell Crosstalk With the Microenvironment. Nature 2022;612(7940):555-563
Agents: Leptin; VEGFA; Rapamycin **Vehicle:** PBS; DMSO; **Route:** SC; **Species:** Mice (nude); **Pump:** Not Stated; **Duration:** 4 weeks;
ALZET Comments: Dose: Leptin (2 mg/ml; 0.5 mg/ml); 0.5 mg/ml SMLA; VEGFA 50ug/ml; 10 mM rapamycin; 10% DMSO used; Controls received mp w/ vehicle; animal info (Nude mice); cancer (Squamous cell carcinomas);

Q10669: M. Sakaguchi, *et al.* Phosphatase Protector Alpha4 (alpha4) is Involved in Adipocyte Maintenance and Mitochondrial Homeostasis Through Regulation of Insulin Signaling. Nature Communications 2022;13(1):6092
Agents: Leptin **Vehicle:** Saline, sterile; **Route:** SC; **Species:** Mice; **Pump:** Not Stated; **Duration:** 2 weeks;
ALZET Comments: Dose (10 µg/mouse/day); Controls received mp w/ vehicle; animal info (8-week-old Aa4KO mice); diabetes;

Q10648: A. D. Petrescu, *et al.* Leptin Enhances Hepatic Fibrosis and Inflammation in a Mouse Model of Cholestasis. The American Journal of Pathology 2022;192(3):484-502
Agents: Leptin **Vehicle:** Saline; **Route:** IP; **Species:** Mice; **Pump:** Not Stated; **Duration:** 14 days;
ALZET Comments: Dose: (100 mg/kg per day)Controls received mp w/ vehicle; animal info: 2-month-old, male and female FVBN and Mdr2KO mice (weights being 25 to 30 g),Obesity; Leptin

Q10635: A. C. M. Omoto, *et al.* Central Nervous System Actions of Leptin Improve Cardiac Function After Ischemia-Reperfusion: Roles of Sympathetic Innervation and Sex Differences. Journal of American Heart Association 2022;11(21):e027081
Agents: Leptin **Vehicle:** Saline; **Route:** SC; **Species:** Rat; **Pump:** 2002; **Duration:** 28 days;
ALZET Comments: Dose Leptin (0.62 µg/h); Controls received mp w/ vehicle; animal info (Wistar rats (12-to 14-weeks old)pumps replaced on day 14; catheter; See (p.3-4)ischemia (ischemia/reperfusion injury.);

Q10758: Y. Ito, *et al.* Protein Tyrosine Phosphatase 1B Deficiency Improves Glucose Homeostasis in Type 1 Diabetes Treated With Leptin. Diabetes 2022;71(9):1902-1914
Agents: Leptin, recombinant **Vehicle:** Saline; **Route:** CSF/CNS (cerebral lateral ventricle); **Species:** Mice; **Pump:** 1002; **Duration:** 10 days;
ALZET Comments: Dose: (0.25 mg/day)Controls received mp w/ vehicle; animal info: T1D WT and T1D KO mice; Brain coordinates (anterior-posterior 0.50 mm,
medial-lateral ±1.3 mm, dorsal-ventral 2.3 mm)diabetes; (Type 1 diabetes)

Q10457: K. E. Claflin, *et al.* Pharmacological FGF21 signals to glutamatergic neurons to enhance leptin action and lower body weight during obesity. Molecular Metabolism 2022;64(101564
Agents: Fibroblast growth factor 21; Leptin; Leptin antagonist **Vehicle:** Not Stated; **Route:** SC; CSF/CNS; **Species:** Mice; **Pump:** 1002; 1004; **Duration:** 2 weeks;
ALZET Comments: Dose: FGF21 (1 mg/kg/day); Leptin (250 ng/h); Leptin antagonist (8 ug/day); Controls received mp w/ vehicle; animal info: mice: DIO WT mice: 16-18-week-old WTt; 12 week-old WT mice; Fibroblast growth factor 21 aka (FGF21); ALZET brain infusion kit 3 used; Brain coordinates (1 mm lateral, 0.34 mm caudal to bregma, and 2.5 mm ventral from the surface of the skull.); dental cement used; Vetbond (3 M); dependence;

Q10408: V. Barrios, *et al.* Chronic Central Leptin Infusion Promotes an Anti-Inflammatory Cytokine Profile Related to the Activation of Insulin Signaling in the Gastrocnemius of Male Rats. Biomedicines 2022;10(7):
Agents: Leptin **Vehicle:** Saline; BSA; **Route:** CSF/CNS (right ventricle); **Species:** Rat; **Pump:** Not Stated; **Duration:** 14 days;
ALZET Comments: Dose (12 µg/day); 0.9% saline and 1% serum albumin used; Controls received mp w/ vehicle; animal info (Male; Weighed about 250 g); diabetes;

Q10441: R. T. Atawia, *et al.* Endothelial leptin receptor is dispensable for leptin-induced sympatho-activation and hypertension in male mice. Vascular Pharmacology 2022;146(107093
Agents: Leptin **Vehicle:** Not Stated; **Route:** SC; **Species:** Mice; **Pump:** 1007D; **Duration:** 7 days;
ALZET Comments: Dose (1 mg/kg/day); animal info (Male; 12 weeks old); Blood pressure measured via radio-telemetry transmitters; cardiovascular;

Q10731: H. Yaginuma, *et al.* Peripheral Combination Treatment of Leptin and an SGLT2 Inhibitor Improved Glucose Metabolism in Insulin-Dependent Diabetes Mellitus Mice. Journal of Pharmacological Sciences 2021;147(4):340-347
Agents: Leptin, recombinant mouse **Vehicle:** Saline; **Route:** SC; **Species:** Mice; **Pump:** 1002; **Duration:** 14 days;
ALZET Comments: Dose: (20 ug/day); Controls received mp w/ vehicle; animal info: 12-13 weeks of age Male wild-type (C57BL/6J); diabetes;

Q10301: E. A. Polyakova, *et al.* Hyperleptinemia results in systemic inflammation and the exacerbation of ischemia-reperfusion myocardial injury. Heliyon 2021;7(11):e08491
Agents: Leptin **Vehicle:** Not Stated; **Route:** SC; **Species:** Rat; **Pump:** 2ML1; **Duration:** Not Stated;
ALZET Comments: Dose: (0.33 ug/ul); Controls received mp w/ vehicle; animal info: male Wistar rats aged 11–12 weeks and weighing 250–300 g; ischemia (ischemia-reperfusion injury); "

Q9402: A. C. Palei, *et al.* Impact of hyperleptinemia during placental ischemia-induced hypertension in 2 pregnant rats. American Journal of Physiology and Heart Circulatory Physiology 2021;
Agents: Leptin, rat recomb. **Vehicle:** Not Stated; **Route:** SC; **Species:** Rat; **Pump:** 2ML1; **Duration:** 5 days;
ALZET Comments: Dose (1 ug/kg/min); Controls received mp w/ vehicle; animal info (Timed-pregnant SAS Sprague-Dawley rats); ischemia (ischemia-induced hypertension);

Q9242: F. N. Gava, *et al.* Restoration of Cardiac Function After Myocardial Infarction by Long-Term Activation of the CNS Leptin-Melanocortin System. JACC Basic to Translational Science 2021;6(1):55-70
Agents: Leptin; Melanotan II **Vehicle:** Saline; **Route:** CSF/CNS (intracerebral); IV; **Species:** Rat; **Pump:** 2002; **Duration:** 28 days;
ALZET Comments: Dose (0.62 ug/h Leptin; 10 ng/h Melanotan II); Controls received mp w/ vehicle; animal info (12 to 14 week-old male Sprague-Dawley rats); Melanotan II aka MTII; cardiovascular;

Q9201: A. A. da Silva, *et al.* Chronic CNS-mediated cardiometabolic actions of leptin: potential role of sex differences. American Journal of Physiology Regulatory, Integrative Comparative Physiology 2021;320(2):R173-R181
Agents: Leptin **Vehicle:** Not Stated; **Route:** CSF/CNS (intracerebral); IV; **Species:** Rat; **Pump:** 2001; **Duration:** 7 days;
ALZET Comments: Dose (0.62 ug/h); animal info (male and female Sprague-Dawley rats, 12 weeks old); Blood pressure measured via BP telemeter device;95 mmHg - 110 mmHg; peptides; diabetes;

Q10103: V. Barrios, *et al.* Cerebral Insulin Bolus Revokes the Changes in Hepatic Lipid Metabolism Induced by Chronic Central Leptin Infusion. Cells 2021;10(3):
Agents: Leptin; Saline **Vehicle:** Not Stated; **Route:** CSF/CNS (cerebral ventricle); **Species:** Rat; **Pump:** Not Stated; **Duration:** 14 days;
ALZET Comments: Dose: (0.2 mg/kg/day); Controls received mp w/ vehicle; Animal info: Adult male Wistar rats (250 +-10 g)

Q9817: C. Zhu, *et al.* Profound and redundant functions of arcuate neurons in obesity development. Nature Metabolism 2020;2(8):763-774
Agents: Leptin **Vehicle:** Saline; **Route:** SC; **Species:** Mice; **Pump:** Not Stated; **Duration:** 4 weeks;
ALZET Comments: Dose (50 ng/hr); Controls received mp w/ vehicle; animal info (40 g); dependence;

Q9496: Q. Tang, *et al.* Sirt6 in pro-opiomelanocortin neurons controls energy metabolism by modulating leptin signaling. Molecular Metabolism 2020;37(100994
Agents: Leptin **Vehicle:** Saline; **Route:** SC; **Species:** Mice; **Pump:** 1007D; **Duration:** 2 days;
ALZET Comments: Dose (500 ng/h); Controls received mp w/ vehicle; animal info (Male mice, 6 weeks old); replacement therapy (Leptin);

Q8955: J. Sorrell, *et al.* The central melanocortin system mediates the benefits of time-restricted feeding on energy balance. Physiology & Behavior 2020;227(113132
Agents: Leptin **Vehicle:** Saline; **Route:** CSF/CSN; **Species:** Mice; **Pump:** 1007D; **Duration:** 7 days;
ALZET Comments: Dose (1 ug/day); 0.9% Saline used; Controls received mp w/ vehicle; animal info (Male, C57BL/6J); Brain coordinates (0.7 mm posterior, 1.2 mm lateral, and 2.5 mm ventrally from the surface of the brain); bilateral cannula used; dependence;

Q9299: M. C. Kang, *et al.* LRP1 regulates food intake and energy balance in GABAergic neurons independently of leptin action. American Journal of Physiology Endocrinology Metabolism 2020;
Agents: Leptin **Vehicle:** Saline; **Route:** SC; **Species:** Mice; **Pump:** Not Stated; **Duration:** 9 days;
ALZET Comments: Dose (0.5 mg/kg/day); Controls received mp w/ vehicle; animal info (male LRP1 mice, 30 weeks old); dependence;

Q8468: A. Fraga, *et al.* Temperature but not leptin prevents semi-starvation induced hyperactivity in rats: implications for anorexia nervosa treatment. Scientific Reports 2020;10(1):5300
Agents: Leptin, recomb. rat **Vehicle:** PBS; **Route:** SC; **Species:** Rat; **Pump:** 2001; **Duration:** 14 days;
ALZET Comments: Dose (1.29 mg/ml); Controls received mp w/ vehicle; animal info (Male Sprague-Dawley rats (130–190 g));

Q8703: T. Bruder-Nascimento, *et al.* HIV Protease Inhibitor Ritonavir Impairs Endothelial Function Via Reduction in Adipose Mass and Endothelial Leptin Receptor-Dependent Increases in NADPH Oxidase 1 (Nox1), C-C Chemokine Receptor Type 5 (CCR5), and Inflammation. J Am Heart Assoc 2020;9(19):e018074
Agents: Leptin **Vehicle:** Not Stated; **Route:** SC; **Species:** Mice; **Pump:** 1007D; **Duration:** 7 days;
ALZET Comments: Dose (0.3 mg/kg/day); Controls received mp w/ vehicle; animal info (C57BL/6, 8-14 weeks old); cardiovascular;

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;

Q9074: A. K. Singha, *et al.* Glucose-Lowering by Leptin in the Absence of Insulin Does Not Fully Rely on the Central Melanocortin System in Male Mice. Endocrinology 2019;160(3):651-663
Agents: Leptin **Vehicle:** Saline; **Route:** CSF/CNS; **Species:** Mice; **Pump:** 1004; **Duration:** 28 days;
ALZET Comments: Dose (2.5 ng/hr/0.11 uL); Controls received mp w/ vehicle; animal info (3-6 months old, Male, greater than 25 g); Brain coordinates (20.34 mm from the bregma, 1 mm lateral (right side), 22.5 mm from the skull); bilateral cannula used; dependence;

Q9991: M. K. Shin, *et al.* Experimental Approach to Examine Leptin Signaling in the Carotid Bodies and its Effects on Control of Breathing. Journal of Visualized Experiments 2019;152):
Agents: Leptin **Vehicle:** Not stated; **Route:** SC; **Species:** Mice; **Pump: Duration:** 3 days;
ALZET Comments: Dose (5 mg/mL); animal info (C57BL/6J); cardiovascular;

Q8948: M. Seamon, *et al.* Leptin receptor-expressing neurons in ventromedial nucleus of the hypothalamus contribute to weight loss caused by fourth ventricle leptin infusions. American Journal of Physiology Endocrinology and Metabolism 2019;317(4):E586-E596
Agents: Leptin **Vehicle:** Saline; **Route:** SC; **Species:** Rat; **Pump:** 1002; **Duration:** 14 days;
ALZET Comments: Dose (0.9 ug/day); Controls received mp w/ vehicle; animal info (Male, Sprague-Dawley, 275-300 g); dependence;

Q8817: G. Ramadori, *et al.* S100A9 extends lifespan in insulin deficiency. Nature Communications 2019;10(1):3545
Agents: Leptin **Vehicle:** Saline; **Route:** CSF/CNS; **Species:** Mice; **Pump:** 1004; **Duration:** 10 days;
ALZET Comments: Dose (227 ng/uL); 0.9% Saline used; Controls received mp w/ vehicle; animal info (Male); Brain coordinates (−0.34 mm from the bregma, ±1mm lateral, −2.5mm from the skull); bilateral cannula used; diabetes;

Q8364: S. Pereira*, et al.* Metabolic effects of leptin receptor knockdown or reconstitution in adipose tissues. Sci Rep 2019;9(1):3307
Agents: Recombinant Murine Leptin **Vehicle:** Not stated; **Route:** SC; **Species:** Mice; **Pump:** Not stated; **Duration:** 8 days;
ALZET Comments: Dose (20 ug/day); Controls received mp w/ vehicle; animal info (8-12 weeks old); diabetes;

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;

Q9768: V. Frodermann*, et al.* Exercise reduces inflammatory cell production and cardiovascular inflammation via instruction of hematopoietic progenitor cells. Nature Medicine 2019;25(11):1761-1771
Agents: Leptin **Vehicle:** Saline; **Route:** SC; **Species:** Mice; **Pump:** 2006; **Duration:** 6 weeks;
ALZET Comments: Dose (0.3 mg/kg/day); Controls received mp w/ vehicle; animal info (C57BL/6, 7-8 weeks old, Male); post op. care (Buprenorphine); cardiovascular;

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;

Q6878: D. M. Arble*, et al.* Vertical sleeve gastrectomy improves ventilatory drive through a leptin-dependent mechanism. JCI Insight 2019;4(1):
Agents: Leptin **Vehicle:** Water; **Route:** SC; **Species:** Mice; **Pump:** Not Stated; **Duration:** 6 weeks;
ALZET Comments: Dose (10µg/day); Controls received mp w/ vehicle; animal info (C57BL6/J WT and ob/ob male mice, 6-8 weeks of age);

Q8828: J. Xu*, et al.* Genetic identification of leptin neural circuits in energy and glucose homeostases. Nature 2018;556(7702):505-509
Agents: Leptin **Vehicle:** Saline; **Route:** CSF/CNS (lateral ventricle); **Species:** Mice; **Pump:** 1007D; **Duration:** 7 days;
ALZET Comments: Dose (454 ng/µl); Controls received mp w/ vehicle; animal info (4-8 weeks, Agrp-IRES-cre and Agrp-IRES-cre::LSL-Cas9-GFP); comparison of IP injection vs mp; Brain coordinates (AP: −0.50mm, ML:±1.3mm, DV: −2.3mm); replacement therapy (leptin);

Q7849: Y. Ravussin, *et al.* Evidence for a Non-leptin System that Defends against Weight Gain in Overfeeding. Cell Metabolism 2018;28(2):289-299 e5
Agents: leptin, recomb. mouse **Vehicle:** Saline, buffered; **Route:** SC; **Species:** Mice; **Pump:** 2006; **Duration:** 33 days;
ALZET Comments: Dose (150 ng/hr); saline (pH 8) used; Controls were WT and received mp w/ agent; animal info (4 weeks, male, C57BL/6J(Lepob/ob)); Resultant plasma level (1.8 ± 1.4 ng/mL); replacement therapy (leptin); good methods (detailed pump placement on page e3);

Q8803: K. A. Philbrick, *et al.* Leptin Increases Particle-Induced Osteolysis in Female ob/ob Mice. Scientific Reports 2018;8(1):14790
Agents: Leptin **Vehicle:** Not Stated; **Route:** SC; **Species:** Mice; **Pump:** 1002; **Duration:** 2 weeks;
ALZET Comments: Dose (6 ug/day); animal info (6 weeks old, ob/ob); post op. care (Ketofen); dependence;

Q7236: T. Murata, *et al.* Leptin Aggravates Reflux Esophagitis by Increasing Tissue Levels of Macrophage Migration Inhibitory Factor in Rats. Tohoku J Exp Med 2018;245(1):45-53
Agents: Leptin **Vehicle:** PBS; **Route:** SC; **Species:** Rat; **Pump:** 2001; **Duration:** 1 week;
ALZET Comments: Dose (0.6 mg/Kg-weight); 200 µL of 10 mM used; Controls received mp w/ vehicle; Controls received mp w/ vehicle;

Q8123: T. H. Meek, *et al.* In Uncontrolled Diabetes, Hyperglucagonemia and Ketosis Result From Deficient Leptin Action in the Parabrachial Nucleus. Endocrinology 2018;159(4):1585-1594
Agents: Leptin **Vehicle:** Saline; **Route:** CSF/CNS (lateral ventricle); **Species:** Mice; **Pump:** Not stated; **Duration:** Not stated;
ALZET Comments: Dose (1 ug/day); animal info (Male, LepRbCCK KO); Brain coordinates (0.7mm posterior to bregma, 1.3 mm lateral, and 2.3 mm below the skull); bilateral cannula used; dependence;

R0365: L. Maletinska, *et al.* The impact of anorexigenic peptides in experimental models of Alzheimer's disease pathology. J Endocrinol 2018;
Agents: PrRP palmitoylated analogs, Leptin, Amylin, Cyclic AC253, Exendin 4 **Vehicle:** Not Stated; **Route:** SC, CSF/CNS (lateral ventricle); **Species:** Mice; **Pump:** Not Stated; **Duration:** 2 months; 28 days; 5 weeks, 5 months, 16 weeks;
ALZET Comments: Dose: Palm11-PrRP (5 mg/kg/day), Leptin (2.4 nmol/day), Amylin (0.24 mg/kg/day), Exendin-4 (3.5 pmol/kg/min); animal info (7 month old THY-Tau22 mice; 5 month old APP/PS1 mice; 6 month old AMP8 mice); behavioral testing (Y-maze); neurodegenerative (Alzheimer's); This review summarizes current information on the potential neuroprotective properties of food intake-lowering (anorexigenic) peptides that have been tested in experimental models of AD-like pathology.

Q8099: V. Lopez, *et al.* Food Restriction is Required to Preserve the Antisteatotic Effects of Central Leptin in the Liver of Middle-Aged Rats. Obesity (Silver Spring) 2018;26(5):877-884
Agents: Leptin **Vehicle:** Saline; **Route:** CSF/CNS (lateral ventricle); **Species:** Rat; **Pump:** Not stated; **Duration:** 7 days;
ALZET Comments: Dose (0.2 ug/day); Controls received mp w/ vehicle; animal info (3 or 7 month old, Male, Wistar); bilateral cannula used; dependence;

Q8093: R. Liu, *et al.* Leptin upregulates smooth muscle cell expression of MMP-9 to promote plaque destabilization by activating AP-1 via the leptin receptor/MAPK/ERK signaling pathways. Exp Ther Med 2018;16(6):5327-5333
Agents: Recombinant Leptin **Vehicle:** Saline; **Route:** SC; **Species:** Mice; **Pump:** Not stated; **Duration:** 4 weeks;
ALZET Comments: Dose (1 ug/g/day); Controls received mp w/ vehicle; animal info (C57BL/6, 8 weeks old); cardiovascular;

Q8069: C. H. Lee, *et al.* Hypothalamic Macrophage Inducible Nitric Oxide Synthase Mediates Obesity-Associated Hypothalamic Inflammation. Cell Rep 2018;25(4):934-946 e5
Agents: Leptin **Vehicle:** Saline; **Route:** SC; **Species:** Mice; **Pump:** 1004; **Duration:** 4 weeks;
ALZET Comments: animal info (Male, 7 weeks old, C57BL/6J); ALZET brain infusion kit 1 used; Brain coordinates (0.6mm caudal to bregma, 1mm right to the sagittal sinus, and 2.0mm ventral to the sagittal sinus); bilateral cannula used; dependence;

Q8066: E. Lamy, *et al.* Effects of hyperleptinemia in rat saliva composition, histology and ultrastructure of the major salivary glands. Arch Oral Biol 2018;96(1-12
Agents: Leptin **Vehicle:** Saline; **Route:** SC; **Species:** Rat; **Pump:** 2ML1; **Duration:** 7 days;
ALZET Comments: Dose (10 uL/hr); Controls received mp w/ vehicle; animal info (Male, Wistar, 11-12 weeks old); Leptin aka recombinant rat leptin protein ; dependence;

Q4806: M. Labyb, *et al.* Oxytocin Administration Alleviates Acute but Not Chronic Leptin Resistance of Diet-Induced Obese Mice. Int J Mol Sci 2018;20(1):
Agents: Oxytocin; leptin **Vehicle:** Saline; **Route:** SC; **Species:** Mice; **Pump:** Not Stated; **Duration:** 2 weeks;
ALZET Comments: Dose (oxytocin (50 µg/day); leptin (20 or 40 µg/day)); Controls received mp w/ vehicle; animal info (Eight-week-old C57BL/6JRj male mice); "Osmotic pump content was verified postmortem in order to ensure complete drug delivery."

Q7778: E. Burgos-Ramos, *et al.* The increase in fiber size in male rat gastrocnemius after chronic central leptin infusion is related to activation of insulin signaling. Mol Cell Endocrinol 2018;470(48-59
Agents: Leptin **Vehicle:** Saline; **Route:** CSF/CNS (right cerebral ventricle); **Species:** Rat; **Pump:** Not Stated; **Duration:** 14 days;
ALZET Comments: Dose (12 ug/day); Controls received mp w/ vehicle; animal info (Male, Wistar, 240-260 g); Brain coordinates (0.3 mm anteroposterior, 1.1 mm lateral from Bregma); dependence;

Q5956: J. Tam, *et al.* Peripheral cannabinoid-1 receptor blockade restores hypothalamic leptin signaling. Mol Metab 2017;6(10):1113-1125
Agents: Leptin; SHU-9119 **Vehicle:** PBS; **Route:** SC; CSF/CNS; **Species:** Mice; **Pump:** 2004; **Duration:** 12 weeks, 7 days;
ALZET Comments: Controls received mp w/ vehicle; animal info (leptin-deficient ob/ob mice); long-term study; pumps replaced every 28 days; SHU-9119 is a MC4R antagonist; Leptin dissolved in PBS and delivered SC for 12 weeks; SHU-9119 dissolved in saline and delivered ICV for 7 days; Pumps model incorrectly listed as Model 2001D. It should be Model 2004 based on description.

Q6797: Y. Shimizu, *et al.* Role of leptin in conditioned place preference to high-fat diet in leptin-deficient ob/ob mice. Neurosci Lett 2017;640(60-63
Agents: Leptin, recomb. mouse **Vehicle:** Saline; **Route:** SC; **Species:** Mice; **Pump:** Not Stated; **Duration:** 1 week; 4 weeks;
ALZET Comments: Dose (4.8 µg/day); Controls received mp w/ vehicle; animal info (Animals Male C57BL/6J mice and ob/ob mice (5-week and 8-week old));

Q5797: M. Sakaguchi, *et al.* Adipocyte Dynamics and Reversible Metabolic Syndrome in Mice with an Inducible Adipocyte-Specific Deletion of the Insulin Receptor. Cell Metabolism 2017;25(2):448-462
Agents: Leptin **Vehicle:** Saline; **Route:** SC; **Species:** Mice; **Pump:** 1002; **Duration:** 12 days;
ALZET Comments: Controls received mp w/ vehicle; animal info (8 weeks old); Therapeutic indication (Metabolic syndrome, Syndrome X); Dose (10 ug/day);

Q6713: K. A. Philbrick, *et al.* Leptin stimulates bone formation in ob/ob mice at doses having minimal impact on energy metabolism. J Endocrinol 2017;232(3):461-474
Agents: Leptin **Vehicle:** Not Stated; **Route:** SC; **Species:** Mice; **Pump:** 1002; **Duration:** 12 days;
ALZET Comments: Dose (0, 4, 12, 40, 140, or 400 ng/h); dose-response (Fig 2; Page 16); animal info (6-week-old female ob/ob mice); Therapeutic indication (obesity);

Q5820: R. J. Perry, *et al.* Mechanism for leptin's acute insulin-independent effect to reverse diabetic ketoacidosis. J Clin Invest 2017;127(2):657-669
Agents: Leptin **Vehicle:** Saline; **Route:** SC; **Species:** Mice; **Pump:** 1004; **Duration:** 2 weeks, 14 days;
ALZET Comments: Controls received mp w/ vehicle; animal info (8 weeks old); diabetes;
Therapeutic indication (diabetic ketoacidosis); Dose (0.624 ug/hr);

Q6701: P. Mota*, et al.* Mp17-14 Depletion of Peripheral Serotonin Synthesis Induces Benign Prostatic Growth in Mice: More Evidence for the New "Neuroendocrine Theory" in Bph Etiology. The Journal of Urology 2017;197(4):e216-e217
Agents: Leptin **Vehicle:** Not Stated; **Route:** SC; **Species:** Mice; **Pump:** Not Stated; **Duration:** 24 weeks;
ALZET Comments: Dose (5 mg/day; 10 mg/day); Controls received mp w/ vehicle; animal info (10-week-old male ObOb and strain-matched control mice); pumps replaced every 12 weeks; Multiple pumps per animal (2); long-term study;

Q5828: K. Matoba*, et al.* Leptin sustains spontaneous remyelination in the adult central nervous system. Sci Rep 2017;7(40397
Agents: Antibody, leptin neutralizing; leptin, recombinant mouse **Vehicle:** PBS; **Route:** CSF/CNS (intrathecal); **Species:** Mice; **Pump:** 1007D, 1002; **Duration:** Not Stated;
ALZET Comments: Controls received mp w/ vehicle; animal info (7-8 weeks old) ; ALZET brain infusion kit used; neurodegenerative (Demyelination); Therapeutic indication (Demylenation); Dose ((12 µ g/kg body weight per day, 10 ug/kg of body weight per day);

Q6248: R. B. S. Harris. Low-dose leptin infusion in the fourth ventricle of rats enhances the response to third-ventricle leptin injection. American Journal of Physiology Endocrinology and Metabolism 2017;313(2):E134-E147
Agents: Leptin **Vehicle:** Not Stated; **Route:** CSF/CNS (fourth ventricle); **Species:** Rat; **Pump:** 2004; **Duration:** 11 days; 13 days;
ALZET Comments: Dose (0.01, 0.1, 0.3, or 0.6 ug/24 h); Controls received mp w/ vehicle; animal info (rats weighing ~280 g);

Q6091: A. Gupta*, et al.* Chronic hyper-leptinemia induces insulin signaling disruption in adipocytes: Implications of NOS2. Free Radic Biol Med 2017;112(93-108
Agents: Leptin, recomb. murine **Vehicle:** HCl; **Route:** SC; **Species:** Mice; **Pump:** 2004; **Duration:** 4 weeks;
ALZET Comments: Dose (2.5 mg/ml); animal info (6-8 week old C57BL/6 and NOS2-/- mice);

Q6257: N. Gomez-Hurtado*, et al.* Beneficial effects of leptin treatment in a setting of cardiac dysfunction induced by transverse aortic constriction in mouse. J Physiol 2017;595(13):4227-4243
Agents: Leptin **Vehicle:** Tris; Saline; **Route:** SC; **Species:** Mice; **Pump:** Not Stated; **Duration:** 3 weeks;
ALZET Comments: Dose (0.36 mg/kg/day); 20 mmol L−1 Tris, 150 nmol L−1 NaCl used; Controls received mp w/ vehicle; animal info (Ten-week-old C57Bl/6 male mice); cardiovascular;

Q6157: E. A. Flatow*, et al.* Elucidating the role of leptin in systemic inflammation: a study targeting physiological leptin levels in rats and their macrophages. American Journal of Physiology Regulatory, Integrative, and Comparable Physiology 2017;313(5):R572-R582
Agents: Leptin **Vehicle:** Saline; **Route:** CSF/CNS (lateral ventricle); **Species:** Rat; **Pump:** 1003D; **Duration:** 3 days;
ALZET Comments: Controls received mp w/ vehicle; animal info (Male Wistar rats weighing 180–250 g); post op. care (5 mg/kg ketoprofen); Brain coordinates (0.5 mm caudal to the bregma and 1.5 mm to the right of the midline);

Q6386: Dorfman MD*, et al.* Deletion of Protein Kinase C I in POMC Neurons Predisposes to Diet-Induced Obesity. Diabetes 2017;66(4):920-934
Agents: Leptin **Vehicle:** PBS; **Route:** CSF/CNS; **Species:** Rat; Mice; **Pump:** Not Stated; **Duration:** 14 days;
ALZET Comments: animal info (male Wistar rats; Eight-week-old male and female POMC-IKO and WT mice); Brain coordinates (0.8 mm posterior to bregma; 1.5 mm lateral to the sagittal suture, and 3.6 mm below the skull surface); diabetes;

Q6387: J. M. do Carmo*, et al.* Changes in ambient temperature elicit divergent control of metabolic and cardiovascular actions by leptin. FASEB J 2017;31(6):2418-2428
Agents: Leptin **Vehicle:** Saline; **Route:** SC; **Species:** Mice; **Pump:** 1007D; **Duration:** 7 days;
ALZET Comments: Dose (4 mg/kg/min); Controls received mp w/ vehicle; animal info (22 week old Male wild-type (WT) C57BL/6J mice); cardiovascular;

Q6021: A. A. da Silva*, et al.* Role of autonomic nervous system in chronic CNS-mediated antidiabetic action of leptin. American Journal of Physiology Endocrinology and Metabolism 2017;312(5):E420-E428
Agents: Leptin, Hexamethonium **Vehicle:** Saline; **Route:** CSF/CNS (lateral ventricle); **Species:** Rat; **Pump:** 2002; **Duration:** 12 days;
ALZET Comments: Controls received mp w/ vehicle; animal info (360-420g); diabetes; Therapeutic indication (Diabetes); Dose (Hexamethonium: 15 mg/kg);

Q6006: K. T. Chang*, et al.* Leptin is essential for microglial activation and neuropathic pain after preganglionic cervical root avulsion. Life Sci 2017;187(31-41
Agents: Leptin **Vehicle:** PBS; **Route:** CSF/CNS (Cervical); **Species:** Mice; **Pump:** 2004; **Duration:** 28 days;
ALZET Comments: Controls received mp w/ vehicle; animal info (male and female, C57B/6 J (B6) and Ob); Therapeutic indication (Obesity, Neuropathic pain); Dose (1 ug/day);

Q6115: L. R. Beutler*, et al.* Dynamics of Gut-Brain Communication Underlying Hunger. Neuron 2017;96(2):461-475 e5
Agents: Leptin **Vehicle:** Not Stated; **Route:** SC; **Species:** Mice; **Pump:** 2002; **Duration:** 10 days;
ALZET Comments: Dose (450 ng/hr); Controls received mp w/ vehicle; animal info (ob/ob mice); Therapeutic indication (Obesity);