



Recent References (2018-Present) on the Administration of Leptin
Using ALZET® Osmotic Pumps

Q11348: H. Li, *et al.* The melanocortin action is biased toward protection from weight loss in mice. *Nature Communications* 2023;13(1):2200

Agents: Leptin **Vehicle:** Not Stated; **Route:** CSF/CNS; **Species:** Mice; **Strain:** ob/ob; **Pump:** Not Stated; **Duration:** 14 days; **ALZET Comments:** Dose (50 ng/h); animal info (Male; 8-10 weeks old); behavioral testing (Food intake); obesity

Q11325: Y. C. Kim, *et al.* Expression of leptin receptor in renal tubules is sparse but implicated in leptin-dependent kidney gene expression and function. *American Journal of Physiology Renal Physiology* 2023;324(6):F544-F557

Agents: Leptin **Vehicle:** Water, distilled; **Route:** SC; **Species:** Mice; **Strain:** BTBR wild-type ; BTBR ob/ob; **Pump:** 2006; **Duration:** Not Stated; **ALZET Comments:** Dose 4.7 ug/day; controls received mp w/ vehicle; 12–19 wks old; hormone replacement

Q11060: A. Nakamoto, *et al.* O-linked N-acetylglucosamine modification is essential for physiological adipose expansion induced by high-fat feeding. *American Journal of Physiology Endocrinology and Metabolism* 2023;325(1):E46-E61

Agents: Leptin **Vehicle:** Saline; **Route:** Not Stated; **Species:** Mice; **Strain:** Ogt-FKO; **Pump:** 2002; **Duration:** 14 days; **ALZET Comments:** Dose (10 µg/day); controls received mp w/ vehicle; animal info: 8 wk, HFD; functionality of mp verified by plasma levels; obesity, insulin resistance

Q11267: R. B. S. Harris. Low-dose peripheral leptin infusion produces selective activation of ventromedial hypothalamic and hindbrain STAT3. *American Journal of Physiology: Endocrinology and Metabolism* 2023;325(1):E72-E82

Agents: Leptin **Vehicle:** Not Stated; **Route:** IP; **Species:** Rat; **Strain:** Sprague Dawley; **Pump:** 2002; **Duration:** 9 days; **ALZET Comments:** Dose (0, 5, 10, 20, or 40 ug/day); dose-response (see graphs on pg 75); animal info (Male; Weighed 275-300 g); comparison of mp vs injection; "Low-dose, chronic peripheral infusions of leptin produced an initial, transient inhibition of food intake that correlated with signal transducer and activator of transcription 3 (STAT3) activation in the ventromedial hypothalamus (VMH) and nucleus of the solitary tract (NTS)."

Q11273: Y. Fu, *et al.* Effects of Leptin and Body Weight on Inflammation and Knee Osteoarthritis Phenotypes in Female Rats. *JBMR Plus* 2023;7(7):e10754

Agents: Leptin, recombinant **Vehicle:** Tris hydrochloride; **Route:** SC; **Species:** Rat; **Strain:** Zucker (F344 BN F1); **Pump:** 2006; **Duration:** 23 weeks; **ALZET Comments:** Dose (3.6 ug/day); Controls received mp w/ vehicle; animal info (Female; Obese; 12 months old, hybrid); pumps replaced every 5 weeks; long-term study; functionality of mp verified by plasma levels p. 7

Q11256: M. E. Casado, *et al.* Changes in Lipid Metabolism Enzymes in Rat Epididymal Fat after Chronic Central Leptin Infusion Are Related to Alterations in Inflammation and Insulin Signaling. *International Journal of Molecular Sciences* 2023;24(8):

Agents: Leptin **Vehicle:** Saline; **Route:** CSF/CNS; **Species:** Rat; **Strain:** Wistar; **Pump:** Not Stated; **Duration:** 2 weeks; **ALZET Comments:** Dose (12 µg/day); Controls received mp w/ vehicle; animal info (Male; Weighed around 250 g);

Q11093: S. Buller, *et al.* Median eminence myelin continuously turns over in adult mice. *Molecular Metabolism* 2023;69(10):1690

Agents: Leptin **Vehicle:** Saline; **Route:** SC; **Species:** Mice; **Strain:** C57BL/6J; **Pump:** 1002; **Duration:** Not Stated; **ALZET Comments:** Dose (100 ng/h); animal info (Male); vinyl tubing filled w/ saline used for delayed delivery (7 days)

Q11250: S. N. Breit, *et al.* GDF15 enhances body weight and adiposity reduction in obese mice by leveraging the leptin pathway. *Cell Metabolism* 2023;35(8):1341-1355 e3

Agents: Growth differentiation factor 15, recomb mouse; Leptin, recomb.; leptin antagonist **Vehicle:** Not Stated; **Route:** SC; **Species:** Mice; **Strain:** C57BL6; **Pump:** 2004; **Duration:** Not Stated; **ALZET Comments:** Dose: GDF 0.5ug/g/day; recomb leptin 1.5ug/g/day; leptin antagonist 1.5 mg/kg/day; animal info: Male HFD-induced obesity, obese leptin-deficient ob/ob mice (OB/OB), and CHOW; post op. care: buprenorphine hydrochloride 0.05 mg/kg; wound clips used; obesity;



Q11246: J. F. Bieber, *et al.* Food availability influences angling vulnerability in muskellunge. *Fisheries Management and Ecology* 2023;31(1):

Agents: Leptin; ghrelin **Vehicle:** Saline, teleost; **Route:** IP; **Species:** Fish; **Strain:** Muskellunge; **Pump:** 1007D; **Duration:** 7 days; **ALZET Comments:** Dose (550 ng/μL); (10 mL Na₂CO₃/L of 0.6% NaCl) used; controls received mp w/ saline; behavioral testing (boldness, aggression, and exploration)

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; **Strain:** 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 (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; **Strain:** Aa4KO; **Pump:** Not Stated; **Duration:** 2 weeks;

ALZET Comments: Dose (10 μg/mouse/day); Controls received mp w/ vehicle; animal info (8-week-old 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; **Strain:** FVBN; Mdr2KO; **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 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; **Strain:** Wistar; **Pump:** 2002; **Duration:** 28 days;

ALZET Comments: Dose Leptin (0.62 μg/h); Controls received mp w/ vehicle; animal info (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; **Strain:** T1D WT; T1D KO; **Pump:** 1002; **Duration:** 10 days;

ALZET Comments: Dose: (0.25 mg/day) Controls received mp w/ vehicle; animal info: 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. Clafin, *et al.* Pharmacological FGF21 signals to glutamatergic neurons to enhance leptin action and lower body weight during obesity. *Molecular Metabolism* 2022;64(10):1564

Agents: Fibroblast growth factor 21; Leptin; Leptin antagonist **Vehicle:** Not Stated; **Route:** SC; CSF/CNS; **Species:** Mice; **Strain:** DIO Wild-type; **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: mice: 16-18-week-old WT; 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; **Strain:** Not Stated; **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; **Strain:** Not Stated; **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; **Strain:** wild-type ,C57BL/6J; **Pump:** 1002; **Duration:** 14 days;

ALZET Comments: Dose: (20 ug/day); Controls received mp w/ vehicle; animal info: 12-13 weeks of age Male); 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; **Strain:** Wistar; **Pump:** 2ML1; **Duration:** Not Stated;

ALZET Comments: Dose: (0.33 ug/ul); Controls received mp w/ vehicle; animal info: male 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; **Strain:** Sprague-Dawley; **Pump:** 2ML1; **Duration:** 5 d

ALZET Comments: Dose (1 ug/kg/min); Controls received mp w/ vehicle; animal info (Timed-pregnant SAS 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 (intracerebroventricular); **Species:** Rat; **Strain:** Sprague-Dawley; **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 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 and Comparative Physiology* 2021;320(2):R173-R181

Agents: Leptin **Vehicle:** Not Stated; **Route:** IP; **Species:** Rat; **Strain:** Sprague-Dawley; **Pump:** 2001; **Duration:** 7 days;

ALZET Comments: Dose (0.62 ug/h); animal info (male and female 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; **Strain:** Wistar; **Pump:** Not Stated; **Duration:** 14 days;

ALZET Comments: Dose: (0.2 mg/kg/day); Controls received mp w/ vehicle; Animal info: Adult male rats (250 +-10 g)



Q10362: V. Barrios, *et al.* Opposite Effects of Chronic Central Leptin Infusion on Activation of Insulin Signaling Pathways in Adipose Tissue and Liver Are Related to Changes in the Inflammatory Environment. *Biomolecules* 2021;11(11):

Agents: Leptin **Vehicle:** Saline; BSA; **Route:** CSF/CNS (right cerebral ventricle); **Species:** Rat; **Strain:** Not Stated; **Pump:** Not Stated; **Duration:** 14 days;

ALZET Comments: Dose (12 ug/day); animal info (Male; 15 total; Around 250 g); Brain coordinates (-0.3 mm anteroposterior; 1.1 mm lateral from Bregma);

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; **Strain:** Not Stated; **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; **Strain:** C57BL/6J; Sirt6 loxP/loxP; Pomc-Cre; **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; **Strain:** C57BL/6J; **Pump:** 1007D; **Duration:** 7 days;

ALZET Comments: Dose (1 ug/day); 0.9% Saline used; Controls received mp w/ vehicle; animal info (Male,); 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; **Strain:** LRP1; **Pump:** Not Stated; **Duration:** 9 days;

ALZET Comments: Dose (0.5 mg/kg/day); Controls received mp w/ vehicle; animal info (male 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; **Strain:** Sprague-Dawley; **Pump:** 2001; **Duration:** 14 days;

ALZET Comments: Dose (1.29 mg/ml); Controls received mp w/ vehicle; animal info (Male rats (130–190 g)); dependence;

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; **Strain:** C57BL/6; **Pump:** 1007D; **Duration:** 7 days;

ALZET Comments: Dose (0.3 mg/kg/day); Controls received mp w/ vehicle; animal info (, 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 Comparative Physiology* 2019;316(4):R338-R351

Agents: Leptin **Vehicle:** Saline; **Route:** IP; **Species:** Mice; **Strain:** Not Stated; **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; **Strain:** Not Stated; **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; **Strain:** C57BL/6J; **Pump:** Not Stated; **Duration:** 3 days;
ALZET Comments: Dose (5 mg/mL); 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; **Strain:** Sprague-Dawley; **Pump:** 1002; **Duration:** 14 days;
ALZET Comments: Dose (0.9 ug/day); Controls received mp w/ vehicle; animal info (Male, , 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; **Strain:** Not Stated; **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; **Strain:** Not Stated; **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; **Strain:** Sprague-Dawley; **Pump:** 1004; **Duration:** 14 days;
ALZET Comments: Dose (5, 10 ng/day); 0.9% saline used; animal info (Male, , 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; **Strain:** Sprague Dawley;
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,); 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; **Strain:** C57BL/6; **Pump:** 2006; **Duration:** 6 weeks;
ALZET Comments: Dose (0.3 mg/kg/day); Controls received mp w/ vehicle; animal info (, 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; **Strain:** C57BL/J6 Lep(ob)/Lep(ob); **Pump:** Not stated; **Duration:** 14 d
ALZET Comments: Dose (0.5 µg/h); Controls received mp w/ vehicle; animal info (12 weeks, female,); 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; **Strain:** Not Stated; **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; **Strain:** C57BL6/J WT; ob/ob; **Pump:** Not Stated; **Duration:** 6 weeks; **ALZET Comments:** Dose (10µg/day); Controls received mp w/ vehicle; animal info (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; **Strain:** Agrp-IRES-cre; Agrp-IRES-cre::LSL-Cas9-GFP; **Pump:** 1007D; **Duration:** 7 days;

ALZET Comments: Dose (454 ng/µl); Controls received mp w/ vehicle; animal info (4-8 weeks,); 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, mouse recombinant **Vehicle:** Saline, buffered; **Route:** SC; **Species:** Mice; **Strain:** C57BL/6J(Lep ob/ob); **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); 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; **Strain:** ob/ob; **Pump:** 1002; **Duration:** 2 weeks; **ALZET Comments:** Dose (6 ug/day); animal info (6 weeks old,); 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; **Strain:** Not Stated; **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; **Strain:** LepRbCCK KO; **Pump:** Not stated; **Duration:** Not stated;

ALZET Comments: Dose (1 ug/day); animal info (Male,); 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; **Strain:** THY-Tau22; APP/PS1; AMP8; **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 mice; 5 month old mice; 6 month old 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 **Strain:** Wistar **Pump:** Not stated; **Duration:** 7d
ALZET Comments: Dose (0.2 ug/day); Controls received mp w/ vehicle; animal info (3 or 7 month old, Male,); 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; **Strain:** C57BL/6; **Pump:** Not stated; **Duration:** 4 weeks;
ALZET Comments: Dose (1 ug/g/day); Controls received mp w/ vehicle; animal info (, 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; **Strain:** C57BL/6J; **Pump:** 1004; **Duration:** 4 weeks;
ALZET Comments: animal info (Male, 7 weeks old,); 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; **Strain:** Wistar; **Pump:** 2ML1; **Duration:** 7 days;
ALZET Comments: Dose (10 uL/hr); Controls received mp w/ vehicle; animal info (Male 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; **Strain:** C57BL/6JRj; **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 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. *Molecular and Cellular Endocrinology* 2018;470(48-59)

Agents: Leptin **Vehicle:** Saline; **Route:** CSF/CNS (right cerebral ventricle); **Species:** Rat; **Strain:** Wistar; **Pump:** Not Stated; **Duration:** 14 days;
ALZET Comments: Dose (12 ug/day); Controls received mp w/ vehicle; animal info (Male 240-260 g); Brain coordinates (0.3 mm anteroposterior, 1.1 mm lateral from Bregma); dependence;