



**Recent References (2016-2019) on Extended Duration Studies
Using ALZET® Osmotic Pumps**

Q6882: J. C. B. Ferreira, *et al.* A selective inhibitor of mitofusin 1-betaIIPKC association improves heart failure outcome in rats. *Nat Commun* 2019;10(1):329

ALZET Comments: β IIV5-3; TAT47–57- β IIV5-3 peptide; TAT47–57-SAM β A peptide; TAT47–57-carrier peptide; SC; Rat; 6 weeks; Dose (3 mg/kg/day); animal info (Heart failure induced male rats, aged 16-22 weeks); pumps replaced every 2 weeks; enzyme inhibitor (global β IIPKC; Mfn1- β IIPKC inhibitor); peptides; cardiovascular; Therapeutic indication (heart failure);.

Q6879: B. Badzyska, *et al.* Evidence against a crucial role of renal medullary perfusion in blood pressure control of hypertensive rats. *J Physiol* 2019;597(1):211-223

ALZET Comments: Angiotensin II; bradykinin; Saline; SC; kidney (left renal medulla); Rat; 2002; 14 days; 28 days; Dose (Angiotensin II (35 μ g/kg/d), bradykinin (0.27 mg/kg/hr; animal info (S-D rats (n = 16), aged 12 weeks, weighing 280–340 g); pumps replaced every 2 weeks; ALZET microcannula set used; cardiovascular; “Extending bradykinin-induced medullary vasodilatation over 2weeks was evenmore challenging:we found that this can indeed be accomplished by chronic intramedullary infusion of Bk using implanted osmotic minipumps.” P.219.

Q7161: X. Yu, *et al.* Zinc Metallochaperones Reactivate Mutant p53 Using an ON/OFF Switch Mechanism: A New Paradigm in Cancer Therapeutics. *Clin Cancer Res* 2018;24(18):4505-4517

ALZET Comments: Zinc metallochaperone 1; DMSO; IV (jugular); Mice (nude); 2001; 7, 17 days; Dose (1 mg/kg/d); Controls received mp w/ vehicle; animal info (8-12 week old mice); pumps replaced after 1 week; comparison of IV bolus injection vs continuous pump infusion; half-life: <30 min (p. 4505); cancer (therapeutics);.

Q7043: J. Yang, *et al.* Inhibition of the CD36 receptor reduces visceral fat accumulation and improves insulin resistance in obese mice carrying the BDNF-Val66Met variant. *J Biol Chem* 2018;293(34):13338-13348

ALZET Comments: Salvianolic acid B, neutralized; Saline; SC; Mice; 2004; 8 weeks; Dose (50 mg/kg/day); Controls received mp w/ vehicle; pumps replaced every 4 weeks; 4-week stability verified at 37 degree at pH 7.0 (Fig. 1C); salvianolic acid B is a polyphenol compound extracted from the roots of *Salvia miltiorrhiza* Bunge. It is also a CD36 antagonist; Obesity;.

Q7269: A. Vujic, *et al.* Exercise induces new cardiomyocyte generation in the adult mammalian heart. *Nat Commun* 2018;9(1):1659

ALZET Comments: Thymidine, 15-; Radio-isotope; 15N tracer; SC; Mice; Pump model not stated; 8 weeks; Dose (20 ug/h); animal info (2 months old, C57Bl/6, male); pumps replaced weekly for 8 weeks; cardiovascular;.

Q7245: M. Tsoli, *et al.* Dual targeting of mitochondrial function and mTOR pathway as a therapeutic strategy for diffuse intrinsic pontine glioma. *Oncotarget* 2018;9(7541-7556

ALZET Comments: Temsirolimus; Phenylarsonous acid, 4-(N-(S-penicillaminylacetyl)-amino); Saline; SC, IP; Mice; 2002; 4 weeks; Dose (PEMAO-3 mg/kg/day, Temsirolimus-10 mg/kg/day and 5 mg/kg/day); Controls received mp w/ vehicle; animal info (5 week-old, female, NOD/SCID); pumps replaced every 2 weeks; 4-(N-(S-penicillaminylacetyl)-amino)phenylarsonous acid aka Anti-cancer compound (PENAO); enzyme inhibitor (PENAO Inhibits adenine nucleotide translocase, Temsirolimus inhibits mTOR; cancer (Glioma););.

Q7154: S. R. Subramaniam, *et al.* Chronic nicotine improves cognitive and social impairment in mice overexpressing wild type alpha-synuclein. *Neurobiol Dis* 2018;117(170-180

ALZET Comments: Nicotine; Saline; SC; Mice; 2004; 1 or 6 months; Dose (0.4 mg/kg/h and 2.0 mg/kg/h); dose-response (); dose-response (); pumps replaced every 4 weeks; long-term study; stress/adverse reaction: Mice treated with the higher nicotine dose (2.0 mg/kg/h) lost weight after surgery and 50% died after one week. This was as a result of combined toxic effects of isoflurane and a higher dose of nicotine. Therefore, pentobarbital was used instead of isoflurane for induction of anesthesia, which reduced the mortality rate and improved weight gain in the higher dose group. (see pg. 172);.

Q7047: M. Shi, *et al.* Cisplatin nephrotoxicity as a model of chronic kidney disease. *Lab Invest* 2018;98(8):1105-1121



ALZET Comments: α Klotho protein, recomb.; Saline; SC; Mice; 1004; 20 weeks; Dose (0.3 mg/kg/month); Controls received mp w/ vehicle; pumps replaced every 4 weeks; long-term study; Therapeutic indication (Acute kidney injury);.

Q6895: Y. Sato, *et al.* Inhibitory effects of vasostatin-1 against atherogenesis. *Clin Sci (Lond)* 2018;132(23):2493-2507

ALZET Comments: Vasostatin-1; SC; Mice (knockout); 1002; 4 weeks; Dose (0, 45, 90 ng/kg/min); animal info (male spontaneously hyperlipidemic ApoE^{-/-} mice); pumps replaced every 2 weeks; cardiovascular;.

Q6894: K. Sato, *et al.* Anti-Atherogenic Effects of Vaspin on Human Aortic Smooth Muscle Cell/Macrophage Responses and Hyperlipidemic Mouse Plaque Phenotype. *Int J Mol Sci* 2018;19(6):

ALZET Comments: Vaspin; SC; Mice; 1002; 4 weeks; Dose (0, 50, 100 ug/mouse); pumps replaced every 2 weeks; cardiovascular;.

Q7053: K. R. Qurania, *et al.* Systemic inhibition of Janus kinase induces browning of white adipose tissue and ameliorates obesity-related metabolic disorders. *Biochem Biophys Res Commun* 2018;502(1):123-128

ALZET Comments: Tofacitinib; Saline; SC; Mice; 10 weeks; Dose (100 ug/day); Controls received mp w/ vehicle; animal info (C57BL6 mice); pumps replaced every 35 days; long-term study; tofacitinib is a JAK3 inhibitor; enzyme inhibitor (JAK3).

Q7249: L. Nusrat, *et al.* Cyclosporin A-Mediated Activation of Endogenous Neural Precursor Cells Promotes Cognitive Recovery in a Mouse Model of Stroke. *Front Aging Neurosci* 2018;10(93)

ALZET Comments: Cyclosporin A; Ethanol, Cremaphor; SC; Mice; 10.3389/fnagi.2018.00093; Dose (15 mg/kg/day); Dose (15 mg/kg/day); animal info (adult male C57BL/6 mice 6–8 weeks of age; 20–25 g); pumps replaced; ischemia (cerebral);.

Q7198: O. Le, *et al.* INK4a/ARF Expression Impairs Neurogenesis in the Brain of Irradiated Mice. *Stem Cell Reports* 2018;10(6):1721-1733

ALZET Comments: Porphyrin-based superoxide dismutase mimetic (MnHex); SC; Mice; 1004; 8 weeks; Dose (450 ug/kg/day); pumps replaced every 4 weeks; Porphyrin-based potent superoxide dismutase mimetic aka (Mn(III) meso-tetrakis-(n-hexylpyridinium-2-yl) porphyrin (MnTnHex-2-PyP5+); neurodegenerative (ionizing radiation);.

Q7079: B. Kuhn, *et al.* Anti-inflammatory nitro-fatty acids suppress tumor growth by triggering mitochondrial dysfunction and activation of the intrinsic apoptotic pathway in colorectal cancer cells. *Biochem Pharmacol* 2018;155(48-60)

ALZET Comments: Nitrooleate, 9-; PEG 400, ethanol; SC; Mice (SCID); 2001; 5 days; Dose (16 mg/kg/day); 10% ethanol and 90% PEG400 used; animal info (5–6 week old SCID mice); pumps replaced after 7 days; 9-NOA is a Nitro-fatty acids; cancer (colorectal); “we have chosen a continuous application of NFAs via ALZET® osmotic pumps giving the advantage of a reduction of interindividual variations in mice due to a diverse oral chow consumption behavior and therefore kept the number of animals needed as low as possible.” pg. 57; Due to poor solubility of 9-NOA and limited pump size in consequence of the weight of the mice, pumps were surgically removed and replaced with new ones on day 8 of the experiment;.

Q7010: O. S. Kornfeld, *et al.* Interaction of mitochondrial fission factor with dynamin related protein 1 governs physiological mitochondrial function in vivo. *Sci Rep* 2018;8(1):14034

ALZET Comments: P259-TAT; TAT control peptide; SC; Mice; 8 weeks; 12 weeks; Dose (3 mg/Kg/day); Controls received mp w/ vehicle; animal info (5-week old R6/2 HD and wild-type mice); pumps replaced every 4 weeks; long-term study;.

Q7189: A. U. Joshi, *et al.* Inhibition of Drp1/Fis1 interaction slows progression of amyotrophic lateral sclerosis. *EMBO Mol Med* 2018;10(3):

ALZET Comments: P110-TAT (47-57); SC; Mice; 28 day pump; 60 days; Dose (3 mg/kg/day); animal info (4–6 weeks old AdultB6SJL Tg (SOD1G93A) 1 Gur/J male mice); behavioral testing (Activity chamber); pumps replaced after 30 days; long-term study; P110 is a selective peptide inhibitor of Drp1/Fis1; neurodegenerative (amyotrophic lateral sclerosis); neurodegenerative (amyotrophic lateral sclerosis); stress/adverse reaction: (see pg. 14); .

Q7185: S. E. Iismaa, *et al.* Cardiac hypertrophy limits infarct expansion after myocardial infarction in mice. *Sci Rep* 2018;8(1):6114



ALZET Comments: Uridine, 5-bromo-2'-deoxy; DMSO, Water; SC; Mice; 2002, 2006; 9 days and 12 weeks; Dose (10 mg/kg/day); 50% DMSO/water used; animal info (16 weeks old male mice); post op. care (bupivacaine, 8 mg/kg, buprenorphine, 0.075 mg/kg); Model 2006 pumps replaced after 6 weeks; long-term study; 5-bromo-2'-deoxyuridine aka BrdU; cardiovascular; .

Q7183: P. Huehnchen, *et al.* Fingolimod therapy is not effective in a mouse model of spontaneous autoimmune peripheral polyneuropathy. *Sci Rep* 2018;8(1):5648

ALZET Comments: Fingolimod; Saline; IP; Mice; 1004; 8 weeks; Dose (1 mg/kg/day); Controls received mp w/ vehicle; animal info (CD86-/- non-obese diabetic (NOD) mice); pumps replaced every 4 weeks; long-term study; Fingolimod is a sphingosine-1-phosphate analogue; neurodegenerative (autoimmune polyneuropathy); stress/adverse reaction: (see pg. 2);

Q7179: Y. Henning, *et al.* Retinal S-opsin dominance in Ansell's mole-rats (*Fukomys anelli*) is a consequence of naturally low serum thyroxine. *Sci Rep* 2018;8(1):4337

ALZET Comments: Thyroxine, 3,5,3'-triiodothyronine; NaOH, propylenglycol, PBS SC; Rat (mole); 2006; 12 weeks; Dose (90 ng/g of T4, 2 ng/g of T3); 15 mM NaOH, 50% propylenglycol and PBS containing 5% BSA used; Controls received mp w/ vehicle; animal info (Ansell's mole rats, mean age 2.6 ± 0.92 years); post op. care (Carprofen, 5 mg/kg for at least 3 days; animals were isolated for 24–48 h for recovery then housed as family group); pumps replaced every 6 weeks; long-term study; "Osmotic pumps deliver the test agents with a constant flow rate, thus being well-suited for long-term hormone treatments" pg. 9 ; .

Q6089: Y. Henning, *et al.* Retinal S-opsin dominance in Ansell's mole-rats (*Fukomys anelli*) is a consequence of naturally low serum thyroxine. *Sci Rep* 2018;8(1):4337

ALZET Comments: Thyroxine; Triiodothyronine, 3,5,3'-; Propylene glycol, NaOH, BSA; SC; Rat (mole); 2006; 12 weeks; Dose (T4 at 90 ng/g; T3 at 2 ng/g); Vehicle solution (15 mM NaOH, 50% propylenglycol and PBS containing 5% BSA); Controls received mp w/ vehicle; animal info (Ansell's mole-rats with mean age of 2.6 ± 0.92 years); post op. care (Carprofen, 5 mg/kg for at least 3 days; animals were isolated for 24–48 h for recovery then housed as family groups); pumps replaced every 6 weeks; long-term study (12 weeks); "Osmotic pumps deliver the test agents with a constant flow rate, thus being well-suited for long-term hormone treatments. Constant administration further overcomes the short half-life of THs in rodents" pg. 9;.

Q7139: Y. Gao, *et al.* The histone methyltransferase DOT1L inhibits osteoclastogenesis and protects against osteoporosis. *Cell Death Dis* 2018;9(2):33

ALZET Comments: EPZ5676; DMSO, Water; SC; Mouse; 2006, 2002; 8 weeks; Dose (1.6 mg/d); 50% DMSO used; Controls received mp w/ vehicle; animal info (Eight-week-old, female, FVB/N); Model 2006 pumps replaced with Model 2002 after six weeks; long-term study; EPZ5676 aka small molecule inhibitor; gene therapy;.

Q5587: Y. Fang, *et al.* The adhesion and migration of microglia to beta-amyloid (A β) is decreased with aging and inhibited by Nogo/NgR pathway. *J Neuroinflammation* 2018;15(1):210

ALZET Comments: NEP1-40; PBS, DMSO; CSF/CNS (lateral ventricle); Mice (transgenic); 2004; 2 months; Dose (500 μ M); Dose (500 μ M); 2.5% DMSO used; animal info (6 month old APP/PS1 transgenic mice); pumps replaced after 28 days; NEP1-40 is a competitive antagonist of Nogo/NgR pathway; ALZET brain infusion kit 2 used; neurodegenerative (Alzheimer's);.

Q6032: Y. Fang, *et al.* The adhesion and migration of microglia to beta-amyloid (A β) is decreased with aging and inhibited by Nogo/NgR pathway. *J Neuroinflammation* 2018;15(1):210

ALZET Comments: NEP1-40 peptide; PBS, DMSO; CSF/CNS (right lateral ventricle); Mice; 2004; 2 months; 2.5% DMSO used; Controls received mp w/ vehicle; animal info (6-month-old male C57BL/6J and APP/PS1 mice); pumps replaced every 4 weeks; ALZET brain infusion kit II used; Brain coordinates (0.6 mm posterior and 1.2 mm lateral to bregma and 2.0 mm deep to the pial surface);.



Q7124: M. Cusimano, *et al.* Selective killing of spinal cord neural stem cells impairs locomotor recovery in a mouse model of spinal cord injury. *J Neuroinflammation* 2018;15(1):58

ALZET Comments: Ganciclovir; Water; SC; Mice; 2002; 28 days; Dose (100 mg/kg/day); animal info (NestinTK); pumps replaced every 2 weeks; neurodegenerative (Spinal Chord); .

Q7103: A. Calevro, *et al.* Effects of chronic antipsychotic drug exposure on the expression of Translocator Protein and inflammatory markers in rat adipose tissue. *Psychoneuroendocrinology* 2018;95(28-33

ALZET Comments: Haloperidol, olanzapine; Cyclodextrin, 2-Hydroxypropyl-B-; SC; Rat; 2ML4; 8 weeks; Dose (Haloperidol-2mg/ kg/ day, Olanzapine-10 mg/kg/ day); Controls received mp w/ vehicle; animal info (10-week old, male, Sprague-Dawley, 240–250 g); pumps replaced every 4 weeks; long-term study; dependence;.

Q7101: M. W. Burke, *et al.* Perinatal MAO Inhibition Produces Long-Lasting Impairment of Serotonin Function in Offspring. *Brain Sci* 2018;8(6):

ALZET Comments: Clorgyline, deprenyl, L-; Saline; SC; Mice (pregnant); 1002, 2004; 6 weeks; Dose (0.25 mg/kg/day-deprenyl, 1 mg/kg/day-clorgyline, or both); 0.9% saline used; Controls received mp w/ vehicle; animal info (Male, MAO-A/B knockout); behavioral testing (Locomotor test); Model 1002 pumps replaced with Model 2004 pumps on E17; MOA aka Monoamine oxidase; enzyme inhibitor (clorgyline, L-deprenyl); dependence;.

Q6330: J. Zhang, *et al.* Enhanced hemodynamic responses to angiotensin II in diabetes are associated with increased expression and activity of AT1 receptors in the afferent arteriole. *Physiol Genomics* 2017;49(10):531-540

ALZET Comments: Angiotensin II; Saline; SC; Mice; 1002; 14 days; Dose (600 ng•kg-1•min-1); animal info (Male 13–15 week-old C57BL/6 mice); pumps replaced every 2 weeks;.

Q5722: J. Zhang, *et al.* Targeted inhibition of Focal Adhesion Kinase Attenuates Cardiac Fibrosis and Preserves Heart Function in Adverse Cardiac Remodeling. *Sci Rep* 2017;7(43146

ALZET Comments: PF-573228; DMSO; PEG 300; SC; Mice; 2002; Controls received mp w/ vehicle; animal info (male, CD1, 6-8 weeks old); pumps replaced every 2 weeks; 50% DMSO used; 50% PEG 300 used; stress/adverse reaction: one mouse in the MI treated with PF group died of sudden death during pump implantation (see pg. 5); cardiovascular; Pumps primed in 37C saline overnight; used sutures; Dose (20 mg/kg);.

Q6546: Xiang Yan, *et al.* YM155 Down-Regulates Survivin and Induces P53 Up-Regulated Modulator of Apoptosis (PUMA)-Dependent in Oral Squamous Cell Carcinoma Cells. *Medical Science Monitor* 2017;23(1963-1972

ALZET Comments: YM155; Saline; Mice (nude); 1003D; 2 weeks; Dose (50 mg/kg); Controls received mp w/ vehicle; animal info (4- to 6-week-old severe combined immunodeficient female mice); pumps replaced every week; cancer (SCC9 tumors);.

Q5917: D. J. Wilkinson, *et al.* Matriptase Induction of Metalloproteinase-Dependent Aggrecanolytic In Vitro and In Vivo: Promotion of Osteoarthritic Cartilage Damage by Multiple Mechanisms. *Arthritis Rheumatol* 2017;69(8):1601-1611

ALZET Comments: Antibody A11; compound 59; Saline; IP, SC; Mice; 1004, 2004; 4 weeks, 8 weeks; Controls received mp w/ vehicle; animal info (male, C57BL6J, 25-30g); pumps replaced every 4 weeks; Dose (Antibody: 1.5 ug/day; Compound 59: 5, 25, or 50 mg/kg/day);.

Q5912: X. Wang, *et al.* Generation and phenotypic characterization of Pde1a mutant mice. *PLoS One* 2017;12(7):e0181087

ALZET Comments: Desmopressin; Saline; SC; Mice; 1004; cardiovascular; Dose (30 ng/100g/hr); Dose (30 ng/100g/hr); pumps replaced every 3 weeks;.

Q6532: K. Wang, *et al.* T140 blocks the SDF-1/CXCR4 signaling pathway and prevents cartilage degeneration in an osteoarthritis disease model. *PLoS One* 2017;12(4):e0176048

ALZET Comments: T140; PBS; SC; Guinea pig; 2006; Dose (180 ug/d); Controls received mp w/ vehicle; animal info (9 month old male Hartley guinea pigs weighing about 600g); pumps replaced every 6 weeks; Therapeutic indication (osteoarthritis);.



Q6517: S. Tolu, *et al.* Nicotine enhances alcohol intake and dopaminergic responses through beta2* and beta4* nicotinic acetylcholine receptors. *Sci Rep* 2017;7(45116)

ALZET Comments: Nicotine; Saline; SC; Mice (knockout); 2004; 26 days; Dose (10 mg/kg/d); 0.9% saline used; Controls received mp w/ vehicle; animal info (8–16 week old male C57BL/6J wild-type, $\beta 2^{-/-}$ 18 and $\beta 4^{-/-}$ mice); pumps replaced every 4 weeks; Resultant plasma level (10 to 50 ng/ml); dependence;

Q5692: H. Z. Toklu, *et al.* Intracerebroventricular tempol administration in older rats reduces oxidative stress in the hypothalamus but does not change STAT3 signalling or SIRT1/AMPK pathway. *Appl Physiol Nutr Metab* 2017;42(1):59-67

ALZET Comments: Tempol; CSF, artificial; CSF/CNS; Rat; 3 weeks; Controls received mp w/ vehicle; animal info (male, Fischer 344 x Brown Norway, 3 months or 23 months old); functionality of mp verified by ; Vehicle pumps replaced after one week; Dose (300 ug/h);

Q6186: E. Tarasco, *et al.* Effect of AP102, a subtype 2 and 5 specific somatostatin analog, on glucose metabolism in rats. *Endocrine* 2017;58(1):124-133

ALZET Comments: AP102, Pasireotide; Saline; SC; Rat; 2ML2; 4 weeks; Dose: AP102 (3 or 10 μ g/kg/h); pasireotide (3 or 10 μ g/kg/h); Controls received mp w/ vehicle; animal info (male Sprague-Dawley rats); post op. care: antibiotic (Enrofloxacin; 5.7 mg/kg), and analgesics (Flunixin; 1 mg/kg s.c.); pumps replaced every 2 weeks; 13-days stability verified by pump incubation at 37 degrees and liquid chromatography-mass spectrometry analysis; AP102 is a subtype 2 and 5 specific somatostatin analog;

Q5956: J. Tam, *et al.* Peripheral cannabinoid-1 receptor blockade restores hypothalamic leptin signaling. *Mol Metab* 2017;6(10):1113-1125

ALZET Comments: Leptin; SHU-9119; PBS; SC; CSF/CNS; Mice; 2004; 12 weeks, 7 days; 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.

Q6183: M. Sudo, *et al.* Inhibition of plaque progression and promotion of plaque stability by glucagon-like peptide-1 receptor agonist: Serial in vivo findings from iMap-IVUS in Watanabe heritable hyperlipidemic rabbits. *Atherosclerosis* 2017;265(283-291)

ALZET Comments: Lixisenatide; Saline; SC; Rabbits; 2ML4; 12 weeks; Dose (30 nmol/kg/day); Controls received mp w/ vehicle; animal info (Watanabe heritable hyperlipidemic); pumps replaced every 4 weeks; long-term study (12 weeks); Lixisenatide is a GLP-1 receptor agonist;

Q5742: M. P. Serrano, *et al.* The proof-of-concept of ASS234: Peripherally administered ASS234 enters the central nervous system and reduces pathology in a male mouse model of Alzheimer disease. *J Psychiatry Neurosci* 2017;42(1):59-69

ALZET Comments: ASS234; PBS, DMSO; SC; Mice (transgenic); 2004; 4 months; Controls received mp w/ vehicle; animal info (10 weeks old, APP^{swe}/PS1 Δ E9); long-term study; pumps replaced every 28 days for 4 months; 3.6% DMSO ; neurodegenerative (Alzheimer's disease); behavioral testing (Object recognition task); enzyme inhibitor (AChE/MAO inhibitor); Therapeutic indication (Alzheimer's disease, AD); Dose (0.62 mg/kg/day);

Q5977: E. L. Schneider, *et al.* A Hydrogel-Microsphere Drug Delivery System That Supports Once-Monthly Administration of a GLP-1 Receptor Agonist. *ACS Chem Biol* 2017;12(8):2107-2116

ALZET Comments: exenatide; Sodium acetate; SC; Rat; 4 weeks; Controls received mp w/ vehicle; pumps replaced every 4 weeks; Dose (0.2 ug/mL);

Q5882: L. Pasetto, *et al.* Targeting Extracellular Cyclophilin A Reduces Neuroinflammation and Extends Survival in a Mouse Model of Amyotrophic Lateral Sclerosis. *J Neurosci* 2017;37(6):1413-1427

ALZET Comments: MM218 Inhibitor; PBS; CSF/CNS; Mice; 2004; 56 days; Controls received mp w/ vehicle; animal info (SOD1 mice; 98 days old); pumps replaced after 28 days; ALZET brain infusion kit 3 used; post op. care (0.15 mg/kg buprenorphine as analgesic immediately before and 12 h after the surgery); behavioral testing (Rotarod test); "MM218



does not pass the blood–brain barrier (BBB), so the drug was administered intracerebroventricularly by continuous infusion using minipumps” p. 1421; MM218 is a specific inhibitor of extracellular PPIA ; Therapeutic indication (Amyotrophic Lateral Sclerosis); Dose (1 or 10 uM);.

Q6708: Y. J. Oh, *et al.* Role of tissue transglutaminase in age-associated ventricular stiffness. *Amino Acids* 2017;49(3):695-704

ALZET Comments: Cystamine; Saline; Mice; 2ML4; 12 weeks; Dose (60 mg/kg/day); animal info (Male Fisher 344 rats aged 6 and 18 months); pumps replaced every 4 weeks; long-term study; enzyme inhibitor (transglutaminase);.

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

ALZET Comments: Leptin; SC; Mice; 24 weeks; 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;.

Q6351: C. S. Moran, *et al.* Resveratrol Inhibits Growth of Experimental Abdominal Aortic Aneurysm Associated With Upregulation of Angiotensin-Converting Enzyme 2. *Arterioscler Thromb Vasc Biol* 2017;37(11):2195-2203

ALZET Comments: Angiotensin II; SC; Mice (knockout); 8 weeks; Dose (1 µg/kg/min); animal info (high-fat chow (HFC)-fed ApoE–/–mice); pumps replaced every 4 weeks; cardiovascular;.

Q6496: Mariya T. Sweetwyne, *et al.* The mitochondrial-targeted peptide, SS-31, improves glomerular architecture in mice of advanced age. *Kidney International* 2017;9(5):1126-1145

ALZET Comments: SS-31; Saline; SC; Mice; 1004; 2-8 weeks; Dose (3 mg/kg/day); Controls received mp w/ vehicle; animal info (24 month old mice); pumps replaced every 4 weeks; peptides; Therapeutic indication (glomerulosclerosis);.

Q6363: J. Lukas, *et al.* Glucosylsphingosine Causes Hematological and Visceral Changes in Mice—Evidence for a Pathophysiological Role in Gaucher Disease. *Int J Mol Sci* 2017;18(10):

ALZET Comments: Glucosylsphingosine; DMSO; Propylene glycol; SC; Mice; 1004; 12 weeks; Dose (10 mg/kg/day); 50% DMSO:50% propylene glycol used; Controls received mp w/ vehicle; animal info (Male C57BL/6JRj mice); functionality of mp verified by plasma levels; pumps replaced every 4 weeks; long-term study (12 weeks); Resultant plasma level (between 700 and 900 ng/mL); no stress: The pumps were well tolerated and no mortalities were observed (see pg. 11); good methods (p.10); Lyso-Gb1 levels were strongly elevated after four, eight and 12 weeks (levels ranging between 700 and 900 ng/mL). This represented a >500-fold increase compared with vehicle-treated mice.

Q6071: H. W. Lei, *et al.* Neuropsychiatric involvement in lupus is associated with the Nogo-a/NgR1 pathway. *J Neuroimmunol* 2017;311(22-28)

ALZET Comments: NEP1-40; PBS, DMSO; CSF/CNS (right lateral ventricle); Mice; 2004; 8 weeks; Dose (500 µM); 2.5% DMSO used; Controls received mp w/ vehicle; animal info (Female MRL/lpr); behavioral testing (Morris water maze); pumps replaced after 28 days and connected to the same cannula; NEP1-40 aka Nogo-66(1-40) antagonist peptide; ALZET brain infusion kit II used; Brain coordinates (0.6 mm posterior and 1.2 mm lateral to bregma and 2.0 mm under the pial surface);.

Q6145: S. P. H. Lambooy, *et al.* The Novel Compound Sul-121 Preserves Endothelial Function and Inhibits Progression of Kidney Damage in Type 2 Diabetes Mellitus in Mice. *Sci Rep* 2017;7(1):11165

ALZET Comments: Sul-121; DMSO; SC; Mice; 2004; 8 weeks; Dose (2.2 mg/kg/day); 50% DMSO used; Controls received mp w/ vehicle; animal info (male db/db and lean controls); pumps replaced every 4 weeks; Resultant plasma level (p.2); diabetes;.

Q5324: H. Kushima, *et al.* The role of endothelial nitric oxide in the anti-restenotic effects of liraglutide in a mouse model of restenosis. *Cardiovasc Diabetol* 2017;16(1):122

ALZET Comments: Liraglutide; SC; Mice; 1002; 28 days; Dose (17 nmol/kg/day); animal info (Seven-week-old male C57BL6J (wildtype) and db/db mice); pumps replaced every 2 weeks;.



- Q5674:** J. Y. Kim, *et al.* PDI regulates seizure activity via NMDA receptor redox in rats. *Sci Rep* 2017;7(42491)
ALZET Comments: RNA, small interfering (PDI; DTNB); bacitracin; Immunoglobulin, anti-PDI; tunicamycin ;; CSF/CNS; Rat; 1007D; 7 days, 14 days; Controls received mp w/ vehicle or control siRNA or control IgG; animal info (male, Sprague Dawley, 7 weeks old); pumps replaced every week; ALZET brain infusion kit 1 used; behavioral testing (behavioral seizure severity); Brain coordinates;
- Q4397:** L. Khrimian, *et al.* Gpr158 mediates osteocalcin's regulation of cognition. *J Exp Med* 2017;214(10):2859-2873
ALZET Comments: Osteocalcin; Saline; SC; Mice; 1002; 1 and 2 months; Dose (30 ng/hr for 12-mo-old and 90 ng/hr for 16-mo-old mice); Controls received mp w/ vehicle; animal info (female 12 and 16 month old mice); pumps replaced every 2 weeks; Resultant plasma level (p.2866); OCN was delivered “peripherally and continuously through minipumps for 2 mo in 14-mo-old WT mice because this hormone crosses the blood–brain barrier... This mode of administration substantially increased circulating OCN levels (Fig. S1 F)”.
- Q5842:** M. Kano. AMH/MIS as a contraceptive that protects the ovarian reserve during chemotherapy. *Proceedings of the National Academy of Sciences* 2017;114(9):E1688-E1697
ALZET Comments: Mullerian inhibiting substance, recombinant human; Saline; IP; Mice; 1007D; 15 days; Controls received mp w/ vehicle animal info (6-7 weeks old) ; functionality of mp verified by rhMIS activity; pumps replaced every 5 or 7 days; cancer; half-life is ~ 4 hours (p. E1689); post op. care (carprofen analgesic (2.5 mg/mL) by oral gavage (100 µL)); stability verified by bioassay (“rhMIS activity was remarkably stable, with the material recovered from pumps that had been implanted in mice for 1 wk conserving full biological activity in the rat urogenital ridge bioassay”); “To test the efficacy of rhMIS protein for the preservation of ovarian reserve, we elected to use osmotic pumps implanted i.p. in C57BL/6N female mice to allow very precise delivery of MIS” pg. E1691; Therapeutic indication (Oncofertility, cancer); Dose (1200 ug/mL);.
- Q6459:** M. C. Hu, *et al.* Recombinant alpha-Klotho may be prophylactic and therapeutic for acute to chronic kidney disease progression and uremic cardiomyopathy. *Kidney Int* 2017;91(5):1104-1114
ALZET Comments: α-Klotho; PBS; IP; Mice; 1004; 3 months; Dose (0.3 mg/kg body weight/month); Controls received mp w/ vehicle; animal info (10-12 week old 129sv mice); pumps replaced every 4 weeks; peptides; Therapeutic indication (chronic kidney disease);.
- Q6465:** J. M. Harder, *et al.* Early immune responses are independent of RGC dysfunction in glaucoma with complement component C3 being protective. *Proc Natl Acad Sci U S A* 2017;114(19):E3839-E3848
ALZET Comments: AG1478; DMSO; SC; Mice (knockout); 2004; 3.5 months; Dose (12 mg/kg/d); Controls received mp w/ vehicle; animal info (D2.C3–/– mice); pumps replaced every 39 days; enzyme inhibitor (EGFR); Lynch coil;
- Q6367:** A. Glode, *et al.* Divergent effects of a designer natriuretic peptide CD-NP in the regulation of adipose tissue and metabolism. *Mol Metab* 2017;6(3):276-287
ALZET Comments: CD-NP; Saline; Mice; 1004; 12 weeks; Dose (0.25 mg/day/kg); Controls received mp w/ vehicle; animal info (5 week-old male Wildtype mice C57BJ/6); pumps replaced every 4 weeks; CD-NP is a designer natriuretic peptide; peptides;
- Q6324:** K. Fujiu, *et al.* A heart-brain-kidney network controls adaptation to cardiac stress through tissue macrophage activation. *Nat Med* 2017;23(5):611-622
ALZET Comments: Antibody, anti-mouse-GM-CSF, Antibody, rat isotype (IgG2a); PBS; SC; Mice; 1007D; 8 weeks; Dose (2.5 µg/d); Controls received mp w/ vehicle; pumps replaced every 4 weeks; long-term study;.
- Q6383:** J. E. Eding, *et al.* The Efficacy of Cardiac Anti-miR-208a Therapy Is Stress Dependent. *Mol Ther* 2017;25(3):694-704
ALZET Comments: Angiotensin II; Saline; SC; Rat; 2004; 8 weeks; Dose (0.25 mg/kg/day); Controls received mp w/ vehicle; animal info (Adult male Sprague-Dawley rats); pumps replaced every 4 weeks; cardiovascular;.



Q6098: M. S. Dai, *et al.* Spontaneous testicular atrophy occurs despite normal spermatogonial proliferation in a Tp53 knockout rat. *Andrology* 2017;5(6):1141-1152

ALZET Comments: Cytidine, Bromodeoxy; PBS; SC; Rat; 2001; 13 days; animal info (60-day-old male p53 knockout rats); pumps replaced after 6 days;.

Q6393: I. Cote, *et al.* Activation of the central melanocortin system chronically reduces body mass without the necessity of long-term caloric restriction. *Can J Physiol Pharmacol* 2017;95(2):206-214

ALZET Comments: Melanotan II; CSF, artificial; CSF/CNS (lateral ventricle); Rat; 54 days; Dose (0.04 µg/day or 1 µg/day); Controls received mp w/ vehicle; animal info (Six-month-old male Fisher 344 × Brown Norway (F344BN) rats); pumps replaced every 2 weeks; Brain coordinates (1.3 mm posterior to bregma, 1.9 mm lateral to the midsagittal suture, and to a depth of 3.5 mm);.

Q6417: F. Bassil, *et al.* Insulin resistance and exendin-4 treatment for multiple system atrophy. *Brain* 2017;140(5):1420-1436

ALZET Comments: Exendin-4; Saline; SC; Mice; 1004; 12 weeks; Dose (3.5 pmol/kg/min or 8.75 pmol/kg/min); 0.9% Saline used; Controls received mp w/ vehicle; animal info (PLP-SYN mice); pumps replaced every 4 weeks; Resultant plasma level (2197.6 + 317.7 pg/ml for 3.5 pmol/kg/min (n = 6) and 2796.3 + 284.9 pg/ml for those receiving 8.5 pmol/kg/min); diabetes;.

Q6425: P. M. Ardestani, *et al.* Modulation of neuroinflammation and pathology in the 5XFAD mouse model of Alzheimer's disease using a biased and selective beta-1 adrenergic receptor partial agonist. *Neuropharmacology* 2017;116(371-386

ALZET Comments: Xamoterol; SC; Mice; 2006; 2.5 months; Dose (3 mg/kg/day); Controls received mp w/ vehicle; animal info (5XFAD male mice); pumps replaced every 6 weeks; neurodegenerative (Alzheimer's disease);.

Q5942: A. Akopian, *et al.* Targeting neuronal gap junctions in mouse retina offers neuroprotection in glaucoma. *J Clin Invest* 2017;127(7):2647-2661

ALZET Comments: meclofenamic acid; SC; Mice; 2004; 8 weeks; animal info (3-4 months); pumps replaced every 4 weeks; comparison of injection vs mp; neurodegenerative (glaucoma); stress/adverse reaction: We found that animals in which subcutaneous minipumps were inserted for MFA delivery had significant problems swimming the water maze, which compromised the ability to assess the visual behavioral tests (page 2659); Therapeutic indication (Glaucoma); Dose ((5, 10, and 20 mg/kg/d));.

Q6314: M. M. Adil, *et al.* Engineered hydrogels increase the post-transplantation survival of encapsulated hESC-derived midbrain dopaminergic neurons. *Biomaterials* 2017;136(1-11

ALZET Comments: Cyclosporine; SC; Rat; Dose (10 mg/kg/day); animal info (adult female Fischer 344 rats); pumps replaced every 2 weeks;.

Q4920: L. Zhao, *et al.* Prenatal nicotinic exposure upregulates pulmonary C-fiber NK1R expression to prolong pulmonary C-fiber-mediated apneic response. *Toxicol Appl Pharmacol* 2016;290(107-15

ALZET Comments: Nicotine; mecamylamine; methyllycaconitine; SC; Rat (pregnant); 2004; 28 days; Controls received mp w/ vehicle; animal info (female, Sprague Dawley, 250-300g); pumps replaced on GD7; Multiple pumps per animal (2); no stress (see pg. 110-111); teratology; Dose (Nicotine 6 mg/kg/day; mecamylamine 0.03 mg/kg/day; methyllycaconitine 3 mg/kg/day);.

Q5113: L. Zhao, *et al.* Bronchopulmonary C-fibers' IL1RI contributes to the prolonged apneic response to intra-atrial injection of capsaicin by prenatal nicotinic exposure in rat pups. *Toxicol Appl Pharmacol* 2016;303(58-64

ALZET Comments: Nicotine; methyllycaconitine; Saline; SC; Rat; 2004; 28 days; Controls received mp w/ vehicle; animal info (female, Sprague Dawley, 250-350g); pumps replaced every 28 days; Multiple pumps per animal (2); long-term study; teratology; MLA is an α7nAChR antagonist; methyllycaconitine aka MLA; Dose (nicotine 6 mg/kg/day; MLA 3 mg/kg/day);.



Q5513: L. Zhao, *et al.* From the Cover: Prenatal Nicotinic Exposure Attenuates Respiratory Chemoreflexes Associated With Downregulation of Tyrosine Hydroxylase and Neurokinin 1 Receptor in Rat Pup Carotid Body. *Toxicol Sci* 2016;153(1):103-11

ALZET Comments: Nicotine; SC; Rat; 2004; 28 days; Controls received mp w/ vehicle; animal info (female, Sprague Dawley, 250-350g); pumps replaced every 21 days; teratology; Dose (6 mg/kg/day);.

Q5103: J. Yang, *et al.* Alteration of RhoA Prenylation Ameliorates Cardiac and Vascular Remodeling in Spontaneously Hypertensive Rats. *Cell Physiol Biochem* 2016;39(1):229-41

ALZET Comments: Alendronate; Saline; SC; Rat; 2004; 12 weeks; Controls received mp w/ vehicle; animal info (male, spontaneously hypertensive rat or Wistar-Kyoto, 6 weeks old); pumps replaced every 4 weeks; long-term study; cardiovascular; enzyme inhibitor (farnesyl pyrophosphate synthase); bp measured using tail cuff; Dose (100 ug/kg/day);.

Q5497: J. Xu, *et al.* Anti-Mullerian hormone promotes pre-antral follicle growth, but inhibits antral follicle maturation and dominant follicle selection in primates. *Hum Reprod* 2016;31(7):1522-30

ALZET Comments: Antibody, anti-Mullerian hormone; PBS; Intraovarian; Monkey (macaque); 2ML2; 4 weeks; animal info (female, hemi-ovariectomized, adult); pumps replaced; Dose (500 ng/h);.

Q5966: P. Weydt. Mechanisms and Modifiers of Energy Metabolism in ALS and Huntington Disease. *Open Access Repositorium der Universität Ulm* 2016;

ALZET Comments: Cannabinol; PEG 400; SC; Mice; 2004; 4 weeks; animal info (SOD 1 transgenic); pumps replaced every 28 days; Therapeutic indication (amyotrophic lateral sclerosis); Dose (5 mg/kg);.

Q5487: D. Wei, *et al.* Inhibiting cortical protein kinase A in spinal cord injured rats enhances efficacy of rehabilitative training. *Exp Neurol* 2016;283(Pt A):365-74

ALZET Comments: Rp-cAMPS; Saline; CSF/CNS (forelimb motor cortex); Rat; 2002; 4 weeks; 6 weeks; Controls received mp w/ vehicle; animal info (female, Lewis, 180-200g); pumps replaced every 2 weeks; spinal cord injury; post op. care (SC injection of buprenorphine 0.05 mg/kg; SC injection of 4 ml saline; animals kept on heating blanket until fully awake); behavioral testing (single pellet skilled reaching); cyanoacrylate adhesive; Brain coordinates;.

Q5479: D. Wagsater, *et al.* Elevated Adiponectin Levels Suppress Perivascular and Aortic Inflammation and Prevent AngII-induced Advanced Abdominal Aortic Aneurysms. *Sci Rep* 2016;6(31414)

ALZET Comments: Angiotensin II; SC; Mice; 2004; 8 weeks; Controls received mp w/ PBS; animal info (male, LDLR -/-, 8-10 weeks old); pumps replaced every 4 weeks; Multiple pumps per animal (2); post op. care (injection of bupivacaine and carprofen); cardiovascular; peptides; bp measured using tail cuff; Dose (1.5 ug/kg/min);.

Q5078: Y. Uchi, *et al.* CXCL12 expression promotes esophageal squamous cell carcinoma proliferation and worsens the prognosis. *BMC Cancer* 2016;16(514)

ALZET Comments: AMD3100; SC; Mice (nude); 2001; 14 days; Controls received mp w/ 0.1% BSA; animal info (female, BALB/c nude, 6 weeks old); pumps replaced every week; cancer (Esophageal squamous cell carcinoma TE4); xenograft model;.

Q5081: A. E. Tschiffely, *et al.* A comparative evaluation of treatments with 17beta-estradiol and its brain-selective prodrug in a double-transgenic mouse model of Alzheimer's disease. *Horm Behav* 2016;83(39-44)

ALZET Comments: DHED; estradiol, 17B-; Propylene glycol; SC; Mice (transgenic); 2004; 8 weeks; Controls received mp w/ vehicle; animal info (female, APPswe/PS1dE9, 6 months old); functionality of mp verified by plasma levels (see figure S1 - E2 only; no assay for DHED); pumps replaced every 4 weeks; neurodegenerative (Alzheimer's); replacement therapy (estradiol infusion); DHED aka 10β,17β-dihydroxyestra-1,4-dien-3-one; Dose (2 ug/day); Industry authored (AgyPharma LLC);.

Q5074: H. Z. Toklu, *et al.* Anorexic response to rapamycin does not appear to involve a central mechanism. *Clin Exp Pharmacol Physiol* 2016;43(9):802-7

ALZET Comments: Rapamycin; DMSO; PEG 400; CSF/CNS (third ventricle); Rat; 4 weeks; Controls received mp w/ vehicle; animal info (male, F344 Brown Norway, 23-25 months old); 10% DMSO and 90% PEG used; used PE-50 tubing; pumps



initially filled with aCSF - after one week recovery, pumps replaced with rapamycin or vehicle pump; Dose (30 ug/day); Brain coordinates (1.1 mm posterior to Bregma and 1.6 mm ventral from the skull surface on the midline (medial s- sure), with the nose bar set at 4 mm below the ear bars (below zero)) pg 805;.

Q5070: B. L. Teng, *et al.* Reversal of social deficits by subchronic oxytocin in two autism mouse models. *Neuropharmacology* 2016;105(61-71

ALZET Comments: Risperidone; SC; Mice; 1002; 1007D; 21 days; Controls received mp w/ vehicle; animal info (C58/J); pumps replaced every 14 days; behavioral testing (chamber choice task; acoustic startle test; marble burying assay); "This pump replacement allowed dosage to be adjusted for increased body weight during the chronic risperidone treatment." pg 62-63; Dose (2 mg/kg/day); used clozapine slow-release pellets because of drug solubility for osmotic minipumps (pg.62);.

Q5687: D. C. Tarlungeanu, *et al.* Impaired Amino Acid Transport at the Blood Brain Barrier Is a Cause of Autism Spectrum Disorder. *Cell* 2016;167(6):1481-1494 e18

ALZET Comments: Isoleucine; leucine; Saline; CSF/CNS; Mice; 1007D; 2002; 20 days; pumps replaced after 1 week; ALZET brain infusion kit 3 used; behavioral testing (walking beam test, gait measurement, open field test); Pumps primed overnight in 37C saline; used topical tissue adhesive; Brain coordinates;.

Q6501: P. Tan, *et al.* Prorenin/renin receptor blockade promotes a healthy fat distribution in obese mice. *Obesity* (Silver Spring) 2016;24(9):1946-54

ALZET Comments: Handle Region Peptide; Saline; SC; Mice; 1004; 10 weeks; Dose (0.1 µg/g/day); Controls received mp w/ vehicle; animal info (12-15 week old male mice, C57BL/6N); pumps replaced every 5 weeks; Handle Region Peptide aka HRP; "All mice received a second pump 5 weeks after starting the treatment to ensure constant administration." ;.

Q5681: R. Svarcbaš, *et al.* Inhibition of Prolyl Oligopeptidase Restores Spontaneous Motor Behavior in the alpha-Synuclein Virus Vector-Based Parkinson's Disease Mouse Model by Decreasing alpha-Synuclein Oligomeric Species in Mouse Brain. *J Neurosci* 2016;36(49):12485-12497

ALZET Comments: KYP-2047; DMSO; PBS; CSF/CNS; Mice; 1002; 1004; 28 days; animal info (male, C57BL6J, 7-9 weeks old); 1002 pumps replaced every 2 weeks; ALZET brain infusion kit 3 used; 50% DMSO used; post op. care (buprenorphine); behavioral testing (cylinder test); Pumps primed in 37C saline overnight; Brain coordinates;.

Q5676: E. G. Sozmen, *et al.* Nogo receptor blockade overcomes remyelination failure after white matter stroke and stimulates functional recovery in aged mice. *Proc Natl Acad Sci U S A* 2016;113(52):E8453-E8462

ALZET Comments: Protein, NgR(OMNI)-Fc; SC; Mice; 1002; 28 days; pumps replaced every 14 days; ischemia (cerebral); behavioral testing (pasta matrix task); Dose (0.77 mg/28 days);.

Q5195: P. J. Scarpace, *et al.* Rapamycin Normalizes Serum Leptin by Alleviating Obesity and Reducing Leptin Synthesis in Aged Rats. *J Gerontol A Biol Sci Med Sci* 2016;71(7):891-9

ALZET Comments: Rapamycin; DMSO; PEG 400; CSF/CNS; Rat; 28 days; Controls received mp w/ vehicle; animal info (male, F344 x Brown Norway, 24 months old); pumps replaced after 14 days; ALZET brain infusion kit used; 10% DMSO used; 90% PEG 400 used; post op. care (rats kept warm until recovered); used aCSF filled pump for 14 days, then replaced with rapamycin or vehicle for 28 day infusion; obesity; Dose (30 ug/day); Brain coordinates (1.3 mm posterior to bregma, 1.9 mm lateral to the midsagittal suture and to a depth of 3.5mm);.

Q5602: H. Sato, *et al.* Anagliptin increases insulin-induced skeletal muscle glucose uptake via an NO-dependent mechanism in mice. *Diabetologia* 2016;59(11):2426-2434

ALZET Comments: Exendin (9-39); Saline; SC; Mice; 1002; 8 weeks; Controls received mp w/ vehicle; animal info (8 weeks old) ; pumps replaced every 2 weeks; diabetes; Therapeutic indication (insulin resistance; diabetes);.

Q4787: Sara K.S. Bengtsson, *et al.* Long-term continuous allopregnanolone elevation causes memory decline and hippocampus shrinkage, in female wild-type B6 mice. *Horm. Behav* 2016;78):160-167



ALZET Comments: Allopregnanolone; Captisol; SC; Mice; 1004; 20 weeks; Controls received mp w/ vehicle; animal info (C57BL6J); pumps replaced every month; 60% Captisol used; post op. care (Carprofen); behavioral testing (Morris water maze); long-term study; Industry authored (Umeocrine Cognition AB);.

Q4802: Sandra L. Burke, *et al.* Characteristics of renal sympathetic nerve single units in rabbits with angiotensin-induced hypertension. *Experimental Physiology* 2016;101(1):50-66

ALZET Comments: Angiotensin II; SC; Rabbit; 2ML4; 4 weeks; 8 weeks; Controls received dummy pump; animal info (male, New Zealand White, 2.4-2.7 kg); pumps replaced every 4 weeks; Dose (20 ng/kg/min for 8 weeks or 50 ng/kg/min for 4 weeks);.

Q4900: P. Q. H. Renjun Wang, MD; Rui Zhou, BSc; Zengxiang Dong, PhD, *et al.* Sympathoexcitation in Rats With Chronic Heart Failure

Depends on Homeobox D10 and MicroRNA-7b Inhibiting

GABBR1 Translation in Paraventricular Nucleus. *Circ Heart Fail.* 2016;9(1-10)

ALZET Comments: AntagomiR-7b; RNA, small interfering GABBR1; angiotensin II; CSF/CNS (paraventricular nucleus); Rat; 1004; 1002; 4 weeks; 2 weeks; animal info (male, Wistar, 180-200g); pumps replaced after 4 weeks; bilateral cannula used; tissue perfusion (paraventricular nucleus); cardiovascular; peptides; bilateral infusion; Dose (AntagomiR-7b or Ad-siGABBR1 40 ng/h; antiotensin II 1 ng/kg/min);.

Q6647: S. Rajan, *et al.* Chronic hyperinsulinemia reduces insulin sensitivity and metabolic functions of brown adipocyte. *J Endocrinol* 2016;230(3):275-90

ALZET Comments: Insulin, glargine; Saline; SC; Mice; 8 weeks; Dose (0.6 U/day); animal info (C57BL/6 mice); pumps replaced every 4 weeks; diabetes;.

Q7005: L. A. Mohamed, *et al.* Role of P-glycoprotein in mediating rivastigmine effect on amyloid-beta brain load and related pathology in Alzheimer's disease mouse model. *Biochim Biophys Acta* 2016;1862(4):778-787

ALZET Comments: Rivastigmine; Water, Sterile distilled; SC; Rat; 1004; 8 weeks; Dose ((0.3 mg/kg/day); Controls received mp w/ vehicle; pumps replaced every 4 weeks; long-term study; neurodegenerative (Alzheimer's);.

Q4869: C. C. P. a. S. M. Miraglia. Prenatal and lactation nicotine exposure affects Sertoli cell and gonadotropin levels in rats. *REPRODUCTION* 2016;151(117-133

ALZET Comments: Nicotine hydrogen tartrate salt; Water, bacteriostatic; SC; Rat (pregnant; lactating); 2ML4; 4 weeks; Controls received mp w/ vehicle; animal info (GD1); pumps replaced after birth; no stress (see pg. 123); cyanoacrylate adhesive; "There were no cases of stillbirth, birth defects, or other signs of toxicity that could be attributed to nicotine. Behavioral changes in the rat dams that could be attributed to the stress caused by the osmotic minipump implant were also not evidenced. Body weights were obtained at every chosen age of killing and no differences were found when nicotine and control groups were compared, at any ageequivalent subgroup. The" pg 123; Dose (2 mg/kg/day);.

Q5584: A. S. Mhashilkar, *et al.* Identification of Ecdysone Hormone Receptor Agonists as a Therapeutic Approach for Treating Filarial Infections. *PLoS Negl Trop Dis* 2016;10(6):e0004772

ALZET Comments: 20-hydroxyecdysone; Ethanol; SC; Gerbil; 2006; 150 days; pumps replaced every 42 days; long-term study; Therapeutic indication (Filarial infection); Dose (5 mg/kg/day);.

Q5446: A. G. McLoed, *et al.* Neutrophil-Derived IL-1beta Impairs the Efficacy of NF-kappaB Inhibitors against Lung Cancer. *Cell Rep* 2016;16(1):120-132

ALZET Comments: Anakinra; PBS; SC; Mice; 2002; 4 weeks; Controls received mp w/ vehicle; animal info (IKKbDmye mice); pumps replaced every 2 weeks; cancer (lung cancer model); Anakinra aka IL-1ra (interleukin-1ra); Anakinra blocks IL-1(beta) signaling; IL-1 receptor antagonist; reduces the number of AAH lesions in lungs; Dose (60 mg/kg/day);.

Q4859: D. Matusica, *et al.* Inhibition of motor neuron death in vitro and in vivo by a p75 neurotrophin receptor intracellular domain fragment. *Journal of Cell Science* 2016;129(517-530



ALZET Comments: Peptide, c29; SC; Mice; 1004; Controls received mp w/ vehicle; animal info (SOD G93A, 9 weeks old); pumps replaced every month until death; neurodegenerative (amyotrophic lateral sclerosis); neurodegenerative (amyotrophic lateral sclerosis); long-term study; peptides; Dose (5 mg/kg/day);.

P0776: S. Lustigman, *et al.* Identification of Ecdysone Hormone Receptor Agonists as a Therapeutic Approach for Treating Filarial Infections. PLOS Neglected Tropical Diseases 2016;10(6):e0004772

ALZET Comments: Ecdysone, 20-Hydroxy-; Ethanol; SC; Gerbil; 2006; 150 days; Controls received mp w/ vehicle; animal info (male gerbil); functionality of mp verified by measurement of larvae; pumps replaced every 42 days; long-term study (150 days); "To avoid the potential for trauma induced by having to carry out multiple gavages on each animal, Alzet mini-osmotic pumps (Model number 2006) were used" pg ; Disruption of larvae development to adult stage parasites; Therapeutic indication (Filarial Infections); Dose (5 mg/kg/day);.

Q6608: W. Lu, *et al.* CXCL12/CXCR4 Axis Regulates Aggrecanase Activation and Cartilage Degradation in a Post-Traumatic Osteoarthritis Rat Model. Int J Mol Sci 2016;17(10):

ALZET Comments: AMD3100; PBS; Rat; 2004; 8 weeks; Dose (3 mg/day); Controls received mp w/ vehicle; animal info (8 week old male Sprague-Dawley rats weighing 190-210g); pumps replaced every 4 weeks; Therapeutic indication (osteoarthritis);.

Q5408: S. J. Liu, *et al.* Sodium selenate retards epileptogenesis in acquired epilepsy models reversing changes in protein phosphatase 2A and hyperphosphorylated tau. Brain 2016;139(Pt 7):1919-38

ALZET Comments: Sodium Selenate; Sodium Chloride; SC; Rat; 2004, 2006; 4 weeks, 12 weeks; Controls received mp w/ vehicle; animal info (adult male Wistar and Long-Evans rats, 12 weeks); pumps replaced after initial 6 weeks; functionality of mp verified by residual volume; neurodegenerative (Traumatic brain injury, Alzheimer's disease); behavioral testing (neurotoxicity scale (0-4) testing); long-term study; Toxicology, sodium selenate; Epilepsy model; EEG used to monitor status epilepticus; Dose (1 mg/kg/day);.

Q4845: A. G. Kotini, *et al.* Escape Mutations, Ganciclovir Resistance, and Teratoma Formation in Human iPSCs Expressing an HSVtk Suicide Gene. MOLECULAR THERAPY 2016;5(**ALZET Comments:** Ganciclovir; PBS; SC; Mice (NSG); 1007D; 2 weeks; animal info (female, NSG, 8 weeks old); pumps replaced every week; cancer (teratoma); Dose (5 mg/kg/day);.

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

ALZET Comments: Angiotensin II; Glucagon-like peptide-1; Glucose-dependent insulinotropic polypeptide; Saline; SC; Mice; 1002; 4 weeks; 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

ALZET Comments: Angiotensin II, Glucagon-like peptide-1, Glucose-Dependent Insulinotropic Polypeptide; Saline; SC; Mice (knockout); 1002; 4 weeks; 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);.

Q4843: B. Koenig, *et al.* Long term study of deoxyribozyme administration to XT-1 mRNA promotes corticospinal tract regeneration and improves behavioral outcome after spinal cord injury. Experimental Neurology 2016;276(51-58

ALZET Comments: DNAXT-1as; CSF/CNS (intrathecal); Rat; 1007D; 2 weeks; Controls received mp w/ control enzyme or PBS; animal info (female, Wistar, 200-250g); pumps replaced every week; pumps replaced every week; spinal cord injury; post



op. care (Baytril; manual bladder emptying; Rimadyl); behavioral testing (horizontal ladder task); used self-made intrathecal catheter from 32-gauge polyurethane; enzyme inhibitor (DNA enzyme of mRNA of xylosyltransferase-1);

Q4841: A. Kawamura, *et al.* Teratocarcinomas Arising from Allogeneic Induced Pluripotent Stem Cell-Derived Cardiac Tissue Constructs Provoked Host Immune Rejection in Mice. *SCIENTIFIC REPORTS* 2016;6(1-13

ALZET Comments: Tacrolimus; SC; Mice; 1002; 27 days; cancer (teratocarcinoma); immunology; animal info (BALB/c); functionality of mp verified by plasma levels; pumps replaced after 14 days; BLI; Dose (1.5 mg/kg);

Q6165: C. K. Kandathil, *et al.* Effects of brain-derived neurotrophic factor (BDNF) on the cochlear nucleus in cats deafened as neonates. *Hear Res* 2016;342(134-143

ALZET Comments: Brain-derived neurotrophic factor, recomb. human; Perilymph, artificial; Ear (cochlea); Cat; 1002, 2004; 10 weeks; Dose (94 mg/ml; 0.25 ml/hr); pumps replaced after 2 and 4 weeks; BDNF stability verified by neuronal cell culture survival assay (28 days);

Q4831: E. C. G. Jr., *et al.* Antimicrobial photodynamic therapy minimizes the deleterious effect of nicotine in female rats with induced periodontitis. *Lasers med sci* 2016;31(83-94

ALZET Comments: Nicotine; Saline; SC; Rat; 2006; 40 days; Controls received mp w/ vehicle; animal info (female, Wistar, 3 months old, 266+/-6.5g); pumps replaced after 40 days; Dose (6 mg/kg/day);

Q4788: Jeffrey A. Blair, *et al.* Luteinizing hormone downregulation but not estrogen replacement improves ovariectomy-associated cognition and spine density loss independently of treatment onset timing. *Horm. Behav* 2016;78(60-66

ALZET Comments: Estradiol, 17b; leuprolide acetate; Saline; SC; Mice; 1004; 2 months; Controls received mp w/ vehicle; animal info (C57BL6J, 9 months old, OVX); pumps replaced every month; behavioral testing (morris water maze); replacement therapy (estradiol infusion); Dose (E2 1.1 ng/day; leuprolide 3.6 ug/day);

Q5375: C. Huang, *et al.* Thioredoxin interacting protein (TXNIP) regulates tubular autophagy and mitophagy in diabetic nephropathy through the mTOR signaling pathway. *Sci Rep* 2016;6(29196

ALZET Comments: DNazymes, Scrambled or TXNIP; Saline; SC; Rat; 2006; 12 weeks; Controls received mp w/ vehicle; animal info (6-week old, female heterozygous rats); functionality of mp verified by blood glucose levels (AMES glucometer); pumps replaced every 6 weeks; diabetes; Inhibition of TXNIP using DNA-zyme improves autophagy and mitophagy in diabetic nephropathy; Inhibition of TXNIP using DNA-zyme improves autophagy and mitophagy in diabetic nephropathy; Resultant plasma level (pg. 10);

Q5852: M. Hiromura, *et al.* Suppressive Effects of Glucose-Dependent Insulinotropic Polypeptide on Cardiac Hypertrophy and Fibrosis in Angiotensin II-Infused Mouse Models. *Circ J* 2016;80(9):1988-97

ALZET Comments: Angiotensin II; Saline; SC; Mice (knockout); 1002; 28 days; 4 weeks; Controls received mp w/ vehicle; animal info (14-15 weeks) ; pumps replaced every 2 weeks; cardiovascular; Therapeutic indication (Cardiac Hypertrophy); Dose (2000 ng/kg/min);

Q5858: X. Guo, *et al.* VCP recruitment to mitochondria causes mitophagy impairment and neurodegeneration in models of Huntington's disease. *Nat Commun* 2016;7(12646

ALZET Comments: TAT peptide; HV-3 peptide; SC; Mice; 8 weeks, 9 months; Controls received mp w/ control peptide; animal info (5 weeks old, 3 months old); pumps replaced every 4 weeks in 5 week old mice, replaced every month x 9 months; long-term study; peptides; Therapeutic indication (Huntington's Disease); Dose (3 mg/kg/day);

Q6163: M. H. Disatnik, *et al.* Potential biomarkers to follow the progression and treatment response of Huntington's disease. *J Exp Med* 2016;213(12):2655-2669

ALZET Comments: P110-TAT (47-57); SC; Mice; 1 week, 8 weeks; Dose (3 mg/Kg/d); Controls received mp w/ vehicle; animal info (5 week old Hemizygous R6/2 HD mice); pumps replaced every 4 weeks; neurodegenerative (Huntington's);



Q5786: G. Dezfuli, *et al.* Evidence for the role of beta2* nAChR desensitization in regulating body weight in obese mice. *Neuropharmacology* 2016;110(Pt A):165-174

ALZET Comments: Nicotine; Saline; SC; Mice; 2002; Controls received mp w/ vehicle; animal info (15 weeks old) ; pumps replaced every 2 weeks (at the end of the initial 14-day treatment period, the pump was removed and a new pump was implanted with a higher dose. This was repeated for the third and highest dose of nicotine);pumps replaced every 2 weeks (at the end of the initial 14-day treatment period, the pump was removed and a new pump was implanted with a higher dose. This was repeated for the third and highest dose of nicotine);comparison of twice daily SC injections vs mp;dose-response (18, 36, 72 mg/kg);good methods (2.3. Osmotic pump placement pg. 166); dependence;Therapeutic indication (Nicotine, body weight, food intake); Dose (18, 36, 72 mg/kg);.

Q5304: H. C. Denroche, *et al.* Disrupted Leptin Signaling in the Lateral Hypothalamus and Ventral Premammillary Nucleus Alters Insulin and Glucagon Secretion and Protects Against Diet-Induced Obesity. *Endocrinology* 2016;157(7):2671-85

ALZET Comments: Leptin, recombinant mouse; SC; mice; 1007D, 1002; 15 days; Controls received mp w/ vehicle; animal info (Male Lep^rflox/flox and Lep^rflox/flox Syn-cre mice, 12-14 wks); functionality of mp verified by plasma levels; pumps replaced after day 10; dose-response (pg. 2679); diabetes; Dose (10 ug/d or 20 ug/d);.

Q6096: R. De Gasperi, *et al.* The Signature of MicroRNA Dysregulation in Muscle Paralyzed by Spinal Cord Injury Includes Downregulation of MicroRNAs that Target Myostatin Signaling. *PLoS One* 2016;11(12):e0166189

ALZET Comments: Propylene glycol; SC; Rat; 56 days; 10.1371/journal.pone.0166189; animal info (Male Wistar-Hannover rats); post op. care (carprofen daily for 3 days, Baytril for 5 days); pumps replaced after 28 days to continue vehicle administration; spinal cord injury; stress/adverse reaction: (see pg.9);.

Q4821: Daniel G. Donner, *et al.* Trenbolone Improves Cardiometabolic Risk Factors and Myocardial Tolerance to Ischemia-Reperfusion in Male Rats With Testosterone-Deficient Metabolic Syndrome. *Endocrinology* 2016;157(1):368-381

ALZET Comments: Testosterone; trenbolone; Cyclodextrin, 2-hydroxypropyl- β -; SC; Rat; 2004; 8 weeks; Controls received mp w/ vehicle; animal info (male, Wistar, 12 weeks old, 300g); functionality of mp verified by plasma; pumps replaced every 4 weeks; 45% cyclodextrin used; ischemia (cardiac); post op. care (buprenorphine 10 ug/kg/day IM; enrofloxacin 5 mg/kg ip for 3 days); long-term study; Dose (2 mg/kg/day);.

Q6020: W. R. Crum, *et al.* Chronic exposure to haloperidol and olanzapine leads to common and divergent shape changes in the rat hippocampus in the absence of grey-matter volume loss. *Psychol Med* 2016;46(15):3081-3093

ALZET Comments: Haloperidol, Olanzapine; Cyclodextrin, hydroxypropyl- β -, Ascorbic acid; SC; Rat; 2ML4; 28 days; Controls received mp w/vehicle; animal info (10 weeks old) pumps replaced every 4 weeks; Therapeutic indication (Learning and memory, hippocampus, antipsychotic); Dose (HAL (2 mg/kg perday), or OLZ (10 mg/kg perday);.

Q5763: K. L. Chambliss, *et al.* Nonnuclear Estrogen Receptor Activation Improves Hepatic Steatosis in Female Mice. *Endocrinology* 2016;157(10):3731-3741

ALZET Comments: Estradiol, estrogen dendrimer conjugate; IP; Mice; 2006; 12 weeks, 84 days; Controls received mp w/ vehicle; animal info (5 weeks old, ovariectomy); pumps replaced every 6 weeks; long-term study; Therapeutic indication (atherosclerosis); Dose (6 ug/day);.

Q5801: R. D. Brady, *et al.* Sodium selenate treatment mitigates reduction of bone volume following traumatic brain injury in rats. *J Musculoskelet Neuronal Interact* 2016;16(4):369-376

ALZET Comments: Sodium selenate; Saline; SC; Rat; 2006; 12 weeks; animal info (12 week old Long-Evans hooded rats – 250-300 gr.); pumps replaced after 6 weeks;.

Q5625: J. Benoit, *et al.* Epigenetic stability in the adult mouse cortex under conditions of pharmacologically induced histone acetylation. *Brain Struct Funct* 2016;221(8):3963-3978

ALZET Comments: Trichostatin A; DMSO, water; SC; Mice; 2002; 14 days, 28 days; Controls received mp w/ vehicle; animal info (6 months old); Subset of pumps replaced every 2 weeks; gene therapy;.



Q5595: J. J. Alexander, *et al.* Abrogation of immune complex glomerulonephritis by native carboxypeptidase and pharmacological antagonism of the C5a receptor. *Cell Mol Immunol* 2016;13(5):651-7

ALZET Comments: PMX53; Saline; SC; Mice (knockout); 5 weeks; Controls received mp w/ scrambled peptide; animal info (6-8 weeks); pumps replaced every 1 week; peptides; PMX53 is a cyclic peptide antagonist of C5aR1; Therapeutic indication (Immunology, complement system); Dose (25 ug/day);.