



Recent References (2016-Present) on the Intravenous Administration of Agents Using ALZET® Osmotic Pumps

Q10295: D. Olivari, *et al.* Searching for Preclinical Models of Acute Decompensated Heart Failure: a Concise Narrative Overview and a Novel Swine Model. *Cardiovascular Drugs and Therapy* 2022;36(4):727-738

Agents: Serelaxin **Vehicle:** Saline; **Route:** IV; **Species:** Pig; **Pump:** Not Stated; **Duration:** 48 hours;

ALZET Comments: Dose: (30 µg/kg/day); Controls received mp w/ vehicle; animal info: 17 male *Sus scrofa domestica* pig weighing 34 ± 4 kg; post op. care: Analgesia was performed with butorphanol; Cardiovascular "

Q10514: L. B. James-Allan, *et al.* A Novel Technique Using Chronic Infusion Of Small Extracellular Vesicles From Gestational Diabetes Mellitus Causes Glucose Intolerance In Pregnant Mice. *Clinical Science (Lond)* 2022;136(21):1535-1549

Agents: Vesicle, human small extracellular **Vehicle:** PBS; **Route:** IV (jugular); **Species:** Mice; **Pump:** 1003D; **Duration:** 4 days;

ALZET Comments: Controls received mp w/ vehicle; animal info (Pregnant female C57BL6 mice); jugular catheter used; gestational diabetes mellitus

Q10753: T. He, *et al.* Compensatory Roles of Protein Related to DAN and Cerberus (PRDC) Decrease in Pulmonary Arterial Hypertension. *International Journal of Biological Sciences* 2022;18(6):2372-2391

Agents: PRDC **Vehicle:** Saline; **Route:** IV (jugular); **Species:** Rat; **Pump:** 2ML4; **Duration:** 4 weeks;

ALZET Comments: Dose (15µg); 0.9% saline solution used; animal info (Male Sprague Dawley; 6 weeks old; 200-240 g); cardiovascular; Therapeutic indication (Pulmonary arterial hypertension);

Q9836: Z. Zhao, *et al.* Attenuation of atrial remodeling by aliskiren via affecting oxidative stress, inflammation and PI3K/Akt signaling pathway. *Cardiovascular Drugs and Therapy* 2021;35(3):587-598

Agents: Wortmannin **Vehicle:** Not Stated; **Route:** IV; **Species:** Dog; **Pump:** Not Stated; **Duration:** 2 weeks;

ALZET Comments: Dose (70 ug/kg/day); animal info (mongrel dogs of either sex, weighing from 11 to 17 kg); 131.71 mmHg - 117.29 mmHg; Wortmannin aka WM, PI3K antagonist; cardiovascular

Q9553: S. K. Woo, *et al.* SUR1-TRPM4 channels, not KATP, mediate brain swelling following cerebral ischemia. *Neuroscience Letters* 2020;718(134729

Agents: Oligodeoxynucleotide **Vehicle:** Saline, sterile normal; **Route:** IV (external jugular); **Species:** Rat; **Pump:** 2001D; **Duration:** 24 hours;

ALZET Comments: Dose (1.2 mg / 24 h); animal info (Male Wistar rats, aged 11–12 weeks (300–350 gm)); Oligodeoxynucleotide aka ODN; ischemia (cerebral);

Q10781: Z. J. Wang, *et al.* Adipokine Omentin-1 Enhances Atherosclerotic Plaque Stability by Binding to Macrophage Integrin Receptor. *European Heart Journal* 2020;

Agents: Adipokine omentin-1 **Vehicle:** Not Stated; **Route:** IV (jugular); **Species:** Mice;

ALZET Comments: animal info: ApoE–/–mouse; immunology

Q9541: X. Wang, *et al.* Susceptibility of Rat Steatotic Liver to Ischemia-Reperfusion Is Treatable With Liver-Selective Matrix Metalloproteinase Inhibition. *Hepatology* 2020;72(5):1771-1785

Agents: Propionic acid, 2-[(4-biphenylsulfonyl)amino]-3-phenyl- **Vehicle:** Not Stated; **Route:** IV (inferior mesenteric); **Species:** Rat; **Pump:** 2ML1; **Duration:** 2 days;

ALZET Comments: Dose (100 µg/kg/h); animal info (Male Lewis rats); 2-[(4-biphenylsulfonyl)amino]-3-phenyl-propionic acid aka MMP-2,9 inhibitor; ischemia (reperfusion injury);

Q9530: F. Wang, *et al.* Soluble (pro)renin receptor treats metabolic syndrome in mice with diet-induced obesity via interaction with PPARgamma. *JCI Insight* 2020;5(7):

Agents: Renin receptor, human recombinant soluble; PF429242 **Vehicle:** Not Stated; **Route:** IV (external jugular); **Species:** Mice; **Pump:** 1002; **Duration:** 2 weeks;

ALZET Comments: Dose (30 ug/kg/d); Controls received mp w/ vehicle; animal info (Male 36-week-old DIO C57/BL6 mice); Multiple pumps per animal (2 pumps); human recombinant soluble renin receptor aka sPRR, PF429242 aka PF; dependence;



Q9455: M. Shaqura, *et al.* Neuronal aldosterone elicits a distinct genomic response in pain signaling molecules contributing to inflammatory pain. *Journal of Neuroinflammation* 2020;17(1):183

Agents: FAD286 **Vehicle:** Saline; **Route:** IV (lumbar); **Species:** Rat; **Pump:** Not Stated; **Duration:** Not Stated;

ALZET Comments: Dose (0.3ug/1 μ l); 0.9% NaCl used; Controls received mp w/ vehicle; animal info (male Wistar rats (180–250g)); dependence;

Q8861: L. B. James-Allan, *et al.* Regulation of glucose homeostasis by small extracellular vesicles in normal pregnancy and in gestational diabetes. *FASEB Journal* 2020;34(4):5724-5739

Agents: Small extracellular vesicles, human **Vehicle:** PBS; **Route:** IV (right jugular vein); **Species:** Mice; **Pump:** 1003D; **Duration:** 4 days;

ALZET Comments: Controls received mp w/ vehicle; animal info (Nonpregnant female C57BL/6 mice); human small extracellular vesicles aka human sEVs; diabetes;

Q8857: C. T. Huang, *et al.* Glycemic control with insulin attenuates sepsis-associated encephalopathy by inhibiting glial activation via the suppression of the nuclear factor kappa B and mitogen-activated protein kinase signaling pathways in septic rats. *Brain Research* 2020;1738(146822

Agents: Dextrose; Fluorocitrate; Minocycline; SB203580; PD98059 **Vehicle:** DMSO; **Route:** CSF/CNS (intracerebral); IV (jugular); **Species:** Rat; **Pump:** 2001; **Duration:** 7 days;

ALZET Comments: 1% DMSO used; Controls received mp w/ vehicle; animal info (male, Sprague-Dawley rats (weight, 200–250 g)); behavioral testing (Von Frey filament test, Plantar test); functionality of mp verified by residual volume; Brain coordinates (0.8 mm posterior and 1.3 mm lateral to the bregma, and 4.0 mm ventral to the skull surface); dependence;

Q8537: M. Hecker, *et al.* Immunomodulation by an Omega-6 Fatty Acid Reduced Mixed Lipid Emulsion in Murine Acute Respiratory Distress Syndrome. *Journal of Clinical Medicine* 2020;9(7):

Agents: Triglycerides, long-chain; Triglycerides, medium chain **Vehicle:** Saline; **Route:** IV (external jugular); **Species:** Mice; **Pump:** Not stated; **Duration:** 3 days;

ALZET Comments: Dose (1.5 mg/kg/day); Controls received mp w/ vehicle; animal info (13-15 week old mice, 22-24 g); long-chain Triglycerides aka LCT; medium chain Triglycerides aka SMOF; dependence;

Q8472: The pain-relieving effects of lactoferrin on oxaliplatin-induced neuropathic pain. *Journal of Veterinary Medical Science* 2020;

Agents: Lactoferrin, human recombinant **Vehicle:** PBS; **Route:** IV (external jugular); **Species:** Mice; **Duration:** 2 weeks;

ALZET Comments: Dose (10 mg/kg/day); Controls received mp w/ vehicle; animal info (five-week-old male ICR mice); human recombinant lactoferrin aka rhLf; dependence;

Q8453: K. A. Duggan, *et al.* Vasoactive intestinal peptide infusion reverses existing renal interstitial fibrosis via a blood pressure independent mechanism in the rat. *European Journal of Pharmacology* 2020;873(172979

Agents: Vasoactive intestinal peptide **Vehicle:** Hartmann's Solution; **Route:** IV (iliac); **Species:** Rat; **Pump:** Not stated; **Duration:** 14 weeks;

ALZET Comments: Dose (5 pmol/kg/min); Controls received mp w/ vehicle; animal info (Fourteen week old spontaneous hypertensive rat); long-term study; Blood pressure measured via tail cuff plethysmography; 193 mmHg - 200 mmHg; Vasoactive intestinal peptide aka VIP; peptides; dependence;

Q8438: R. A. Desai, *et al.* Nimodipine Reduces Dysfunction and Demyelination in Models of Multiple Sclerosis. *Annals of Neurology* 2020;88(1):123-136

Agents: Nimodipine **Vehicle:** PEG-400; **Route:** IV; SC; **Species:** Rat; **Pump:** Not stated; **Duration:** 12 days;

ALZET Comments: Dose (30 mg/kg); Controls received mp w/ vehicle; animal info (adult male Sprague Dawley rats); neurodegenerative (multiple sclerosis);



Q7516: W. Yin, *et al.* Protein kinase C and protein kinase A are involved in the protection of recombinant human glucagon-like peptide-1 on glomeruli and tubules in diabetic rats. *Journal of Diabetes Investigation* 2019;10(3):613-625

Agents: Peptide-1, recombinant human glucagon-like **Vehicle:** Saline; **Route:** IV; **Species:** Rat; **Pump:** 2004; **Duration:** 12 weeks;

ALZET Comments: "Dose (1.5 pmol/kg/min); 0.9% saline; Controls received mp w/ vehicle; animal info (Eight-week-old male/female

Wistar rats weighing 300 – 10 g); pumps replaced at 4 weeks; half-life (p.614 half-life in blood is approximately 2 h.); peptides; diabetes; "

Q6890: X. Wang, *et al.* Liver-Selective MMP-9 Inhibition in the Rat Eliminates Ischemia-Reperfusion Injury and Accelerates Liver Regeneration. *Hepatology* 2019;69(1):314-328

Agents: 2-[(4-biphenylsulfonyl)amino]-3-phenyl-propionic acid **Vehicle:** Not Stated; **Route:** IV (inferior mesenteric vein); IP; **Species:** Rat (transgenic); **Pump:** 2ML1; 2001; **Duration:** 7 days;

ALZET Comments: Dose (100 µg/h); animal info (Male Lew-Tg(CAG-EGFP)ys rats); enzyme inhibitor (Matrix metalloproteinases 2/9);

Q7500: F. Wang, *et al.* Site-1 protease-derived soluble (pro)renin receptor targets vasopressin receptor 2 to enhance urine concentrating capability. *JCI Insight* 2019;4(7):

Agents: Histidine-tagged sPRR **Vehicle:** Not stated; **Route:** IV (jugular); **Species:** Mice; **Pump:** 1007D; **Duration:** 7 days;

ALZET Comments: Dose (30 µg/kg/day); Controls received mp w/ vehicle; animal info (experiments. Male 10- to 12-week-old C57/BL6 mice);

Q7573: R. Lin, *et al.* Systemic Factors Trigger Vasculature Cells to Drive Notch Signaling and Neurogenesis in Neural Stem Cells in the Adult Brain. *Stem Cells* 2019;37(3):395-406

Agents: Biotin, recombinant vascular endothelial growth factor 165 **Vehicle:** Saline; **Route:** IV (Femoral); **Species:** Mice; **Pump:** Not Stated; **Duration:** 3 days;

ALZET Comments: Dose (1 mg/kg); Controls received mp w/ vehicle; animal info (9-week old CD-1 mice);

Q7535: E. D. Levin, *et al.* Prolonging the Reduction of Nicotine Self-Administration in Rats by Coadministering Chronic Nicotine With Amitifadine, a Triple Monoamine Reuptake Inhibitor With CYP2B6 Inhibitory Actions. *Nicotine Tob Res* 2019;

Agents: Nicotine Ditartrate **Vehicle:** Saline; **Route:** SC, IV (jugular); **Species:** Rat; **Pump:** 2ML4; **Duration:** 4 weeks;

ALZET Comments: Dose (2.5 mg/kg/day); animal info (Young adult female Sprague-Dawley rats); post op. care (ketoprofen, bupivacaine); behavioral testing (dual-lever experiment);

Q6881: W. Deng, *et al.* Insulin ameliorates pulmonary edema through the upregulation of epithelial sodium channel via the PI3K/SGK1 pathway in mice with lipopolysaccharide-induced lung injury. *Mol Med Rep* 2019;

Agents: Insulin, human **Vehicle:** PBS; **Route:** IV (jugular); **Species:** Mice; **Pump:** Not Stated; **Duration:** 24 hours;

ALZET Comments: Dose (Human Insulin (.01 U/kg/day); Controls received mp w/ vehicle; animal info (C3H/HeN mice, aged 7-9 weeks); ALZET internal jugular vein catheter used; cardiovascular;

Q7367: R. A. Augustine, *et al.* Impaired hypothalamic leptin sensitivity in pseudopregnant rats treated with chronic prolactin to mimic pregnancy. *J Neuroendocrinol* 2019;e12702

Agents: Ovine prolactin **Vehicle:** CSF, artificial; **Route:** IV; **Species:** Rat; **Pump:** 2001; **Duration:** 7 days;

ALZET Comments: Dose (2.5 µg/µL/hr); Controls received mp w/ vehicle; animal info (10 week old, female, Sprague-Dawley); bilateral cannula used; dependence;

R0377: X. S. Zeng, *et al.* Neurotoxin-Induced Animal Models of Parkinson Disease: Pathogenic Mechanism and Assessment. *ASN Neuro* 2018;10(1759091418777438

Agents: Rotenone, MPTP **Vehicle:** Not Stated; **Route:** IV, IP; **Species:** Rat; **Pump:** Not Stated; **Duration:** 14 days, 33 days;

ALZET Comments: Dose (Rotenone (3 mg/kg/day); MPTP (46 mg/kg/day)); neurodegenerative (Parkinson's);



- 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
Agents: Zinc metallochaperone 1 **Vehicle:** DMSO; **Route:** IV (jugular); **Species:** Mice (nude); **Pump:** 2001; **Duration:** 7, 17 days;
ALZET Comments: 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);
- Q7838:** X. Wang, *et al.* Angiotensin-(1-7) prevents atrial tachycardia induced-heat shock protein 27 expression. *J Electrocardiol* 2018;51(1):117-120
Agents: Angiotensin(1-7) **Vehicle:** Not Stated; **Route:** IV (jugular); **Species:** Dog; **Pump:** Not Stated; **Duration:** 2 weeks;
ALZET Comments: Dose (6 µg/kg/h); Controls did not receive mp; animal info (Mongrel, 11-15 kg); cardiovascular; Therapeutic indication (intravenously administered Ang-(1-7) may be responsible for inhibiting atrial remodeling induced by rapid atrial pacing, which in turn decreases HSP27 gene and protein expression.);
- Q6901:** T. Vajen, *et al.* Blocking CCL5-CXCL4 heteromerization preserves heart function after myocardial infarction by attenuating leukocyte recruitment and NETosis. *Sci Rep* 2018;8(1):10647
Agents: MKEY; MKEY, scrambled **Vehicle:** Formic acid; **Route:** IV (jugular); **Species:** Mice; **Pump:** 1007D; **Duration:** 7 days;
ALZET Comments: Dose (1.3 mg/kg/day); animal info (C57BL/6 mice); cardiovascular;
- Q7915:** A. K. E. Hornsby, *et al.* Circulating unacylated-ghrelin impairs hippocampal neurogenesis and memory in mice and is altered in human Parkinson's disease dementia. *Cell Reports Medicine* 2018;1(7):100120
Agents: Ghrelin, unacylated **Vehicle:** Saline, sterile, heparinized; BSA, buffered; **Route:** IV (jugular); **Species:** Mice; **Pump:** 1007D; **Duration:** 7 days;
ALZET Comments: Dose (48µg/day); sterile isotonic saline containing BSA (1mg/ml) and heparin (5U/ml) used; Controls received mp w/ vehicle; animal info (6 months, C57BL/6 and GOAT-null); UAG is considered an inactive precursor to acyl-ghrelin; neurodegenerative (Parkinson's); replacement therapy (ghrelin);
- Q7818:** L. Gonzalez, *et al.* Angiotensin-(1-9) reduces cardiovascular and renal inflammation in experimental renin-independent hypertension. *Biochemical Pharmacology* 2018;156(357-370
Agents: angiotensin (1-9) **Vehicle:** Not stated; **Route:** IV (jugular); **Species:** Rat; **Pump:** 2002; **Duration:** 14 days;
ALZET Comments: Dose ((Ang(1-9) 600 ng/kg/min), (PD123319 28 ng/kg/min), (A779 100 ng/kg/min)); Controls received sham surgery and mp w/ vehicle; animal info (male, Sprague-Dawley, 150+/-10g); PD123319 is an AT2R blocker. A779 is a Mas receptor blocker; replacement therapy (Uninephrectomized); cardiovascular; vehicle used but identity not stated.; Therapeutic indication (Ang-(1-9) protects against hypertensive cardiovascular and kidney damage induced by volume overload by decreasing inflammation in the heart, aortic wall, and kidney; these effects are not mediated by the Mas or AT2 receptor.);
- Q7762:** C. R. Chitambar, *et al.* Gallium Maltolate Disrupts Tumor Iron Metabolism and Retards the Growth of Glioblastoma by Inhibiting Mitochondrial Function and Ribonucleotide Reductase. *Mol Cancer Ther* 2018;17(6):1240-1250
Agents: gallium, (tris-hydroxy-2-methyl-4H-pyran-4-onato) **Vehicle:** Not Stated; **Route:** IV (Jugular); **Species:** Rat; **Pump:** Not Stated; **Duration:** 10 days;
ALZET Comments: Dose (50 mg/kg/day); animal info (Male athymic rats 250g); (tris-hydroxy-2-methyl-4H-pyran-4-onato)gallium aka GaM; cancer (glioblastoma);
- Q10107:** L. Bhat, *et al.* Evaluation of the effects of RP5063, a novel, multimodal, serotonin receptor modulator, as single-agent therapy and co-administrated with sildenafil, bosentan, and treprostinil in a monocrotaline-induced pulmonary arterial hypertension rat model. *European Journal of Pharmacology* 2018;827(159-166
Agents: Treprostinil **Vehicle:** Saline, sterile; **Route:** IV; SC; **Species:** Rat; **Pump:** 2ML4; **Duration:** 28 days;
ALZET Comments: Dose: Treprostinil (100 ng/kg/min); Controls received mp w/ vehicle; animal info: 90 male Wistar-Kyoto rats (weights 200–250 g; 10–12 weeks; post op. care (used heating pad to maintain body temperature); Blood pressure measured via: Systemic arterial blood pressure; cardiovascular; (Pulmonary arterial hypertension); stress/adverse reaction: (see pg.161); Future studies should include a sham comparator group to accommodate for the difference in route and timing of drug administration.



- Q10082:** H. K. Ananthula, *et al.* Preclinical pharmacokinetic evaluation to facilitate repurposing of tyrosine kinase inhibitors nilotinib and imatinib as antiviral agents. *BMC Pharmacology and Toxicology* 2018;19(1):80
Agents: Nilotinib; Imatinib **Vehicle:** Ethanol; PEG300; Cremophor EL; Water, sterile; **Route:** IV injection; Gavage; **Species:** Mice; Guinea pigs; Prairie Dogs; Cynomolgus monkeys; **Pump:** Not Stated; **Duration:** Not Stated;
ALZET Comments: Nilotinib 1.5:4.5:20 (ethanol:PEG300:Cremophor) in 3.7% dextrose solution used; animal info (Mice C57BL/6, 20g both genders; Prairie dogs wild caught male black tailed, 1-2 years; Guinea pigs male hartley 450-650g); half-life (p.1,8); Resultant plasma level (Figure 1 nilotinib, Figure 2 imatinib); enzyme inhibitor (tyrosine kinase (TKI)); good methods (elimination half-lives were quite short (1-2 h). Thus, further testing of these agents in C57BL/6 mice is feasible but may require a continuous delivery system such as an Alzet® mini pump.); didn't use Alzet pump, but recommends using it in future studies of these agents in mice or guinea pigs;
- Q6226:** A. J. Turner, *et al.* Tubuloglomerular feedback responses in offspring of dexamethasone-treated ewes. *American Journal of Physiology Renal Physiology* 2017;313(4):F864-F873
Agents: Dexamethasone 21-phosphate disodium salt **Vehicle:** Not Stated; **Route:** IV (lateral saphenous vein); **Species:** Sheep (pregnant); **Pump:** 2ML1; **Duration:** 48 hours;
ALZET Comments: Dose (0.48 mg/h);
- Q5980:** W. Shangguan, *et al.* Angiotensin-(1-7) attenuates atrial tachycardia-induced sympathetic nerve remodeling. *J Renin Angiotensin Aldosterone Syst* 2017;18(3):1470320317729281
Agents: Ang (1-7) **Vehicle:** Not Stated; **Route:** IV (jugular); **Species:** Dog; **Pump:** Not Stated; **Duration:** 14 days;
ALZET Comments: Controls received mp w/ vehicle; animal info (12-14 kg) ; cardiovascular; Pacemaker also implanted; Therapeutic indication (Atrial tachycardia); Dose (6 ug/kg/h);
- Q6142:** D. Lana, *et al.* The neuron-astrocyte-microglia triad in CA3 after chronic cerebral hypoperfusion in the rat: Protective effect of dipyrindamole. *Experimental Gerontology* 2017;96(46-62
Agents: Dipyrindamole **Vehicle:** Not Stated; **Route:** IV (jugular); **Species:** Rat; **Pump:** 2001; **Duration:** 7 days;
ALZET Comments: Dose (4 mg/kg/day); animal info (3 month old male Wistar rats); Resultant plasma level (2-2.5 µM over the entire week);
- Q6301:** J. K. Karimy, *et al.* Inflammation-dependent cerebrospinal fluid hypersecretion by the choroid plexus epithelium in posthemorrhagic hydrocephalus. *Nat Med* 2017;23(8):997-1003
Agents: TAK-242 **Vehicle:** DMSO; saline; cyclodextrin, 2-hydroxypropyl-b-; **Route:** IV (jugular); **Species:** Rat; **Pump:** 2ML1; **Duration:** 7 days;
ALZET Comments: Dose (1 mg/kg); 0.5% DMSO, 10% b-cyclodextrin used; TAK-242 aka ethyl (6R)-6-[N-(2-chloro-4-fluorophenyl)sulfamoyl]cyclohex-1-ene-1-carboxylate;
- Q6312:** M. Jelinic, *et al.* Short-term (48 hours) intravenous serelaxin infusion has no effect on myogenic tone or vascular remodeling in rat mesenteric arteries. *Microcirculation* 2017;24(6):
Agents: Serelaxin **Vehicle:** Sodium acetate; **Route:** IV (jugular); **Species:** Rat; **Pump:** 1003D; **Duration:** 72 hours;
ALZET Comments: Dose (13.33 µg/kg/h); 20 mmol/L sodium acetate used; Controls received mp w/ vehicle; animal info (8-10 week old male Wistar rats weighing 300-400g); post op. care (bupivacaine); cardiovascular;
- Q6259:** J. Gatfield, *et al.* Selexipag Active Metabolite ACT-333679 Displays Strong Anticontractile and Antiremodeling Effects but Low beta-Arrestin Recruitment and Desensitization Potential. *J Pharmacol Exp Ther* 2017;362(1):186-199
Agents: Selexipag; Treprostinil **Vehicle:** Not Stated; **Route:** IV (jugular); **Species:** Rat; **Pump:** 2ML1; 2ML2; **Duration:** 48 hours;
ALZET Comments: Controls received mp w/ vehicle; animal info (Male Wistar and spontaneously hypertensive rats); cardiovascular;



Q6271: Chaoyun Wang, *et al.* Safflor yellow B reduces hypoxia-mediated vasoconstriction by regulating endothelial micro ribonucleic acid/nitric oxide synthase signaling. *ONCOTARGET* 2017;8(55):93551–93566

Agents: Safflor yellow B **Vehicle:** Saline; **Route:** IV; **Species:** Rat; **Pump:** 2ML4; **Duration:** 4 weeks;

ALZET Comments: Controls received mp w/ vehicle; animal info (Male Sprague-Dawley rats); Safflor yellow B is a natural plant compound;

Q5690: B. Carusillo Theriault, *et al.* Cerebral microbleeds in a neonatal rat model. *PLoS One* 2017;12(2):e0171163

Agents: Endotoxin, LPS **Vehicle:** Not Stated; **Route:** IV (jugular); **Species:** Rat (pregnant); **Pump:** 2001D; **Duration:** 24 hours;

ALZET Comments: animal info (female, Wistar E19); ischemia (intrauterine); no stress (see pg. 4 “No mortality was experienced for dams undergoing the above protocol”); behavioral testing (Righting Reflex, negative geotaxis, open field, elevated plus maze, Morris water maze, balance beam); teratology; Dose (600 ng/hr); Resultant plasma level (4.5 EU/mL after 16 hours of infusion);

Q5112: J. Zhao, *et al.* The potential role of atrial natriuretic peptide in the effects of Angiotensin-(1-7) in a chronic atrial tachycardia canine model. *J Renin Angiotensin Aldosterone Syst* 2016;17(1):1470320315627409

Agents: Angiotensin (1-7); A-71915 **Vehicle:** Not Stated; **Route:** IV (jugular); **Species:** Dog; **Pump:** Not Stated; **Duration:** 14 days;

ALZET Comments: animal info (mongrel, 13-17 kg); cardiovascular; peptides; A-71915 is an ANP receptor antagonist; Dose (Ang (1-7) 6 ug/kg/hr; A-71915 0.3 ug/kg/hr); “Ang-(1-7) dose was selected because 6 ug/kg/h is verified as the highest dose that wouldn’t affect blood pressure in our preliminary study” pg 2;

Q4901: M. Zenggeng Wang, *et al.* Infusion of esmolol attenuates lipopolysaccharide-induced myocardial dysfunction. *Journal of Surgical Research* 2016;200(283-289

Agents: Esmolol **Vehicle:** Saline; **Route:** IV (jugular); **Species:** Mice; **Pump:** Not Stated; **Duration:** 6 hours;

ALZET Comments: Controls received mp w/ vehicle; animal info (male, C57BL6J, 8-12 weeks old); cardiovascular; immunology; Dose (6.7 ug/kg/min);

Q6527: H. Vogel, *et al.* GLP-1 and estrogen conjugate acts in the supramammillary nucleus to reduce food-reward and body weight. *Neuropharmacology* 2016;110(Pt A):396-406

Agents: Not Stated **Vehicle:** Not Stated; **Route:** IV; **Species:** Mice; **Pump:** Jugular vein catheter; **Duration:** Not Stated;

ALZET Comments: animal info (Adult Sprague-Dawley rats weighing 200-250 g); ALZET jugular catheter used with another product.

Q6661: R. Shainer, *et al.* Preimplantation factor (PIF) therapy provides comprehensive protection against radiation induced pathologies. *ONCOTARGET* 2016;7(37):58975-58994

Agents: Preimplantation Factor **Vehicle:** DMSO; PBS, Dulbecco’s; **Route:** IV; **Species:** Mice; **Pump:** 1002; **Duration:** 2 weeks;

ALZET Comments: Dose (1 mg/kg/day); 0.2% DMSO used; Controls received mp w/ vehicle; animal info (C57BL/6 mice); Preimplantation Factor aka PIF; peptides; Therapeutic indication (acute radiation syndrome);

P5241: T. Nakamachi, *et al.* PACAP suppresses dry eye signs by stimulating tear secretion. *Nat Commun* 2016;7(12034

Agents: Pituitary adenylate cyclase-activating polypeptide; PACAP38 **Vehicle:** BSA; saline; **Route:** IV (jugular); **Species:** Mice; **Pump:** 1007D; **Duration:** 4 days;

ALZET Comments: Controls received mp w/ vehicle; animal info (8 – 12 weeks old, Adcyap1-/- mice, C57BL/6 background); functionality of mp verified by tear volume; 0.1% BSA used; PE10 polyethylene catheter used; Therapeutic indication (dry eye syndrome); Dose (PACAP38 32 pmol/ul, PACAP6-38 320 pmol/ul);

Q4908: MingWu, *et al.* Placental growth factor 2 — A potential therapeutic strategy for chronic myocardial ischemia. *International Journal of Cardiology* 2016;203(534-542

Agents: Placental growth factor-2, recombinant human **Vehicle:** PBS; **Route:** IV; **Species:** Pig; **Pump:** 2ML2; **Duration:** 14 days;

ALZET Comments: Controls received mp w/ vehicle; animal info (Sus Scrofa, 20-25kg); functionality of mp verified by plasma levels; ischemia (myocardial); cardiovascular; Dose (15 ug/kg/day);



Q6580: J. Kübler, *et al.* The HIV-derived protein Vpr52-96 has anti-glioma activity in vitro and in vivo. *ONCOTARGET* 2016;7(29):45500-45512

Agents: HIV Viral Protein R **Vehicle:** Water; **Route:** IV (jugular); **Species:** Mice; **Pump:** 2001; **Duration:** 1 week;
ALZET Comments: Dose (60 mg/kg/week); Therapeutic indication (HIV);

Q5358: A. Garcia-Alvarez, *et al.* Beta-3 adrenergic agonists reduce pulmonary vascular resistance and improve right ventricular performance in a porcine model of chronic pulmonary hypertension. *Basic Research in Cardiology* 2016;111(4):49

Agents: BRL37344 **Vehicle:** Saline; **Route:** IV (right jugular vein); **Species:** Pigs; **Pump:** 2ML2; **Duration:** 14 days;
ALZET Comments: Controls received mp w/ vehicle; animal info (pig, 4 months old, 45 kg); functionality of mp verified by plasma levels; cardiovascular; antihypertensive; PE-60 catheter used for IV application; BRL37344 is a B3AR agonist; Dose (10 ug/kg/day BRL37344);

Q5760: V. Caolo, *et al.* CXCL1 microspheres: a novel tool to stimulate arteriogenesis. *Drug Delivery* 2016;23(8):2919-2926

Agents: CXCL1 **Vehicle:** Saline; **Route:** IP, Perivascular (femoral artery); **Species:** Mice; **Pump:** 1004; **Duration:** 28 days;
ALZET Comments: Controls received mp w/ vehicle; comparison of IM injection vs mp; ischemia (induced hind leg ischemia); Therapeutic indication (Drug delivery, arteriogenesis, peripheral artery disease);

Q5320: M. Benlloch, *et al.* Pterostilbene Decreases the Antioxidant Defenses of Aggressive Cancer Cells In Vivo: A Physiological Glucocorticoids- and Nrf2-Dependent Mechanism. *Antioxidants & Redox Signaling* 2016;24(17):974-90

Agents: Pterostilbene, Corticosterone **Vehicle:** DMSO, Ethanol; PEG400; **Route:** IV (jugular); **Species:** Mice; **Pump:** Not Stated; **Duration:** 35 days;

ALZET Comments: Controls received mp w/ vehicle; animal info Female nu/nu nude mice (6–8 weeks); Vehicle solution DMSO and ethanol at 2:1 ratio; functionality of mp verified by plasma levels, pg 979; functionality of mp verified by plasma levels, pg 979; Pterostilbene is a natural dimethoxylated analog of resveratrol; Mice xenograft models; Dose (50 mg/ml Pter; 0.3 ug/hr corticosterone); Resultant plasma level (pg. 979);