References on the Administration of Growth Factors
Using ALZET® Osmotic Pumps

1. Epidermal Growth Factor

Q7263: L. Riemann*, et al.* Transplantation of Neural Precursor Cells Attenuates Chronic Immune Environment in Cervical Spinal Cord Injury. Front Neurol 2018;9(428
Agents: Platelet-Derived Growth Factor, Epidermal Growth Factor, Basic Fibroblast Growth Factor **Vehicle:** Platelet-Derived Growth Factor, Epidermal Growth Factor, Basic Fibroblast Growth Factor; **Route:** CSF/CNS(Intrathecal); **Species:** Rat; **Pump:** 1007D; **Duration:** 7 days;
ALZET Comments: Dose (PDGF-AA, 1 µg/100 µL; EGF, 3 µg/100 µL; bFGF, 3 µg/100mL;); 0.1% rat serum albumin used; animal info (female Wistar rats 250 g;); post op. care (moxifloxacin, buprenorphine); spinal cord injury;

Q5514: K. Zweckberger*, et al.* Self-assembling peptides optimize the post-traumatic milieu and synergistically enhance the effects of neural stem cell therapy after cervical spinal cord injury. Acta Biomaterialia 2016;42(77-89
Agents: Basic fibroblast growth factor; epidermal growth factor; brain-derived growth factor **Vehicle:** CSF; artificial; gentamycin; **Route:** CSF/CNS (intrathecal); **Species:** Rat; **Pump:** 1007D; **Duration:** 7 days;
ALZET Comments: Controls received mp w/ vehicle; animal info (Wistar, 250g); spinal cord injury; post op. care (0.05 mg/kg buprenorphine SC; QD SC injection of cyclosporine A (10 mg/kg); QD minocycline 50 mg/kg); "catheter tip was located sub-durally at the epicenter of the lesion. It was fixed with several sutures in the paraspinal muscles to avoid any movement-associated dislocation and finally connected to the pump located in a subcutaneous recess." pg 79; behavioral testing (Grip strength test, Basso, Beattie, Bresnahan Locomotor Rating Scale, Inclined plane test); Therapeutic indication (spinal cord injury);Dose (Gentamycin: 50ug/mL);

Q4918: M. Zhang*, et al.* Growth factors and medium hyperglycemia induce Sox9+ ductal cell differentiation into β cells in mice with reversal of diabetes. pnas 2016;113(3):650-655
Agents: Gastrin; epidermal growth factor, human recombinant **Vehicle:** Acetic acid; PBS; **Route:** IP; **Species:** Mice; **Pump:** 1007D; **Duration:** 7 days;
ALZET Comments: Controls received mp w/ vehicle; animal info (male, WT or Ins1 CreERT); diabetes; Dose (gastrin 3 ug/kg/hr; EGF 10 ug/kg/hr);

Q5397: N. K. Littlejohn*, et al.* Suppression of Resting Metabolism by the Angiotensin AT2 Receptor. Cell Reports 2016;16(6):1548-1560
Agents: Angiotensin II, CGP-42112a, Epidermal growth factor **Vehicle:** Saline; **Route:** SC; **Species:** Mice (transgenic); **Pump:** Not Stated; **Duration:** 2 weeks;
ALZET Comments: Controls received mp w/ vehicle; animal info (male, AT2-KO mice); functionality of mp verified by plasma levels; dose-response; Angiotensin AT2 receptor; Dose (CGP 50, 100 ng/kg/min, EGF 0.833 ug/hr);

Q3518: M. S. Jeffers*, et al.* Epidermal Growth Factor and Erythropoietin Infusion Accelerate Functional Recovery in Combination With Rehabilitation. Stroke 2014;45(185-+
Agents: Epidermal Growth Factor; erythropoietin **Vehicle:** CSF, artificial; **Route:** CSF/CNS; **Species:** Rat; **Pump:** 2001; **Duration:** 14 days;
ALZET Comments: Animal info (male, Sprague Dawley); pumps replaced every 7 days; ischemia (cerebral); behavioral testing (staircase test); pumps removed 7 days after serial implantation;

2. Fibroblast Growth Factor

Q7646: Z. Yu*, et al.* Recombinant FGF21 Protects Against Blood-Brain Barrier Leakage Through Nrf2 Upregulation in Type 2 Diabetes Mice. Mol Neurobiol 2019;56(4):2314-2327
Agents: Fibroblast growth factor-21, recomb. human **Vehicle:** Not Stated; **Route:** IP; **Species:** Mice; **Pump:** Not Stated; **Duration:** 10 days;

ALZET Comments: "Dose (3 mg/kg/day); Controls were db/+ and received mp w/ vehicle; animal info (16 weeks, male, db/db); FGF21 is a robust regulator of metabolism through interactions with FGF receptor 1c and co-factor beta-Klotho.; diabetes; Therapeutic indication (obesity-induced reducing cognitive dysfunction and anxiety-like behavior through reducing glucose tolerance, insulin resistance, and
hyperlipidemia); "

Q6795: Y. Shi*, et al.* Fibroblast Growth Factor 21 Attenuates Vascular Calcification by Alleviating Endoplasmic Reticulum Stress Mediated Apoptosis in Rats. International Journal of Biological Sciences 2019;15(1):138-147
Agents: Fibroblast growth factor-21 **Vehicle:** Saline; **Route:** SC; **Species:** Rat; **Pump:** 2004; **Duration:** 28 days;
ALZET Comments: Dose (70 µg/kg/d); Controls received mp w/ vehicle; animal info (Male Sprague-Dawley rats (180-200g));

Q7303: Y. C. Shi*, et al.* Protection Effect of Exogenous Fibroblast Growth Factor 21 on the Kidney Injury in Vascular Calcification Rats. Chinese Medical Journal 2018;131(5):532-538
Agents: Fibroblast growth factor 21 **Vehicle:** saline; **Route:** SC; **Species:** Rat; **Pump:** 2004; **Duration:** 4 weeks;
ALZET Comments: Dose (70 µg/kg/d); Controls received mp w/ vehicle; animal info (8-week-old, male, Sprague Dawley);

Q7263: L. Riemann*, et al.* Transplantation of Neural Precursor Cells Attenuates Chronic Immune Environment in Cervical Spinal Cord Injury. Front Neurol 2018;9(428
Agents: Platelet-Derived Growth Factor, Epidermal Growth Factor, Basic Fibroblast Growth Factor **Vehicle:** Platelet-Derived Growth Factor, Epidermal Growth Factor, Basic Fibroblast Growth Factor; **Route:** CSF/CNS(Intrathecal); **Species:** Rat; **Pump:** 1007D; **Duration:** 7 days;
ALZET Comments: Dose (PDGF-AA, 1 µg/100 µL; EGF, 3 µg/100 µL; bFGF, 3 µg/100mL;); 0.1% rat serum albumin used; animal info (female Wistar rats 250 g;); post op. care (moxifloxacin, buprenorphine); spinal cord injury;

Q8146: C. N. Nelson*, et al.* Growth hormone activated STAT5 is required for induction of beige fat in vivo. Growth Horm IGF Res 2018;42-43(40-51
Agents: Fibroblast Growth Factor 21, recombinant **Vehicle:** Saline; **Route:** SC; **Species:** Mice; **Pump:** Not stated; **Duration:** 6 days;
ALZET Comments: Dose (1 mg/kg/day); Controls received mp w/ vehicle; animal info (Male, GHR KO); dependence;

3. Hepatocyte Growth Factor

Q7619: Y. Komaki*, et al.* Hepatocyte Growth Factor Facilitates Esophageal Mucosal Repair and Inhibits the Submucosal Fibrosis in a Rat Model of Esophageal Ulcer. Digestion 2019;99(3):227-238
Agents: Hepatocyte growth factor, human recombinant **Vehicle:** PBS; **Route:** IP; **Species:** Rat; **Pump:** Not Stated; **Duration:** 7 days;
ALZET Comments: Dose (0.2 mg/day); Controls received mp w/ vehicle; animal info (6 weeks, male, Sprague-Dawley); Hepatocyte growth factor (HGF) is a multifunctional polypeptide secreted by mesenchymal cells; Therapeutic indication (facilitates esophageal epithelial repair of ulcers);

Q6207: C. W. Mangieri*, et al.* Perioperative hepatocyte growth factor (HGF) infusions improve hepatic regeneration following portal branch ligation (PBL) in rodents. Surg Endosc 2017;31(7):2789-2797
Agents: Hepatocyte growth factor **Vehicle:** Saline; **Route:** IP; **Species:** Rat; **Pump:** 1003D; **Duration:** 72 hours;
ALZET Comments: Dose (1 ug/h); Controls received mp w/ vehicle; animal info (200-300g Sprague-Dawley rats);

Q2494: M. S. Katz*, et al.* Gene alterations and intestinal mucosal changes following growth factor and omega-3 exposure in a rat model of inflammatory bowel disease. Journal of Pediatric Surgery 2013;48(2):345-352
Agents: Hepatocyte growth factor **Vehicle:** HCl, Tris-; PBS; **Route:** IV (jugular); **Species:** Rat; **Pump:** Not Stated; **Duration:** 14 days;
ALZET Comments: Control animals received mp w/ saline; animal info (adult, female, tg, HLA-B27)

Q1885: M. S. Katz*, et al.* Hepatocyte growth factor and omega-3-enriched feeds have a synergistic effect on mucosal mass in an animal model of inflammatory bowel disease. Journal of Pediatric Surgery 2012;47(1):194-198
Agents: Hepatocyte growth factor, human recomb. **Vehicle:** PBS; HCL, tris; **Route:** IV (jugular); **Species:** Rat; **Pump:** 2002; **Duration:** 14 days;
ALZET Comments: Controls received mp w/ saline; animal info (female, adult, HLA-B27, 200-250 g)

Q2105: K. Kitamura*, et al.* Human Hepatocyte Growth Factor Promotes Functional Recovery in Primates after Spinal Cord Injury. PLoS One 2011;6(11):U83-U95
Agents: Hepatocyte growth factor, recomb. human **Vehicle:** PBS; **Route:** CSF/CNS (intrathecal); **Species:** Monkey (marmoset); **Pump:** 2004; **Duration:** 4 weeks;
ALZET Comments: Controls received mp w/ vehicle; animal info (adult, female, common, 295-350 g); ALZET rat intrathecal catheter used

4. Insulin-like Growth Factor

Q5699: A. Heinen*, et al.* IGF1 Treatment Improves Cardiac Remodeling after Infarction by Targeting Myeloid Cells. Mol Ther 2019;27(1):46-58
Agents: Insulin-like growth factor-I **Vehicle:** Not Stated; **Route:** SC; **Species:** Mice (knockout); **Pump:** 1003D; **Duration:** 3 days;
ALZET Comments: Dose (1 µg/g/day); Controls received mp w/ vehicle; animal info (IGF1RKO mice); post op. care (buprenorphine (0.05–0.1 mg/kg body weight, s.c.) for 5 days); cardiovascular;

Q4964: S. Bake*, et al.* Insulin-like Growth Factor (IGF)-1 treatment stabilizes the microvascular cytoskeleton under ischemic conditions. Experimental Neurology 2019;311(162-172
Agents: Insulin-like growth factor-I, recomb. Human; JB-1 **Vehicle:** CSF, artificial; **Route:** CSF/CNS (right lateral ventricle); **Species:** Rat; **Pump:** 1003D; 1007D; **Duration:** 1 day; 5 days;
ALZET Comments: Dose (100 µg/ml rhIGF-1; 20 µg/ml JB-1); Controls received mp w/ vehicle; animal info (Female Sprague Dawley rats; 10–12 months; weight range 325–350 g); JB-1 is an IGFR inhibitor; Brain coordinates (– 1.0mm posterior to bregma,−1.4mm medial lateral, −3.5mm from dural surface); cyanoacrylate adhesive; ischemia (cerebral);

Q7295: A. Santi*, et al.* Circulating insulin-like growth factor I modulates mood and is a biomarker of vulnerability to stress: from mouse to man. Transl Psychiatry 2018;8(1):142
Agents: Insulin-like growth factor-1 **Vehicle:** Saline; **Route:** CSF/CNS (lateral ventricle), SC; **Species:** Mice; **Pump:** 1002, 1004; **Duration:** 10 days, 25 days;
ALZET Comments: Dose (1 µg/day CF/CNS, 50 µg/kg/day SC); Controls received mp w/ vehicle; animal info (male,C56BL/6JolaHsd, 28–35 g);(male, LID,; 27–38 g); behavioral testing (predator exposure, open field, elevated plus maze); ALZET brain infusion kit 3 used; Brain coordinates (0.6 m m from bregma, 1.4 mm lateral, 2 mm of depth);

Q7102: D. Cabrera*, et al.* Somatotropic Axis Dysfunction in Non-Alcoholic Fatty Liver Disease: Beneficial Hepatic and Systemic Effects of Hormone Supplementation. Int J Mol Sci 2018;19(5):
Agents: Insulin-like growth factor-1, growth hormone **Vehicle:** Not Stated; **Route:** SC; **Species:** Mice; **Pump:** Not Stated; **Duration:** 4 weeks;
ALZET Comments: Dose (9 µg/g/day GH, 0.02 µg/g/day IGF-1); animal info (C57BL/6 mice);

Q7775: D. Aguado-Llera*, et al.* The Protective Effects of IGF-I against beta-Amyloid-related Downregulation of Hippocampal Somatostatinergic System Involve Activation of Akt and Protein Kinase A. Neuroscience 2018;374(104-118
Agents: Insulin-like growth factor-I **Vehicle:** Saline; **Route:** CSF/CNS (right cerebral ventricle); **Species:** Rat; **Pump:** 2002; **Duration:** 14 days;

ALZET Comments: Dose (50 ug/kg/day); Controls received mp w/ vehicle; animal info (Male, Wistar, 230-250 g); Insulin-like growth factor-I aka IGF-I; Brain coordinates (-0.3 mm anteroposterior, 1.1 mm lateral); bilateral cannula used; neurodegenerative (Alzheimer's Disease);

5. Nerve Growth Factor

Q7045: N. Shimizu*, et al.* Effects of nerve growth factor neutralization on TRP channel expression in laser-captured bladder afferent neurons in mice with spinal cord injury. Neurosci Lett 2018;683(100-103
Agents: Antibody, anti Nerve growth factor **Vehicle:** Not Stated; **Route:** SC; **Species:** Mice; **Pump:** 1002; **Duration:** 2 weeks;
ALZET Comments: Dose (10 µg/Kg/hour); Controls received mp w/ vehicle; animal info (9-10-week-old female C57BL/6 N mice weighing 18-22 g); spinal cord injury;

Q5675: Y. Sone*, et al.* Nerve Growth Factor Facilitates the Innervation of Perivascular Nerves in Tumor-Derived Neovasculature in the Mouse Cornea. Pharmacology 2017;99(1-2):57-66
Agents: Nerve growth factor **Vehicle:** Not Stated; **Route:** SC; **Species:** Mice; **Pump:** 1002; **Duration:** 7 days;
ALZET Comments: Controls received mp w/ saline; animal info (male BALB/C Cr Slc, 5 weeks old); cancer (prostate DU145 or fibrosarcoma HT1080); cardiovascular; Dose (40 ng/h);

Q6595: A. Matsuyama*, et al.* Effect of Nerve Growth Factor on Innervation of Perivascular Nerves in Neovasculatures of Mouse Cornea. Biological and Pharmaceutical Bulletin 2017;40(4):396-401
Agents: Nerve growth factor **Vehicle:** Not Stated; **Route:** SC; **Species:** Mice; **Pump:** 1002; **Duration:** 7 days;
ALZET Comments: Dose (48 µg/kg/d); animal info (5-7 week old Male BALB/c Cr Slc mice); comparison of pellet vs mp;

Q4917: A. Yokomizo*, et al.* Nerve growth factor facilitates redistribution of adrenergic and non-adrenergic non-cholinergic perivascular nerves injured by phenol in rat mesenteric resistance arteries. European Journal of Pharmacology 2016;770(110-6
Agents: Nerve growth factor **Vehicle:** Saline, sterile; **Route:** IP; **Species:** Rat; **Pump:** 1007D; **Duration:** 7 days;
ALZET Comments: animal info (Wistar, 8 weeks old); Dose (20 ug/kg/day);

Q5177: P. A. Pereira*, et al.* Effects of chronic alcohol consumption, withdrawal and nerve growth factor on neuropeptide Y expression and cholinergic innervation of the rat dentate hilus. Neurotoxicology 2016;54(153-60
Agents: Nerve growth factor **Vehicle:** Methylene blue; BSA; CSF, artificial; **Route:** CSF/CNS; **Species:** Rat; **Pump:** 2002; **Duration:** 12 days;
ALZET Comments: animal info (male, Wistar); functionality of mp verified by residual volume; Pumps were pre-tested to confirm delivery rate; ALZET brain infusion kit used; post op. care (SC injections of 0.9% saline (2ml)); pulsed delivery; lynch coil; the cannulae were connected to methylene blue (0.01%) filled minipumps via sterile coiled PE-60 tubing. The tubing was filled with air–oil spacer at the pump end and with NGF (150 mg diluted in 150 ml of vehicle).

6. Placental Growth Factor

Q4908: MingWu*, et al.* Placental growth factor 2 — A potential therapeutic strategy for chronic myocardial ischemia. International Journal of Cardiology 2016;203(534-542
ALZET Comments: Placental growth factor-2, recombinant human; PBS; IV; Pig; 2ML2; 14 days; 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);.

Q3967: J. Li*, et al.* Impaired proliferation of pancreatic beta cells, by reduced placental growth factor in pre-eclampsia, as a cause for gestational diabetes mellitus. Cell Proliferation 2015;48(166-174
ALZET Comments: Placental growth factor, human; PBS; SC; Mice; 10 days; Controls received mp w/ vehicle; animal info (female, Balb/c, GD9); functionality of mp verified by plasma levels; cardiovascular; bp measured using tail cuff;.

Q0490: Y. Takeda*, et al.* Treatment With Recombinant Placental Growth Factor (PIGF) Enhances Both Angiogenesis and Arteriogenesis and Improves Survival After Myocardial Infarction. CIRCULATION JOURNAL 2009;73(9):1674-1682
ALZET Comments: Placental growth factor, recomb. human; sFlt-1, recomb. human; IP; Mice; 3, 7 days; Controls received mp w/ vehicle; animal info (C57BL/6, 12 wks old); polyethylene IP catheter used.

P6669: R. Tamarat*, et al.* Impairment in ischemia-induced neovascularization in diabetes - Bone marrow mononuclear cell dysfunction and therapeutic potential of placenta growth factor treatment. American Journal of Pathology 2004;164(2):457-466
ALZET Comments: Placental growth factor; SC; Mice; 2001; 14 days; Diabetes, placenta growth factor (PIGF) is a VEGF homologue; ischemia.

P5645: F. Pipp*, et al.* VEGFR-1-selective VEGF homologue PlGF is arteriogenic - Evidence for a monocyte-mediated mechanism. Circulation Research 2003;92(4):378-385
ALZET Comments: Vascular endothelial growth factor; Vascular endothelial growth factor-E; Monocyte chemoattractant protein-1; Placental growth factor; Phosphate buffer; albumin; IA (femoral); Mice; rabbit; 1 week; Controls received mp w/ vehicle; dose-response (p.381); peptides; placenta growth factor (PlGF) is a VEGF homologue; VEGF-E is a chimera containing the heparin-binding domain of VEGF; MCP-1.

7. Transforming Growth Factor

Q8018: R. Gutierrez Jauregui*, et al.* IL-1beta Promotes Staphylococcus aureus Biofilms on Implants in vivo. Front Immunol 2019;10(1082
Agents: Interleukin-1 beta; Interleukin-6; Interleukin-10; Interleukin-12; Interleukin-17; Interleukin-23; Interferon, gamma; Tumor Necrosis Factor, alpha; Interleukin-1 beta, anti; Transforming Growth Factor-B1, anti **Vehicle:** Saline; **Route:** SC; **Species:** Mice; **Pump:** 1007D; **Duration:** Not stated;
ALZET Comments: Dose (IL-1B- 83 ug/ml, IL-6-83 ug/ml, IL-10-166 ug/ml, IL-12-83 ug/ml, IL-17-125 ug/ml, IL-23- 126 ug/ml, IFNγ-83 ug/ml, TNFa-166 ug/ml, anti-TGF-B1-166 ug/ml, or anti-IL-IB-150 ug/ml); Controls received mp w/ vehicle; animal info (8-12 weeks old, Female, C57BL/6); immunology;

Q7344: R. Gutierrez Jauregui*, et al.* IL-1beta Promotes Staphylococcus aureus Biofilms on Implants in vivo. Front Immunol 2019;10(1082
Agents: Interleukin-1 beta; Interleukin-6; Interleukin-10; Interleukin-12; Interleukin-17; Interleukin-23; Interferon, gamma; Tumor Necrosis Factor, alpha; Interleukin-1 beta, anti; Transforming Growth Factor-B1, anti **Vehicle:** PBS; **Route:** SC; **Species:** Mice; **Pump:** 1007D; **Duration:** 10 Days;
ALZET Comments: Dose (IL-1b (83µg/ml); IL-6 (83µg/ml); IL-10 (166µg/ml);
IL-12 (83µg/ml); IL-17 (125µg/ml); IL-23 (166µg/ml); IFNg (83µg/ml); TNFa (166µg/ml); anti-TGF-b1 (166µg/ml); anti-IL-1b (150µg/ml)); Controls received mp w/ vehicle; animal info (Eight- to twelve-week-old female C57BL/6 mice); Immunology ("evaluate the suitability of osmotic pumps as a model for
biofilms in implant associated infections, we implanted osmotic
pumps pre-colonized with bioluminescent Staphylococcus aureus");

Q6900: Tramullas M*, et al.* MicroRNA-30c-5p modulates neuropathic pain in rodents. Science Translational Medicine 2018;10(453):
Agents: Transforming growth factor-b1 **Vehicle:** Hydrochloric acid; albumin; PBS; **Route:** Not Stated; **Species:** Mice (knockout); **Pump:** 1002; **Duration:** 14 days;
ALZET Comments: Dose (6.2 ng/hour); animal info (BAMBI−/− mice); Therapeutic indication (chronic pain);

Q6604: D. Z. Milikovsky*, et al.* Electrocorticographic Dynamics as a Novel Biomarker in Five Models of Epileptogenesis. J Neurosci 2017;37(17):4450-4461

Agents: Transforming growth factor-β1; SJN2511; Interleukin-6; Bovine serum albumin **Vehicle:** CSF; artificial; dextran; **Route:** CSF/CNS; **Species:** Mice; **Pump:** Not Stated; **Duration:** 7 days;
ALZET Comments: Dose (0.4mM BSA, 100 ng/ml (TGF)- β1, 300µM SJN2511); Controls received mp w/ vehicle; animal info (2- to 3-month-old FVB/N and C57BL/6 mice); SJN2511 is a selective blocker of the TGF-B type I receptor/ALK5; Brain coordinates (0.5 mm posterior, 1 mm lateral to bregma);

Q5489: P. J. Wermuth*, et al.* Stimulation of Transforming Growth Factor-beta1-Induced Endothelial-To-Mesenchymal Transition and Tissue Fibrosis by Endothelin-1 (ET-1): A Novel Profibrotic Effect of ET-1. PLoS One 2016;11(9):e0161988
Agents: Transforming growth factor-B1; endothelin-1 **Vehicle:** Saline; **Route:** Not Stated; **Species:** Mice; **Pump:** Not Stated; **Duration:** 3 weeks;
ALZET Comments: Controls received mp w/ vehicle; animal info (FVB/N, 4 weeks old); used 28 day model pump;

8. Vascular Endothelial Growth Factor

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);

Q6971: Y. S. Hu*, et al.* Self-assembling vascular endothelial growth factor nanoparticles improve function in spinocerebellar ataxia type 1. Brain 2019;142(2):312-321
Agents: Vascular endothelial growth factor, mouse recomb.; Vascular endothelial growth factor, synthetic peptide (Nano-VEGF) **Vehicle:** CSF, artificial; **Route:** CSF/CNS (right lateral ventricle); **Species:** Mice; **Pump:** 1002; **Duration:** 2 weeks;
ALZET Comments: animal info (8-10, and 24 week-old mice); behavioral testing (rotating rod assy); Brain coordinates (A/P -0.5mm, M/L -1.1mm, D/V -2.5mm);

Q7841: Z. H. Dailiana*, et al.* Vascular endothelial growth factor for the treatment of femoral head osteonecrosis: An experimental study in canines. World J Orthop 2018;9(9):120-129
Agents: Vascular Endothelial Growth Factor **Vehicle:** Saline; **Route:** SC; **Species:** Dog; **Pump:** Not Stated; **Duration:** Duration;
ALZET Comments: Dose (500 ng); 0.9% Saline used; Controls received mp w/ vehicle; animal info (Beagle); Vascular endothelial Growth Factor aka VEGF;

Q6340: M. Piazza*, et al.* Simulating vasogenic brain edema using chronic VEGF infusion. J Neurosurg 2017;127(4):905-916
Agents: Vascular endothelial growth factor **Vehicle:** PBS; Rat serum albumin; **Route:** CSF/CNS; **Species:** Rat; **Pump:** 2001; 1007D; **Duration:** Not Stated;
ALZET Comments: Dose (2, 10, and 20 ng/hr); 0.1% rat serum albumin used; Controls received mp w/ vehicle; animal info (275-350g Male Fischer-344 rats); Brain coordinates (2.5 mm to the right of and 1 mm anterior to bregma); cyanoacrylate adhesive;

Q6022: Y. Dai*, et al.* The paracrine effect of cobalt chloride on BMSCs during cognitive function rescue in the HIBD rat. Behavioural Brain Research 2017;332(99-109
Agents: Vascular Endothelial Growth Factor **Vehicle:** Saline; **Route:** CSF/CNS (Left Lateral Ventricle); **Species:** Rat; **Pump:** 2001; **Duration:** 7 days;
ALZET Comments: Controls received mp w/ vehicle; animal info (17 weeks); behavioral testing (Morris water maze); Therapeutic indication (Hypoxia-inducible factor-1α Cobalt chloride Hypoxic–ischemic encephalopathy);