



### Recent References (2012-2019) on Transplantation Research Using ALZET® Osmotic Pumps

**Q6954:** S. L. Payne, *et al.* Initial cell maturity changes following transplantation in a hyaluronan-based hydrogel and impacts therapeutic success in the stroke-injured rodent brain. *Biomaterials* 2019;192(309-322)

**ALZET Comments:** Cyclosporine A; Ethanol, Cremophor; SC; Rat; 2ML4; 56 days; Dose (15 mg/kg/day); animal info (male Sprague-Dawley rats, 350 g); post op. care (3 mg/kg- ketoprofen); behavioral testing (Montoya staircase and tapered beam test); long-term study; ischemia (stroke);.

**Q7263:** L. Riemann, *et al.* Transplantation of Neural Precursor Cells Attenuates Chronic Immune Environment in Cervical Spinal Cord Injury. *Front Neurol* 2018;9(428)

**ALZET Comments:** Platelet-Derived Growth Factor, Epidermal Growth Factor, Basic Fibroblast Growth Factor; Platelet-Derived Growth Factor, Epidermal Growth Factor, Basic Fibroblast Growth Factor; CSF/CNS(Intrathecal); Rat; 1007D; 7 days; Dose (PDGF-AA, 1 µg/100 µL; EGF, 3 µg/100 µL; bFGF, 3 µg/100µL); 0.1% rat serum albumin used; animal info (female Wistar rats 250 g); post op. care (moxifloxacin, buprenorphine); spinal cord injury;.

**Q7059:** J. Patel, *et al.* Effect of irradiation and bone marrow transplantation on angiotensin II-induced aortic inflammation in ApoE knockout mice. *Atherosclerosis* 2018;276(74-82)

**ALZET Comments:** Angiotensin II; SC; Mice (knockout); 14 days; Dose (0.8, 1.5, or 3 mg/kg/day); animal info (BMT or non BMT male mice); cardiovascular;.

**Q7215:** H. Li, *et al.* Fibroblast growth factor 21 increases insulin sensitivity through specific expansion of subcutaneous fat. *Nat Commun* 2018;9(1):272

**ALZET Comments:** Fibroblast growth factor 21, mouse recomb.; Saline; SC; Mice; 4 weeks; Dose (0.1 mg/kg/day); Controls received mp w/ vehicle; animal info (8 week old, FGF21KO); Resultant plasma level (1.5 ng/ml, which was 2–3 times of the 8-week HFD-induced endogenous FGF21 level of 0.6 ng/ml (Fig. 3f)); dependence;.

**Q7128:** L. Detti, *et al.* Xenotransplantation of pre-pubertal ovarian cortex and prevention of follicle depletion with anti-Mullerian hormone (AMH). *J Assist Reprod Genet* 2018;35(10):1831-1841

**ALZET Comments:** anti-Müllerian hormone, recomb.; Saline; IP; Mice (nude); 1002; 2 weeks; Dose (1.23 ug/d); Controls received mp w/ vehicle; animal info (10-week-old NU/J mice, or nude mice,); functionality of mp verified by residual volume;.

**Q7097:** A. Alastrue-Agudo, *et al.* FM19G11 and Ependymal Progenitor/Stem Cell Combinatory Treatment Enhances Neuronal Preservation and Oligodendrogenesis after Severe Spinal Cord Injury. *Int J Mol Sci* 2018;19(1):

**ALZET Comments:** FM19G11; DMSO; CSF/CNS (intrathecal); Rat; 1007D; 3 days; Controls received mp w/ vehicle; animal info (2-month-old Sprague Dawley rats weighing ~200 g); FM19G11 is an inhibitor of Hypoxia inducible factor-alpha protein expression; spinal cord injury;.

**Q5919:** K. M. Williams, *et al.* FLT3 ligand regulates thymic precursor cells and hematopoietic stem cells through interactions with CXCR4 and the marrow niche. *Exp Hematol* 2017;52(40-49)

**ALZET Comments:** FLT3L, recombinant human; Mice; 7 days; Controls received mp w/ PBS; animal info (male, C57BL/6(B6)-Ly5.1 or B6, post-pubertal); Dose (5 ug/day);.

**Q5695:** T. L. Uhlendorf, *et al.* Efficacy of Two Delivery Routes for Transplanting Human Neural Progenitor Cells (NPCs) Into the Spastic Han-Wistar Rat, a Model of Ataxia. *Cell Transplant* 2017;26(2):259-269

**ALZET Comments:** Cyclosporine; SC; Rat; 2004; animal info (spastic Han-Wistar, 30 days); no stress (see pg. 268); behavioral testing (locomotor activity); cardiovascular; "This method of chronic delivery prevents painful daily injection and subsequent behavioral changes in treated animals. We did not detect any negative effects of cyclosporine, and no behavioral alterations were observed in treated mutants other than natural disease progression" pg 268; Dose (15 mg/kg/day);.



**Q6772:** S. Seiler, *et al.* Antagonization of the Nogo-Receptor 1 Enhances Dopaminergic Fiber Outgrowth of Transplants in a Rat Model of Parkinson's Disease. *Front Cell Neurosci* 2017;11(151)

**ALZET Comments:** NEP1-40; Saline; CSF/CNS (right lateral ventricle); Rat; 2ML2; 2 weeks; Dose (75 mg/kg/day); Controls received mp w/ vehicle; animal info (Adult female hemi-parkinsonian Wistar rats); ALZET brain infusion kit 2 used; Brain coordinates (posterior 0.8 mm, lateral 1.6 mm and 3.5 mm ventral to the dura, the incisor bar was set at 0.0 mm.); neurodegenerative (Parkinson's disease);.

**Q5890:** T. Sakaue, *et al.* Perivascular Adipose Tissue Angiotensin II Type 1 Receptor Promotes Vascular Inflammation and Aneurysm Formation. *Hypertension* 2017;70(4):780-789

**ALZET Comments:** Angiotensin II; SC; Mice; 2004; 28 days; Controls received mp w/ vehicle; animal info (ApoE 12-14 weeks old); cardiovascular; immunology; peptides; BP measured using tail cuff; Dose (1000 ng/kg/min);.

**Q5818:** I. C. L. Pillai, *et al.* Cardiac Fibroblasts Adopt Osteogenic Fates and Can Be Targeted to Attenuate Pathological Heart Calcification. *Cell Stem Cell* 2017;20(2):218-232 e5

**ALZET Comments:** SYL-001, ARL67156 Trisodium Salt; Propylene Glycol; Mouse; 1007D; Controls received mp w/ vehicle; animal info (8-10 weeks old); 10% Propylene Glycol; cardiovascular; enzyme inhibitor (ectonucleotide pyrophosphatase/phosphodiesterase-1 (ENPP1)); Therapeutic indication (Heart calcification); Dose (SYL-001: 10 mg/kg/day, ARL67156 Trisodium Salt: 1 mg/kg/day);.

**Q7248:** R. L. Nuryyev, *et al.* Transplantation of Human Neural Progenitor Cells Reveals Structural and Functional Improvements in the Spastic Han-Wistar Rat Model of Ataxia. *Cell Transplant* 2017;26(11):1811-1821

**ALZET Comments:** Cyclosporine; SC; Rat; 2004; 28 days; Dose (15 mg/kg/day); animal info (30 days of age, male sHW mutant rats); neurodegenerative (replacement/augmentation); .

**Q6583:** Y. C. Lin, *et al.* Simultaneously Targeting Myofibroblast Contractility and Extracellular Matrix Cross-Linking as a Therapeutic Concept in Airway Fibrosis. *Am J Transplant* 2017;17(5):1229-1241

**ALZET Comments:** Relaxin-2, recomb. human; Saline; Mice; Dose (0.5mg/kg); Controls received mp w/ vehicle; animal info (wild type or B6.126-Ptger2tm1Brey/J C57BL/6J mice); cardiovascular;.

**Q6264:** T. Feridooni, *et al.* Effects of beta-adrenergic receptor drugs on embryonic ventricular cell proliferation and differentiation and their impact on donor cell transplantation. *Am J Physiol Heart Circ Physiol* 2017;312(5):H919-H931

**ALZET Comments:** Isoproterenol; Metoprolol; SC; Mice; 2001; 3 days; Dose (Isoproterenol: 0.025 g/ml; Metoprolol: 0.0684 g/ml); animal info (CD1 and C57BL/6 (BL6) mice);.

**Q6022:** Y. Dai, *et al.* The paracrine effect of cobalt chloride on BMSCs during cognitive function rescue in the HIBD rat. *Behav Brain Res* 2017;332(99-109)

**ALZET Comments:** Vascular Endothelial Growth Factor; Saline; CSF/CNS (Left Lateral Ventricle); Rat; 2001; 7 days; Controls received mp w/ vehicle; animal info (17 weeks); behavioral testing (Morris water maze); Therapeutic indication (Hypoxia-inducible factor-1 $\alpha$  Cobalt chloride Hypoxic-ischemic encephalopathy);.

**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;.

**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 Biomater* 2016;42(77-89)

**ALZET Comments:** Basic fibroblast growth factor; epidermal growth factor; brain-derived growth factor; CSF; artificial; gentamycin; CSF/CNS (intrathecal); Rat; 1007D; 7 days; 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);.

**Q5718:** N. Yu. Combined thermosensitive in situ gel with AMD3100 in sutureless technique improves the survival and function of kidney transplants in mice. AMERICAN JOURNAL OF TRANSLATIONAL RESEARCH 2016;8(12):5653-5658

**ALZET Comments:** AMD3100; PBS; SC; Mice; 2 weeks; 8 weeks; Controls received mp w/ saline; animal info (male, C57BL6, 10 weeks old); immunology; Dose (2 mg);.

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

**ALZET Comments:** Preimplantation Factor; DMSO; PBS, Dulbecco's; SC; Mice; 1002; 2 weeks; 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);.

**Q6652:** S. Ribback, *et al.* The Epidermal Growth Factor Receptor (EGFR) Inhibitor Gefitinib Reduces but Does Not Prevent Tumorigenesis in Chemical and Hormonal Induced Hepatocarcinogenesis Rat Models. Int J Mol Sci 2016;17(10):

**ALZET Comments:** Uridine, bromodeoxy; Rat; 2ML1; 7 days; animal info (inbred male and female Lewis rats); 5-Bromo-20-deoxyuridine AKA (BrdU); cancer (Hepatocellular carcinoma);.

**Q6638:** R. L. Pawlick, *et al.* Reparixin, a CXCR1/2 inhibitor in islet allotransplantation. Islets 2016;8(5):115-24

**ALZET Comments:** Reparixin; Saline; SC; Mice; 2001; 7 days; Dose (8 mg/kg/hr); Controls received mp w/ vehicle; animal info (8–12 week male BALB/c mice);.

**Q5399:** G. Liu, *et al.* Pselectin increases angiotensin II-induced cardiac inflammation and fibrosis via platelet activation. Mol Med Rep 2016;13(6):5021-8

**ALZET Comments:** Angiotensin II; Acetic Acid; Saline; SC; Mice (knockout); 1007D; 7 days; Controls received mp w/ vehicle; animal info (male P-sel KO and WT C57BL/6 mice, 8 weeks old, 23-25 g); functionality of mp verified by blood pressure; cardiovascular; no stress: “All treatments were well tolerated by the mice” (see pg. 5022); Dose (1,500 ng/kg/min); Control BP: 100 mmHg, AngII BP: 150 mmHg; Therapeutic indication (Cardiac inflammation).

**Q6691:** Y. Li, *et al.* Context-dependent effects of SOCS3 in angiotensin II-induced vascular dysfunction and hypertension in mice: mechanisms and role of bone marrow-derived cells. Am J Physiol Heart Circ Physiol 2016;311(1):H146-56

**ALZET Comments:** Angiotensin II; Saline; SC; Mice; 1002; 14 days; Dose (1.4 mg/kg/day or 0.28 mg/kg/day); animal info (C57BL6/J mice); cardiovascular;.

**Q5393:** T. T. Li, *et al.* Endoplasmic reticulum stress in bone marrow-derived cells prevents acute cardiac inflammation and injury in response to angiotensin II. Cell Death Dis 2016;7(6):e2258

**ALZET Comments:** Angiotensin II; Acetic Acid, Saline; SC; Mice; 1007D; 7 days; animal info C57B/L6 mice; functionality of mp verified by blood pressure via tail cuff; peptides; Hypertensive cardiac injury study; cardiac ECG performed; Dose (1500 ng/kg/min);.

**Q6081:** K. H. M. Kwok, *et al.* Adipose-specific inactivation of JNK alleviates atherosclerosis in apoE-deficient mice. Clin Sci (Lond) 2016;130(22):2087-2100

**ALZET Comments:** Adipocyte–fatty acid-binding protein; SC; Mice (knockout and transgenic); 4 weeks; Dose (440 µg at a rate of 0.44 µg/h); cardiovascular;.

**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);.



**Q5543:** T. R. Jost, *et al.* Role of CXCR4-mediated bone marrow colonization in CNS infiltration by T cell acute lymphoblastic leukemia. *J Leukoc Biol* 2016;99(6):1077-87

**ALZET Comments:** AMD3100; PBS; IP; Mice (NSG); 1002, 1004; 14 days, 28 days; Controls received mp w/ vehicle; animal info (Immunodeficient, non-obese, diabetic);.

**Q5346:** R. D. Feldman, *et al.* Aldosterone mediates metastatic spread of renal cancer via the G protein-coupled estrogen receptor (GPER). *FASEB J* 2016;30(6):2086-96

**ALZET Comments:** Aldosterone; G protein-coupled estrogen receptor 15 antagonist; SC; Mice; 1004; 2 weeks; Controls received mp w/ vehicle; animal info (BALB/c male mice, 2 month old); cancer (Orthotopic renal cancer); dose-response (pg. 2093); Dose (200 ug/kg/day for both);.

**Q5733:** M. Bacigaluppi, *et al.* Neural Stem Cell Transplantation Induces Stroke Recovery by Upregulating Glutamate Transporter GLT-1 in Astrocytes. *J Neurosci* 2016;36(41):10529-10544

**ALZET Comments:** Dihydrokainic acid; PBS; CSF/CNS (Intrastriatal); Mice; 1007D; 7 days; Controls received mp w/ vehicle; animal info (8-10 weeks, C57bl/6); ALZET brain infusion kit 3 used; ischemia (Ischemic stroke; stem cell transplantation); neurodegenerative (Ischemic stroke); Dihydrokainate is a selective inhibitor of the GLT-1 glutamate transporter ; Therapeutic indication (Ischemia, Neurophysiology, Plasticity, Stem Cells); Dose (30 ug/mouse/d);.

**Q4264:** Y. Zhu, *et al.* Hematogenous macrophage depletion reduces the fibrotic scar and increases axonal growth after spinal cord injury. *NEUROBIOLOGY OF DISEASE* 2015;74(114-125

**ALZET Comments:** Sunitinib malate; DMSO; CSF/CNS (intrathecal); Mice; 1002; 2 weeks; enzyme inhibitor (tyrosine kinase); Animal info (female, 8 weeks old); functionality of mp verified by use of evans blue dye; 2.5% DMSO used; spinal cord injury; immunology; used ALZET mouse IT catheter;.

**Q4672:** A. Zakrzewicz, *et al.* Monocytic Tissue Transglutaminase in a Rat Model for Reversible Acute Rejection and Chronic Renal Allograft Injury. *MEDIATORS OF INFLAMMATION* 2015;;(U1-U13

**ALZET Comments:** Cystamine dihydrochloride; Saline, sterile; SC; Rat; 2ML4; 28 days; Controls received mp w/ vehicle; animal info (male, Lweis or F344, 270-300g); cardiovascular; immunology;.

**Q4614:** R. Thoonen, *et al.* Functional brown adipose tissue limits cardiomyocyte injury and adverse remodeling in catecholamine-induced cardiomyopathy. *JOURNAL OF MOLECULAR AND CELLULAR CARDIOLOGY* 2015;84(202-211

**ALZET Comments:** Isoproterenol; SC; Mice; 1002; 3 days; 14 days; Controls received mp w/ saline; animal info (C57BL6J, 12-14 weeks old); cardiovascular; bp measured using tail cuff;.

**Q4599:** H. H. Szeto, *et al.* Improving mitochondrial bioenergetics under ischemic conditions increases warm ischemia tolerance in the kidney. *AMERICAN JOURNAL OF PHYSIOLOGY-RENAL PHYSIOLOGY* 2015;308(F11-F21

**ALZET Comments:** SS-20; SC; Rat; 2004; 4 weeks; Controls received mp w/ saline; animal info (male, Sprague Dawley, 250-300g, adult); ischemia (renal); cardiovascular; peptides;.

**Q4080:** M. A. Saleh, *et al.* Lymphocyte adaptor protein LNK deficiency exacerbates hypertension and end-organ inflammation. *Journal of Clinical Investigation* 2015;125(1189-1202

**ALZET Comments:** Angiotensin II; NaCl; acetic acid; SC; Mice; 2002; 2004; 4 weeks; Controls received mp w/ vehicle; animal info (Lnk -/-, 10-12 weeks old); cardiovascular; immunology; peptides; bp measured using radiotelemetry or tail cuff;.

**Q4984:** K. Nishiyama, *et al.* Mouse CD11b+Kupffer Cells Recruited from Bone Marrow Accelerate Liver Regeneration after Partial Hepatectomy. *PLoS One* 2015;10(9):e0136774

**ALZET Comments:** Antagonist, CCR2; DMSO; SC; Mice; 2001; 7 days; animal info (C57BL6, eight weeks old);.

**Q4559:** W. Lv, *et al.* Bone marrow mesenchymal stem cells transplantation promotes the release of endogenous erythropoietin after ischemic stroke. *Neural Regen Res* 2015;10(8):1265-70



**ALZET Comments:** sEPOR; PBS; BSA; CSF/CNS; Rat; 1007D; 13 days; animal info (male, Sprague Dawley, 2 month old, 250-300g); 0.1% BSA used; ischemia (cerebral); behavioral testing (somatosensory test; balance, motor testing); pumps primed in 37C sterile saline overnight; Dose (3 ug/day);.

**Q5241:** Keunhee Oh, *et al.* In Vivo Differentiation of Therapeutic Insulin-Producing Cells from Bone Marrow Cells via Extracellular Vesicle-Mimetic Nanovesicles. *ACS Nano* 2015;9(12):11718-11727

**ALZET Comments:** Insulin; SC; Mice (NOD); 14 days; animal info (BALB/c, NOD male mice, aged 7-10 wks); functionality of mp verified by blood glucose levels; diabetes; Dose (0.14 units/day);.

**Q5015:** J. B. Iorgulescu, *et al.* Acute Putrescine Supplementation with Schwann Cell Implantation Improves Sensory and Serotonergic Axon Growth and Functional Recovery in Spinal Cord Injured Rats. *Neural Plast* 2015;2015(186385

**ALZET Comments:** Putrescine; Saline; SC; Rat; 2001; 2 weeks; Controls received mp w/ vehicle; animal info (female, Fischer, adult, 180-200g); pumps replaced every week; spinal cord injury; behavioral testing (locomotor activity);.

**Q5021:** M. Ikemoto-Uezumi, *et al.* Pro-Insulin-Like Growth Factor-II Ameliorates Age-Related Inefficient Regenerative Response by Orchestrating Self-Reinforcement Mechanism of Muscle Regeneration. *Stem Cells* 2015;33(8):2456-68

**ALZET Comments:** Insulin-like growth factor II, pro; PBS; SC; Mice; 1003D; 2001; 3 days; 7 days; Controls received mp w/ vehicle; animal info (C57BL6, 2 months or 24-27 months old); Dose (0.5 ug/hr);.

**Q4432:** M. Gramlich, *et al.* Antisense-mediated exon skipping: a therapeutic strategy for titin-based dilated cardiomyopathy. *EMBO Molecular Medicine* 2015;7(562-576

**ALZET Comments:** Angiotensin II; SC; Mice; 14 days; Animal info (WT or HET); cardiovascular; peptides;.

**Q4430:** I. Gonzalez-Valdes, *et al.* Bmi1 limits dilated cardiomyopathy and heart failure by inhibiting cardiac senescence. *Nature Communications* 2015;6(U110-U121

**ALZET Comments:** Isoproterenol; SC; Mice; 14 days; Controls received mp w/ PBS; animal info (9 weeks old, 21-24g); cardiovascular;.

**Q5143:** A. C. Dusabineza, *et al.* Hepatic Stellate Cells Improve Engraftment of Human Primary Hepatocytes: A Preclinical Transplantation Study in an Animal Model. *Cell Transplant* 2015;24(12):2557-71

**ALZET Comments:** Uridine, bromodeoxy-; IP; mice; 1004; 6 hours; 4 weeks; animal info: SCID mice, females, 20-24 g; GFP+ transgenic mice, males, 35-44 g; gene therapy;.

**Q4379:** P. Y. Chu, *et al.* CXCR4 Antagonism Attenuates the Development of Diabetic Cardiac Fibrosis. *PLoS One* 2015;10(U1392-U1404

**ALZET Comments:** AMD3100; AMD3465; Water; sodium bicarbonate; SC; Mice; 2004; 1 week; 8 weeks; Controls received mp w/ vehicle; animal info (male, C57BL6, 6 weeks old, STZ injection); cardiovascular; immunology; bp measured using tail cuff;.

**Q4366:** H. Chen, *et al.* Pre-activation of mesenchymal stem cells with TNF-alpha, IL-1beta and nitric oxide enhances its paracrine effects on radiation-induced intestinal injury. *SCIENTIFIC REPORTS* 2015;5(U20-U33

**ALZET Comments:** Conditioned medium, mesenchymal stem cells; IP; Rat; 14 days; Controls received mp w/ non-activated MSC-CM; animal info (Sprague Dawley, adult, 280-350g); post op. care (antibiotics streptomycin and penicillin); immunology;.

**Q4340:** M. L. Bustos, *et al.* Depletion of Bone Marrow CCSP-Expressing Cells Delays Airway Regeneration. *MOLECULAR THERAPY* 2015;23(561-569

**ALZET Comments:** Ganciclovir; SC; Mice; 15 days; Animal info (C57BL/6 or WT);.

**Q3367:** L. Wang, *et al.* Inhibition of Toll-like receptor 2 reduces cardiac fibrosis by attenuating macrophage-mediated inflammation. *Cardiovascular Research* 2014;101(3):383-392



**ALZET Comments:** Angiotensin II; Saline; SC; Mice; 1007D; 7 days; Controls received mp w/ vehicle; animal info (male, TLR2KO and C57BL/6 WT, 10-12 weeks old); cardiovascular; immunology; peptides; bp measured using tail-cuff;.

**Q3617:** Z. Rowinska, *et al.* Establishment of a New Murine Elastase-Induced Aneurysm Model Combined with Transplantation. PLoS One 2014;9(U147-U153)

**ALZET Comments:** Mice; Animal info (C57Bl6, 8-12 weeks); mouse jugular catheter only;.

**Q3600:** D. Piccin, *et al.* Neural stem and progenitor cells in the aged subependyma are activated by the young niche. NEUROBIOLOGY OF AGING 2014;35(1669-1679)

**ALZET Comments:** SB216763; DMSO; CSF/CNS; Mice; 1007D; 4 days; Controls received mp w/ vehicle; animal info (CD1 and YPF, young mice 8-10 weeks old or old mice 18-22 months old ); aging; SB216763 is a GSK-3B inhibitor;.

**Q4020:** T. Nomiya, *et al.* Exendin-4, a GLP-1 Receptor Agonist, Attenuates Prostate Cancer Growth. Diabetes 2014;63(3891-3905)

**ALZET Comments:** Exendin-4; Saline; SC; Mice; 1004; 6 weeks; Controls received mp w/ vehicle; animal info (CAnN.Cgt-Foxn1nu/CrlCrlj, athymic, 6 weeks old); cancer (prostate); image of mice with pumps and tumors (Fig. 7; p. 3901);.

**Q4015:** M. Navaratnarajah, *et al.* Impact of Combined Clenbuterol and Metoprolol Therapy on Reverse Remodelling during Mechanical Unloading. PLoS One 2014;9(U31-U41)

**ALZET Comments:** Clenbuterol; SC; Rat; 2002; 4 weeks; Controls received mp w/ saline; animal info (male, Lewis, 10 weeks old, 200g); functionality of mp verified by blood levels; ischemia (cardiac); cardiovascular; clenbuterol is a B2 agonist;.

**Q3703:** S. Michineau, *et al.* Chemokine (C-X-C Motif) Receptor 4 Blockade by AMD3100 Inhibits Experimental Abdominal Aortic Aneurysm Expansion Through Anti-Inflammatory Effects. ARTERIOSCLEROSIS THROMBOSIS AND VASCULAR BIOLOGY 2014;34(1747-+)

**ALZET Comments:** AMD3100; SC; Mice; 2002; 10 days; Controls received mp w/ vehicle; animal info (male, C57BL6, 8 weeks old); cardiovascular; AMD3100 is a CXCR4 receptor antagonist.

**Q3975:** P. Liang, *et al.* Neural Stem Cell-Conditioned Medium Protects Neurons and Promotes Propriospinal Neurons Relay Neural Circuit Reconnection After Spinal Cord Injury. CELL TRANSPLANTATION 2014;23(S45-S56)

**ALZET Comments:** Neural stem cell-conditioned medium, human fetal; CSF/CNS (intrathecal); Rat; 2001; 4 weeks; Controls received mp w/ NSC culture medium; animal info (female, Wistar, 8-10 weeks old, 260-300g); pumps replaced every week; spinal cord injury; post op. care (Bicillin injection 20000 U/day, bladder massage); behavioral testing (locomotor activity); pumps primed in 37C saline overnight; pumps removed after 4 weeks of infusion;.

**Q3758:** M. Ishikawa, *et al.* MCP/CCR2 Signaling Is Essential for Recruitment of Mesenchymal Progenitor Cells during the Early Phase of Fracture Healing. PLoS One 2014;9(U587-U595)

**ALZET Comments:** RS102895; DMSO; Mice; 1002; 14 days; Control animals received mp w/ vehicle; animal info (MCP-1, MCP-3); RS102895 is a selective CCR2 antagonist.

**Q3337:** J. R. Erion, *et al.* Obesity Elicits Interleukin 1-Mediated Deficits in Hippocampal Synaptic Plasticity. Journal of Neuroscience 2014;34(7):2618-2631

**ALZET Comments:** IL-1 receptor antagonist; CSF, artificial; CSF/CNS (hippocampus); Mice; 2 weeks; Animal info (male, db/db C57BL6J); functionality of mp verified by ELISA of hippocampal IL1ra; behavioral testing (spatial recognition memory testing, novel-object preference, treadmill running); tissue perfusion (hippocampus); immunology; diabetes; Cannula placement verified via histology; Used Plastics One cannula.

**Q4029:** O. Cauli, *et al.* Blocking NMDA Receptors Delays Death in Rats with Acute Liver Failure by Dual Protective Mechanisms in Kidney and Brain. NEUROMOLECULAR MEDICINE 2014;16(360-375)

**ALZET Comments:** MK-801; Saline; SC; Rat; 2001; 7 days; Controls received mp w/ vehicle; animal info (male, Wister, 220-270g); MK-801 is an NMDA receptor blocker;.



**Q3822:** X. C. Cao, *et al.* Transplantation of mesenchymal stem cells recruits trophic macrophages to induce pancreatic beta cell regeneration in diabetic mice. *INTERNATIONAL JOURNAL OF BIOCHEMISTRY & CELL BIOLOGY* 2014;53(372-379

**ALZET Comments:** AMD3100; PBS; SC; Mice; Controls received mp w/ vehicle; animal info (male, C57BL, 8 weeks old); cardiovascular; immunology;

**Q3418:** C. F. Bentzinger, *et al.* Wnt7a stimulates myogenic stem cell motility and engraftment resulting in improved muscle strength. *Journal of Cell Biology* 2014;205(97-111

**ALZET Comments:** FK506; Mice (transgenic); 3 days; Animal info (C57BL6); FK-506 aka tacrolimus; FK506 is an immunosuppressant.

**Q3417:** O. Ben Menachem-Zidon, *et al.* Intra-Hippocampal Transplantation of Neural Precursor Cells with Transgenic Over-Expression of IL-1 Receptor Antagonist Rescues Memory and Neurogenesis Impairments in an Alzheimer's Disease Model. *Neuropsychopharmacology* 2014;39(2):401-414

**ALZET Comments:** Interleukin-1 receptor antagonist; CSF/CNS; Mice (transgenic); 28 days; Controls received mp w/ vehicle; animal info (WT and Tg2576, 11 months old); pumps replaced every 2 weeks; ALZET brain infusion kit 3 used; neurodegenerative (Alzheimer's disease); behavioral testing (fear conditioning; morris water maze); stability verified by (IL-1-ra remains effective for 2 weeks in pumps); Used three anchoring screws;

**Q3856:** C. az-Garcia, *et al.* Pregnancy after allogeneic uterus transplantation in the rat: perinatal outcome and growth trajectory. *Fertility and Sterility* 2014;102(1545-U353

**ALZET Comments:** Tacrolimus; NaCl; SC; Rat; 2ML4; 2004; 8 weeks; Controls received mp w/ vehicle; animal info (female, Lewis, virgin); functionality of mp verified by blood levels; pumps replaced every 2 weeks; teratology;

**Q3372:** H. M. Yun, *et al.* Placenta-derived mesenchymal stem cells improve memory dysfunction in an Aβ(1-42)-infused mouse model of Alzheimer's disease. *Cell Death & Disease* 2013;4(;):U202-U211

**ALZET Comments:** Amyloid protein, beta (1-42); Saline; CSF/CNS; Mice; 1002; 14 days; Animal info (male, ICR mice, 20-25g); neurodegenerative (Alzheimer's disease); behavioral testing (Morris water maze, probe test, passive avoidance); immunology;

**Q2700:** Z. Yu, *et al.* Myeloid Cell 5-Lipoxygenase Activating Protein Modulates the Response to Vascular Injury. *Circulation Research* 2013;112(3):432-U71

**ALZET Comments:** Uridine, bromodeoxy; SC; Mice; 28 days; Animal info (C57BL/6, FLAP KO, male, 12 wks old).

**Q2850:** P. Ye, *et al.* GM-CSF contributes to aortic aneurysms resulting from SMAD3 deficiency. *Journal of Clinical Investigation* 2013;123(5):2317-2331

**ALZET Comments:** Smad3 inhibitor; Mice; 1 week; Control animals received mp w/ vehicle; animal info (Smad3 -/-, male, female, wt).

**Q3135:** J. D. Tian, *et al.* gamma-Aminobutyric Acid Regulates Both the Survival and Replication of Human beta-Cells. *Diabetes* 2013;62(11):3760-3765

**ALZET Comments:** Muscimol; PBS; SC; Mice (NOD/SCID); 1002; 14 days; Controls received mp w/ vehicle; animal info (male, C57BL6, 10 weeks old; NOD/SCID); diabetes.

**Q2676:** F. Tao, *et al.* Role of Neuregulin-1/ErbB Signaling in Stem Cell Therapy for Spinal Cord Injury-Induced Chronic Neuropathic Pain. *Stem Cells* 2013;31(1):83-91

**ALZET Comments:** RNA, small interfering; CSF/CNS (intrathecal); Rat; 2004; 28 days; Control animals received mp w/ non target RNA; animal info (Long Evans, female, 250 g); NRG1 siRNA; spinal cord injury.

**Q3034:** N. Suzuki, *et al.* Generation of Engraftable Hematopoietic Stem Cells From Induced Pluripotent Stem Cells by Way of Teratoma Formation. *MOLECULAR THERAPY* 2013;21(7):1424-1431



**ALZET Comments:** Stem cell factor, human recomb.; SC; Mice (NOD/SCID); 2 weeks; Animal info (NOD/SCID (male, 5-7 weeks old); KSN/Slc (4-5 weeks old)); immunology; peptides.

**Q3601:** A. Pileggi, *et al.* MicroRNAs in islet immunobiology and transplantation. *Immunologic Research* 2013;57(1-3):185-196

**ALZET Comments:** Morpholinos; Kidney (renal subcapsular space); Rat; Gene therapy; diabetes; Used silicone catheter 3 french; morpholinos are DNA mimics, miRNA inhibitors.

**Q3179:** T. Okamoto, *et al.* Suppression of acute rejection by administration of prostaglandin E(2) receptor subtype 4 agonist in rat organ transplantation models. *Journal of Surgical Research* 2013;183(2):852-859

**ALZET Comments:** CAY10580; DMSO; saline; SC; Rat; 2002; 14 days; Controls received mp w/ vehicle; animal info (Brown Norway Rats, Lewis Rats, male, 200-300g, 7-10 weeks old); 10% DMSO used; immunology; CAY10580 aka EP4 agonist;.

**Q3003:** R. Nishimura, *et al.* Tacrolimus Inhibits the Revascularization of Isolated Pancreatic Islets. *PLoS One* 2013;8(4):U30-U37

**ALZET Comments:** Tacrolimus; SC; Mice; 1002; 14 days; Controls received mp w/ vehicle; animal info (male, C57BL/6-Tg, 9-12 wks); functionality of mp verified by tacrolimus plasma levels.

**Q6718:** C. Laterza, *et al.* iPSC-derived neural precursors exert a neuroprotective role in immune-mediated demyelination via the secretion of LIF. *Nat Commun* 2013;4(2597)

**ALZET Comments:** Antibody, leukemia inhibitory factor neutralizing; PBS; CSF/CNS (lateral ventricle); Mice; 1007D; 7 days; Dose (2 micrograms per day); Controls received mp w/ vehicle; animal info (E2.5 pseudo-pregnant CD1 females,); ALZET brain infusion kit 3 used; Brain coordinates ((from bregma, 0.3mm anterior, 0.8 lateral),).

**Q5065:** C. Krautz, *et al.* Effects of immunosuppression on alpha and beta cell renewal in transplanted mouse islets. *Diabetologia* 2013;56(7):1596-604

**ALZET Comments:** uridine, bromodeoxy- ; tacrolimus; sirolimus; everolimus; mycophenolate mofetil; DMSO; IP; mice; 1004; 28 days; controls received mp w/ BrdU; animal info: C57BL/6, diabetic mice, transplanted with syngeneic islets in the liver, 10-12 wk old; functionality of mp verified by monitoring drug plasma levels; HPLC-MS/MS; mp were used to infuse immunosuppressant MMF (Mycophenolate Mofetil). Study concluded that MMF neither impaired pancreatic beta cell proliferation, nor adversely affected the fractional beta cell area. Pump mentions 2 mice that had very high Everolimus levels due to malfunction of the pump, and died 7, and 9 days respectively after transplantation; dose: Everolimus (1 mg/kg/d), Tacrolimus (1mg/kg/d); Mycophenolate Mofetil (20mg/kg/d), Sirolimus 90.2 mg/kg/d); BrdU (100 ug/ul);.

**Q3100:** D. S. Krause, *et al.* Differential regulation of myeloid leukemias by the bone marrow microenvironment. *Nature Medicine* 2013;19(11):1513-+

**ALZET Comments:** Parathyroid hormone, human (1-34); Saline; Mice (NSG); 4 weeks; 14 weeks; Controls received mp w/ vehicle; animal info (NSG; BALB/c); pumps replaced every 2 weeks; cancer (leukemia); immunology; peptides.

**Q2992:** E. Koellensperger, *et al.* Human Adipose Tissue Derived Stem Cells Promote Liver Regeneration in a Rat Model of Toxic Injury. *STEM CELLS INTERNATIONAL* 2013;;(;):U1-U10

**ALZET Comments:** Cyclosporine; IP; Rat; 2ML4; 12 weeks; Animal info (Sprague Dawley, model of toxic liver damage (two-thirds hepatectomy)); immunology; pumps replaced every 28 days; long-term study.

**Q3233:** D. N. Khuu, *et al.* Adult Human Liver Mesenchymal Stem/Progenitor Cells Participate in Mouse Liver Regeneration After Hepatectomy. *CELL TRANSPLANTATION* 2013;22(8):1369-1380

**ALZET Comments:** Uridine, bromodeoxy;; IP; Mice (SCID); 3 days; 14 days; 28 days;

**Q3302:** D. Karpova, *et al.* The novel CXCR4 antagonist POL5551 mobilizes hematopoietic stem and progenitor cells with greater efficiency than Plerixafor. *LEUKEMIA* 2013;27(12):2322-2331

**ALZET Comments:** POL5551; PBS; SC; Mice; 2001; Controls received mp w/saline; animal info (C57BL/6, 12 week old); dose-response (Figure 4A p.2328); immunology; peptides; POL5551 is a CXCR4 antagonist.





**Q5055:** S. I. Hodgetts, *et al.* A comparison of the behavioral and anatomical outcomes in sub-acute and chronic spinal cord injury models following treatment with human mesenchymal precursor cell transplantation and recombinant decorin. *Exp Neurol* 2013;248(343-59

**ALZET Comments:** Decorin; PBS; CSF/CNS; Rat (nude); 2004; 2 weeks; Controls received mp w/ control isoform; animal info (female, CBH-rnu/Arc, athymic, 120-150g); ALZET brain infusion kit 3 used; spinal cord injury; "Infusion of factors using pumps is currently the most effective available method of delivering physiologically appropriate amounts of decorin for sustained periods of time which eliminates the need for multiple direct injections into the spinal cord every few days." pg 357; pumps removed after 2 weeks;

**Q5054:** K. M. Henkels, *et al.* Phospholipase D (PLD) drives cell invasion, tumor growth and metastasis in a human breast cancer xenograph model. *Oncogene* 2013;32(49):5551-62

**ALZET Comments:** Apigenin, FIPI, NOPT; DMSO; SC; mice; 4, 5 weeks; animal info: SCID; cancer (breast); dose-response: Fig. 5; enzyme inhibitor (tyrosine kinase); half-life: >12 hrs. in humans; mp were used to study the effect of apigenin on tumor cell metastasis. Paper does not mention ALZET pump model; dose: 1.8 mg/kg/day.

**Q6669:** K. L. Han, *et al.* Adenosine A(2)A receptor agonist-mediated increase in donor-derived regulatory T cells suppresses development of graft-versus-host disease. *J Immunol* 2013;190(1):458-68

**ALZET Comments:** ATL146e, ATL370, ATL1223; SC; Mice; 14 days; Dose (10 ng/kg/min ATL146e, 50 ng/kg/min ATL370, 200 ng/kg/min ATL1223); Controls received mp w/ vehicle; animal info (8-12 week old female mice); enzyme inhibitor (A2AR-specific agonists); Therapeutic indication (transplant);.

**Q5643:** X. Y. Fan, *et al.* Ephrin-B3 decreases the survival of adult rat spinal cord-derived neural stem/progenitor cells in vitro and after transplantation into the injured rat spinal cord. *Stem Cells Dev* 2013;22(3):359-73

**ALZET Comments:** Ephrin-B3-Fc, IgG Fc fragments; PBS; CSF/CSN (intrathecal); Rat; 1007D; 3 days, 7 days; Controls received mp w/ vehicle; animal info (250-300g, 6-8 weeks old) ; good methods (The pump was primed at 37\_C overnight. A small midline durotomy was made at T9 to insert catheter into the IT space. The tip of the catheter was directed rostrally to the T7

level (1mm rostral to the site of the rostral injection of NSPC). The dura was sealed around the catheter by fibrin glue (Beriplast), and the catheter and pump were sutured to subcutaneous tissues.) p 361; spinal cord injury; Therapeutic indication (spinal cord injury); Dose (100 ug/mL);.

**Q2415:** N. Fainstein, *et al.* Time associated decline in neurotrophic properties of neural stem cell grafts render them dependent on brain region-specific environmental support. *NEUROBIOLOGY OF DISEASE* 2013;49(4):41-48

**ALZET Comments:** Antibody, anti-beta 1 integrin; CSF/CNS (striatum); Mice; 28 days; Control animals received mp w/ isotype control; animal info (C57BL/6, female).

**Q2869:** H. C. Denroche, *et al.* Leptin Administration Enhances Islet Transplant Performance in Diabetic Mice. *Diabetes* 2013;62(8):2738-2746

**ALZET Comments:** Leptin, recomb. murine; Water; SC; Mice; 2006; 4, 6 weeks; Control animals received mp w/ vehicle; animal info (C57BL/6, male); dose-response; 4 week pumps used; diabetes;

**Q3075:** D. Cantinieaux, *et al.* Conditioned Medium from Bone Marrow-Derived Mesenchymal Stem Cells Improves Recovery after Spinal Cord Injury in Rats: An Original Strategy to Avoid Cell Transplantation. *PLoS One* 2013;8(8):U18-U32

**ALZET Comments:** Conditioned medium, bone marrow-derived mesenchymal stem cells; CSF/CNS (intrathecal); Rat; 1007D; 7 days; Controls received mp w/ control medium; animal info (female, Wistar, adult, 200g); spinal cord injury; post op. care (manually emptied bladder until rats regained control); behavioral testing (BBB open-field test, grid navigation test); tissue perfusion (spinal cord injury site); cardiovascular; immunology; Bone marrow-derived mesenchymal stem cells conditioned medium aka BMSC-CM; Pumps removed after 7 days.

**Q2544:** Y. Azar, *et al.* Preimplantation Factor Reduces Graft-versus-Host Disease by Regulating Immune Response and Lowering Oxidative Stress (Murine Model). *BIOLOGY OF BLOOD AND MARROW TRANSPLANTATION* 2013;19(4):519-528



**ALZET Comments:** Preimplantation factor, synthetic; Preimplantation factor, scrambled; PBS; SC; Mice; 1002; 14 days; Control animals received mp w/ vehicle; peptides.

**Q2550:** Z. L. Zhou, *et al.* A combination of taxol infusion and human umbilical cord mesenchymal stem cells transplantation for the treatment of rat spinal cord injury. *Brain Research* 2012;1481(;):79-89

**ALZET Comments:** Paclitaxel; Ethanol; cremophor EL; CSF/CNS (intrathecal); Rat; 2004; 28 days; Control animals received mp w/ PBS; animal info (Sprague Dawley, female, 200-250 g); Paclitaxel also known as Taxol; 50% ethanol used; 50% cremophor EL used; spinal cord injury.

**Q2155:** J. Zhou, *et al.* Force-specific activation of Smad1/5 regulates vascular endothelial cell cycle progression in response to disturbed flow. *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA* 2012;109(20):7770-7775

**ALZET Comments:** Noggin; IA (abdominal aorta); Mice; 2 weeks; Controls received mp w/ saline; animal info (ApoE -/-, C57BL/6).

**Q1931:** J. T. Xiao, *et al.* Syndecan-1 Displays a Protective Role in Aortic Aneurysm Formation by Modulating T Cell-Mediated Responses. *ARTERIOSCLEROSIS THROMBOSIS AND VASCULAR BIOLOGY* 2012;32(2):386-U519

**ALZET Comments:** Angiotensin II; SC; Mice; 2 weeks; Animal info (ApoE -/-, Sdc1 -/-); peptides; blood pressure measured via tail cuff.

**Q2104:** B. M. Rezk, *et al.* Angiotensin II Infusion Induces Marked Diaphragmatic Skeletal Muscle Atrophy. *PLoS One* 2012;7(1):U301-U307

**ALZET Comments:** Angiotensin II; SC; Mice; 1 week; Controls received sham; animal info (male, FVB, 9 wks old); peptides.

**Q1871:** D. Reimers, *et al.* Liver Growth Factor Promotes the Survival of Grafted Neural Stem Cells in a Rat Model of Parkinson's Disease. *CURRENT STEM CELL RESEARCH & THERAPY* 2012;7(1):15-25

**ALZET Comments:** Liver growth factor; Albumin, rat; saline; CSF/CNS (striatum); Rat; 2002; 15 days; Controls received mp w/ vehicle; animal info (Sprague Dawley, female, 225-250 g); neurodegenerative (Parkinson's disease).

**Q1934:** S. Miyamoto, *et al.* Cholecystokinin Plays a Novel Protective Role in Diabetic Kidney Through Anti-inflammatory Actions on Macrophage Anti-inflammatory Effect of Cholecystokinin. *Diabetes* 2012;61(4):897-907

**ALZET Comments:** Cholecystokinin octapeptide; Saline; SC; Rat; 8 weeks; Controls received mp w/ vehicle; animal info (Sprague Dawley, male, 6 wks old, STZ induced diabetes); pumps replaced after 4 weeks; peptides; cholecystokinin octapeptide also known as CCK-8S; long-term study.

**Q2021:** S. Karimi-Abdolrezaee, *et al.* Chondroitinase and Growth Factors Enhance Activation and Oligodendrocyte Differentiation of Endogenous Neural Precursor Cells after Spinal Cord Injury. *PLoS One* 2012;7(5):U605-U620

**ALZET Comments:** Epidermal growth factor; fibroblast growth factor, basic; platelet derived growth factor-AA; Saline; albumin, rat serum; CSF/CNS (intrathecal); Rat; 1007D; 7 days; Controls received mp w/ vehicle; animal info (Wistar, female, 250 g); spinal cord injury; intrathecal catheter used (0007741).

**Q2719:** G. W. J. Hawryluk, *et al.* An In Vivo Characterization of Trophic Factor Production Following Neural Precursor Cell or Bone Marrow Stromal Cell Transplantation for Spinal Cord Injury. *STEM CELLS AND DEVELOPMENT* 2012;21(12):2222-2238

**ALZET Comments:** Epidermal growth factor; fibroblast growth factor, beta; platelet-derived growth factor, alpha; CSF/CNS (intrathecal); Rat; 1007D; 7 days; Animal info (adult, female, tg).

**Q2106:** N. Dilek, *et al.* Control of Transplant Tolerance and Intra-graft Regulatory T Cell Localization by Myeloid-Derived Suppressor Cells and CCL5. *Journal of Immunology* 2012;188(9):4209-4216

**ALZET Comments:** CCL5, recomb. rat; IP; Rat; 2001; 14, 21 days; Animal info (7-9 wks old, male, Lewis, Lewis.1A, congenic); immunology.



**Q2353:** A. Citro, *et al.* CXCR1/2 inhibition enhances pancreatic islet survival after transplantation. *Journal of Clinical Investigation* 2012;122(10):3647-3651

**ALZET Comments:** Reparixin; SC; Mice; 6 days; Control animals received mp w/ vehicle; animal info (BALB/c, C57BL/6, CXCR2 -/-, male, wks old); reparixin is an allosteric inhibitor of CXCR1 and CXCR2.

**Q5369:** Y. H. Chang, *et al.* Bone marrow transplantation rescues intestinal mucosa after whole body radiation via paracrine mechanisms. *Radiother Oncol* 2012;105(3):371-7

**ALZET Comments:** Bone marrow conditioned medium; DMEM; IP; Mice; 1003D; 3 days; Controls received mp w/ vehicle; animal info (C57Bl/6 mice, 8–12 weeks old); Bone marrow transplantation model; BMCM with or without neutralizing antibodies; Therapeutic indication (Radiation); Dose (20 ul BMCM);