



**Recent References (2012-2019) on the Administration of Peptides to the CNS
Using ALZET® Osmotic Pumps**

Q7052: I. Rossetti, *et al.* Calcitonin gene-related peptide decreases IL-1beta, IL-6 as well as Ym1, Arg1, CD163 expression in a brain tissue context-dependent manner while ameliorating experimental autoimmune encephalomyelitis. *J Neuroimmunol* 2018;323(94-104)

ALZET Comments: Calcitonin gene-related peptide; CSF, artificial; CSF/CNS (intrathecal); Mice; 2002; 2 weeks; Controls received mp w/ vehicle; animal info (7-8 week old C57BL/6 female mice); peptides;.

R0365: L. Maletinska, *et al.* The impact of anorexigenic peptides in experimental models of Alzheimer's disease pathology. *J Endocrinol* 2018;

ALZET Comments: PrRP palmitoylated analogs, Leptin, Amylin, Cyclic AC253, Exendin 4; SC, CSF/CNS (lateral ventricle); Mice; 2 months; 28 days; 5 weeks, 5 months, 16 weeks; Dose: Palm11-PrRP (5 mg/kg/day), Leptin (2.4 nmol/day), Amylin (0.24 mg/kg/day), Exendin-4 (3.5 pmol/kg/min); animal info (7 month old THY-Tau22 mice; 5 month old APP/PS1 mice; 6 month old AMP8 mice); behavioral testing (Y-maze); neurodegenerative (Alzheimer's); This review summarizes current information on the potential neuroprotective properties of food intake-lowering (anorexigenic) peptides that have been tested in experimental models of AD-like pathology.

Q7093: K. A. Alkadhi. Delayed effects of combined stress and Abeta infusion on L-LTP of the dentate gyrus: Prevention by nicotine. *Neurosci Lett* 2018;682(10-15)

ALZET Comments: Amyloid peptide, beta (1-40); Amyloid peptide, beta (1-42); Acetonitrile, Trifluoacetic acid; CSF/CNS (lateral ventricle); Rat; 14 days; Dose (300 pmol peptides/day); 35% acetonitrile, 0.1% trifluoacetic acid (TFA); animal info (Adult male Wistar rats, 7 weeks old, 200-225 g); dependence;.

Q6531: C. Wang, *et al.* IL-17 induced NOTCH1 activation in oligodendrocyte progenitor cells enhances proliferation and inflammatory gene expression. *Nat Commun* 2017;8(15508)

ALZET Comments: Interleukin 17 receptor A; CSF, artificial; CSF/CNS; Mice (knockout); Controls received mp w/ decoy peptide; animal info (8-12 week old female B6.129X1-Notch1tm2Rko/GridJ, Jag1tm2Grid/J and B6.Cg-Tg BAKik/J mice); Interleukin 17 receptor A aka IL-17RA; peptides; Brain coordinates (1mm lateral, 0.3mm posterior and 2mm deep to the bregma); Therapeutic indication (multiple sclerosis);.

Q5891: K. T. Santhosh, *et al.* Design and optimization of PLGA microparticles for controlled and local delivery of Neuregulin-1 in traumatic spinal cord injury. *J Control Release* 2017;261(147-162)

ALZET Comments: Neuregulin-1, human recombinant; CSF, artificial; BSA; CSF/CNS (intrathecal); Rat; 1003D; 2001; 2002; 2004; 3 days, 7 days, 14 days, 28 days; Controls received mp w/ vehicle; animal info (female, Sprague Dawley, 250g); Dose (500ng/day); 1% BSA used; comparison of microparticles vs mp; spinal cord injury; peptides; Dose (500ng/day); Comparison of PLGA Microparticles with ALZET pumps;.

Q6067: K. Rasri-Klosen, *et al.* Differential response patterns of kisspeptin and RFamide-related peptide to photoperiod and sex steroid feedback in the Djungarian hamster (*Phodopus sungorus*). *J Neuroendocrinol* 2017;29(9):

ALZET Comments: kisspeptin-10, RFamide-related peptide; CSF, artificial; CSF/CNS (lateral ventricle); Hamster; 1004; 4 weeks; Dose (0.25 nmol/h); animal info (4-6 month old Djungarian hamsters); peptides;.

Q6743: H. Pierce, *et al.* Cholinergic Signals from the CNS Regulate G-CSF-Mediated HSC Mobilization from Bone Marrow via a Glucocorticoid Signaling Relay. *Cell Stem Cell* 2017;20(5):648-658 e4

ALZET Comments: Pirenzepine; Scopolamine hydrobromide; Metyrapone; luteinizing hormone; ACTH; PBS; CSF/CNS (Third ventricle); Mice (knockout); 1002; Dose (0.6 mg/kg/day Pirenzepine; 1.0 mg/kg Scopolamine hydrobromide; 100mg/kg/day Metyrapone; 2.8 mg/kg/day ACTH; 16ug/day LH); Controls received mp w/ vehicle; animal info (wild-type and Chrm1-/-); luteinizing hormone aka LH and adrenocorticotrophic hormone aka ACTH; peptides; Brain coordinates (A/P 2.6 mm posterior to bregma, D/V -4.7 mm);.



Q5082: K. Uekawa, *et al.* Intracerebroventricular Infusion of Angiotensin-(1-7) Ameliorates Cognitive Impairment and Memory Dysfunction in a Mouse Model of Alzheimer's Disease. *J Alzheimers Dis* 2016;53(1):127-33

ALZET Comments: Angiotensin (1-7); A-779; CSF, artificial; CSF/CNS; Mice; 1004; 4 weeks; Controls received mp w/ vehicle; animal info (male, 5XFAD, 17 months old); ALZET brain infusion kit 3 used; neurodegenerative (Alzheimer's Disease); behavioral testing (Morris water maze); cardiovascular; peptides; used ALZET CSF formulation; Dose (Ang 1-7 500 ng/kg/h; A-779 5.0 ug/kg/h); Brain coordinates (relation to bregma 1.0mm lateral and 0.5 mm posterior);.

Q5209: C. H. Su, *et al.* MRI/DTI of the Brain Stem Reveals Reversible and Irreversible Disruption of the Baroreflex Neural Circuits: Clinical Implications. *Theranostics* 2016;6(6):837-48

ALZET Comments: Angiotensin II; CSF/CNS (ventricle); Mice; 1007D; 7 days; animal info (male, C57BL6, adult); cardiovascular; peptides; bp measured using radiotelemetry (DSI); Dose (7.5 ug/hr);.

Q5343: Sophie Dutheil, *et al.* BDNF Signaling Promotes Vestibular Compensation by Increasing Neurogenesis and Remodeling the Expression of Potassium-Chloride Cotransporter KCC2 and GABAA Receptor in the Vestibular Nuclei. *Journal of Neuroscience* 2016;36(23):6199-6212

ALZET Comments: Brain-derived neurotrophic factor, K252a; Saline; CSF, artificial; CSF/CNS (ventricles); Cat; 2ML4; 30 days; Controls received mp w/ saline; animal info (adult, male cat, 4-5 kg); dose-response (pg 6205, 6206); behavioral testing (rotating beam experimental device test); peptides;.

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);.

Q6624: M. K. Lakshmana, *et al.* Neuroprotective Effects of Pomegranate Peel Extract after Chronic Infusion with Amyloid- β Peptide in Mice. *Plos One* 2016;11(11):e0166123

ALZET Comments: Amyloid protein, beta; HEPES; CSF/CNS; Mice; 1004; 35 days; Controls received mp w/ vehicle; animal info (Male C57Bl/6 mice); peptides; Brain coordinates (0.8 mm anteroposterior and 1.0 mm mediolateral to bregma and 2.0 mm dorsoventral to cranium);.

Q5861: I. V. Guzhova, *et al.* HSP70-based anti-cancer immunotherapy. *Hum Vaccin Immunother* 2016;12(10):2529-2535

ALZET Comments: HSP70, human recomb.; CSF/CNS (intratumoral); Rat; comparison of intracranial injections vs mp; cancer (Glioma); peptides; "Such injections, particularly those done using an osmotic pump, caused a significant delay in tumor growth and increase the survival of tumor-bearing animals." pg 2532; Therapeutic indication (Cancer, Glioma);.

Q5341: A. Drougard, *et al.* Central chronic apelin infusion decreases energy expenditure and thermogenesis in mice. *Sci Rep* 2016;6(31849)

ALZET Comments: Apelin; CSF, artificial; CSF/CNS (lateral ventricle); Mice; 2004; 2 weeks; Controls received mp w/ vehicle; animal info (C57Bl6/J mice, 13-15 week old); animal info (C57Bl6/J mice, 13-15 week old); "stability of apelin and the duration of the treatment were compatible with the stability of the molecule" (pg. 8); peptides; anesthetised mice with isoflurane; Brain coordinates – 1 mm lateral, – 0.2 mm anteroposterior from the bregma and – 1.7 mm deep; Dose (20 nM);.

Q4910: R. L. T. Baojian Xue, Yang Yu, Fang Guo, Terry G. Beltz, Robert B. Felder, *et al.* Central Renin–Angiotensin System Activation and

Inflammation Induced by High-Fat Diet Sensitize Angiotensin II–Elicited Hypertension. *Hypertension* 2016;67(163-170)



ALZET Comments: Pentoxifylline; irbesartan; minocycline; angiotensin II; CSF, artificial; Na sodium bicarbonate; saline; CSF/CNS; Rat; 2004; 2002; 2001; 4 weeks; 2 weeks; 1 week; Controls received mp w/ vehicle; animal info (male, Sprague Dawley, 10-12 weeks old); cardiovascular; peptides; Dose (ICV - Pentoxifylline 10 ug/hr; irbesartan 125 ug/day; minocycline 5 ug/hr; SC AngII 120 ng/kg/min); brain coordinates;

Q4668: Y. Yu, *et al.* Activation of Central PPAR-gamma Attenuates Angiotensin II-Induced Hypertension. *HYPERTENSION* 2015;66(403-411)

ALZET Comments: Angiotensin II; pioglitazone, GW9662; DMSO; CSF, artificial; SC; CSF/CNS; Rat; 2002; 2 weeks; Controls received mp w/ vehicle; animal info (male, Sprague Dawley, 250-300g); functionality of mp verified by residual volume; 20% DMSO used; Multiple pumps per animal (2); cardiovascular; immunology; peptides; Cannula placement verified via histologic analysis of cannula track; bp measured using radiotelemetry (DSI);

Q3736: L. Trovo, *et al.* Improvement of biochemical and behavioral defects in the Niemann-Pick type A mouse by intraventricular infusion of MARCKS. *NEUROBIOLOGY OF DISEASE* 2015;73(319-326)

ALZET Comments: MARCKS peptide; Saline, sterile; CSF/CNS; Mice; 1004; Control animals received mp w/ vehicle; animal info (ASMko, 4 mo old); peptides; ALZET brain infusion kit 3 used; cyanoacrylate used; behavioral testing (accelerating rotarod); MARCKS is a protein required for PI(4,5)P2 membrane clustering and hydrolysis.

Q5252: N. B. Pikor, *et al.* Integration of Th17- and Lymphotoxin-Derived Signals Initiates Meningeal-Resident Stromal Cell Remodeling to Propagate Neuroinflammation. *Immunity* 2015;43(6):1160-73

ALZET Comments: Anti-interleukin 22, anti-interleukin 17, Lymphotoxin β R-Ig; Immunoglobulin; CSF/CNS (cerebroventricular); mice; 2004; 4 weeks; Controls received mp w/ vehicle; animal info (SJL/J mice,); animal info (SJL/J mice,); dose-response (pg 1166); peptides; Fibroblast remodeling in vivo; Dose (2 mg/ml (LTBR), 2.25 mg/ml (IL));

Q5251: A. Perianes-Cachero, *et al.* Reduction in A β -induced cell death in the hippocampus of 17 β -estradiol-treated female rats is associated with an increase in IGF-I signaling and somatostatinergic tone. *J Neurochem* 2015;135(6):1257-71

ALZET Comments: Amyloid protein, beta (25-35); ICI 182,780; saline; CSF/CNS (right cerebral ventricle); Rat; 2002; 14 days; Controls received mp w/ vehicle; animal info (female Wistar rats, 8 weeks); brain infusion kit used; peptides; Amyloid beta-peptide induces cell death, learning and memory, hippocampal somatostatinergic system; Dose (300 pmol/day (A-beta), 600 fmol/day (ICI)); Brain coordinates; (-0.3 mm anteroposterior, 1.1 mm lateral).

Q4547: F. R. Nieto, *et al.* Calcitonin Gene-Related Peptide-Expressing Sensory Neurons and Spinal Microglial Reactivity Contribute to Pain States in Collagen-Induced Arthritis. *ARTHRITIS & RHEUMATOLOGY* 2015;67(1668-1677)

ALZET Comments: Calcitonin gene-related peptide (8-37); CSF/CNS (intrathecal); Rat; 2001; 7 days; Controls received mp w/ vehicle; animal info (female, Lewis, 180-200g); behavioral testing (Von Frey filaments; Plantar test); immunology; peptides;

Q5220: C.-L. Lee, *et al.* Monascus-fermented monascin and ankaflavin improve the memory and learning ability in amyloid β -protein intracerebroventricular-infused rat via the suppression of Alzheimer's disease risk factors. *Journal of Functional Foods* 2015;18(387-399)

ALZET Comments: Amyloid protein, beta (40); Acetonitrile, trifluoroacetic acid; CSF/CNS (left ventricle); Rat; 2004; 28 days; Controls received mp w/ vehicle; animal info: Male Sprague Dawley (SD) rats at 6-8 weeks; functionality of mp verified by behavior tests; 35% acetonitrile, 0.1% trifluoroacetic acid; dose-response (pg 390); behavioral testing (Morris water maze; reference memory task, probe test, and working memory task); brain tissue distribution; peptides; cannula was inserted 4.0 mm into the left ventricle and attached to the skull with dental cement; Dose: 0.28 μ L/h.

Q5019: A. R. Ko, *et al.* Endothelin-1 induces LIMK2-mediated programmed necrotic neuronal death independent of NOS activity. *Mol Brain* 2015;8(58)

ALZET Comments: BQ788; Cav-1 peptide; Y-27632; CSF/CNS; Rat; 1007D; 7 days; Controls received mp w/ vehicle; animal info (male, Sprague Dawley); ALZET brain infusion kit 1 used; peptides; brain coordinates;

Q5217: J. S. Kim, *et al.* Anxiogenic and Stressor Effects of the Hypothalamic Neuropeptide RFRP-3 Are Overcome by the NPFFR Antagonist GJ14. *Endocrinology* 2015;156(11):4152-62



ALZET Comments: Peptide-3, RF amide-related; GJ14; CSF/CNS (left lateral ventricle); mice; 1007D; Controls received mp w/ vehicle; animal info: Female C57BL/6 mice (8 wk old); functionality of mp verified by behavior testing; behavioral testing (elevated plus maze and open field tests for 5 minutes each); peptides; RFRP-3 aka Peptide-3, RF amide-related; GJ14 is a NPFF1R antagonist with moderate antagonism at NPFF2R; G-protein coupled neuropeptide FF (NPFF) receptors belong to the RFamide receptor family and are referred to as NPFF1R (also known as GPR147) and NPFF2R (GPR74); Dose: 2 nmol/mouse/d (RFRP-3); 20 nmol/mouse/d (GJ14).

Q4970: D. H. Kim, *et al.* Peptide fragment of thymosin beta4 increases hippocampal neurogenesis and facilitates spatial memory. *Neuroscience* 2015;310(51-62)

ALZET Comments: Ac-SDKP; PBS; CSF/CNS (third ventricle); Mice; 1007D; 7 days; animal info (male, C57BL6J, 25-28g, 8 weeks old); behavioral testing (Morris water maze); tissue perfusion (third ventricle); peptides; Cannula placement verified via histologic analysis; used Plastics one cannula; brain coordinates;

Q4470: F. Jo, *et al.* Brain Endoplasmic Reticulum Stress Mechanistically Distinguishes the Saline-Intake and Hypertensive Response to Deoxycorticosterone Acetate-Salt. *HYPERTENSION* 2015;65(1341-U330)

ALZET Comments: Tauroursodeoxycholic acid; angiotensin II; CSF, artificial; CSF/CNS; SC; Mice; 10 days; 14 days; Controls received mp w/ vehicle; animal info (CHOP-deficient or C57BL6J, 6 weeks old); cardiovascular; peptides; Tauroursodeoxycholic acid aka TUDCA; used Plastics One cannula;

Q5156: V. V. Giridharan, *et al.* Schisandrin B Ameliorates ICV-Infused Amyloid beta Induced Oxidative Stress and Neuronal Dysfunction through Inhibiting RAGE/NF-kappaB/MAPK and Up-Regulating HSP/Beclin Expression. *PLoS One* 2015;10(11):e0142483

ALZET Comments: Amyloid protein, beta (1-40); Acetonitrile; trifluoroacetic acid; CSF/CNS; Rat; 2002; 14 days; Controls received mp w/ vehicle; animal info: Male Sprague Dawley rats, 240–300 g; functionality of mp verified by brain removal and analysis; colorimetric sandwich ELISA kit; %35 of acetonitrile; 0.1% trifluoroacetic acid; dose-response (pg 7); neurodegenerative (memory impairment); behavioral testing (Passive avoidance task (PAT)); peptides; Dose: 300 pmol/day; Brain coordinates; relative to the bregma (A, 0.8; L, 1.4; V, 4.5) according to the atlas of Paxinos and Watson.

Q5141: A. Dorr, *et al.* Intrathecal application of the antimicrobial peptide CRAMP reduced mortality and neuroinflammation in an experimental model of pneumococcal meningitis. *J Infect* 2015;71(2):188-99

ALZET Comments: Antimicrobial peptide, cathelicidin-related; Saline; CSF/CNS (right lateral ventricle); mice; 1007D; 1 week; Controls received mp w/ saline; animal info: male C57BL/6 mice (weight 19-23 g, aged 2-3 months); ALZET brain infusion kit 2 used; good methods (pg 189-190); brain tissue distribution of CRAMP; peptides; CRAMP aka Cathelicidin-related antimicrobial peptide; Dose: 12 ug/d.

Q4403: N. N. Dewji, *et al.* Peptides of Presenilin-1 Bind the Amyloid Precursor Protein Ectodomain and Offer a Novel and Specific Therapeutic Approach to Reduce beta-Amyloid in Alzheimer's Disease. *PLoS One* 2015;10(U263-U284)

ALZET Comments: P4; P8; PBS; CSF/CNS; Mice (transgenic); 1002; 2 weeks; Controls received mp w/ vehicle; animal info (mThy1-hAPP Tg, 6 months old); ALZET brain infusion kit 3 used; neurodegenerative (Alzheimer's disease); brain tissue distribution; peptides;

Q4319: Y. J. Bao, *et al.* Engagement of signaling pathways of protease-activated receptor 2 and -opioid receptor in bone cancer pain and morphine tolerance. *INTERNATIONAL JOURNAL OF CANCER* 2015;137(1475-1483)

ALZET Comments: FSLRY-NH2; Saline; CSF/CNS (intrathecal); Rat; 20 hours; Controls received mp w/ vehicle; animal info (Wistar 200-250g); cancer (bone); no stress (see pg. 1476); behavioral testing (mechanical paw withdrawal, thermal hyperalgesia); peptides;

Q4756: D. L. Zhu, *et al.* Angiotensin (1-7) protects against stress-induced gastric lesions in rats. *BIOCHEMICAL PHARMACOLOGY* 2014;87(3):467-476

ALZET Comments: Angiotensin (1-7); A-779; CSF, artificial; CSF/CNS; Rat; 2001; 1 week; Controls received mp w/ vehicle; animal info (male, Sprague Dawley, 280-310g); functionality of mp verified by plasma levels; ALZET brain infusion kit used;



no stress "No stress was induced by this surgical procedure, because there are no significant alterations in body weight and motor activity in our preliminary study " (see pg. 468); cardiovascular; peptides;.

Q4192: B. J. Xue, *et al.* Estrogen regulation of the brain renin-angiotensin system in protection against angiotensin II-induced sensitization of hypertension. *American Journal of Physiology-Heart and Circulatory Physiology* 2014;307(H191-H198)

ALZET Comments: Angiotensin II; estradiol, 17b-; angiotensin (1-7); A-779; Saline; DMSO; SC; CSF/CNS; Rat; 2001; 2002; 1 week; 2 weeks; Animal info (Sprague Dawley, 10-12 weeks old); ALZET brain infusion kit used; Multiple pumps per animal (2); replacement therapy (ovarectomized, estradiol infusion); cardiovascular; antihypertensive; peptides; bp measured using radiotelemetry (DSI);.

Q3391: W. Xie, *et al.* Angiotensin-(1-7) improves cognitive function in rats with chronic cerebral hypoperfusion. *Brain Research* 2014;1573(44-53)

ALZET Comments: Angiotensin (1-7); A779; CSF/CNS; Rat; 2004; 2 weeks; Control animals received mp w/ aCSF; animal info (male, Wistar, 300-350 g); ALZET brain infusion kit 2 used; aCSF recipe; peptides.

Q4175: W. Wei, *et al.* Orexin Regulates Bone Remodeling via a Dominant Positive Central Action and a Subordinate Negative Peripheral Action. *Cell Metabolism* 2014;19(927-940)

ALZET Comments: Orexin-B, [Ala11, D-Leu15]; CSF/CNS; Mice; 1004; 35 days; Controls received mp w/ PBS; animal info (OX-KO); peptides; used Plastics one cannula (3300PM/SPC); Orexin-B is an OX2R selective agonist; osteoporosis;.

Q4139: S. Thakker-Varia, *et al.* VGF (TLQP-62)-induced neurogenesis targets early phase neural progenitor cells in the adult hippocampus and requires glutamate and BDNF signaling. *Stem Cell Research* 2014;12(762-777)

ALZET Comments: TLQP-62; CSF/CNS; Mice (transgenic); 2004; 28 days; Controls received mp w/ saline; animal info (male, Nestin-GFP transgenic, 3-4 months old, 30g); ALZET brain infusion kit 3 used; peptides; cyanoacrylate adhesive; Cannula placement verified via histologic analysis;.

Q4092: A. Secher, *et al.* The arcuate nucleus mediates GLP-1 receptor agonist liraglutide-dependent weight loss. *Journal of Clinical Investigation* 2014;124(4473-4488)

ALZET Comments: Exendin (9-39); DPBS buffer; PBS; CSF/CNS; SC; Rat; 11 days; Controls received mp w/ vehicle; animal info (male, Sprague Dawley, 190g); Multiple pumps per animal (2, one ICV one SC); post op. care (QD Carprofen injection); peptides; used anchoring screws; pumps primed overnight at 37C saline; obesity;.

Q4794: Robert W. Regenhardt, *et al.* Centrally administered angiotensin-(1-7) increases the survival of stroke-prone spontaneously hypertensive rats. *Experimental Physiology* 2014;99(2):442-453

ALZET Comments: Angiotensin (1-7); A-779; CSF, artificial; CSF/CNS (left lateral cerebral ventricle); Rat; 2006; 6 weeks; Controls received mp w/ vehicle; animal info; Male spSHRs, treated until 91 days old (~248 g); ALZET brain infusion kit 1 used; ischemia (ischaemic stroke in the brain); behavioral testing (sunflower seed-eating task to determine fine motor function and neurological deficits); long-term study 6 weeks; peptides delivered; A779 aka (D-Ala7)-Ang-(1-7); Dose: Ang-(1-7) (1.0 µg in 0.15 µl ACSF h-1); (D-Ala7)-Ang-(1-7) (A779; 2.5 µg in 0.15µl ACSF h-1).

Q3352: B. S. Nelson, *et al.* Antagonism of brain insulin-like growth factor-1 receptors blocks estradiol effects on memory and levels of hippocampal synaptic proteins in ovariectomized rats. *Psychopharmacology* 2014;231(5):899-907

ALZET Comments: JB1; CSF, artificial; CSF/CNS; Rat; 2006; 3 weeks; Controls received mp w/ vehicle; animal info (female, Long Evans, 2 months old); ALZET brain infusion kit used; stress/adverse reaction: (see pg. 901); behavioral testing (radial maze); replacement therapy (ovarectomized); peptides; Cannula placement verified via Cresyl violet staining; cannula anchored to skull with screws and dental acrylic; JB1 is a IGF-1 receptor antagonist.

Q4017: G. Neal-Perry, *et al.* Insulin-Like Growth Factor-I Regulates LH Release by Modulation of Kisspeptin and NMDA-Mediated Neurotransmission in Young and Middle-Aged Female Rats. *Endocrinology* 2014;155(1827-1837)



ALZET Comments: JB-1; insulin-like growth factor-1;; CSF, artificial; CSF/CNS (third ventricle); Rat; 2002; Controls received mp w/ vehicle; animal info (female, Sprague Dawley, 3-4 months or 9-11 months old, ovariectomized); peptides; cannula placement verified via dye infusion; used Plastics One cannula; JB-1 is a selective antagonist of IGF-Ir;.

Q3529: A. Karalija, *et al.* THE EFFECTS OF N-ACETYL-CYSTEINE AND ACETYL-L-CARNITINE ON NEURAL SURVIVAL, NEUROINFLAMMATION AND REGENERATION FOLLOWING SPINAL CORD INJURY. *Neuroscience* 2014;269(143-151

ALZET Comments: N-acetyl-cysteine ; acetyl-l-carnitine hydrochloride; Saline; CSF/CNS (intrathecal); Rat; 2002; 2 weeks; 8 weeks; Controls received mp w/ vehicle; animal info (adult, 10-12 week female Sprague-Dawley rats); pumps replaced every 2 weeks; spinal cord injury; post op. care (given analgesic Finadyne, normal saline, and benzylpenicillin; each animal housed alone); Peptides ALC, NAC; NAC aka N-Acetyl-cysteine; ALC aka acetyl-L-carnitine; Dose: 2.4 mg/day for NAC, 0.9 mg/day for ALC; good methods (p144).

Q3528: Y. M. Kang, *et al.* Chronic infusion of enalaprilat into hypothalamic paraventricular nucleus attenuates angiotensin II-induced hypertension and cardiac hypertrophy by restoring neurotransmitters and cytokines. *TOXICOLOGY AND APPLIED PHARMACOLOGY* 2014;274(3):436-444

ALZET Comments: Angiotensin II; enalaprilat; Saline; CSF, artificial; SC; CSF/CNS (paraventricular nucleus); Rat; 2004; 4 weeks; Controls received mp w/ vehicle; animal info (male, Sprague Dawley, adult, 275-300g); functionality of mp verified by increased bp; post op. care (buprenorphine); tissue perfusion (bilateral paraventricular nucleus); cardiovascular; peptides; antihypertensive; bp measured using tail-cuff; pumps primed in 37C saline; used wound clips; enalaprilat is an ACE inhibitor; Plastics One bilateral PVN cannulae; bilateral infusion.

Q3342: K. K. Howell, *et al.* Inhibition of PKC disrupts addiction-related memory. *Frontiers in Behavioral Neuroscience* 2014;8(;):U1-U9

ALZET Comments: Peptide, zeta-inhibitory; chelerythrine; CSF, artificial; PBS; CSF/CNS (third ventricle); Mice; 1002; 2 days; 6 days; Controls received mp w/ vehicle; animal info (C57BL/6Jx129T2SvEms/J, adult); ALZET brain infusion kit 3 used; post op. care (buprenorphine injection); behavioral testing (locomotion, locomotor sensitization); pulsatile delivery; dependence; peptides; zeta-inhibitory peptide aka ZIP; Lynch coil of ZIP administration for 14.5 hours; used mineral oil; Schematic of pump implantation pg.3 Fig 1A;.

Q3493: P. S. Guimaraes, *et al.* Increasing Angiotensin-(1-7) Levels in the Brain Attenuates Metabolic Syndrome-Related Risks in Fructose-Fed Rats. *Hypertension* 2014;63(1078-1085

ALZET Comments: Angiotensin (1-7); CSF/CNS; Rat; 2004; 4 weeks; Controls received mp w/ saline; animal info (Sprague Dawley); cardiovascular; antihypertensive; peptides; diabetes; bp measured using catheter;.

Q3854: M. R. Deshotels, *et al.* Angiotensin II Mediates Angiotensin Converting Enzyme Type 2 Internalization and Degradation Through an Angiotensin II Type I Receptor-Dependent Mechanism. *Hypertension* 2014;64(1368-U438

ALZET Comments: Angiotensin II; leupeptin; Saline; CSF, artificial; SC; CSF/CNS; Mice; 14 days; Controls received mp w/ vehicle; animal info (C57Bl6 or ACE2 KO, 25-30g, 14-16 weeks old); cardiovascular; peptides; bp measured using radiotelemetry; Ang II infused SC; leupeptin infused ICV;.

Q3404: C. B. de Araujo, *et al.* A Novel Intracellular Peptide Derived from G(1)/S Cyclin D2 Induces Cell Death. *Journal of Biological Chemistry* 2014;289(16711-16726

ALZET Comments: Pep5-cpp; N-pep5-cpp; CSF, artificial; CSF/CNS; Rat; 2002; 2 weeks; Animal info (male, Wistar, adult, 250-350g); ALZET brain infusion kit used; cancer (glioma); peptides;.

Q3452: R. B. Dange, *et al.* Central blockade of TLR4 improves cardiac function and attenuates myocardial inflammation in angiotensin II-induced hypertension. *Cardiovascular Research* 2014;103(17-27

ALZET Comments: Angiotensin II; peptide, viral inhibitory; SC; CSF/CNS; Rat; 2002; 14 days; Controls received mp w/ vehicle or control peptide; animal info (male, Sprague Dawley, 10 weeks old, 250-350g); functionality of mp verified by plasma levels ELISA; Multiple pumps per animal (2); cardiovascular; peptides; viral inhibitory peptide aka VIPER; VIPER inhibits TLR4; bp measured using radiotelemetry;.



Q3426: F. Calcagnoli, *et al.* Chronic enhancement of brain oxytocin levels causes enduring anti-aggressive and pro-social explorative behavioral effects in male rats. *Hormones and Behavior* 2014;65(427-433

ALZET Comments: Oxytocin, synthetic; antagonist, peptidergic oxytocin; Saline, sterile, pyrogen-free; CSF/CNS; Rat; 1007D; 7 days; Controls received mp w/ vehicle; animal info (male, Groningen, adult); ALZET brain infusion kit 2 used; behavioral testing (resident intruder test); stability verified by (pilot study; 44% destruction of OVT over 10 day period in vivo); peptides; Cannula placement verified via dye injection after sacrifice; Plastics One guide cannula; dental acrylic cement and two stainless steel screws; pumps and catheters incubated in room temperature saline overnight;.

Q3410: E. Avolio, *et al.* ANTIHYPERTENSIVE AND NEUROPROTECTIVE EFFECTS OF CATESTATIN IN SPONTANEOUSLY HYPERTENSIVE RATS: INTERACTION WITH GABAERGIC TRANSMISSION IN AMYGDALA AND BRAINSTEM. *Neuroscience* 2014;270(48-57

ALZET Comments: Catestatin; muscimol; Saline; PBS; CSF/CNS (amygdala, central nucleus); Rat; 2004; 15 days; Controls received mp w/ vehicle; animal info (male, Spontaneously Hypertensive Rat, 3, 6, or 9 months old); ALZET brain infusion kit 2 used; tissue perfusion (central nucleus of amygdala); cardiovascular; antihypertensive; peptides; Cannula placement verified via histological analysis and methylene blue injection; Catestatin aka CST; muscimol aka MUS; used acrylic dental cement; bp measured using radiotelemetry; CST is a catecholamine release inhibitor; muscimol is a GABA_A receptor agonist;.

Q3804: K. An, *et al.* Neuritin can normalize neural deficits of Alzheimer's disease. *Cell Death & Disease* 2014;5(U181-U190

ALZET Comments: Neuritin; CSF, artificial; CSF/CNS; Mice (transgenic); 1007D; 2 weeks; Controls received mp w/ vehicle; animal info (Tg2576, 6 months old); ALZET brain infusion kit 3 used; neurodegenerative (Alzheimer's disease); peptides; pumps primed in 37C saline;.

Q3384: K. A. Alkadhi, *et al.* Chronic psychosocial stress impairs early LTP but not late LTP in the dentate gyrus of at-risk rat model of Alzheimer's disease. *Brain Research* 2014;1588(150-158

ALZET Comments: Amyloid protein, beta (1-42); Acetonitrile; trifluoroacetic acid; CSF/CNS; Rat; 14 days; Animal info (Wistar, 200-225 g); peptides; 14 day pump used; neurodegenerative (Alzheimer's disease).

Q5521: H. M. Yun, *et al.* Acceleration of the development of Alzheimer's disease in amyloid beta-infused peroxiredoxin 6 overexpression transgenic mice. *Mol Neurobiol* 2013;48(3):941-51

ALZET Comments: Amyloid protein, beta; Saline; CSF/CNS; Mice (transgenic); 1002; 14 days; animal info (24-28 weeks); ALZET brain infusion kit 1 used; behavioral testing (Morris water maze, probe test, passive avoidance test); gene therapy (transgene); Peptides (amyloid beta); Therapeutic indication (Alzheimer's disease); Dose (300 pmol);.

Q3121: H. J. Yang, *et al.* Yuzu Extract Prevents Cognitive Decline and Impaired Glucose Homeostasis in beta-Amyloid-Infused Rats. *Journal of Nutrition* 2013;143(7):1093-1099

ALZET Comments: Amyloid protein, beta (25-35); amyloid protein, beta (35-25); CSF/CNS (bilateral CA1 region); Rat; 14 days; Animal info (male, Sprague-Dawley, 232g); behavioral testing (Morris Water Maze, Passive avoidance test, locomotive activity); peptides;.

Q3125: J. G. Yan, *et al.* The effect of calcium modulating agents on peripheral nerve recovery after crush. *Journal of Neuroscience Methods* 2013;217(1-2):54-62

ALZET Comments: Nifedipine; calcitonin; CSF/CNS (sciatic nerve); Rat; 2006; 4 weeks; Controls received mp w/ saline or sham only; animal info (3 month old, male, Sprague-Dawley 250-300g); functionality of mp verified by decrease in calcium levels; peptides; Picture of MP p56, Fig1A. MP Pump setup p56, Fig1B;.

Q3653: B. J. Xue, *et al.* Central endogenous angiotensin-(1-7) protects against aldosterone/NaCl-induced hypertension in female rats. *American Journal of Physiology-Heart and Circulatory Physiology* 2013;305(5):H699-H705

ALZET Comments: Angiotensin (1-7), D-alanine; A-779; CSF/CNS; SC; Rat; 2004; 28 days; Controls received mp w/ vehicle; animal info (female, Sprague Dawley, 10-12 weeks old, OVX); ALZET brain infusion kit used; replacement therapy (ovariectomy); cardiovascular; peptides; antihypertensive; A-779 is an angiotensin (1-7) receptor antagonist; bp measured using radiotelemetry;.



Q5598: L. Winer, *et al.* SOD1 in cerebral spinal fluid as a pharmacodynamic marker for antisense oligonucleotide therapy. *JAMA Neurol* 2013;70(2):201-7

ALZET Comments: Oligonucleotide, antisense (333611); Saline; CSF/CNS (right lateral ventricle); Rat; 2004; 30 days; Controls received mp w/ vehicle; animal info (2 months old); antisense (333611); half-life (p.205); peptides; Therapeutic indication (Amyotrophic lateral sclerosis); Dose (100ug/d);.

Q6782: T. van Groen, *et al.* Treatment with D3 removes amyloid deposits, reduces inflammation, and improves cognition in aged AbetaPP/PS1 double transgenic mice. *J Alzheimers Dis* 2013;34(3):609-20

ALZET Comments: D3; Saline; CSF/CNS (right dorsal hippocampus); Mice (transgenic); 2004; 8 weeks; Dose (0.25 mg/pump); Controls received mp w/ vehicle; animal info (Old male A_PP and PS1 double Tg mice); pumps replaced every 4 weeks; long-term study; D3 is an A β oligomer directed D-enantiomeric peptide; peptides; ALZET brain infusion kit 3 used; Brain coordinates (A-2, L-1.5, V-2.2);.

Q2787: C. Y. Tsai, *et al.* Visualizing oxidative stress-induced depression of cardiac vagal baroreflex by MRI/DTI in a mouse neurogenic hypertension model. *NEUROIMAGE* 2013;82(;):190-199

ALZET Comments: Angiotensin II; CSF, artificial; CSF/CNS; Mice; 2001; 7 days; Control animals received mp w/ vehicle; animal info (C57BL/6, male, adult, 26 g); peptides; bp measured using radiotelemetry (DSI);.

Q2626: L. Trovo, *et al.* Low hippocampal PI(4,5)P(2) contributes to reduced cognition in old mice as a result of loss of MARCKS. *Nature Neuroscience* 2013;16(4):449-U114

ALZET Comments: Peptide, MARKS; Saline, sterile; CSF/CNS; 1004; Control animals received mp w/ vehicle; peptides; ALZET brain infusion kit 3 used; "Placement of pump and cannula did not interfere with the swimming in the Morris water maze... Mice were allowed to recover for 6 d before testing" pg 456; behavioral testing (Morris water maze);.

Q3148: S. Sriramula, *et al.* Inhibition of TNF in the Brain Reverses Alterations in RAS Components and Attenuates Angiotensin II-Induced Hypertension. *PLoS One* 2013;8(5):U584-U592

ALZET Comments: Angiotensin II; Etanercept; Saline; CSF, artificial; CSF/CNS; SC; Rat; 1004; 2004; 4 weeks; Controls received mp w/ vehicle; animal info (male, Sprague-Dawley, 10-12 weeks old); functionality of mp verified by increased BP; Multiple pumps per animal (2 pumps - one with Angiotensin, other with entanercept); post op. care (benzathine penicillin (30000 U, I.M.), buprenorphine (0.1mg/kg, S.C.) after surgery and 12 hours postop); cardiovascular; antihypertensive; peptides; bp measured using radiotelemetry (DSI);.

Q3149: D. Y. Song, *et al.* Down-regulation of microglial activity attenuates axotomized nigral dopaminergic neuronal cell loss. *BMC NEUROSCIENCE* 2013;14(;):U1-U13

ALZET Comments: Tuftsin fragment 1-3; CSF, artificial; CSF/CNS; Rat; 2002; 2004; 2 weeks; 4 weeks; Animal info (male, Wistar, adult, 250-300g); ALZET brain infusion kit 3 used; neurodegenerative (Parkinson's disease); immunology; peptides; Tuftsin fragment 1-3 is a human IgG derived tripeptide.

Q2990: J. W. Shim, *et al.* VEGF, which is elevated in the CSF of patients with hydrocephalus, causes ventriculomegaly and ependymal changes in rats. *Experimental Neurology* 2013;247(;):703-709

ALZET Comments: Vascular endothelial growth factor-A165; Bevacizumab; Saline; BSA; CSF/CNS; Rat; 2001D; 1 day; Controls received mp w/vehicle, or (saline, BSA); Peptides; animal info (male Sprague-Dawley rats, 250g); Brain infusion kit (2) used;.

Q3152: M. Shaqura, *et al.* Reduced Number, G Protein Coupling, and Antinociceptive Efficacy of Spinal Mu-Opioid Receptors in Diabetic Rats Are Reversed by Nerve Growth Factor. *JOURNAL OF PAIN* 2013;14(7):720-730

ALZET Comments: Nerve growth factor; CSF, artificial; rat serum albumin; CSF/CNS (intrathecal); Rat; 2001; 7 days; Controls received mp w/ vehicle; animal info (male, Wistar, 225g); behavioral testing (paw pressure test); peptides; used PE-10 attached to PE-60 catheter.



Q3160: A. Sakai, *et al.* Nerve injury-induced upregulation of miR-21 in the primary sensory neurons contributes to neuropathic pain in rats. *Biochemical and Biophysical Research Communications* 2013;435(2):176-181

ALZET Comments: Antagomir, miR-21, inhibitor; interleukin, beta; Saline; CSF/CNS (intrathecal); Rat; 3 days; Controls received mp w/ negative control miR-21 inhibitor (for miR-21) or vehicle (for IL-beta); animal info (male, Sprague Dawley, 5 weeks old); behavioral testing (Paw withdrawal); peptides;

Q3176: F. Rodriguez-Pacheco, *et al.* Resistin Regulates Pituitary Lipid Metabolism and Inflammation In Vivo and In Vitro. *Mediators of Inflammation* 2013;;(;):U1-U8

ALZET Comments: Resistin; Saline; CSF/CNS; Rat; 2001D, 2ML2; Controls received mp w/ vehicle; animal info (Sprague Dawley, male, 300-350g); ALZET brain infusion kit used; post op. care (individually caged); immunology; peptides; Cannula placement verified via methylene blue staining; Resistin aka ADSF or C/EBP;

Q3170: D. J. Piekarski, *et al.* Gonadotropin-inhibitory hormone reduces sexual motivation but not lordosis behavior in female Syrian hamsters (*Mesocricetus auratus*). *Hormones and Behavior* 2013;64(3):501-510

ALZET Comments: Gonadotropin-inhibitory hormone; Saline; CSF/CNS; Hamster; 2002; 15 days; Controls received mp w/ vehicle; animal info (female, Syrian hamsters, adult); functionality of mp verified pg503; behavioral testing (partner preferences, vaginal scent marking, lordosis test); peptides; Cannula placement verified via angiotensin injection; GnIH aka RFamide related peptide-3; pumps primed overnight.

Q2551: S. Phani, *et al.* Gremlin is a novel VTA derived neuroprotective factor for dopamine neurons. *Brain Research* 2013;1500(;):88-98

ALZET Comments: Gremlin; CSF/CNS (substantia nigra); Mice; 2004; Control animals received mp w/ saline; animal info (hTH-GFP, 9 wks old); ALZET brain infusion kit 2 used; peptides; neurodegenerative (Parkinson's disease).

Q3171: P. A. Pereira, *et al.* Nerve growth factor retrieves neuropeptide Y and cholinergic immunoreactivity in the nucleus accumbens of old rats. *NEUROBIOLOGY OF AGING* 2013;34(8):1988-1995

ALZET Comments: Nerve growth factor; CSF, artificial; bovine serum albumin; CSF/CNS; SC; Rat; 2002; 12 days; Animal info (male, Wistar, 6-24 months old); functionality of BIK verified by methylene blue staining; ALZET brain infusion kit used; 0.1% Bovine Serum Albumin used; neurodegenerative (aging); post op. care (SC injections 2ml of 0.9% saline); pulsatile delivery (used coiled Intramedic PE-60; 0.1% methylene blue with air-oil spacer at pump end with agent); peptides;

Q6740: D. M. Pechlivanova, *et al.* The role of the angiotensin AT2 receptor on the diurnal variations of nociception and motor coordination in rats. *Peptides* 2013;39(152-6

ALZET Comments: CGP 42112A; PD123319; Saline; sterile; CSF/CNS (lateral ventricle); Rat; 2002; 14 days; Dose (12 µg/rat/day (CGP 42112A); 10 µg/rat/day (PD123319)); Controls received mp w/ vehicle; animal info (12 week old Adult male Wistar rats); comparison of injection vs mp; CGP 42112A is a selective peptide AT2 agonist; PD 123319 is a nonpeptide AT2 receptor antagonist; peptides; ALZET brain infusion kit 2 used; Brain coordinates (1 mm lateral and 3 mm posterior to Bregma and 4 mm deep from skull surface); cyanoacrylate adhesive;

Q2580: Z. R. Patterson, *et al.* Central Ghrelin Signaling Mediates the Metabolic Response of C57BL/6 Male Mice to Chronic Social Defeat Stress. *Endocrinology* 2013;154(3):1080-1091

ALZET Comments: Ghrelin receptor antagonist; Saline; CSF/CNS; Mice; 2004; Control animals received mp w/ vehicle; animal info (C57BL/6, GSHR-KO, male, 8-9 wks old, CD-1, 13-15 wks old); ALZET brain infusion kit 1 used; polyethylene catheter used; ghrelin receptor antagonist also known as [D-Lys3]-GHRP-6; peptides; incorrectly listed Model 2ML4.

Q3356: A. J. Park, *et al.* Altered colonic function and microbiota profile in a mouse model of chronic depression. *NEUROGASTROENTEROLOGY AND MOTILITY* 2013;25(9):E575

ALZET Comments: Corticotropin releasing hormone; Saline; CSF/CNS; Mice; 28 days; Controls received mp w/ vehicle; animal info (female, C57BL/6, 8-10 weeks old); behavioral testing (Step down test, tail suspension test, open field); peptides; cyanoacrylate adhesive; Corticotropin-rel. factor aka Corticotropin releasing hormone; Plastics 1 cannula, DURECT PE 60 tubing.



Q3354: F. Ortega, *et al.* Oligodendroglial and neurogenic adult subependymal zone neural stem cells constitute distinct lineages and exhibit differential responsiveness to Wnt signalling. *NATURE CELL BIOLOGY* 2013;15(6):602-U372

ALZET Comments: Wnt3a; CSF, artificial; CSF/CNS; Mice; 2001; 1 week; Controls received mp w/ vehicle; animal info (2-3 months old, C57B2/6J, GLAST, hGFAP-RFP, SOX10, CAG CAT GFP); ALZET brain infusion kit 2 used; peptides Wnt3a;

Q3259: S. J. O'Carroll, *et al.* Connexin43 mimetic peptide is neuroprotective and improves function following spinal cord injury. *NEUROSCIENCE RESEARCH* 2013;75(3):256-267

ALZET Comments: Peptide5, mimetic; CSF, artificial; CSF/CNS (intrathecal); Rat; 2001D; 1 day; Controls received mp w/ vehicle; animal info (male, Sprague Dawley); spinal cord injury; post op. care (Cephalothin sodium 10 mg twice a day until urine cleared, Carprofen 0.5 mg twice a day for 3 days, Hartman's replacement solution 3 ml twice a day for 3 days, Bladders expressed twice a day for 1-2 weeks); behavioral testing (Open field test); peptides;

Q3117: C. B. Mantilla, *et al.* Motoneuron BDNF/TrkB signaling enhances functional recovery after cervical spinal cord injury. *Experimental Neurology* 2013;247(1):101-109

ALZET Comments: Brain-derived neurotrophic factor; CSF/CNS (intrathecal); Rat; 2002; 14 days; Animal info (male, Sprague Dawley, adult); spinal cord injury; post op. care (Acetaminophen orally and buprenorphine IM for 3 days); pulsed delivery (delayed delivery for 3 days - aCSF only in catheter); tissue perfusion (C4 segment of spine); peptides; "Mini-osmotic pumps were successfully implanted for intrathecal delivery at the C4 level and functioned properly throughout the 14 day duration of the experiment." pg 103 "Differences in survival rates across groups were likely unrelated to the possible additional morbidity associated with intrathecal catheter and miniosmotic pump implantation, as the survival rate was 70% (28 out of 40) compared to 84% (26 out of 31) in rats not implanted with an intrathecal pump (p = 0.17)." pg 103; PE-10 intrathecal cannula, 10 cm.

Q3154: Y. S. Lee, *et al.* Neurotrophic factors rescue basal forebrain cholinergic neurons and improve performance on a spatial learning test. *Experimental Neurology* 2013;249(1):178-186

ALZET Comments: Nerve growth factor; neurotrophin-3; PBS; CSF/CNS; Rat; 2004; 4 weeks; Controls received mp w/ saline; animal info (Sprague Dawley, 8 weeks old, 180g); bilateral Y-connector used; post op. care (restricted diet); behavioral testing (Delayed match to position T maze); peptides; bilateral infusion;

Q3095: M. Kiyomoto, *et al.* Fractalkine Signaling in Microglia Contributes to Ectopic Orofacial Pain following Trapezius Muscle Inflammation. *Journal of Neuroscience* 2013;33(18):7667-7680

ALZET Comments: Antibody, anti CX3CR1; Fractalkine; Antibody, anti interleukin-beta; Saline; CSF/CNS (cisterna magna); Rat; 2001; 4 days; Controls received mp w/ vehicle; animal info (male, Sprague Dawley, 210-260g); post op. care (benzyl penicillin potassium, 20000U); behavioral testing (Rota-rod performance, Water tap reaching performance); immunology; peptides.

Q3344: Z. Khan, *et al.* Slow CCL2-dependent translocation of biopersistent particles from muscle to brain. *BMC Medicine* 2013;11(1):U106-U123

ALZET Comments: CCL2, rodent; CSF/CNS; Mice; 1002; 14 days; Controls received mp w/ phosphate buffered saline (PBS); animal info (mice: B57/B6, 8-10 week C57BL/D, mdx, CX3CR1 GFP/+ and CCL2); peptides; cytokine; CCL2 aka chemokine ligand 2.

Q2640: T. Jiang, *et al.* Angiotensin-(1-7) modulates renin-angiotensin system associated with reducing oxidative stress and attenuating neuronal apoptosis in the brain of hypertensive rats. *Pharmacological Research* 2013;67(1):84-93

ALZET Comments: Angiotensin (1-7); A-779; CSF, artificial; CSF/CNS; Rat; 2004; 4 weeks; Control animals received mp w/ vehicle; animal info (WKO, male, normotensive, SHR); ALZET brain infusion kit 2 used; peptides.

Q3018: H. D. Garipey, *et al.* Brain kinin B(1) receptor contributes to the onset of stereotypic nocifensive behavior in rat. *Behavioural Brain Research* 2013;241(1):17-26

ALZET Comments: Angiotensin II; CSF/CNS; Rat; 2002; 14 days; Animal info (WKY); guide cannula used; peptides.



Q3072: J. N. Freeman, *et al.* Chronic central ghrelin infusion reduces blood pressure and heart rate despite increasing appetite and promoting weight gain in normotensive and hypertensive rats. *Peptides* 2013;42(1):35-42

ALZET Comments: Ghrelin; Saline; CSF/CNS; Rat; 2002; 10 days; Controls received mp w/ vehicle; animal info (male, Sprague Dawley & Spontaneous Hypertensive Rats, 275-330 g); comparison of IV infusion vs mp "the same dose of ghrelin was administered intravenously for 7 days to test if any potential spillover of ghrelin into the systemic circulation could account for its hypotensive effects, however no significant change in HR, BP or food intake was observed during the 7-day treatment period" (see pg. 39-40, Fig 3); stress/adverse reaction: (see pg. 39); behavioral testing (air-jet stress test); cardiovascular; peptides; Cannula placement verified via dipsogenic response to ICV injection of 100 ng Angiotensin II; used tygon tubing for catheter.

Q5539: J. Ding, *et al.* Soy isoflavone attenuates brain mitochondrial oxidative stress induced by beta-amyloid peptides 1-42 injection in lateral cerebral ventricle. *J Neurosci Res* 2013;91(4):562-7

ALZET Comments: Amyloid protein, beta (1-42); Saline; CSF/CNS (lateral ventricle); Rat; 2002; 2 weeks; Controls received mp w/ vehicle; animal info (250-300g); Peptides (beta-amyloid); Therapeutic indication (Oxidative stress); Dose (20 ug/200ul);

Q2852: Y. M. Chao, *et al.* Redox-Sensitive Endoplasmic Reticulum Stress and Autophagy at Rostral Ventrolateral Medulla Contribute to Hypertension in Spontaneously Hypertensive Rats. *Hypertension* 2013;61(6):1270-U302

ALZET Comments: Angiotensin II; salubrin; phosphatase inhibitor cocktail; CSF, artificial; DMSO; CSF/CNS (cisterna magna); Rat; 1007D; 7 days; Control animals received mp w/ vehicle; animal info (Wistar-Kyoto, SHR); "Drainage of cerebrospinal fluid (CSF) from the outer end of catheter ensured patency of the implantation." expanded methods; 2% DMSO used; CSF recipe; peptides; bp measured using radiotelemetry;

Q1877: T. Yoshida, *et al.* Angiotensin II Reduces Food Intake by Altering Orexigenic Neuropeptide Expression in the Mouse Hypothalamus. *Endocrinology* 2012;153(3):1411-1420

ALZET Comments: Angiotensin II; CSF, artificial; saline; CSF/CNS; SC; Mice; 1007D; 1 week; Controls received mp w/ vehicle; animal info (FVB, C57BL/6, AT1aR -/-, male); peptides; systolic blood pressure measured via telemetry (Visitech BP-2000).

Q2836: B. J. Xue, *et al.* Aldosterone Acting Through the Central Nervous System Sensitizes Angiotensin II-Induced Hypertension. *Hypertension* 2012;60(4):1023-U482

ALZET Comments: Angiotensin II; aldosterone; SC; CSF/CNS; Rat; 2001; 2002; 1, 2 weeks; Control animals received mp w/ vehicle; animal info (Sprague Dawley, male, 10-12 wks old); peptides; multiple pumps used (2).

Q1907: B. J. Xue, *et al.* Sensitization of Slow Pressor Angiotensin II (Ang II)-Initiated Hypertension Induction of Sensitization by Prior Ang II Treatment. *Hypertension* 2012;59(2):459-U620

ALZET Comments: Angiotensin II; Saline; SC; CSF/CNS; Rat; 2001; 1 week; Controls received mp w/ vehicle; animal info (Sprague Dawley, 10-12 wks old); peptides.

Q2325: H. B. Xu, *et al.* Upregulation of junctional adhesion molecule-A is a putative prognostic marker of hypertension. *Cardiovascular Research* 2012;96(3):552-560

ALZET Comments: Angiotensin II; SC; CSF/CNS (cistern); Rat; Control animals received mp w/ saline; animal info (Wistar, male); peptides.

Q2404: A. Van Hoecke, *et al.* EPHA4 is a disease modifier of amyotrophic lateral sclerosis in animal models and in humans. *Nature Medicine* 2012;18(9):1418-U168

ALZET Comments: KYLPYWPVLSL; CSF, artificial; CSF/CNS; Rat; 2004; Animal info (60 days old, female); KYLPYWPVLSL is a Epha4 blocking peptide; peptides; neurodegenerative (amyotrophic lateral sclerosis);

Q2739: M. J. Tian, *et al.* Central angiotensin II-induced Alzheimer-like tau phosphorylation in normal rat brains. *FEBS Letters* 2012;586(20):3737-3745

ALZET Comments: Angiotensin II; CSF/CNS; Rat; 2004; 1 week; Animal info (Sprague Dawley, WKY, SHR, male); peptides; dose response (fig 1).



Q2158: G. Quadrato, *et al.* Nuclear factor of activated T cells (NFATc4) is required for BDNF-dependent survival of adult-born neurons and spatial memory formation in the hippocampus. *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA* 2012;109(23):E1499-E1508

ALZET Comments: TrkB-Fc; immunoglobulin G1-Fc, recomb. human; PBS, sterile; CSF/CNS (dentate gyrus); Mice; 2002; 15 days; Controls received mp w/ control peptide; animal info (NFATc4 $-/-$, wt); peptides; ALZET brain infusion kit 3 used; cannula placement verified post mortem; PE tubing used.

Q2374: M. A. Mohr, *et al.* Hypothalamic Galanin-Like Peptide Rescues the Onset of Puberty in Food-Restricted Weanling Rats. *Journal of Neuroendocrinology* 2012;24(11):1412-1422

ALZET Comments: Galanin-like peptide; Phosphate buffer; CSF/CNS; Rat; 14 days; Control animals received mp w/ vehicle; animal info (Long Evans, prepubescent); peptides; brain infusion kit used; cyanoacrylate adhesive used.

Q2321: T. Jiang, *et al.* Suppressing inflammation by inhibiting the NF-kappaB pathway contributes to the neuroprotective effect of angiotensin-(1-7) in rats with permanent cerebral ischaemia. *British Journal of Pharmacology* 2012;167(7):1520-1532

ALZET Comments: Angiotensin (1-7); A-779; PD123319; CSF, artificial; CSF/CNS; Rat; 1003D; Control animals received mp w/ vehicle; animal info (Sprague Dawley, male, 250-280 g); peptides; ALZET brain infusion kit II used.

Q2191: I. J. Clarke, *et al.* Gonadotropin-Inhibitory Hormone Is a Hypothalamic Peptide That Provides a Molecular Switch between Reproduction and Feeding. *Neuroendocrinology* 2012;95(4):305-316

ALZET Comments: Gonadotropin-inhibitory hormone 3; CSF, artificial; CSF/CNS; Rat; 2002; 5, 10 days; Controls received mp w/ vehicle; animal info (Sprague Dawley, male); delayed delivery by filling catheter with aCSF; ALZET brain infusion kit used; peptides.

Q2259: A. K. Clark, *et al.* Spinal cathepsin S and fractalkine contribute to chronic pain in the collagen-induced arthritis model. *Arthritis and Rheumatism* 2012;64(6):2038-2047

ALZET Comments: Cathepsin S; fractalkine; CSF/CNS (intrathecal); Rat; 2001; Animal info (adult, female, Lewis, 180-200 g); peptides.

Q1895: J. P. Cardinale, *et al.* Angiotensin II-Induced Hypertension Is Modulated by Nuclear Factor-kappa B in the Paraventricular Nucleus. *Hypertension* 2012;59(1):113-U282

ALZET Comments: Angiotensin II; nuclear factor-kappa B; Saline; CSF/CNS (paraventricular nucleus); SC; Rat; 2002; 1004; 2 weeks; Controls received mp w/ vehicle or scrambled decoy oligodeoxynucleotide; animal info (Sprague Dawley, male, 12 wks old, 250-350 g); peptides; multiple pumps (2) used; bilateral cannula used; bilateral infusion;

Q1898: X. Cao, *et al.* Angiotensin II-Dependent Hypertension Requires Cyclooxygenase 1-Derived Prostaglandin E(2) and EP(1) Receptor Signaling in the Subfornical Organ of the Brain. *Hypertension* 2012;59(4):869-U250

ALZET Comments: Angiotensin II; SC-51089; SC; CSF/CNS; Mice; 3, 7, 14 days; Animal info (EP1R null, COX-1 null, COX-2 null, C57BL/6, 8-10 wks old); peptides; multiple pumps (2) used; SC-51089 is an EP1R antagonist.

Q2093: M. Beurdeley, *et al.* Otx2 Binding to Perineuronal Nets Persistently Regulates Plasticity in the Mature Visual Cortex. *Journal of Neuroscience* 2012;32(27):9429-9437

ALZET Comments: RK peptide, biotinylated; CSF/CNS (visual cortex); Mice; 7 days; Animal info (mature, male, C57BL/6, P61-150); peptides.

Q1875: C. Ancel, *et al.* Stimulatory Effect of RFRP-3 on the Gonadotrophic Axis in the Male Syrian Hamster: The Exception Proves the Rule. *Endocrinology* 2012;153(3):1352-1363

ALZET Comments: RF amide related peptide-3; CSF, artificial; ringer lactate; CSF/CNS; Hamster; 2006; Controls received mp w/ vehicle; animal info (female, Syrian); peptides.

