



Recent References (2021-Present) on the Intracerebroventricular Administration of Agents to Rats
Using ALZET® Osmotic Pumps

Q11351: X. Li, *et al.* Isoquercitrin Played a Neuroprotective Role in Rats After Cerebral Ischemia/Reperfusion Through Up-Regulating Neuroglobin and Anti-Oxidative Stress. *Transplantation Proceedings* 2023;55(7):1751-1761

Agents: oligonucleotides, antisense; artificial cerebrospinal fluid **Vehicle:** Cerebrospinal fluid, artificial; **Route:** CSF/CNS (lateral ventricle); **Species:** Rat; **Strain:** Sprague Dawley; **Pump:** 2002; **Duration:** 72 hours;

ALZET Comments: Dose (1 mL/h); controls received mp w/ vehicle; sham operation; animal info (200 +/- 20 g); ischemia

Q11038: J. Zicha, *et al.* Nitric oxide and salt resistance in Dahl rats: no role of inducible NO synthase. *Physiological Research* 2023;72(1):123-127

Agents: Aminoguanidine; 2-amino-5,6-dihydro-6-methyl-4H-1,3-thiazine **Vehicle:** Water; saline; **Route:** CSF/CNS (lateral cerebral ventricle); **Species:** Rat; **Strain:** Wistar; **Pump:** 2004; **Duration:** 4 weeks;

ALZET Comments: Dose: AMG (2 mg/kg/day); AMT (0.5 mg/kg/day); Controls received mp w/ vehicle; animal info: Male 8-week-old outbred rats; Blood pressure measured via pressure transducer and a multichannel recorder; Blood pressure measurement see (pg.3 &4) fig.1,2,3 polyethylene catheter; AMG and AMT used as NOS II inhibitors; cardiovascular (blood pressure and high salt intake)

Q10986: S. M. Robert, *et al.* The choroid plexus links innate immunity to CSF dysregulation in hydrocephalus. *Cell* 2023;186(4):764-785 e21

Agents: E. coli, wild type; E. coli, -LPS; lipopolysaccharide **Vehicle:** CSF, artificial; **Route:** CSF/CNS (right lateral ventricle); **Species:** Rat; **Strain:** Wistar; **Pump:** 1003D; **Duration:** 72 hours;

ALZET Comments: Dose (10 ng/mL); Controls received mp w/ vehicle; animal info 8-week-old; ALZET brain infusion kit 2 used; Brain coordinates ((coordinates, x= -0.8, y= -1.7 mm from bregma)cyanoacrylate adhesive; gene therapy; immunology

Q11086: C.-W. Lin, *et al.* Monascus-fermented metabolites repressed amyloid β -peptide-induced neurotoxicity and inflammatory response in in vitro and in vivo studies. *Journal of Functional Foods* 2023;104

Agents: Amyloid beta-peptide-40 **Vehicle:** Acetonitrile; trifluoroacetic acid; **Route:** CSF/CNS (left ventricle); **Species:** Rat; **Strain:** Sprague-Dawley; **Pump:** Not Stated; **Duration:** 28 days;

ALZET Comments: 35% acetonitrile solution; Controls received mp w/ vehicle; animal info (Male; 6-8 weeks old); peptides; ALZET brain infusion kit 2 used; dental cement used; Alzheimer's

Q11132: L. Li, *et al.* Downregulation of Nrf2 in the Hippocampus Contributes to Postoperative Cognitive Dysfunction in Aged Rats by Sensitizing Oxidative Stress and Neuroinflammation. *Oxidative Medicine and Cellular Longevity* 2023;2023(7272456

Agents: Bardoxolone methyl **Vehicle:** Not Stated; **Route:** CSF/CNS (lateral ventricle); **Species:** Rat; **Strain:** F344/BNF1; **Pump:** 2002; **Duration:** Not Stated;

ALZET Comments: Controls received mp w/ vehicle; animal info (Male; 3 and 24 months old); catheter; bilateral cannula used; dental cement used; brain coordinates used: 1.5 mm lateral to midline, 1.0 mm caudal to bregma, 3.5 mm ventral of dura; behavioral testing (Fear conditioning test; Open field test);

Q11083: D. S. Lee, *et al.* CDDO-Me Abrogates Aberrant Mitochondrial Elongation in Clasmatodendritic Degeneration by Regulating NF-kappaB-PDI-Mediated S-Nitrosylation of DRP1. *International Journal of Molecular Sciences* 2023;24(6):

Agents: CDDO-Me; SN50; RNA, small interfering, non-targeting control; RNA, small interfering, PDI **Vehicle:** Not Stated; **Route:** CSF/CNS (right lateral ventricle); **Species:** Rat; **Strain:** Sprague-Dawley; **Pump:** 1007D; **Duration:** Not Stated;

ALZET Comments: Dose: Controls received mp w/ vehicle; animal info (Male; 7 weeks old); ALZET BIK 1 used; Brain coordinates (1 mm posterior; 1.5 mm lateral; -3.5 mm depth to bregma); SN50 is a nuclear factor-KB inhibitor; clasmatodendrosis



Q11123: J. E. Kim, *et al.* Peroxiredoxin 6 Regulates Glutathione Peroxidase 1-Mediated Glutamine Synthase Preservation in the Hippocampus of Chronic Epilepsy Rats. *Antioxidants (Basel)* 2023;12(1):

Agents: MJ33 **Vehicle:** Not Stated; **Route:** CSF/CNS (right lateral ventricle); **Species:** Rat; **Strain:** Sprague-Dawley; **Pump:** 1007D; **Duration:** 7 days;

ALZET Comments: Dose (50 uM); Controls received mp w/ vehicle; animal info (Male; 7 weeks old; Weighed 200-250 g); MJ33 is a selective inhibitor of aiPLA2 activity of Prdx6; Brain coordinates (1 mm posterior; 1.5 mm lateral; 3.5 mm depth); epilepsy

Q11046: J. E. Kim, *et al.* Distinct Roles of CK2- and AKT-Mediated NF-kappaB Phosphorylations in Clasmatodendrosis (Autophagic Astroglial Death) within the Hippocampus of Chronic Epilepsy Rats. *Antioxidants (Basel)* 2023;12(5):

Agents: 2-[4,5,6,7-Tetrabromo-2-(dimethylamino)-1H-benzo[d]imidazole-1-yl]acetic acid; 3-chloroacetyl-indole **Vehicle:** Not Stated **Route:** CSF/CNS (right lateral ventricle); **Species:** Rat; **Strain:** Sprague-Dawley **Pump:** 1007D; **Duration:** 7d **ALZET Comments:** Dose: TMCB 0.5 ul, 3CAI 25 uM; animal info: Male 200–250 g; ALZET BIK 1 used; brain coordinates (coordinates: 1 mm posterior; 1.5 mm lateral; 3.5 mm depth); TMCB is a selective CK2 inhibitor; 3CAI is an AKT inhibitor; seizure

Q11300: J. E. Kim, *et al.* Epigallocatechin-3-Gallate Attenuates Leukocyte Infiltration in 67-kDa Laminin Receptor-Dependent and -Independent Pathways in the Rat Frontoparietal Cortex following Status Epilepticus. *Antioxidants* 2023;12(4):

Agents: Epigallocatechin-3-Gallate; IgG, control anti-mouse; IgG, anti-MCP; IgG control anti-rabbit; IgG anti-67LR **Vehicle:** Not Stated; **Route:** CSF/CNS (right lateral ventricle) **Species:** Rat **Strain:** Sprague-Dawley **Pump:** 1003D; 1007D; **Duration:** 3,7 days **ALZET Comments:** Dose (EGCG 50 uM; IgG 50 ug/mL); controls received mp w/ vehicle; animal info (Male; 7 weeks old; Weighed 200–220 g); ALZET brain infusion kit 1 used; brain coordinates (1 mm posterior; 1.5 mm lateral; 3.5 mm depth); dental cement used; cannula location verified during brain sections

Q11299: J. E. Kim, *et al.* EGCG Attenuates CA1 Neuronal Death by Regulating GPx1, NF-kappaB S536 Phosphorylation and Mitochondrial Dynamics in the Rat Hippocampus following Status Epilepticus. *Antioxidants* 2023;12(4):

Agents: Epigallocatechin-3-gallate; U0126 **Vehicle:** Not Stated; **Route:** CSF/CNS (right lateral ventricle); **Species:** Rat; **Strain:** Sprague-Dawley; **Pump:** 1007D; **Duration:** 3 days; **ALZET Comments:** Dose (50 uM EGCG, 25 uM U0126); controls received mp w/ vehicle; animal info (Male; Weighed 200-220 g); post op. care (Lithium chloride); ALZET BIK 1 used; brain coordinates (1 mm posterior; 1.5 mm lateral; 3.5 mm depth);

R0454: Q. Huang, *et al.* Biomaterial-Based bFGF Delivery for Nerve Repair. *Oxidative Medicine and Cellular Longevity* 2023;2023(8003821)

Agents: Fibroblast growth factor, basic **Vehicle:** Heparin; **Route:** SC; CSF/CNS (lumbar thecal sac); CSF/CNS (lateral ventricle); **Species:** Rat; **Strain:** Not Stated; **Pump:** Not Stated; **Duration:** 1 week; **ALZET Comments:** neurodegenerative (spinal cord injury, facial nerve injury)

Q11073: L. Dias, *et al.* Increased Synaptic ATP Release and CD73-Mediated Formation of Extracellular Adenosine in the Control of Behavioral and Electrophysiological Modifications Caused by Chronic Stress. *ACS Chem Neuroscience* 2023;14(7):1299-1309

Agents: Alpha, beta-methylene ADP **Vehicle:** Saline; **Route:** CSF/CNS (right lateral ventricle); **Species:** Rat; **Strain:** Wistar; **Pump:** 1004; **Duration:** 14 days; **ALZET Comments:** Controls received mp w/ vehicle; animal info (Male; Weighed 220-250 g); enzyme inhibitor (CD73); ALZET brain infusion kit 2 used; Brain coordinates (anter-posterior = 0 relative to bregma; lateral = 1.5 mm to midline; depth = 4.5 mm down from surface of skull); behavioral testing (restraint test, open-field test, object displacement, elevated-plus maze, forced swimming test); stress, memory

Q11099: F. De Lorenzo, *et al.* CDNF rescues motor neurons in models of amyotrophic lateral sclerosis by targeting endoplasmic reticulum stress. *Brain* 2023;146(9):3783-3799

Agents: Cerebral dopamine neurotrophic factor **Vehicle:** PBS; **Route:** CSF/CNS (lateral ventricle); **Species:** Rat; **Strain:** TDP43-M337V **Pump:** Not Stated; **Duration:** 28 days; **ALZET Comments:** Dose (6 ug/day); Controls received mp w/ vehicle; catheter; behavioral testing (Rotarod test); neurodegenerative (Amyotrophic lateral sclerosis);



Q11072: V. Csikos, *et al.* Microglia depletion prevents lactation by inhibition of prolactin secretion. *iScience* 2023;26(3):106264
Agents: Pexidartinib 3397 **Vehicle:** CSF, artificial; **Route:** CSF/CNS (lateral ventricle); **Species:** Rat; **Strain:** Wistar; **Pump:** 2004; **Duration:** 28 days;

ALZET Comments: Dose (0.5 mg/ml); Controls received mp w/ vehicle; animal info (Female; WT 2-4 months old; Pregnant); comparison of oral treatment vs mp; post op. care (Antibiotics III 0.1 ml/kg); ALZET BIK 2 used; Brain coordinates (-0.5 mm anteroposterior to bregma; 1.4 mm lateral to bregma; 3.6 mm ventral to brain surface); dental cement used; behavioral testing (Pup retrieval test; Spontaneous maternal behavior); PLX3397 inhibits colony stimulating factor 1 receptor

Q11243: K. A. Alkadhi. A rat model of pre-clinical Alzheimer's disease. *Handbook of Animal Models in Neurological Disorders* 2023;43-55

Agents: Amyloid beta (1-42) **Vehicle:** Acetonitrile; trifluoroacetic acid; **Route:** CSF/CNS (lateral ventricle); **Species:** Rat; **Strain:** Wistar; **Pump:** Not Stated; **Duration:** 2 weeks;

ALZET Comments: Dose (160pmol/day); 35% acetonitrile/0.1% trifluoroacetic acid used; post op. care: wound clips used; triple antibiotic ointment; peptides; catheter; Brain coordinates (AP: -0.3, L: 1.2, V: 4.5); dental cement used; behavioral testing: Radial arm water maze task; Short term memory; Long term memory; neurodegenerative (Alzheimer's); good methods p. 44-45

Q10803: P. Xiao, *et al.* RTN4/Nogo-A-S1PR2 Negatively Regulates Angiogenesis and Secondary Neural Repair Through Enhancing Vascular Autophagy in the Thalamus After Cerebral Cortical Infarction. *Autophagy* 2022;18(11):2711-2730

Agents: RTN4-d20-Fc; Immunoglobulin G, recombinant **Vehicle:** PBS; PEG 300; **Route:** CSF/CNS (right lateral ventricle); **Species:** Rat; **Strain:** Sprague-Dawley; **Pump:** 1003D; **Duration:** 24 hours;

ALZET Comments: Dose: (40 µg/kg); 2% DMSO; 40% PEG300 vehicle used Controls received mp w/ vehicle; animal info: rats weighting 90–110 g; Recombinant human IgG Fc aka (IgG Fc); Brain coordinates (into the right lateral ventricle under a stereotaxic apparatus (-1.0 mm anteroposterior, 1.4 mm mediolateral, -4.0 mm dorsoventral relative to the bregma); neurodegenerative (cerebral cortical infarction);

Q10680: P. K. Singh, *et al.* Specific Inhibition of NADPH Oxidase 2 Modifies Chronic Epilepsy. *Redox Biology* 2022;58(10):2549

Agents: Gp91ds-tat **Vehicle:** Not Stated; **Route:** CSF/CNS (right lateral ventricle); **Species:** Rat; **Strain:** Sprague-Dawley; **Pump:** 2002; **Duration:** 2 weeks;

ALZET Comments: "Dose (800 ng/kg/day); Controls received mp w/ vehicle; animal info (Naïve male and female rats (200–250 g); post op. care (Before initiating the surgery, rats were injected with buprenorphine (0.2 mg/kg; SC) and Metacam (1 mg/kg; SC) for pain relief); After surgery rats were injected with 3–5 ml of warmed Ringer's solution and amoxicillin (Betamox LA, 100 mg/kg); peptides; catheter; ALZET brain infusion kit 2 used; Brain coordinates (vinyl catheter tube was implanted into the right lateral ventricle of brain [1 mm posterior, 1.2 mm lateral, 4.5 mm ventral from the bregma); dental cement used;

Q10675: G. Sekerci, *et al.* Effects of Meteorin-Like Hormone on Endocrine Function of Hypothalamo-Hypophysial System and Peripheral Uncoupling Proteins in Rats. *Molecular Biology Reports* 2022;49(7):5919-5925

Agents: Meteorin-like hormone **Vehicle:** CSF, artificial; **Route:** CSF/CNS (right lateral ventricle); **Species:** Rat; **Strain:** Sprague-Dawley; **Pump:** 2ML2; **Duration:** 14 days;

ALZET Comments: Dose: 10 nM, 100 nM; Controls received mp w/ vehicle; animal info: male rats with approximate body weight of 432 g; Artificial cerebrospinal fluid (ALZET brain infusion kit 1 used; Brain coordinates (The right lateral ventricle coordinates (1.40 mm lateral, 0.8 mm posterior and 4.8 mm ventral from the bregma); dental cement used; (Thyroid hormones); "

Q10660: L. Rezacova, *et al.* Both Central Sympathoexcitation and Peripheral Angiotensin II-Dependent Vasoconstriction Contribute to Hypertension Development in Immature Heterozygous Ren-2 Transgenic Rats. *Hypertension Research* 2022;45(3):414-423

Agents: Losartan **Vehicle:** Not Stated; **Route:** IP; CSF/CNS (lateral ventricle); **Species:** Rat (transgenic); **Strain:** mRen-2; **Pump:** 2004; **Duration:** Not Stated;

ALZET Comments: Dose (1 or 2 mg/kg/day); animal info (immature Male heterozygous (mRen-2) transgenic; 6 weeks old; Fed Sniff diet); Blood pressure measured via pressure transducer and multichannel recorder; Brain coordinates: (AP = -1.0, L = 1.5, V = 4.1); polyethylene catheter used; antihypertensive; cardiovascular;



Q11208: L. G. Niu, *et al.* Genistein Alleviates Oxidative Stress and Inflammation in the Hypothalamic Paraventricular Nucleus by Activating the Sirt1/Nrf2 Pathway in High Salt-Induced Hypertension. *Cardiovascular Toxicology* 2022;22(10-11):898-909

Agents: Genistein; nicotinamide **Vehicle:** Saline; **Route:** CSF/CNS (hypothalamic paraventricular nucleus); **Species:** Rat; **Strain:** Wistar; **Pump:** 1004; **Duration:** 4 weeks;

ALZET Comments: Dose (20 µg/h); (0.3% NaCl); (8% NaCl) used; Controls received mp w/ vehicle; animal info: Four-week-old male 100–120 g; blood pressure measured via: Tail cuff; Blood pressure measurement results (see pg.900) fig.1 b; Brain coordinates (1.8 mm caudal to the bregma, 0.4 mm lateral to the central line, and 7.9 mm ventral to the dorsal surface); bilateral cannula used; cardiovascular;

Q10593: B. Lv, *et al.* Exenatide improves the luteinizing hormone pulse in obese polycystic ovary syndrome rats by upregulating sirtuin-1 in the hypothalamus. *The American Journal of Drug and Alcohol Abuse* 2022;

Agents: EX527 **Vehicle:** DMSO; **Route:** CSF/CNS (third ventricle); **Species:** Rat; **Strain:** PCOS; **Pump:** Not Stated; **Duration:** 3w

ALZET Comments: Dose: EX527 (5 µg/24 h) Controls received mp w/ vehicle; animal info: Obese rats(EX-527) is an SIRT1 inhibitor; enzyme inhibitor (EX527);

Q11169: D. S. Lee, *et al.* CDDO-Me Attenuates Clasmatodendrosis in CA1 Astrocyte by Inhibiting HSP25-AKT Mediated DRP1-S637 Phosphorylation in Chronic Epilepsy Rats. *International Journal of Molecular Sciences* 2022;23(9):

Agents: CDDO-Me; 3CAI; siRNA, non-targeting control; siRNA, HSP25 **Vehicle:** Saline; **Route:** CSF/CNS (right lateral ventricle); **Species:** Rat; **Strain:** Sprague-Dawley; **Pump:** 1007D; **Duration:** 7 days;

ALZET Comments: Dose: CDDO-Me (10 uM); 3CAI (25 uM); Controls received mp w/ vehicle; animal info: 7 weeks old; 3CAI is an AKT inhibitor; ALZET brain infusion kit 1 used; Brain coordinates: right lateral ventricle (1 mm posterior; 1.5 mm lateral; -3.5 mm depth to the bregma); dental acrylic used; neurodegenerative (Temporal lobe epilepsy);

Q11158: J. E. Kim, *et al.* CDDO-Me Attenuates CA1 Neuronal Death by Facilitating RalBP1-Mediated Mitochondrial Fission and 4-HNE Efflux in the Rat Hippocampus Following Status Epilepticus. *Antioxidants (Basel)* 2022;11(5):

Agents: CDDO-Me; siRNA, non-targeting control; siRNA, RalBP1 **Vehicle:** Not Stated; **Route:** CSF/CNS (right lateral ventricle); **Species:** Rat; **Strain:** Sprague-Dawley; **Pump:** 1007D; **Duration:** Not Stated;

ALZET Comments: Controls received mp w/ vehicle; animal info: Male 7 weeks old; ALZET brain infusion kit 1 used; Brain coordinates: 1 mm posterior; 1.5 mm lateral; -3.5 mm depth to the bregma; Dental acrylic used; correct infusion into lateral ventricle confirmed tissue process for immunohistochemistry and Western blot; neurodegenerative (Status epilepticus);

Q11159: J. E. Kim, *et al.* Sp1-Mediated Prdx6 Upregulation Leads to Clasmatodendrosis by Increasing Its aiPLA2 Activity in the CA1 Astrocytes in Chronic Epilepsy Rats. *Antioxidants (Basel)* 2022;11(10):

Agents: CDDO-Me; Mithramycin A; MJ33 **Vehicle:** Not Stated; **Route:** CSF/CNS (right lateral ventricle); **Species:** Rat; **Strain:** Sprague-Dawley; **Pump:** 1007D; **Duration:** 7 days;

ALZET Comments: Dose: CDDO-Me 10 uM, MMA 25 uM, MJ33 50 uM; Controls received mp w/ vehicle; animal info: Seven-week-old male; ALZET brain infusion kit 1 used; Brain coordinates: 1 mm posterior; 1.5 mm lateral; 3.5 mm depth; dental cement used; CDDO-Me is an Nrf2 activator; MMA is an Sp1 DNA-binding transcriptional inhibitor; cannula placement verified during brain sections and sampling tissues for Western blot; neurodegenerative (Epilepsy);

Q11157: J. E. Kim, *et al.* Blockade of TASK-1 Channel Improves the Efficacy of Levetiracetam in Chronically Epileptic Rats. *Biomedicines* 2022;10(4):

Agents: ML365 **Vehicle:** Saline; **Route:** SC; CSF/CNS (right lateral ventricle); **Species:** Rat; **Strain:** Sprague-Dawley; **Pump:** 1007D; **Duration:** 7 days;

ALZET Comments: Dose: ML365 (400 nM); Controls received mp w/ vehicle; animal info: male 7 weeks old; ALZET brain infusion kit 1 used; Brain coordinates: 1 mm posterior, 1.5 mm lateral and 3.5 mm depth to the bregma; dental acrylic used; ML365 is a specific TASK-1 inhibitor; neurodegenerative (Epilepsy);



Q10570: D. Keller, *et al.* A Thalamo-Preoptic Pathway Promotes Social Grooming in Rodents. *Current Biology* 2022;32(21):4593-4606 e8

Agents: HYWH-TIP39 **Vehicle:** CSF, artificial; **Route:** CSF/CNS (lateral ventricle); **Species:** Rat; **Strain:** Not Stated; **Pump:** 2002; **Duration:** Not Stated;

ALZET Comments: Controls received mp w/ vehicle; animal info: female rats; behavioral testing: Social behavioral tests; Freely moving social behavior test; Social interaction test without direct contact; Social novelty test; HYWH-TIP39 is Parathyroid hormone 2 antagonist; ALZET brain infusion kit 2 used; Brain coordinates (AP = 0.5mm from bregma, ML = +1.6mm from the midline.); dental cement used; cranioplastic cement

Q10408: V. Barrios, *et al.* Chronic Central Leptin Infusion Promotes an Anti-Inflammatory Cytokine Profile Related to the Activation of Insulin Signaling in the Gastrocnemius of Male Rats. *Biomedicines* 2022;10(7):

Agents: Leptin **Vehicle:** Saline; BSA; **Route:** CSF/CNS (right ventricle); **Species:** Rat; **Strain:** Not Stated; **Pump:** Not Stated; **Duration:** 14 days;

ALZET Comments: Dose (12 µg/day); 0.9% saline and 1% serum albumin used; Controls received mp w/ vehicle; animal info (Male; Weighed about 250 g); diabetes;

Q10490: Y. M. Arenas, *et al.* The S1PR2-CCL2-BDNF-TrkB pathway mediates neuroinflammation and motor incoordination in hyperammonaemia. *Neuropathology and Applied Neurobiology* 2022;48(4):e12799

Agents: JTE-013 **Vehicle:** Saline, sterile; DMSO; **Route:** CSF/CNS (ventricle); **Species:** Rat; **Strain:** Wistar; **Pump:** Not Stated; **Duration:** 28 days;

ALZET Comments: "Dose: (1.22 µM); 1% DMSO vehicle used; Controls received mp w/ vehicle; animal info: Male rats (220–250 g); behavioral testing: Beam walking; Footprint analysis of locomotor gait in the CatWalk; Motorater; JTE-013 is a S1PR2 (sphingosine-1-phosphate receptor 2) antagonist; ALZET brain infusion kit 2 used; neurodegenerative (hyperammonaemia and minimal hepatic encephalopathy); "

Q10739: V. Zhuravleva, *et al.* Rab35 and Glucocorticoids Regulate APP and BACE1 Trafficking to Modulate Abeta Production. *Cell Death & Diseases* 2021;12(12):1137

Agents: Amyloid-beta, 1-40 **Vehicle:** Saline; **Route:** CSF/CNS (intracerebroventricular); **Species:** Rat; **Strain:** Wistar; **Pump:** 2002; **Duration:** 14 days;

ALZET Comments: animal info (12-months old; male rats); AB1-40 aka toxic amyloid beta peptides; ALZET brain infusion kit used; Brain coordinates (-0.6 mm anteroposterior; -1.4 mm mediolateral; -3.5 mm dorsoventral); (Alzheimer's disease);

Q9557: Y. Z. Wu, *et al.* Cordyceps cicadae NTU 868 Mycelium with The Addition of Bioavailable Forms of Magnesium from Deep Ocean Water Prevents the Aβ40 and Streptozotocin-Induced Memory Deficit via Suppressing Alzheimer's Disease Risk Factors and Increasing Magnesium Uptake of Brain. *Fermentation* 2021;7(1):

Agents: Amyloid protein, beta (40); Streptozotocin **Vehicle:** Acetonitrile; Trifluoroacetic acid; **Route:** CSF/CNS (left ventricle); **Species:** Rat; **Strain:** Sprague Dawley; **Pump:** 2004; **Duration:** 28 days;

ALZET Comments: Dose (24.299 µg); 35% Acetonitrile, 0.1% Trifluoroacetic Acid used; Controls received mp w/ vehicle; animal info (Male, 6-8 weeks old); behavioral testing (Morris Water Maze); Amyloid protein, beta (40) aka AB40; Brain coordinates (relative to the bregma; 0.8 mm posterior, 1.4 mm latera); dental cement used; neurodegenerative (Alzheimer's);

Q10773: R. Wang, *et al.* Lycopene Can Modulate The LRP1 and RAGE Transporters Expression at the Choroid Plexus in Alzheimer's Disease Rat. *Journal of Functional Foods* 2021;85(**Agents:** Amyloid beta (1-42) **Vehicle:** Not Stated; **Route:** CSF/CNS (lateral ventricle); **Species:** Rat; **Strain:** Wistar; **Pump:** Not Stated; **Duration:** 14 days;

ALZET Comments: "Dose: (10 mM); animal info: adult male rats (SPF class, 8 weeks of age, weighing 250–300 g; Brain coordinates (0.8 mm posterior to bregma, 1.5 mm lateral to sagittal suture and 3.6 mm beneath the surface of the brain); dental cement used; neurodegenerative (Alzheimer's disease); "



Q10784: L. Wang, *et al.* Coupling of GPR30 Mediated Neurogenesis and Protection With Astroglial Aromatase-STAT3 Signaling in Rat Hippocampus After Global Cerebral Ischemia. *Molecular and Cellular Endocrinology* 2021;535(11):1394

Agents: G1 **Vehicle:** DMSO; Cotton Oil; **Route:** CSF/CNS (ventricle); **Species:** Rat; **Strain:** Sprague-Dawley; **Pump:** 2004; **Duration:** 28 days;

ALZET Comments: Dose: (3 ug/day); 0.1% DMSO; 0.9% Saline vehicle used Controls received mp w/ vehicle; animal info: Adult (3-month-old) female rats bilateral OVX; G1- aka G protein-coupled receptor 30 agonist; ALZET brain infusion kit 1 used; Brain coordinates (2.5–4.5 mm posterior from bregma);

Q9516: T. C. Uzuneser, *et al.* Presynaptic vesicular accumulation is required for antipsychotic efficacy in psychotic-like rats. *Journal of Psychopharmacology* 2021;35(1):65-77

Agents: Haloperidol; Haloperidol, analog compound **Vehicle:** Saline; **Route:** CSF/CNS (lateral ventricle); **Species:** Rat; **Strain:** Sprague-Dawley; **Pump:** 2001; **Duration:** 7 days;

ALZET Comments: Dose (); 0.9% Saline used; Controls received mp w/ vehicle; animal info (Male rats, 300-350 g); behavioral testing (locomotion test); d-amphetamine sulfate aka AMPH; ALZET brain infusion kit 2 used; Brain coordinates (0.8 mm posterior, 1.4 mm lateral, 4.5 mm ventral from the bregma); cyanoacrylate adhesive;

Q9513: M. M. Uddin, *et al.* Neuroestradiol regulation of ventromedial hypothalamic nucleus 5'-AMP-activated protein kinase activity and counterregulatory hormone secretion in hypoglycemic male versus female rats. *AIMS Neuroscience* 2021;8(1):133-147

Agents: Letrozole **Vehicle:** CSF, artificial; DMSO; **Route:** CSF/CNS (left ventricle); **Species:** Rat; **Strain:** Sprague Dawley; **Pump:** 1007D; **Duration:** 5 days;

ALZET Comments: Dose (1.678 ug/uL); 30% Artificial CSF, 70% DMSO used; Controls received mp w/ vehicle; animal info (Adult male and female rats, 3–4 months old); Letrozole aka Lz; ALZET brain infusion kit 1 used; Brain coordinates (0.0 mm posterior to bregma; 1.5 mm lateral to bregma; 3.5 mm ventral to brain surface); dependence;

Q10346: Q. Su, *et al.* Inhibition of Maternal c-Src Ameliorates the Male Offspring Hypertension by Suppressing Inflammation and Neurotransmitters in the Paraventricular Nucleus. *Cardiovascular Toxicology* 2021;21(10):820-834

Agents: Dasatinib **Vehicle:** Not Stated; **Route:** CSF/CNS (paraventricular nucleus); **Species:** Rat; **Strain:** Sprague-Dawley; **Pump:** 2006; **Duration:** 6 weeks;

ALZET Comments: Dose: (0.15 µl/h, 200 µl); Controls received mp w/ vehicle; animal info: Female 250–300 g; Blood pressure measured via: tail-cuff; Blood pressure measurement results (see pg 4); Dasatinib (DAS); cardiovascular;

Q10066: R. A. Smith, *et al.* Development of a molecular therapy for the SOD1 familial variant of ALS. *Neurotherapeutics in the Era of Translational Medicine* 2021;1-18

Agents: Oligonucleotides; Methylene blue **Vehicle:** Not Stated; **Route:** CSF/CNS (right lateral ventricle); **Species:** Rat; **Strain:** G93A SOD1 transgenic; **Pump:** Not Stated; **Duration:** 14 days;

ALZET Comments: Animal info (rats, 2-3 months of age); functionality of mp verified by pump weight;

Q8744: S.-K. Mun, *et al.* MicroRNAs Related to Cognitive Impairment After Hearing Loss. *Clinical and Experimental Otorhinolaryngology* 2021;14(1):76-81

Agents: Amyloid protein, beta (1-42) **Vehicle:** Acetonitrile; Trifluoroacetic Acid; **Route:** CSF/CNS (right lateral ventricle); **Species:** Rat; **Strain:** Wistar; **Pump:** 2002; **Duration:** 2 weeks;

ALZET Comments: Dose (160 pmol/day); 35% Acetonitrile, 0.1% Trifluoroacetic Acid used; animal info (rats, 200-250 g, 7 weeks old); behavioral testing (Y-maze test, object-in-place task (OPT), novel object recognition task (NOR), object location task); peptides; ALZET BIK 2 used; Brain coordinates (anteroposterior, -0.3; lateral, 1.2; vertical, 4.5)

Q10600: D. Mao, *et al.* Effect and Mechanism of BDNF/TrkB Signaling on Vestibular Compensation. *Bioengineered* 2021;12(2):11823-11836

Agents: Brain derived neurotrophic factor, RNA, small interfering **Vehicle:** CSF, artificial; **Route:** CSF/CNS (right lateral ventricle); **Species:** Rat; **Strain:** Sprague Dawley; **Pump:** Not Stated; **Duration:** Not Stated;

ALZET Comments: animal info (Male ; Weighed 200-250 g); behavioral testing (Rotarod test; Postural asymmetry; Head roll tilt; Nystagmus); tissue perfusion (Brain tissue); gene therapy;



Q10239: F. Liu, *et al.* Electroacupuncture Improves Cerebral Ischemic Injury by Enhancing the EPO-JAK2-STAT5 Pathway in Rats. *Neuropsychiatric Disease and Treatment* 2021;17(2489-2498

Agents: AG490 **Vehicle:** Not Stated; **Route:** CSF/CNS (lateral ventricle); **Species:** Rat; **Strain:** Sprague-Dawley; **Pump:** Not Stated; **Duration:** Not Stated;

ALZET Comments: Controls received mp w/ vehicle; animal info: Adult rats (male: female=1:1, 200– 250 g); post op. care: After suturing the skin, analgesics and antibiotics were injected intraperitoneally to prevent postoperative pain and infection; AG-490 (a Janus-tyrosine kinase-2 (JAK-2) phosphorylation inhibitor); ALZET brain infusion kit used; Brain coordinates (bregma, 0.8 mm posterior, –4.8 mm dorsoventral, –1.5 mm lateral); ischemia (cerebral ischemia); "

Q8639: J. Li, *et al.* Silencing of Central (Pro)renin Receptor Ameliorates Salt-Induced Renal Injury in Chronic Kidney Disease. *Antioxidants and Redox Signaling* 2021;

Agents: U0126; Wortmannin; Losartan **Vehicle:** CSF, artificial; **Route:** CSF/CNS (intracerebroventricular); **Species:** Rat; **Strain:** Sprague-Dawley; **Pump:** Not stated; **Duration:** 4 weeks;

ALZET Comments: Dose (2.5 ug/day U0126; 2.5 ug/day Wortmannin; 1 mg/kg/day Losartan); Controls received mp w/ vehicle; animal info (male rats, 5 weeks old, 150-180 g); Blood pressure measured via tail cuff method; cardiovascular;

Q9337: D. S. Lee, *et al.* Regional specific activations of ERK1/2 and CDK5 differently regulate astroglial responses to ER stress in the rat hippocampus following status epilepticus. *Brain Research* 2021;1753(147262

Agents: Tunicamycin; U0126; Roscovitine **Vehicle:** Saline; **Route:** CSF/CNS (right lateral ventricle); **Species:** Rat; **Strain:** Sprague-Dawley; **Pump:** 1007D; **Duration:** 7 days;

ALZET Comments: Controls received mp w/ vehicle; animal info (Adult male rats, weight 250–280 g); ALZET brain infusion kit 1 used; Brain coordinates (1 mm posterior; 1.5 mm lateral; – 3.5 mm depth; flat skull position with bregma as reference); neurodegenerative (status epilepticus);

Q10824: Y. Kim, *et al.* Investigation of the Feasibility of Ventricular Delivery of Resveratrol to the Microelectrode Tissue Interface. *Micromachines (Basel)* 2021;12(12):

Agents: Resveratrol **Vehicle:** PEG 200; **Route:** CSF/CNS (lateral ventricle); **Species:** Rat; **Strain:** Sprague-Dawley; **Pump:** 2006; **Duration:** 6 weeks;

ALZET Comments: Dose (356 ug/day); animal info (11 weeks old; About 250g); functionality of mp verified by aspirating residual volume; ALZET brain infusion kit 1 used; dental cement used; Brain coordinates: 1 mm posterior to bregma, 1.5 mm lateral to midline; good methods (pgs. 3, 4, 5, 8)

Q10203: X. Jin, *et al.* Oestrogen inhibits salt-dependent hypertension by suppressing GABAergic excitation in magnocellular AVP neurons. *Cardiovascular Research* 2021;117(10):2263-2274

Agents: Oestrogen; ICI 182780 **Vehicle:** Hydroxypropyl-b-cyclodextrin; **Route:** CSF/CNS (intracerebroventricular); **Species:** Rat; **Strain:** Sprague-Dawley; **Pump:** 2002; **Duration:** Not Stated;

ALZET Comments: 20% hydroxypropyl-b-cyclodextrin used; Controls received mp w/ vehicle; animal info: rats, 6–7weeks of age; post op. care: antibiotic (ubacillin); Blood pressure measured via: Tail cuff; Telemetry method; Blood pressure results (see pg.11); ALZET BIK2 used; Brain coordinates ((AP: 1.0mm from the bregma, ML: 1.6mm from the midline, DV: 4mm below the surface of the skull); cardiovascular;

Q9242: F. N. Gava, *et al.* Restoration of Cardiac Function After Myocardial Infarction by Long-Term Activation of the CNS Leptin-Melanocortin System. *JACC Basic to Translational Science* 2021;6(1):55-70

Agents: Leptin; Melanotan II **Vehicle:** Saline; **Route:** CSF/CNS (intracerebroventricular); **Species:** Rat; **Strain:** Sprague-Dawley; **Pump:** 2002; **Duration:** 28 days;

ALZET Comments: Dose (0.62 ug/h Leptin; 10 ng/h Melanotan II); Controls received mp w/ vehicle; animal info (12 to 14 week-old male); Melanotan II aka MTII; cardiovascular;



R0403: A. des Rieux. Stem Cells and Their Extracellular Vesicles as Natural and Bioinspired Carriers for the Treatment of Neurological Disorders. *Current Opinion in Colloid & Interface Science* 2021;54(**Agents:** Not Stated **Vehicle:** Not Stated; **Route:** CSF/CNS (lateral ventricle); **Species:** Rat; **Strain:** Not Stated; **Pump:** Not Stated; **Duration:** 2 weeks; **ALZET Comments:** Different EV and cell administration routes to the nervous system (p.17) fig. 6; neurodegenerative (Parkinson's disease);

Q10103: V. Barrios, *et al.* Cerebral Insulin Bolus Revokes the Changes in Hepatic Lipid Metabolism Induced by Chronic Central Leptin Infusion. *Cells* 2021;10(3):

Agents: Leptin; Saline **Vehicle:** Not Stated; **Route:** CSF/CNS (cerebral ventricle); **Species:** Rat; **Strain:** Wistar; **Pump:** Not Stated; **Duration:** 14 days;

ALZET Comments: Dose: (0.2 mg/kg/day); Controls received mp w/ vehicle; Animal info: Adult male rats (250 +-10 g)

Q10362: V. Barrios, *et al.* Opposite Effects of Chronic Central Leptin Infusion on Activation of Insulin Signaling Pathways in Adipose Tissue and Liver Are Related to Changes in the Inflammatory Environment. *Biomolecules* 2021;11(11):

Agents: Leptin **Vehicle:** Saline; BSA; **Route:** CSF/CNS (right cerebral ventricle); **Species:** Rat; **Strain:** Not Stated; **Pump:** Not Stated; **Duration:** 14 days;

ALZET Comments: Dose (12 ug/day); animal info (Male; 15 total; Around 250 g); Brain coordinates (-0.3 mm anteroposterior; 1.1 mm lateral from Bregma);