Recent References (2018-Present) on the Administration of Antibodies Using ALZET® Osmotic Pumps


**Agents:** Antibody, anti-Mullerian hormone  
**Vehicle:** Not Stated;  
**Species:** Mice;  
**Pump:** Not Stated;  
**Duration:** 7 days;  

**ALZET Comments:** Dose (1.23 mcg/day); Controls received mp w/ vehicle; animal info (ovariectomized NU/J mice or nude mice); anti-Mullerian hormone Antibody aka rAMH; replacement therapy (anti-mullerian hormone);


**Agents:** Antibody, anti Nogo-A monoclonal 11C7; Brain-derived neurotrophic factor  
**Vehicle:** Not stated;  
**Route:** CSF/CNS (spinal cord);  
**Species:** Monkey;  
**Pump:** 2ML2;  
**Duration:** 4 weeks;  

**ALZET Comments:** Dose (14.8 mg anti Nogo-A monoclonal antibody 11C7; 1.4 mg Brain-derived neurotrophic factor); animal info (adult monkeys, 3.0 to 5.6 kg, 4 to 6 years old); Multiple pumps per animal (2 pumps); Brain-derived neurotrophic factor aka BDNF; spinal cord injury;

Q8629: M. Levite, et al. Dual-Targeted Autoimmune Sword in Fatal Epilepsy: Patient’s glutamate receptor AMPA GluR3B peptide autoimmunity antibodies bind, induce Reactive Oxygen Species (ROS) in, and kill both human neural cells and T cells. J Autoimmun 2020;112(102462

**Agents:** Antibody, Immunoglobulin  
**Vehicle:** Not stated;  
**Route:** CNS/CSF (right lateral ventricle);  
**Species:** Mice;  
**Pump:** 2001;  
**Duration:** 1 week;  

**ALZET Comments:** animal info (Normal C57BL/6 mice, 8 weeks years old); Immunoglobulin Antibody aka IgG antibody; Brain coordinates (0.5mm posterior, 1mm lateral related to the bregma); neurodegenerative (Nodding Syndrome);

Q8627: J. Leslie, et al. FPR-1 is an important regulator of neutrophil recruitment and a tissue-specific driver of pulmonary fibrosis. JCI Insight 2020;5(4):

**Agents:** Antibody, Ly6G; Antibody, IgG2a  
**Vehicle:** Saline;  
**Route:** SC;  
**Species:** Mice;  
**Pump:** 1004;  
**Duration:** 21 days;  

**ALZET Comments:** Dose (0.4 mg/kg/day); Controls received mp w/ vehicle; gene therapy;


**Agents:** a-IFNAR neutralizing antibody  
**Vehicle:** Not Stated;  
**Route:** CNS/CSF;  
**Species:** Mice;  
**Pump:** 1007D;  
**Duration:** 3 days;  

**ALZET Comments:** Dose (0.5 mg/ml); animal info (10-12 weeks old, Male, C57BL/6J); ALZET brain infusion kit 3 used; Brain coordinates (0.7mm posterior to the bregma, 1.5 mm lateral to the bregma, 2 mm deep); neurodegenerative (Traumatic Brain Injury);


**Agents:** Antibody, anti CD41  
**Vehicle:** PBS;  
**Route:** SC;  
**Species:** Mice;  
**Pump:** Not Stated;  
**Duration:** 3 days;  

**ALZET Comments:** Dose (1 μg/day); animal info (male BALB/c mice (> 8 weeks of age)); 4470 and 4464 are anti-CD41 antibodies; immunology; Therapeutic indication (immune thrombocytopenia);

Agents: Antibody, anti-Nogo-A Route: CSF/CNS (intrathecal); Species: Rat; Pump: 2ML2; Duration: 14 days;
ALZET Comments: Dose (5 μl/h, 3 mg of antibody/ml); Controls received mp w/ inactive control antibody; animal info (4+/−1 months, female, Lewis, 210+/−20g); spinal cord injury; Pump and catheter were removed 15–16 d after implantation under 5% isoflurane; Therapeutic indication (reduction of the impairment of several key urodynamic functions such as recovery of the physiological EUS function during voiding after induced SCI);


Agents: Immunoglobulin G; Mitogen-acivated protein kinase, p38 inhibitor; Antibody, anti-67-kDa laminin receptor Vehicle: Not Stated; Route: CSF/CNS; Species: Rat; Pump: 1003D; Duration: 3 days;
ALZET Comments: animal info (Male, Sprague Dawley, 7 weeks old); anti-67-kDa Lr IgG aka anti-67-kDa laminin receptor; ALZET brain infusion kit 1 used; Brain coordinates (1 mm posterior; 1.5 mm lateral; -3.5 mm depth to the bregma); neurodegenerative (Seizure);


Agents: Function-blocking antibodies against GDNF, IL-6, MIP-la, IL-10 Route: SC; Species: Rat; Pump: 1002; Duration: 2 weeks;
ALZET Comments: animal info (Sprague Dawley, Female, 180-220 g); behavioral testing (Catwalk Analysis); spinal cord injury;


Agents: Angti-RGMa antibody Vehicle: Saline; Route: CNS/CSF; Species: Monkey; Pump: 2ML4; Duration: 4 weeks;
ALZET Comments: Dose (50 ug/kg/day); animal info (Rhesus, 3-5 years old, 2.8-5.4 kg); spinal cord injury;


Agents: Antibody neutralizing inflammatory cytokine CXCL10 Vehicle: Not Stated; Route: SC; Species: Mice;
ALZET Comments: animal info (7 months old); gene therapy;


Agents: apelin-F13A, DC101, Antibody,anti-VEGFR2 Vehicle: CSF, artificial; Route: CSF/CNS (intratumoral); Species: Mice; Pump: 1002; 2004; Duration: 14 and 28 days;
ALZET Comments: Dose (30 or 60 μg of apelin-F13A, 0.8 mg of DC101); apelin-F13A is a mutant APLNR ligand, DC101 is a VEGFR2-blocking antibody; ALZET brain infusion kit 3 used; cancer (glioblastoma);


Agents: Antibody, anti-Hyal-4; IgG Route: CSF/CNS (intrathecal); Species: Rat; Pump: 1004; Duration: 4 weeks;
ALZET Comments: animal info (Female Sprague-Dawley (SD) rats); spinal cord injury;


Agents: VEGF-A164 antibody Vehicle: Not stated; Route: SC; Species: Rat; Pump: 2001; Duration: 7 days;
ALZET Comments: Dose (250 ng or 500 ng/day); Controls received mp w/ vehicle; animal info (Male, Sprague Dawley, 200-230 g); bilateral cannula used; neurodegenerative (Neuropathic pain);


Agents: Anti-GCGR monoclonal antibody Vehicle: Saline; Route: SC; Species: Mice; Pump: 2002; Duration: 2 weeks;
ALZET Comments: Dose (3 mg/ml); Controls received mp w/ vehicle; animal info (2-4 months old); diabetes;

**Agents:** Antibody, PDGFRalpha neutralizing  
**Vehicle:** PBS;  
**Route:** CSF/CNS (lateral ventricle);  
**Species:** Mice;  
**Pump:** Not stated;  
**Duration:** 28 days;  
**ALZET Comments:** Dose (20 μg/day); Controls received mp w/ vehicle; animal info (8-12 weeks, male, CAGG-iKO); ALZET brain infusion kit 3.3mm depth used; Brain coordinates (0.5 mm antero-posterior and 1.1 mm lateral relative to bregma); cyanoacrylate adhesive (Loctite);  


**Agents:** Human monoclonal anti-Osteoprotegerin antibody  
**Vehicle:** Not Stated;  
**Route:** SC;  
**Species:** Rat, Mice;  
**Pump:** 2002, 1004;  
**Duration:** 2 weeks, 4 weeks;  
**ALZET Comments:** Dose (Mice-0.8 ng/g/hr, Rat-0.5 ul/hr); animal info (Male, Sprague Dawley, 200-210 g); cardiovascular;  


**Agents:** Antibody, NMO-IgG; Complement, human  
**Vehicle:** Not Stated;  
**Route:** CSF/CNS (intrathecal); CSF/CNS (lateral ventricle);  
**Species:** Rat;  
**Pump:** 1003D;  
**Duration:** 3 days;  
**ALZET Comments:** Dose (10 μg NMO-IgG and 50 μL (5 μg/μL) human complement); NMO aka Neuromyelitis optica;  


**Agents:** Anti-HSP90a/b monoclonal antibody, mouse IgG  
**Vehicle:** CSF, artificial;  
**Route:** CSF/CNS (right lateral ventricle);  
**Species:** Mice;  
**Pump:** 1004;  
**Duration:** 14 days;  
**ALZET Comments:** Dose (164 ng/mL-HSP90, IgG); aCSF: 148.3mM NaCl, 3mM KCl, 1.4mM CaCl2, 0.8mM MgCl2, 0.75mMNa2HPO4, and 0.195mMNaH2PO4 used; animal info (8 wanimal info (8 weeks old, 28-33 g, female, ddY); weeks old, 28-33 g, female, ddY); ALZET brain infusion kit 3 used; Brain coordinates (anteroposterior: −0.22mm, mediolateral: +1mm, dorsoventricular: −2.5mm); bilateral cannula used; cyanoacrylate adhesive; spinal cord injury;  


**Agents:** Antibody, anti Nerve growth factor  
**Vehicle:** Not Stated;  
**Route:** SC;  
**Species:** Mice;  
**Pump:** 1002;  
**Duration:** 2 weeks;  
**ALZET Comments:** Dose (10 μg/Kg/hour); Controls received mp w/ vehicle; animal info (9-10-week-old female C57BL/6 N mice weighing 18-22 g); spinal cord injury;  

Q7858: T. F. Rowley, et al. Engineered hexavalent Fc proteins with enhanced Fc-gamma receptor avidity provide insights into immune-complex interactions. Communications Biology 2018;1(146

**Agents:** Antibody, anti-CD41  
**Vehicle:** PBS;  
**Route:** SC;  
**Species:** Mice;  
**Pump:** Not Stated;  
**Duration:** 7 days;  
**ALZET Comments:** Dose (82.5 μg/ml at 0.5 μl/h); Controls received mp w/ vehicle; animal info (6 weeks, male, BALB/c); immunology; minipumps used to induce chronic ITP (immune thrombocytic purpura);  


**Agents:** mAb428.2 Antibody  
**Vehicle:** Saline;  
**Route:** SC;  
**Species:** Mice;  
**Pump:** 2001;  
**Duration:** 8 days;  
**ALZET Comments:** Dose (1.0 ul/hr/day); Controls received mp w/ vehicle; animal info (FoxN1nu/nu); dependence;  

Q6919: Y. Liu, et al. Melatonin improves cardiac function in a mouse model of heart failure with preserved ejection fraction. Redox Biol 2018;18(211-221

**Agents:** CTRP3 antibody; Immunoglobulin G  
**Vehicle:** Not Stated;  
**Route:** SC;  
**Species:** Mice;  
**Duration:** 4 weeks;  
**ALZET Comments:** Dose (2.5 ug/g/day); animal info (Male C57/B6 mice weighing 10-12g); cardiovascular;
**Agents:** CD31 antibody, LHDA  
**Vehicle:** Saline;  
**Route:** CSF/CNS;  
**Species:** Mice;  
**Pump:** 1007D;  
**Duration:** 1 week;  
**ALZET Comments:** Dose (0, 10, 100 ug/kg/day-LHDA, ); Controls received mp w/ vehicle; animal info (C57BL/6J); Brain coordinates (0.2 mm posterior, 2.5 mm left, and 3 mm depth from the skull surface); bilateral cannula used; cyanoacrylate adhesive; neurodegenerative (Angiogenesis);

**Agents:** Antibody, anti-NRR1  
**Vehicle:** PBS;  
**Route:** CSF/CNS (lateral ventricle);  
**Species:** Mice;  
**Pump:** 1004;  
**Duration:** 10-50 days;  
**ALZET Comments:** Dose (1 μg/μL); Controls received mp w/ vehicle; anti-NRR1 is a NOTCH1 blocking antibody; ALZET brain infusion kit used; Brain coordinates (coronal suture, 2mm right lateral to midline, 4mm into the lateral ventricle); cancer (medulloblastoma);

Q7828: H. Haselmann, et al. Human Autoantibodies against the AMPA Receptor Subunit GluA2 Induce Receptor Reorganization and Memory Dysfunction. Neuron 2018;100(1):91-105 e9
**Agents:** Immunoglobulin G, human; antibody, human IgG  
**Vehicle:** Saline;  
**Route:** CSF/CNS (lateral ventricle);  
**Species:** Mice;  
**Pump:** 1002;  
**Duration:** 14 days;  
**ALZET Comments:** Dose (10mg/ml at 0.25 μl/h); Controls received mp w/ vehicle; animal info (male, C57BL/6J); behavioral testing (Novel object recognition, locomotor activity box, elevated plus maze, black-and-white test); comparison of stereotactic microinjection vs mp; a-GluA2 IgG are autoantibodies against only the GluA2 subunit of the AMPAR; Brain coordinates (0.2 mm posterior and ± 1.00 mm lateral from bregma, depth 2.2 mm); bilateral cannula used (PlasticsOne, model 3280PD-2.0/SP); neurodegenerative (Autoimmune encephalitis); immunology; purified IgG fraction and antibody sources described on page e2 of paper.;

**Agents:** Antibody, anti-Nogo-A  
**Vehicle:** Not Stated;  
**Route:** CSF/CNS (Intrathecal), SC;  
**Species:** Monkey (Macaca fascicularis);  
**Pump:** 2ML2;  
**Duration:** 4 weeks;  
**ALZET Comments:** Dose (3 mg/ml); One pump administered the treatment intrathecally to the cervical spinal cord, whereas the other pump delivered the antibody close to the lesioned site in M1 below the dura; Multiple pumps per animal (2);

**Agents:** Antibody, anti–Macrophage migration inhibitory factor  
**Vehicle:** Not Stated;  
**Route:** CSF/CNS (third ventricle);  
**Species:** Mice;  
**Pump:** 2002;  
**Duration:** Not Stated;  
**ALZET Comments:** Dose (2 μg/day); animal info (8-week old female C57BL/6 mice); Brain coordinates (1.8 mm caudal to bregma, 5.0 mm ventral to the sagittal sinus); Therapeutic indication (antipsychotic therapy.);

**Agents:** Antibody, anti-GCSF neutralizing antibody, Immunoglobulin G, pre-immune  
**Vehicle:** Saline;  
**Route:** CSF/CNS (nucleus accumbens);  
**Species:** Mice;  
**Pump:** 1007D;  
**Duration:** 7 days;  
**ALZET Comments:** Dose (1 ug/day); animal info (Male, C57BL/6 J, 7 weeks old , 20–25 g ); Multiple pumps per animal (2); Brain coordinates (From bregma: anteroposterior, +1.5; mediolateral, + 1.0; dorsoventral, −4.5); bilateral cannula used; The cannulae were permanently fixed to the skull with Loctite adhesive; dependence;

**Agents:** Antibody, rabbit anti-CX3CR1  
**Vehicle:** PBS;  
**Route:** SC;  
**Species:** Rat;  
**Pump:** 2006;  
**Duration:** 6 weeks;  
**ALZET Comments:** Dose (0.15 μl/h); Controls received mp w/ vehicle; animal info (Adult male, 200–250 g, Sprague–Dawley rats); neurodegenerative (Epilepsy);