

**Recent References (2018-2019) on the Administration of Antibodies
Using ALZET® Osmotic Pumps**

Q6798: B. Smith, *et al.* Generation of two high affinity anti-mouse FcRn antibodies: Inhibition of IgG recycling in wild type mice and effect in a mouse model of immune thrombocytopenia. *Int Immunopharmacol* 2019;66(362-365

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);

Q7660: M. P. Schneider, *et al.* Anti-Nogo-A Antibodies As a Potential Causal Therapy for Lower Urinary Tract Dysfunction after Spinal Cord Injury. *J Neurosci* 2019;39(21):4066-4076

Agents: Antibody, anti-Nogo-A **Vehicle:** Not Stated; **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);

Q8292: H. Nakagawa, *et al.* Treatment With the Neutralizing Antibody Against Repulsive Guidance Molecule-a Promotes Recovery From Impaired Manual Dexterity in a Primate Model of Spinal Cord Injury. *Cereb Cortex* 2019;29(2):561-572

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;

Q7565: C. S. Morrow, *et al.* Stem Cell Aging? Blame It on the Niche. *Cell Stem Cell* 2019;24(3):353-354

Agents: Antibody neutralizing inflammatory cytokine CXCL10 **Vehicle:** Not Stated; **Route:** SC; **Species:** Mice; **Pump:** Not Stated; **Duration:** Not Stated;

ALZET Comments: animal info (7 months old); gene therapy;

Q7065: G. Mastrella, *et al.* Targeting APLN/APLNR improves anti-angiogenic efficiency and blunts pro-invasive side effects of VEGFA/VEGFR2-blockade in glioblastoma. *Cancer Research* 2019;

Agents: apelin-F13A, DC101, Antibody, anti-VEGFR2 **Vehicle:** CSF, artificial; **Route:** CSF/CNS (tumor); **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);

Q7679: P. Liu, *et al.* Inhibitory effect of hyaluronidase-4 in a rat spinal cord hemisection model. *Cancer Translational Medicine* 2019;5(1):10-16

Agents: Antibody, anti-Hyal-4; IgG **Vehicle:** Not Stated; **Route:** CSF/CNS (intrathecal); **Species:** Rat; **Pump:** 1004; **Duration:** 4 weeks;

ALZET Comments: animal info (Female Sprague–Dawley (SD) rats); spinal cord injury;

Q8248: G. W. Lee, *et al.* Central VEGF-A pathway plays a key role in the development of trigeminal neuropathic pain in rats. *Mol Pain* 2019;15(1744806919872602

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);

Q8000: K. Furuyama, *et al.* Diabetes relief in mice by glucose-sensing insulin-secreting human alpha-cells. *Nature* 2019;567(7746):43-48

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;



Q7981: T. C. Dang, *et al.* Powerful Homeostatic Control of Oligodendroglial Lineage by PDGFRalpha in Adult Brain. *Cell Rep* 2019;27(4):1073-1089 e5

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);

Q7163: Y. Zhang, *et al.* Combination Treatment of C16 Peptide and Angiotensin-1 Alleviates Neuromyelitis Optica in an Experimental Model. *Mediators Inflamm* 2018;2018(4187347)

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 (5µg/µL) human complement); NMO aka Neuromyelitis optica;

Q7243: N. Tanabe, *et al.* Matrine Directly Activates Extracellular Heat Shock Protein 90, Resulting in Axonal Growth and Functional Recovery in Spinal Cord Injured-Mice. *Front Pharmacol* 2018;9(446)

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 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;

Q7045: N. Shimizu, *et al.* Effects of nerve growth factor neutralization on TRP channel expression in laser-captured bladder afferent neurons in mice with spinal cord injury. *Neurosci Lett* 2018;683(100-103)

Agents: Antibody, anti Nerve growth factor **Vehicle:** Not Stated; **Route:** SC; **Species:** Mice; **Pump:** 1002; **Duration:** 2 weeks;

ALZET Comments: Dose (10 µg/Kg/hour); Controls received mp w/ vehicle; animal info (9-10-week-old female C57BL/6 N mice weighing 18-22 g); spinal cord injury;

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 thrombocytopenic purpura);

Q8141: M. S. Nandhu, *et al.* Development of a Function-Blocking Antibody Against Fibulin-3 as a Targeted Reagent for Glioblastoma. *Clin Cancer Res* 2018;24(4):821-833

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; **Pump:** Not Stated; **Duration:** 4 weeks;

ALZET Comments: Dose (2.5 ug/g/day); animal info (Male C57/B6 mice weighing 10-12g); cardiovascular;

Q8087: H. Lin, *et al.* Extracellular Lactate Dehydrogenase A Release From Damaged Neurons Drives Central Nervous System Angiogenesis. *EBioMedicine* 2018;27(71-85)

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);



Q7015: S. A. Kahn, *et al.* Notch1 regulates the initiation of metastasis and self-renewal of Group 3 medulloblastoma. *Nat Commun* 2018;9(1):4121

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.;

Q7031: M. Fregosi, *et al.* Changes of motor corticobulbar projections following different lesion types affecting the central nervous system in adult macaque monkeys. *European Journal of Neuroscience* 2018;48(4):2050-2070

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);

Q7123: D. Cui, *et al.* Macrophage migration inhibitory factor mediates metabolic dysfunction induced by atypical antipsychotic therapy. *J Clin Invest* 2018;128(11):4997-5007

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.);

Q7104: E. S. Calipari, *et al.* Granulocyte-colony stimulating factor controls neural and behavioral plasticity in response to cocaine. *Nat Commun* 2018;9(1):9

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;

Q7094: I. Ali, *et al.* Decreased post-synaptic density-95 protein expression on dendrites of newborn neurons following CX3CR1 modulation in the epileptogenic adult rodent brain. *Cellular & Molecular Immunology* 2018;15(4):414-417

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);