Recent References (2015-Present) on the Administration of Antidepressants Using ALZET® Osmotic Pumps

Amitriptyline

Q6164: T. Jeanson, *et al.* Potentiation of Amitriptyline Anti-Hyperalgesic-Like Action By Astroglial Connexin 43 Inhibition in Neuropathic Rats. Sci Rep 2016;6(38766
Agents: Amitriptyline **Vehicle:** Saline; **Route:** SC; **Species:** Rat; **Pump:** Not Stated; **Duration:** 14 days;
ALZET Comments: Dose (12 mg/kg/day); Controls received mp w/ vehicle; animal info (Sprague-Dawley rats weighing 175–200 g); Resultant plasma level (brain AMIT levels reached 1350 ± 210 µ g/g (corresponding to 4.87 ± 0.76 µ M), a value about 25 fold higher than that in serum: 55.3 ± 5.4 ng/ml (corresponding to 199.35 ± 19.47 nM);

Bupropion

Q7076: A. Levy, *et al.* Bupropion and naltrexone combination alters high fructose corn syrup self-administration and gene expression in rats. Neuropharmacology 2018;135(547-554
Agents: Bupropion hydrochloride, naltrexone hydrochloride **Vehicle:** Saline; **Route:** SC; **Species:** Rat; **Pump:** 2ML2; **Duration:** 12 days;
ALZET Comments: Dose (40 mg/kg/day BUP, 4 mg/kg/day NTX); Controls received sham surgery; animal info (Adult male Sprague-Dawley rats weighing 200-250 g); behavioral testing (locomotion tests); Drugs administered together or in separate pumps; Contrave® is an adjunct pharmacotherapy for obesity that contains bupropion and naltrexone.;

Q3871: M. El Mansari, *et al.* Restoration of Serotonin Neuronal Firing Following Long-Term Administration of Bupropion but Not Paroxetine in Olfactory Bulbectomized Rats. INTERNATIONAL JOURNAL OF NEUROPSYCHOPHARMACOLOGY 2015;18(U87-U94
Agents: Bupropion; paroxetine **Vehicle:** Water; ethanol; **Route:** SC; **Species:** Rat; **Duration:** 2 days; 14 days; 28 days;
ALZET Comments: Controls received mp w/ vehicle; animal info (male, Sprague Dawley, 300-500g, olfactory bulbectomized); 50% ethanol used; behavioral testing (open field);

Citalopram

Q7631: J. J. Tackett, *et al.* Potentiation of serotonin signaling protects against intestinal ischemia and reperfusion injury in mice. Neurogastroenterol Motil 2019;31(3):e13498
Agents: Citalopram hydrobromide **Vehicle:** Saline; **Route:** SC; **Species:** Mice; **Pump:** Not Stated; **Duration:** 7 days; 14 days;
ALZET Comments: Dose (10 mg/kg/day); animal info (Eight-week-old, young adult male mice); ischemia (intestinal);

Q6255: C. J. Greig, *et al.* Improved capacity to evaluate changes in intestinal mucosal surface area using mathematical modeling. Microsc Res Tech 2017;80(7):793-798
Agents: Citalopram hydrobromide **Vehicle:** Not Stated; **Route:** SC; **Species:** Mice (knockout); **Duration:** 7 days;
ALZET Comments: Dose (10 mg/kg/day); animal info (WT, SERTKO mice were bred on a C57BL/6 background);

Q6046: Y. Ikawa, *et al.* Effects of citalopram on jaw-closing muscle activity during sleep and wakefulness in mice. Neurosci Res 2016;113(48-55
Agents: Citalopram **Vehicle:** Saline; **Route:** SC; **Species:** Mice; **Pump:** 2002; **Duration:** 6 days;
ALZET Comments: Controls receive mp w/ vehicle; animals C57BL/6J; 18-23 grams, 7-10wk); Citalopram (10, 100 mg/kg/day);

Q8201: C. J. Greig, *et al.* Enhanced serotonin signaling increases intestinal neuroplasticity. Journal of Surgical Research 2016;206(1):151-158
Agents: Citalopram hydrobromide **Vehicle:** Not stated; **Route:** SC; **Species:** Mice; **Pump:** Not Stated; **Duration:** 7 days;
ALZET Comments: Dose (10 mg/kg/d); animal info (8-10ewk old male mice); dependence;

Q5814: A. Frey, *et al.* Early citalopram treatment increases mortality due to left ventricular rupture in mice after myocardial infarction. J Mol Cell Cardiol 2016;98(28-36
Agents: Citalopram **Vehicle:** Saline; **Route:** Not Stated; **Species:** Mice; **Pump:** 1002; **Duration:** 4 weeks, 6 weeks;
ALZET Comments: Controls received mp w/ vehicle; animal info (6-9 weeks) cardiovascular; Therapeutic indication (MI, Myocardial Infarction); Dose (9.6 mg/kg/day);

Q4832: Achikam Haima, *et al.* The effects of gestational stress and Selective Serotonin reuptake inhibitor antidepressant treatment on structural plasticity in the postpartum brain — A translational model for postpartum depression. Hormones and Behavior 2016;77(124-131
Agents: Citalopram HBr **Vehicle:** Saline; **Route:** SC; **Species:** Rat; **Pump:** 2ML4; **Duration:** 21 days;
ALZET Comments: Controls received mp w/ vehicle; animal info (female, Sprague-Dawley, GD); functionality of mp verified by residual volume; post op. care (ibuprofen 15 mg/kg in drinking water for 7 days); post op. care (ibuprofen 15 mg/kg in drinking water for 7 days); teratology; Therapeutic indication (post partum stress); Dose (10 mg/kg/day);

Q4628: A. K. D. Visser, *et al.* Serotonin-2C antagonism augments the effect of citalopram on serotonin and dopamine levels in the ventral tegmental area and nucleus accumbens. NEUROCHEMISTRY INTERNATIONAL 2015;81(10-15
Agents: Citalopram HBr **Vehicle:** Water, Ultra Pure; **Route:** SC; **Species:** Rat; **Pump:** Not Stated; **Duration:** 2 days;
ALZET Comments: Controls received mp w/ vehicle; animal info (male, Wistar, 10 weeks old, 332+/-14g);

Q4426: S. D. Geddes, *et al.* Time-dependent modulation of glutamate synapses onto 5-HT neurons by antidepressant treatment. NEUROPHARMACOLOGY 2015;95(130-143
Agents: Citalopram **Vehicle:** Cyclodextrin, 2-hydroxypropyl-b-; **Route:** SC; **Species:** Rat; **Duration:** 2 days; 7 days;
ALZET Comments: Controls received mp w/ vehicle; animal info (Sprague Dawley, 50-90g, 26-29 days old)

Clomipramine

Q6771: S. Schreiber, *et al.* Interaction between methylphenidate, methadone and different antidepressant drugs on antinociception in mice, and possible clinical implications. World J Biol Psychiatry 2017;18(4):300-307
Agents: methadone; escitalopram; venlafaxine; desipramine; clomipramine **Vehicle:** Not Stated; **Route:** SC; **Species:** Mice; **Pump:** 2002; **Duration:** 14 days;
ALZET Comments: Dose: methadone (0.5 mg/kg) venlafaxine (2.5 mg/kg); escitalopram (20mg/kg); desipramine (1mg/kg); clomipramine (0.5 mg/kg); animal info (Male ICR mice, 25-35g); dependence

Q5784: K. Deseure, *et al.* Differential drug effects on spontaneous and evoked pain behavior in a model of trigeminal neuropathic pain. J Pain Res 2017;10(279-286
Agents: Carbamazepine, baclofen, clomipramine **Vehicle:** DMSO, PEG, Ethyl Alcohol, Acetone; **Route:** SC; **Species:** Rat; **Pump:** 2ML1; **Duration:** Not Stated;
ALZET Comments: Controls received mp w/ vehicle; animal info (7 weeks old); dimethyl sulfoxide, propylene glycol, ethyl alcohol, and acetone at a ratio of 42:42:15:1; post op. care (morphine 5 mg/day); behavioral testing (Facial grooming); Therapeutic indication (Trigeminal neuralgia, neuropathic pain);
Dose (30 mg/day carbamazepine (the first-line drug treatment for trigeminal neuralgia), 1.06 mg/day baclofen, 4.18 mg/day clomipramine, and 5 mg/day morphine);

Despramine

Q6946: C. Alba-Delgado, *et al.* The onset of treatment with the antidepressant desipramine is critical for the emotional consequences of neuropathic pain. Pain 2018;159(12):2606-2619
Agents: Desipramine **Vehicle:** Saline; **Route:** SC; **Species:** Rat; **Pump:** 2ML2; **Duration:** 2 weeks;
ALZET Comments: Dose (10 mg/kg/day); Controls received mp w/ vehicle; animal info (45-55 day old male Sprague–Dawley rats weighing 200-250 g); Therapeutic indication (neuropathy);

Q6771: S. Schreiber, *et al.* Interaction between methylphenidate, methadone and different antidepressant drugs on antinociception in mice, and possible clinical implications. World J Biol Psychiatry 2017;18(4):300-307
Agents: methadone; escitalopram; venlafaxine; desipramine; clomipramine **Route:** SC; **Species:** Mice; **Pump:** 2002; **Duration:** 14 days;
ALZET Comments: Dose: methadone (0.5 mg/kg) venlafaxine (2.5 mg/kg); escitalopram (20mg/kg); desipramine (1mg/kg); clomipramine (0.5 mg/kg); animal info (Male ICR mice, 25-35g); dependence

Q9008: A. P. Shah, *et al.* Role of TrkB in the anxiolytic-like and antidepressant-like effects of vagal nerve stimulation: Comparison with desipramine. Neuroscience 2016;322(273-86
Agents: Desipramine HCl **Vehicle:** Distilled Water; **Route:** IP; **Species:** Rat; **Pump:** 2ML4; **Duration:** 24 days;
ALZET Comments: Dose (10 mg/kg/day); Controls received mp w/ vehicle; animal info (Adult male Sprague–Dawley rats, 250–400 g, 8 weeks old); behavioral testing (Novelty Suppressed Feeding Test; Forced Swim Test); Desipramine HCl aka DMI; dependence;

Q6094: L. Deng, *et al.* Prophylactic treatment with the tricyclic antidepressant desipramine prevents development of paclitaxel-induced neuropathic pain through activation of endogenous analgesic systems. Pharmacol Res 2016;114(75-89
Agents: Desipramine, naloxone, AM251, AM630 **Vehicle:** Water, saline, PEG 400, DMSO; **Route:** SC; **Species:** Rat; **Pump:** 2ML4; **Duration:** 28 days;
ALZET Comments: Dose: Desipramine (10 mg/kg/d), Naloxone (12 mg/kg/d), AM251 (3 mg/kg/d), AM630 (3 mg/kg/day); Desipramine dissolved distilled water, naloxone dissolved in saline, AM251 and AM630 dissolved in 50% PEG400 and 50% DMSO; Controls received mp w/ vehicle; animal info (Sprague-Dawley rats weighing 275–350 g); Multiple pumps per animal (2 when given the treatment of 2 different agents), Desipramine,vehicle, all antagonists delivered in separate osmotic pumps;

Q5315: L. Bravo, *et al.* Effect of DSP4 and desipramine in the sensorial and affective component of neuropathic pain in rats. Prog Neuropsychopharmacol Biol Psychiatry 2016;70(57-67
Agents: Desipramine **Vehicle:** Saline; **Route:** SC; **Species:** Rat; **Pump:** 2ML2; **Duration:** 2 weeks;
ALZET Comments: Controls received mp w/ vehicle; animal info (Adult male Harlan Sprague-Dawley rats, 200-250 g); functionality of mp verified by pain level measurements; functionality of mp verified by pain level measurements; Noradrenaline reuptake inhibitor; Chronic Constriction Injury (CCI); Therapeutic indication (Pain); Dose (10 mg/kg/d);

Escitalopram

Q8863: J. L. Jiang, *et al.* Triple reuptake inhibition of serotonin, norepinephrine, and dopamine increases the tonic activation of alpha2-adrenoceptors in the rat hippocampus and dopamine levels in the nucleus accumbens. Progress in Neuropsychopharmacology & Biological Psychiatry 2020;103(109987
Agents: Nomifensine; Escitalopram **Vehicle:** 2-Hydroxypropyl-B-cyclodextrin; **Route:** SC; **Species:** Rat; **Pump:** Not Stated; **Duration:** 2 days; 14 days;
ALZET Comments: Dose (5 mg/kg/day Nomifensine; 10 mg/kg/day Escitalopram); 20% 2-Hydroxypropyl-B-Cyclodextrin used; Controls received mp w/ vehicle; animal info (Adult male Sprague-Dawley rats weighing 250–350 g); Multiple pumps per animal (2 pumps); dependence;

Q8649: M. El Mansari, *et al.* Long-term administration of cariprazine increases locus coeruleus noradrenergic neurons activity and serotonin1A receptor neurotransmission in the hippocampus. Journal of Psychopharmacology 2020;34(10):1143-1154
Agents: Escitalopram **Vehicle:** Not Stated; **Route:** SC; **Species:** Rat; **Pump:** 1003D; 2ML2; **Duration:** 2 days; 14 days;
ALZET Comments: Dose (5 and 10 mg/kg/day); Controls received mp w/ vehicle; animal info (Male Sprague-Dawley rats, 280-320 g)

Q6998: K. L. Smith, *et al.* Opioid system modulators buprenorphine and samidorphan alter behavior and extracellular neurotransmitter concentrations in the Wistar Kyoto rat. Neuropharmacology 2019;146(316-326
Agents: Escitalopram **Vehicle:** Not Stated; **Route:** SC; **Species:** Rat; **Pump:** 2ML4; **Duration:** 14 days;
ALZET Comments: Dose (10 mg/kg/day); animal info (Wistar Kyoto rat); behavioral testing (Forced swim test, Marble burying test); dependence;

Q6975: M. Ebrahimzadeh, *et al.* Synergistic effect of aripiprazole and escitalopram in increasing serotonin but not norepinephrine neurotransmission in the rat hippocampus. Neuropharmacology 2019;146(12-18
Agents: Escitalopram **Vehicle:** Not Stated; **Route:** SC; **Species:** Rat; **Pump:** 1003D, 2ML2; **Duration:** 2days, 14 days;
ALZET Comments: Dose (5 mg/kg/day); animal info (Male Sprague-Dawley rats, 280-320 gr);

Q7732: N. Papp, *et al.* Acute and chronic escitalopram alter EEG gamma oscillations differently: relevance to therapeutic effects. European Journal of Pharmaceutical Sciences 2018;121(347-355
Agents: Escitalopram-oxalate **Vehicle:** 0.3 N HCl; Distilled Water; **Route:** SC; **Species:** Rat; **Pump:** 2ML4; **Duration:** 21 days;
ALZET Comments: "Dose (10 mg/kg/day); Controls received mp w/ vehicle; animal info (Male Wistar Rats 250–280 g); no stress (see pg. 348 ""All efforts were made to minimize pain, suffering and discomfort of theanimals.""); Depression study; "

Q6771: S. Schreiber, *et al.* Interaction between methylphenidate, methadone and different antidepressant drugs on antinociception in mice, and possible clinical implications. World J Biol Psychiatry 2017;18(4):300-307
Agents: methadone; escitalopram; venlafaxine; desipramine; clomipramine **Vehicle:** Not Stated; **Route:** SC; **Species:** Mice; **Pump:** 2002; **Duration:** 14 days;
ALZET Comments: Dose: methadone (0.5 mg/kg) venlafaxine (2.5 mg/kg); escitalopram (20mg/kg); desipramine (1mg/kg); clomipramine (0.5 mg/kg); animal info (Male ICR mice, 25-35g); dependence

Q5741: M. S. Riga, *et al.* Subchronic vortioxetine treatment -but not escitalopram- enhances pyramidal neuron activity in the rat prefrontal cortex. Neuropharmacology 2017;113(Pt A):148-155
Agents: Escitalopram **Vehicle:** Not Stated; **Route:** SC; **Species:** Rat; **Pump:** 2ML2; **Duration:** 2 weeks;
ALZET Comments: Controls received mp w/ vehicle; animal info (175-200 g); post op. care (an analgesic (Buprenorfine: 0.5 mg/kg p.o every 12 h) and a prophylactic antibiotic (Enofloxacina 7.5 mg/kg s.c.) given during 2-3 consecutive days after surgery); Therapeutic indication (medial prefrontal cortex, electrophysiology); Dose (10 mg/kg/day);

Q5182: G. Qesseveur, *et al.* Genetic dysfunction of serotonin 2A receptor hampers response to antidepressant drugs: A translational approach. Neuropharmacology 2016;105(142-53
Agents: Fluoxetine hydrochloride; escitalopram hydrochloride **Vehicle:** Saline; **Route:** SC; **Species:** Mice; **Pump:** 1007D; 1002; **Duration:** 2, 21, 28 days;
ALZET Comments: animal info (male, WT or 5-HT2A mutant, 10-14 weeks old, 25-35g); behavioral testing (tail suspension test; novelty surpassed feeding); fluoxetine dose (18 mg/kg, free base)

Q4925: M. El Mansari, *et al.* Effects of acute and sustained administration of vortioxetine on the serotonin system in the hippocampus: electrophysiological studies in the rat brain. Psychopharmacology (Berl) 2015;232(13):2343-52
Agents: Vortioxetine; escitalopram **Vehicle:** Not Stated; **Route:** SC; **Species:** Rat; **Pump:** Not Stated; **Duration:** 2 days; 14 days;
ALZET Comments: Controls received mp w/ vehicle; animal info (male, Sprague Dalwey, adult, 250-300g); Dose (Vortioxetine 5 mg/kg/day; escitalopram 5 mg/kg/day);

Q4511: D. E. Ehrlich, *et al.* Prenatal stress, regardless of concurrent escitalopram treatment, alters behavior and amygdala gene expression of adolescent female rats. NEUROPHARMACOLOGY 2015;97(251-258
Agents: Escitalopram oxalate **Vehicle:** Saline; **Route:** SC; **Species:** Rat; **Pump:** 2ML4; **Duration:** Not Stated;
ALZET Comments: Controls received mp w/ vehicle; animal info (female, nulliparious Sprague Dalwey, 200-225g); behavioral testing (open field, social interaction, novel object recognition, elevated plus maze; teratology;

Fluoxetine

Q10412: V. Biancardi, *et al.* Prenatal fluoxetine has long-lasting, differential effects on respiratory control in male and female rats. Journal of Applied Physiology 2022;133(2):371-389
Agents: Fluoxetine **Vehicle:** Not Stated; **Route:** SC; **Species:** Rat; **Pump:** 2ML1; **Duration:** 7 days;
ALZET Comments: Dose:(10 uL/h/7 days)animal info: Wistar rats, pregnant female; behavioral testing (Jaw Opening test; Righting reflexes test); Fluoxetine aka (FLX);

Q7959: W. W. Chen, *et al.* Increased Axin expression enhances adult hippocampal neurogenesis and exerts an antidepressant effect. Sci Rep 2019;9(1):1190
Agents: XAV939; Fluoxetine **Vehicle:** DMSO, PBS and Tween 20; **Route:** CSF/CNS (lateral ventricle); **Species:** Mice; **Pump:** 1004; **Duration:** 7 days;
ALZET Comments: Dose ((XAV939 1mM at 0.5 µL/h), (fuoxetine 18 mg/kg/day)); 3% DMSO, 0.2% Tween 20 in PBS (pH 7.4); Controls received mp w/ vehicle; animal info (10-12 weeks, male, C57); behavioral testing (open field, sucrose preference, novelty-suppressed feeding, forced swim test); therapeutic indication (inc amplifcation of adult neural progenitor cells and neuron production in hippocampus and ameliorated depression-like behaviors induced by chronic restraint stress);

Q7074: C. Li, *et al.* Chronic fluoxetine treatment accelerates kindling epileptogenesis in mice independently of 5-HT2A receptors. Epilepsia 2018;59(7):e114-e119
Agents: Fluoxetine hydrochloride **Vehicle:** DMSO; Saline; **Route:** SC; **Species:** Mice; **Pump:** Not Stated; **Duration:** Not Stated;
ALZET Comments: 50% DMSO used; Controls received mp w/ vehicle; animal info (Male mice aged 11-14 weeks);

Q5182: G. Qesseveur, *et al.* Genetic dysfunction of serotonin 2A receptor hampers response to antidepressant drugs: A translational approach. Neuropharmacology 2016;105(142-53
Agents: Fluoxetine hydrochloride; escitalopram hydrochloride **Vehicle:** Saline; **Route:** SC; **Species:** Mice; **Pump:** 1007D; 1002; **Duration:** 2, 21, 28 days;
ALZET Comments: animal info (male, WT or 5-HT2A mutant, 10-14 weeks old, 25-35g); behavioral testing (tail suspension test; novelty surpassed feeding); behavioral testing (tail suspension test; novelty surpassed feeding); fluoxetine dose (18 mg/kg, free base)

Q5631: K. Bravo, *et al.* Perinatal Fluoxetine Exposure Impairs the CO2 Chemoreflex. Implications for Sudden Infant Death Syndrome. American Journal of Respiratory Cell and Molecular Biology 2016;55(3):368-76
Agents: Fluoxetine **Vehicle:** DMSO; **Route:** SC; **Species:** Mice (pregnant); **Pump:** 2004; **Duration:** Not Stated;
ALZET Comments: Controls received mp w/ vehicle (dimethyl sulfoxide 40%); animal info (CF-1 mice: 5-7 days of gestation); functionality of mp verified by Plasma fluoxetine concentration determined by HPLC with a diode array detector; 40% DMSO used; teratology; "Delivering fluoxetine by osmotic minipumps was less stressful for dams than were oral gavages or injections; this avoided maternal stress, which has consequences on fetal brain development. The plasma concentration of fluoxetine in dams was similar to the reported plasma level in patients under fluoxetine treatment" pg 372; Therapeutic indication (Hypercapnia; respiration); Dose (7 mg/kg/day);

Q4580: S. M. Schumacher, *et al.* Paroxetine-Mediated GRK2 Inhibition Reverses Cardiac Dysfunction and Remodeling After Myocardial Infarction. JOURNAL OF CARDIAC FAILURE 2015;21(S109-S109
Agents: Paroxetine; fluoxetine **Vehicle:** DMSO; water; **Route:** SC; **Species:** Mice; **Pump:** 1002; **Duration:** 4 weeks;
ALZET Comments: Controls received mp w/ vehicle; animal info (male, C57BL6, myocardial infarction); functionality of mp verified by serum levels; ischemia (cardiac); Dose: paroxetine or fluoxetine (5 mg/kg/d)

Q4282: I. Rayen, *et al.* Developmental exposure to SSRIs, in addition to maternal stress, has long-term sex-dependent effects on hippocampal plasticity. PSYCHOPHARMACOLOGY 2015;232(1231-1244
Agents: Fluoxetine **Vehicle:** Propylenediol; saline; **Route:** SC; **Species:** Rat; **Pump:** 2ML4; **Duration:** 4 weeks;
ALZET Comments: Controls received mp w/ vehicle; animal info (female, Sprague Dawley, adult, 250-300g); 50% propylenediol used; teratology; "These implants also reduced the effect of stress associated with repeated injections or oral gavage." pg 1233;

Imipramine

Q5976: R. Biswas, *et al.* Imipramine blocks acute silicosis in a mouse model. Part Fibre Toxicol 2017;14(1):36
Agents: Imipramine **Vehicle:** PBS; **Route:** SC; **Species:** Mice; **Pump:** Not Stated; **Duration:** 6 weeks, 10 weeks;
ALZET Comments: Controls received mp w/ vehicle; animal info (C57Bl/6, 6-8 weeks); The incision was closed with vetbond. Post-op treatment: buprenorphine (0.05-0.10 mg/kg SC; Therapeutic indication (Pulmonary disease, silicosis);

Lithium

Q9257: E. F. Halff, *et al.* Effects of chronic exposure to haloperidol, olanzapine or lithium on SV2A and NLGN synaptic puncta in the rat frontal cortex. Behavioural Brain Research 2021;405(113203
Agents: Haloperidol; Lithium Chloride; Olanzapine **Vehicle:** Cyclodextrin, 2-Hydroxypropyl-B-; **Route:** SC; **Species:** Rat; **Pump:** 2ML4; **Duration:** 28 days;
ALZET Comments: Dose (0.5 mg/kg/day Haloperidol; 2 mmol/L/kg/day Lithium Chloride; 7.5 mg/kg/day Olanzapine); Controls received mp w/ vehicle; animal info (Male Sprague-Dawley rats, 220-270 g, 6-10 weeks old);

Q8686: I. A. Akkouh, *et al.* Exploring lithium's transcriptional mechanisms of action in bipolar disorder: a multi-step study. Neuropsychopharmacology 2020;45(6):947-955
Agents: Lithium chloride **Vehicle:** Not Stated; **Route:** SC; **Species:** Rat; **Pump:** 2ML4; **Duration:** 4 days;
ALZET Comments: Dose (84.8 mg/kg/day); Controls received mp w/ vehicle; animal info (Female, Sprague Dawley);

Q7135: G. Frindt, *et al.* Na restriction activates epithelial Na channels in rat kidney through two mechanisms and decreases distal Na(+) delivery. J Physiol 2018;596(16):3585-3602
Agents: Lithium Chloride **Vehicle:** Water; **Route:** SC; **Species:** Rat; **Pump:** 2001D; **Duration:** 1 day;
ALZET Comments: Dose (750 mM/day); Controls received mp w/ vehicle; animal info (Sprague–Dawley, 150-250 g);

Milnacipran

Q6550: Y. Yoshino, *et al.* Endothelial nitric oxide synthase in rat brain is downregulated by sub-chronic antidepressant treatment. Psychopharmacology (Berl) 2017;234(11):1663-1669
Agents: Paroxetine hydrochloride; Milnacipran hydrochloride; Mirtazapine **Vehicle:** Saline; **Route:** SC; **Species:** Rat; **Pump:** 2ML4; **Duration:** 14 days;
ALZET Comments: Dose (Paroxetine: 10 mg/kg; milnacipran: 30 mg/kg; mirtazapine 10 mg/kg); Controls received mp w/ vehicle; animal info (Male adult Wistar rats weighing 180–200 g);

Mirtazapine

Q6550: Y. Yoshino, *et al.* Endothelial nitric oxide synthase in rat brain is downregulated by sub-chronic antidepressant treatment. Psychopharmacology (Berl) 2017;234(11):1663-1669
Agents: Paroxetine hydrochloride; Milnacipran hydrochloride; Mirtazapine **Vehicle:** Saline; **Route:** SC; **Species:** Rat; **Pump:** 2ML4; **Duration:** 14 days;
ALZET Comments: Dose (Paroxetine: 10 mg/kg; milnacipran: 30 mg/kg; mirtazapine 10 mg/kg); Controls received mp w/ vehicle; animal info (Male adult Wistar rats weighing 180–200 g);

Q5373: N. A. Holtz, *et al.* Pharmacologically distinct pramipexole-mediated akinesia vs. risk-taking in a rat model of Parkinson's disease. Prog Neuropsychopharmacol Biol Psychiatry 2016;70(77-84
Agents: Pramipexole HCL; Mirtazapine **Vehicle:** Pramipexole HCL; Mirtazapine; **Route:** SC; **Species:** Rat; **Pump:** 2002, 2ML4; **Duration:** 12 - 14 days;
ALZET Comments: Controls received mp w/ vehicle; animal info (250-300 g, male Sprague-Dawley rats); For mirtazapine, saline brought to 5.5-6.0 pH with 1 N NaOH; good methods (pg. 79); neurodegenerative (Parkinson's disease); behavioral testing (forelimb step task); Dose (PPX 0.3 and 1.2 mg/kg/day; Mirtazapine 5 mg/kg/day);

Nomifensine

Q8863: J. L. Jiang, *et al.* Triple reuptake inhibition of serotonin, norepinephrine, and dopamine increases the tonic activation of alpha2-adrenoceptors in the rat hippocampus and dopamine levels in the nucleus accumbens. Progress in Neuropsychopharmacology & Biological Psychiatry 2020;103(109987
Agents: Nomifensine; Escitalopram **Vehicle:** 2-Hydroxypropyl-B-cyclodextrin; **Route:** SC; **Species:** Rat; **Duration:** 2, 14 days;
ALZET Comments: Dose (5 mg/kg/day Nomifensine; 10 mg/kg/day Escitalopram); 20% 2-Hydroxypropyl-B-Cyclodextrin used; Controls received mp w/ vehicle; animal info (Adult male Sprague-Dawley rats weighing 250–350 g);

Paroxetine

Q6550: Y. Yoshino, *et al.* Endothelial nitric oxide synthase in rat brain is downregulated by sub-chronic antidepressant treatment. Psychopharmacology (Berl) 2017;234(11):1663-1669
Agents: Paroxetine hydrochloride; Milnacipran hydrochloride; Mirtazapine **Vehicle:** Saline; **Route:** SC; **Species:** Rat; **Pump:** 2ML4; **Duration:** 14 days;
ALZET Comments: Dose (Paroxetine: 10 mg/kg; milnacipran: 30 mg/kg; mirtazapine 10 mg/kg); Controls received mp w/ vehicle; animal info (Male adult Wistar rats weighing 180–200 g);

Q4595: J. P. Steiner, *et al.* Interaction of Paroxetine with Mitochondrial Proteins Mediates Neuroprotection. Neurotherapeutics 2015;12(200-216
Agents: Paroxetine **Vehicle:** Not Stated; **Route:** SC; **Species:** Mice (transgenic); **Pump:** 2004; **Duration:** Not Stated;
ALZET Comments: Controls received mp w/ saline; animal info (male, bp120 tg, adult, 8-9 weeks old);

Q4580: S. M. Schumacher, *et al.* Paroxetine-Mediated GRK2 Inhibition Reverses Cardiac Dysfunction and Remodeling After Myocardial Infarction. JOURNAL OF CARDIAC FAILURE 2015;21(S109-S109
Agents: Paroxetine; fluoxetine **Vehicle:** DMSO; water; **Route:** SC; **Species:** Mice; **Pump:** 1002; **Duration:** 4 weeks;
ALZET Comments: Controls received mp w/ vehicle; animal info (male, C57BL6, myocardial infarction); functionality of mp verified by serum levels; ischemia (cardiac); Dose: paroxetine or fluoxetine (5 mg/kg/d)

Q3871: M. El Mansari, *et al.* Restoration of Serotonin Neuronal Firing Following Long-Term Administration of Bupropion but Not Paroxetine in Olfactory Bulbectomized Rats. INTERNATIONAL JOURNAL OF NEUROPSYCHOPHARMACOLOGY 2015;18(U87-U94
Agents: Bupropion; paroxetine **Vehicle:** Water; ethanol; **Route:** SC; **Species:** Rat; **Duration:** 2 days; 14 days; 28 days;
ALZET Comments: Controls received mp w/ vehicle; animal info (male, Sprague Dawley, 300-500g, olfactory bulbectomized);

Phenelzine

Q8055: J. R. Kulbe, *et al.* Continuous Infusion of Phenelzine, Cyclosporine A, or Their Combination: Evaluation of Mitochondrial Bioenergetics, Oxidative Damage, and Cytoskeletal Degradation following Severe Controlled Cortical Impact Traumatic Brain Injury in Rats. J Neurotrauma 2018;35(11):1280-1293
Agents: Cyclosporine A, Phenelzine **Vehicle:** Saline; Cremophor; EtOH; **Route:** SC; **Species:** Rat; **Pump:** 2ML1; **Duration:** 3 days;
ALZET Comments: Dose (10 mg/kg/day); Controls received mp w/ vehicle; animal info (3 months old, Sprague Dawley); neurodegenerative (Traumatic Brain Injury); 50mg/mL in saline/650 mg Cremophor/32.9% ethanol/ mL;

Reboxetine

Q8510: M. Gonzalez-Prieto, *et al.* Microglial CX3CR1 production increases in Alzheimer's disease and is regulated by noradrenaline. Glia 2021;69(1):73-90
Agents: Reboxetine **Vehicle:** Saline; **Route:** SC; **Species:** Mice; **Pump:** 2004; **Duration:** 28 days;
ALZET Comments: Dose (10 mg/kg/day); Controls received mp w/ vehicle; animal info (7 month old male WT and heterozygous 5xFAD mice); half-life (p. 2; 12.5 hr); neurodegenerative (Alzheimer's);

Q8019: I. L. Gutierrez*, et al.* Reboxetine Treatment Reduces Neuroinflammation and Neurodegeneration in the 5xFAD Mouse Model of Alzheimer's Disease: Role of CCL2. Mol Neurobiol 2019;56(12):8628-8642
Agents: Reboxetine Mesylate **Vehicle:** Saline; **Route:** SC; **Species:** Mice; **Pump:** 2004; **Duration:** 28 days;
ALZET Comments: Dose (10 mg/kg/day); Controls received mp w/ vehicle; animal info (CCL2KO); neurodegenerative (Alzheimer's Disease);

Sertraline

Q4868: O. Otlivanchik*, et al.* Orexin signaling is necessary for hypoglycemia-induced prevention of conditioned place preference. American Journal of Physiology Regulatory, Integrative, and Comparable Physiology 2016;310(R66-R73
Agents: Sertraline **Vehicle:** Ethanol; **Route:** SC; **Species:** Rat; **Pump:** 2001; **Duration:** 1 week;
ALZET Comments: Controls received mp w/ vehicle; animal info (male, Sprague Dawley, 7-8 weeks old, 250-400g); 50% ethanol used; behavioral testing (open field); diabetes; Dose (7.5 mg/kg/day);

Venlafaxine

Q6771: S. Schreiber*, et al.* Interaction between methylphenidate, methadone and different antidepressant drugs on antinociception in mice, and possible clinical implications. World J Biol Psychiatry 2017;18(4):300-307
Agents: methadone; escitalopram; venlafaxine; desipramine; clomipramine **Route:** SC; **Species:** Mice; **Pump:** 2002; **Duration:** 14 days;
ALZET Comments: Dose: methadone (0.5 mg/kg) venlafaxine (2.5 mg/kg); escitalopram (20mg/kg); desipramine (1mg/kg); clomipramine (0.5 mg/kg); animal info (Male ICR mice, 25-35g); dependence