



### References on the Administration of Oxytocin Using ALZET® Osmotic Pumps

**Q9355:** J. Liu, *et al.* Maternal Diabetes-Induced Suppression of Oxytocin Receptor Contributes to Social Deficits in Offspring. *Frontiers in Neuroscience* 2021;15(634781

**Agents:** Estrogen receptor beta; Oxytocin; Lentivirus **Vehicle:** CSF, artificial; **Route:** CSF/CNS; **Species:** Mice; **Pump:** 2002; **Duration:** 2 weeks;

**ALZET Comments:** Animal info (Male mice, 6 weeks old); behavioral testing (Animal Behavior Test); Brain coordinates (anteroposterior (AP) = -1.4, mediolateral (ML) = ±3.5, dorsoventral (DV) = -5.1); neurodegenerative (Autism spectrum disorders);

**Q10213:** E. Kitamura, *et al.* Susceptibility of subregions of prefrontal cortex and corpus callosum to damage by high-dose oxytocin-induced labor in male neonatal mice. *PLoS One* 2021;16(8):e0256693

**Agents:** Oxytocin **Vehicle:** PBS; **Route:** SC; **Species:** Mice; **Pump:** 1003D; **Duration:** Not Stated;

**ALZET Comments:** Dose: (6 µg/day); Controls received mp w/ vehicle; no pump for (PBS group) animal info: Animals Wild-type C57BL/6J pregnant mice; Oxytocin aka (OXT)

**Q9215:** M. M. Edwards, *et al.* Chronic hindbrain administration of oxytocin elicits weight loss in male diet-induced obese mice. *American Journal of Physiology, Regulatory, Integrative and Comparative Physiology* 2021;320(4):R471-R487

**Agents:** Oxytocin **Vehicle:** Saline; **Route:** CSF/CNS (fourth ventricle); **Species:** Mice; **Pump:** 2004; **Duration:** 28 days;

**ALZET Comments:** Dose (16 nmol/day); Controls received mp w/ vehicle; animal info (Adult male C57BL/6J mice, 5.25–6.5 months old, 25.7–51.3 g); Oxytocin aka OT; Brain coordinates (5.9 mm caudal to bregma; 0.4mm lateral to the midline, and 3.7 mm ventral to the skull surface); dental cement used; dependence;

**Q9879:** J. Yuan, *et al.* The effects of oxytocin to rectify metabolic dysfunction in obese mice are associated with increased thermogenesis. *Molecular and Cellular Endocrinology* 2020;514(110903

**Agents:** Oxytocin, synthetic **Vehicle:** Not stated; **Route:** SC; **Species:** Mice; **Pump:** 1004; **Duration:** 4 weeks;

**ALZET Comments:** Dose (100 nmol/d); animal info (4 week old male C57BL6/J mice); replacement therapy (oxytocin);

**Q9102:** A. Wsol, *et al.* Impaired hypotensive effects of centrally acting oxytocin in SHR and WKY rats exposed to chronic mild stress. *American Journal of Physiology-Regulatory Integrative and Comparative Physiology* 2020;318(1):R160-R172

**Agents:** Oxytocin; Oxytocin receptor antagonist **Vehicle:** NaCl, Sterile; **Route:** CSF/CNS (intracerebral); IV; **Species:** Rat; **Pump:** 2004; **Duration:** 1 day;

**ALZET Comments:** Dose (2.4 µg/6 µL/day); 0.9% NaCl used; Controls received mp w/ vehicle; animal info (spontaneously hypertensive rats (SHR); normotensive Wistar-Kyoto, males, 250–300 g); behavioral testing (Chronic Mild Stress; Acute Alarming Stress); Blood pressure measured via tail cuff procedure; 117 mmHg - 179 mmHg (SHR rat); 83 mmHg - 113 mmHg (WKY rat); Oxytocin aka OT, Oxytocin receptor antagonist aka OTANT; ALZET brain infusion kit 2 used; Brain coordinates (1.3 mm lateral and 2.0 mm posterior to the midsagittal suture); dependence;

**Q9550:** A. Watarai, *et al.* The blockade of oxytocin receptors in the paraventricular thalamus reduces maternal crouching behavior over pups in lactating mice. *Neuroscience Letters* 2020;720(134761

**Agents:** Oxytocin antagonist **Vehicle:** Saline; **Route:** SC; **Species:** Mice; **Pump:** 1004; **Duration:** 4 weeks;

**ALZET Comments:** Dose (0.5 µg/µL); Controls received mp w/ vehicle; animal info (C57BL/6 J virgin female mice); behavioral testing (pup retrieval test); Oxytocin antagonist aka OTA; dependence;

**Q9956:** W. H. Walker, 2nd, *et al.* Social enrichment attenuates chemotherapy induced pro-inflammatory cytokine production and affective behavior via oxytocin signaling. *Brain, Behavior, and Immunity* 2020;89(451-464

**Agents:** Oxytocin, Selective Oxytocin Antagonist **Vehicle:** CSF artificial; **Route:** CNS/CSF; **Species:** Mice; **Pump:** 1004;

**Duration:** 14 days;

**ALZET Comments:** Dose (OT- 40 or 100 ng, OTA- 500 ng); Controls received mp w/ vehicle; animal info (Female, Balb/C, 8 weeks or older); Oxytocin aka OT or Selective Oxytocin Antagonist aka OTA ; ALZET brain infusion kit 3 used; Brain coordinates (+0.02 posterior, -0.95 lateral, -2.75 mm for bregma); bilateral cannula used; cancer (Chemotherapy);



**Q9978:** A. Szeto, *et al.* Oxytocin reduces adipose tissue inflammation in obese mice. *Lipids in Health and Disease* 2020;19(1):188

**Agents:** Oxytocin **Vehicle:** Sodium Citrate; **Route:** SC; **Species:** Mice; **Pump:** 1004; **Duration:** 8 weeks;

**ALZET Comments:** Dose (4.22 ug/day); Controls received mp w/ vehicle; animal info (Male, C57BLKS/J); pumps replaced every 6 weeks; immunology;

**Q8212:** T. Iwasa, *et al.* The effects of chronic oxytocin administration on body weight and food intake in DHT-induced PCOS model rats. *Gynecological Endocrinology* 2020;36(1):55-60

**Agents:** Oxytocin **Vehicle:** Saline; **Route:** SC; **Species:** Rat; **Pump:** 2002; **Duration:** 14 days;

**ALZET Comments:** Dose (380 ug/day); Controls received mp w/ vehicle; animal info (Female Wistar rats); replacement therapy (effects of the chronic administration of oxytocin);

**Q8208:** T. Hirayama, *et al.* Oxytocin induced labor causes region and sex-specific transient oligodendrocyte cell death in neonatal mouse brain. *J Obstet Gynaecol Res* 2020;46(1):66-78

**Agents:** Oxytocin **Vehicle:** Buffered Saline; **Route:** SC; **Species:** Mice; **Pump:** 1003D; **Duration:** Not stated;

**ALZET Comments:** Dose (0.6, 6, 18 or 240 µg/day); Controls received mp w/ vehicle; animal info (Wild-type C57BL6/J mice and DBA/2 mice); replacement therapy (associations between oxytocin induced labor and mental disorders in offspring);

**Q8705:** C. J. Bowen, *et al.* Targetable cellular signaling events mediate vascular pathology in vascular Ehlers-Danlos syndrome. *Journal of Clinical Investigation* 2020;130(2):686-698

**Agents:** Selective oxytocin antagonist **Vehicle:** Saline; **Route:** SC; **Species:** Mice; **Pump:** Not stated; **Duration:** 5 weeks;

**ALZET Comments:** Dose (1 ug/kg/hr); animal info (C57BL/6J); Blood pressure measured via Tail Cuff Plethysmography; gene therapy;

**Q7621:** M. Janecek, *et al.* Oxytocin facilitates adaptive fear and attenuates anxiety responses in animal models and human studies-potential interaction with the corticotropin-releasing factor (CRF) system in the bed nucleus of the stria terminalis (BNST). *Cell and Tissue Research* 2019;375(1):143-172

**Agents:** Oxytocin; atosiban **Vehicle:** Not Stated; **Route:** CSF/CNS (lateral ventricle); **Species:** Mice; Rats; **Pump:** Not Stated; **Duration:** 15 days; 14 days;

**ALZET Comments:** Dose (Oxytocin 1, 10 ng/h), (atosiban 600µg/kg/day)); animal info (adult, male); behavioral testing (elevated plus maze, light-dark box, chronic subordinate colony stress); Atosiban is an inhibitor of the hormones oxytocin and vasopressin; literature review: author lists studies where oxytocin was administered to mice and atosiban was administered to rats;

**Q7962:** C. J. Bowen, *et al.* Targetable cellular signaling events drive arterial rupture in knock-in mouse models of vascular Ehlers-Danlos Syndrome. *BioRxiv* 2019;

**Agents:** Oxytocin antagonist **Vehicle:** PBS; **Route:** SC; **Species:** Mice; **Pump:** Not stated; **Duration:** 5 weeks;

**ALZET Comments:** Dose (1µg/kg/hr); Controls did not receive mp; animal info (female, C57BL/6J and Col3a1(G209S/+)); des Gly-NH<sub>2</sub>,d(CH<sub>2</sub>)<sub>5</sub>[D-Tyr<sub>2</sub>,Thr<sub>4</sub>]OVT is a selective oxytocin antagonist; cardiovascular; mp model not stated. infusion pump implanted at the end of the 3rd week of gestation and continued through the 4 weeks of lactation;

**Q4806:** M. Labyb, *et al.* Oxytocin Administration Alleviates Acute but Not Chronic Leptin Resistance of Diet-Induced Obese Mice. *Int J Mol Sci* 2018;20(1):

**Agents:** Oxytocin; leptin **Vehicle:** Saline; **Route:** SC; **Species:** Mice; **Pump:** Not Stated; **Duration:** 2 weeks;

**ALZET Comments:** Dose (oxytocin (50 µg/day); leptin (20 or 40 µg/day)); Controls received mp w/ vehicle; animal info (Eight-week-old C57BL/6JRj male mice); "Osmotic pump content was verified postmortem in order to ensure complete drug delivery."



**Q6130:** Z. S. Roberts, *et al.* Chronic hindbrain administration of oxytocin is sufficient to elicit weight loss in diet-induced obese rats. *American Journal of Physiology Regulatory, Integrative, and Comparable Physiology* 2017;313(4):R357-R371

**Agents:** Oxytocin **Vehicle:** Saline; **Route:** CSF/CNS (Third and forth ventricle); **Species:** Rats, Mice; **Pump:** 2004; **Duration:** 28 days;

**ALZET Comments:** Dose (16 nmol/day); Controls received mp w/ vehicle; animal info (Adult male Sprague-Dawley (CD IGS) rats, Long-Evans rats, C57BL/6J mice); post op. care (Mice were treated with analgesic ketoprofen and antibiotic Baytril; Rats treated with analgesic buprenorphine sustained release and the antibiotic enrofloxacin after cannulations); delayed delivery (implanted cannula and vinyl catheter were filled with sterile saline then A stainless steel 22-gauge pin plug was inserted at the end of the tubing during a 2-wk postoperative recovery period); Obesity and diabetes;

**Q6209:** Y. Maejima, *et al.* Impact of sex, fat distribution and initial body weight on oxytocin's body weight regulation. *Sci Rep* 2017;7(1):8599

**Agents:** Oxytocin **Vehicle:** Saline; **Route:** SC; **Species:** Mice; **Pump:** 2002; **Duration:** 10 days;

**ALZET Comments:** Dose (800 and 1600 µg/kg/day); animal info (HFD-fed male and female mice); Resultant plasma level (p.9);

**Q6159:** P. Du, *et al.* Chronic central oxytocin infusion impairs sociability in mandarin voles. *Pharmacol Biochem Behav* 2017;161(38-46)

**Agents:** Oxytocin **Vehicle:** Saline; **Route:** CSF/CNS (lateral ventricle); **Species:** Mandarin vole; **Pump:** 1002; **Duration:** 12 days;

**ALZET Comments:** Dose (1 or 10 ng/h); Controls received mp w/ vehicle; animal info (4 month old male mandarin voles weighing 30–34 g); behavioral testing (light-dark box testing, response to novel pups, novel social stimulus test); Brain coordinates (posterior 0.3 mm, lateral 0.8 mm, depth 0.25 mm);

**Q4789:** Oliver J. Bosch, *et al.* Oxytocin in the nucleus accumbens shell reverses CRFR2-evoked passive stress-coping after partner loss in monogamous male prairievoles. *Psychoneuroendocrinology* 2016;64:

**Agents:** Astressin-2B; stresscopin; oxytocin, synthetic; receptor antagonist, oxytocin; **Vehicle:** Ringer's solution; DMSO; **Route:** CSF/CNS (nucleus accumbens); **Species:** prairie vole; **Pump:** 1007D; **Duration:** 5 days;

**ALZET Comments:** Controls received mp w/ vehicle; animal info (adult, 70-100 days old); ALZET brain infusion kit 2 used; 4% DMSO used; behavioral testing (forced swim test); cyanoacrylate adhesive; delayed delivery; Astressin-2B is a CRFR2 antagonist; stresscopin is a CRFR2 agonist; bilateral infusion; Dose (Astressin-2B 1 ng/h; stresscopin 0.1 ng/h; oxytocin, synthetic 0.5 ng/hr; OT receptor antagonist 5 ng/hr); brain coordinates;

**Q5748:** B. L. Metabolic effects of subchronic peripheral oxytocin administration in lean and obese zucker rats. *Journal of Physiological Pharmacology* 2016;67(4):531-541

**Agents:** Oxytocin **Vehicle:** Saline; **Route:** SC; **Species:** Rat; **Pump:** 2002; **Duration:** 2 weeks;

**ALZET Comments:** Controls received mp w/ vehicle; animal info (10 weeks old; lean rats weighed approx. 230 grams; obese rats weighed approx. 350 grams) ; "Delivery of oxytocin by osmotic minipumps resulted in more than 6-fold increase in plasma oxytocin concentrations." pg 539; Rats separated 2 per cage post-op; storage, housing ; Therapeutic indication (Metabolism, insulin resistance); Dose (3.6 ug/100g body weight/day);

**Q6564:** E. M. Janezic, *et al.* Beneficial effects of chronic oxytocin administration and social co-housing in a rodent model of post-traumatic stress disorder. *Behavioural Pharmacology* 2016;27(8):704-717

**Agents:** Oxytocin **Vehicle:** Saline; **Route:** Not Stated; **Species:** Rat; **Pump:** Not Stated; **Duration:** 7 days; 14 days;

**ALZET Comments:** Dose (0.2 mg/kg/day); Controls received mp w/ vehicle; animal info (3-4 month old male Sprague-Dawley rats);

**Q5360:** C. A. Grotegut, *et al.* Enhanced Uterine Contractility and Stillbirth in Mice Lacking G Protein-Coupled Receptor Kinase 6 (GRK6): Implications for Oxytocin Receptor Desensitization. *Mol Endocrinol* 2016;30(4):455-68

**Agents:** Oxytocin **Vehicle:** Not Stated; **Route:** SC; **Species:** Mice (pregnant); **Pump:** 1003D; **Duration:** 3 days;

**ALZET Comments:** animal info (C57BL/6j WT mice, 10 weeks old); functionality of mp verified by measurements of changes in uterine pressure; Uterine contraction initiation; DSI PhysioTel Receiver used to measure uterine contractions; Dose (3 U/day);



**Q4566:** E. Plante, *et al.* Oxytocin Treatment Prevents the Cardiomyopathy Observed in Obese Diabetic Male db/db Mice. *Endocrinology* 2015;156(1416-1428

**Agents:** Oxytocin **Vehicle:** NaCl; BSA; sodium citrate; **Route:** SC; **Species:** Mice; **Pump:** 2006; **Duration:** 12 weeks;

**ALZET Comments:** Controls received mp w/ vehicle; animal info (C57BL/KsJ-leptdb-leptdb); functionality of mp verified by plasma levels; pumps replaced every 6 weeks; long-term study; diabetes; "After 6 weeks, the osmotic pumps were replaced to adjust the OT concentration for body weight gain." pg 1417;

**Q4978:** J. Phie, *et al.* Prolonged Subcutaneous Administration of Oxytocin Accelerates Angiotensin II-Induced Hypertension and Renal Damage in Male Rats. *PLoS One* 2015;10(9):e0138048

**Agents:** Angiotensin II; oxytocin **Vehicle:** PBS; **Route:** SC; **Species:** Rat; **Pump:** 2004; **Duration:** 28 days;

**ALZET Comments:** Controls received mp w/ vehicle; animal info (male, Sprague Dawley, 8-9 weeks old, 240-350g); post op. care (swabbed with 7.5% w/v iodine); cardiovascular; peptides; Dose (Ang II 40 ug/kg/h; OT 20 or 100 ng/kg/h);

**Q3928:** Y. Iwasaki, *et al.* Peripheral oxytocin activates vagal afferent neurons to suppress feeding in normal and leptin-resistant mice: a route for ameliorating hyperphagia and obesity. *American Journal of Physiology Regulatory, Integrative, and Comparable Physiology* 2015;308(R360-R369

**Agents:** Oxytocin **Vehicle:** Not Stated; **Route:** SC; **Species:** Mice; **Pump:** 2002; **Duration:** 12 days;

**ALZET Comments:** Controls received mp w/ saline; animal info (male, db/db, 11 weeks old); diabetes; obesity;

**Q4444:** T. Havranek, *et al.* Intracerebroventricular Oxytocin Administration in Rats Enhances Object Recognition and Increases Expression of Neurotrophins, Microtubule-Associated Protein 2, and Synapsin I. *JOURNAL OF NEUROSCIENCE RESEARCH* 2015;93(893-901

**Agents:** Oxytocin **Vehicle:** Saline; **Route:** CSF/CNS; **Species:** Rat; **Pump:** 1007D; **Duration:** 7 days;

**ALZET Comments:** Controls received mp w/ vehicle; animal info (male, Wistar, 225-250g); ALZET brain infusion kit 2 used; post op. care (SC injection of antibiotics); behavioral testing (open field test, object recognition test, elevated plus maze); used dental cement;

**Q3596:** S. Peters, *et al.* Dose-dependent effects of chronic central infusion of oxytocin on anxiety, oxytocin receptor binding and stress-related parameters in mice. *Psychoneuroendocrinology* 2014;42(225-236

**Agents:** Oxytocin **Vehicle:** Ringer's solution; **Route:** CSF/CNS; **Species:** Mice; **Pump:** 1004; **Duration:** 5 days; 15 days;

**ALZET Comments:** Controls received mp w/ vehicle; animal info (male, C57BL6, 19-22g, 30-35g); functionality of mp verified by serum oxytocin levels; post op. care (betaisodona; Baytril); behavioral testing (elevated plus maze; locomotor activity); Cannula placement verified via nissl-staining and histologic analysis; used dental cement and stainless steel screws; delayed delivery; catheter filled with vehicle for 1 week recovery;

**Q3494:** B. Guo, *et al.* A gene expression estimator of intramuscular fat percentage for use in both cattle and sheep. *JOURNAL OF ANIMAL SCIENCE AND BIOTECHNOLOGY* 2014;5(U1-U12

**Agents:** Oxytocin **Vehicle:** Not Stated; **Route:** Not Stated; **Species:** Sheep; **Pump:** Not Stated; **Duration:** 90 days;

**ALZET Comments:** Pumps replaced every 30 days; long-term study;

**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

**Agents:** Oxytocin, synthetic; antagonist, peptidergic oxytocin **Vehicle:** Saline, sterile, pyrogen-free; **Route:** CSF/CNS; **Species:** Rat; **Pump:** 1007D; **Duration:** 7 days;

**ALZET Comments:** 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;

**Q3802:** J. Altirriba, *et al.* Divergent Effects of Oxytocin Treatment of Obese Diabetic Mice on Adiposity and Diabetes. *Endocrinology* 2014;155(4189-4201

**Agents:** Oxytocin; carbetocin; TGOT **Vehicle:** Saline; **Route:** SC; **Species:** Mice; **Pump:** Not Stated; **Duration:** 14 days;

**ALZET Comments:** Controls received mp w/ vehicle; animal info (male, C57BL/6J or ob/ob); diabetes;



**Q2927:** A. Szeto, *et al.* Oxytocin administration attenuates atherosclerosis and inflammation in Watanabe Heritable Hyperlipidemic rabbits. *Psychoneuroendocrinology* 2013;38(5):685-693

**Agents:** Oxytocin **Vehicle:** Not Stated; **Route:** SC; **Species:** Rabbit; **Pump:** 2ML4; **Duration:** 4 months;

**ALZET Comments:** Controls received mp w/ 50mM sodium citrate, pH 4; animal info (Watanabe Heritable Hyperlipidemic rabbit, 3 month old, 2.9-3.5 kg); functionality of mp verified by measuring plasma OT levels throughout study; pumps replaced every 4 weeks over 4 months; half-life OT < 10 min; long-term study;

**Q1622:** Y. Maejima, *et al.* Peripheral oxytocin treatment ameliorates obesity by reducing food intake and visceral fat mass. *Aging* 2011;3(12):1169-1177

**Agents:** Oxytocin **Vehicle:** Saline, sterile; **Route:** SC; **Species:** Mice; **Pump:** 2002; **Duration:** 13 days;

**ALZET Comments:** Controls received mp w/ vehicle; animal info (HFD induced, obese, 35 g, C57BL/6J, male, 6 wks old)

**Q1164:** J. S. Kim, *et al.* Chronic Hyperosmotic Stress Converts GABAergic Inhibition into Excitation in Vasopressin and Oxytocin Neurons in the Rat. *Journal of Neuroscience* 2011;31(37):13312-13322

**Agents:** Vasopressin, arginine; oxytocin receptor antagonist; AVP receptor antagonist **Vehicle:** CSF, artificial; **Route:** CSF/CNS; **Species:** Rat; **Pump:** 2002; **Duration:** 10 days;

**ALZET Comments:** Controls received mp w/ vehicle; animal info (male, Sprague Dawley, 6-20 wks old); peptides; ALZET brain infusion kit 2 used

**Q1537:** K. Karelina, *et al.* Oxytocin Mediates Social Neuroprotection After Cerebral Ischemia. *Stroke* 2011;42(12):3606-U429

**Agents:** Oxytocin; oxytocin receptor antagonist **Vehicle:** CSF, artificial; **Route:** CSF/CNS; **Species:** Mice; **Pump:** 1002; **Duration:** 8, 10 days;

**ALZET Comments:** Controls received mp w/ vehicle; animal info (C57BL/6, adult, male, 23-30g, MCAO); Plastics One cannula used; cannula placement verified through cresyl violet staining; ischemia

**Q1048:** M. Eckertova, *et al.* Subchronic treatment of rats with oxytocin results in improved adipocyte differentiation and increased gene expression of factors involved in adipogenesis. *British Journal of Pharmacology* 2011;162(2):452-463

**Agents:** Oxytocin **Vehicle:** Saline, isotonic; **Route:** SC; **Species:** Rat; **Pump:** 2002; **Duration:** 2 weeks;

**ALZET Comments:** Controls received mp w/ vehicle; animal info (adult, male, Wistar, 350-480 g)

**Q1513:** N. Deblon, *et al.* Mechanisms of the Anti-Obesity Effects of Oxytocin in Diet-Induced Obese Rats. *PLoS One* 2011;6(9):U441-U453

**Agents:** Oxytocin **Vehicle:** Not Stated; **Route:** CSF/CNS; SC; **Species:** Rat; **Pump:** 2001; **Duration:** 3, 14 days;

**ALZET Comments:** Controls received mp w/ saline; animal info (male, Wistar, 300-325 g)

**Q1393:** M. G. Welch, *et al.* Combined administration of secretin and oxytocin inhibits chronic colitis and associated activation of forebrain neurons. *NEUROGASTROENTEROLOGY AND MOTILITY* 2010;22(6):U58-U69

**Agents:** Secretin; oxytocin **Vehicle:** Saline; **Route:** IV (femoral); CSF/CNS; **Species:** Rat; **Pump:** 2004; **Duration:** 21 days;

**ALZET Comments:** Controls received mp w/ vehicle; animal info (male, Sprague Dawley, 250-300 g)

**Q0244:** D. A. Slattery, *et al.* Chronic icv oxytocin attenuates the pathological high anxiety state of selectively bred Wistar rats. *Neuropharmacology* 2010;58(1):56-61

**Agents:** Oxytocin; Oxytocin receptor antagonist **Vehicle:** Ringer's solution; **Route:** CSF/CNS; **Species:** Rat; **Pump:** 1007D; **Duration:** 7 days;

**ALZET Comments:** Controls received mp w/ vehicle; animal info (male, female, HAB, LAB, Wistar, 250-350 g.); behavioral testing (light-dark box, elevated plus-maze, forced swim test); cannula placement verified post mortem by injecting blue dye into the cannula

**P9961:** D. A. Nation, *et al.* Oxytocin Attenuates Atherosclerosis and Adipose Tissue Inflammation in Socially Isolated ApoE<sup>-/-</sup> Mice. *PSYCHOSOMATIC MEDICINE* 2010;72(4):376-382

**Agents:** Oxytocin **Vehicle:** Sodium citrate; **Route:** SC; **Species:** Mice; **Pump:** 2006; **Duration:** 12 weeks;

**ALZET Comments:** Controls received mp w/ vehicle; long-term study; pumps replaced after 6 weeks; animal info (male ApoE<sup>-/-</sup>, 11-12 wks old, 22-24 g)



**P9887:** M. Jankowski, *et al.* Anti-inflammatory effect of oxytocin in rat myocardial infarction. *Basic Research in Cardiology* 2010;105(2):205-218

**Agents:** Oxytocin **Vehicle:** Not Stated; **Route:** SC; **Species:** Rat; **Pump:** Not Stated; **Duration:** 3, 7 days;

**ALZET Comments:** Controls received mp w/saline, or sham operation; animal info (male, Sprague Dawley, 280-370 g); myocardial infarction

**Q0403:** A. K. Beery, *et al.* Oxytocin and Same-Sex Social Behavior in female Meadow Voles. *Neuroscience* 2010;169(2):665-673

**Agents:** Oxytocin antagonist; oxytocin **Vehicle:** Saline; **Route:** CSF/CNS; **Species:** Prairie vole; **Pump:** 1007D; **Duration:** Not Stated;

**ALZET Comments:** Controls received mp w/vehicle; animal info (female, 75-80 days old); plastics one cannula used; behavioral testing (same sex partner preference)

**Q0968:** S. Authier, *et al.* Cardiovascular Effects of Oxytocin Infusion in a Porcine Model of Myocardial Infarct. *Journal of Cardiovascular Pharmacology* 2010;55(1):74-82

**Agents:** Oxytocin **Vehicle:** Saline; **Route:** SC; **Species:** Pig; **Pump:** 2ML4; **Duration:** 21 days;

**ALZET Comments:** Controls received mp w/ vehicle; animal info (domestic, Yorkshire-Landrace, castrated, male, 21-29 kg)

**P9365:** S. Wakamatsu, *et al.* Vasopressin and hyperosmolality regulate NKCC1 expression in rat OMCD. *Hypertension Research* 2009;32(6):481-487

**Agents:** Vasopressin, 1-desamino-8-D-arginine; Oxytocin **Vehicle:** Not Stated; **Route:** SC; **Species:** Rat; **Pump:** 2002; **Duration:** 4 days;

**ALZET Comments:** Controls received mp w/ saline; animal info (male, Sprague Dawley, 80-100 g.)

**P9648:** R. Tamma, *et al.* Oxytocin is an anabolic bone hormone. *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA* 2009;106(17):7149-7154

**Agents:** Oxytocin **Vehicle:** Not Stated; **Route:** CSF/CNS; **Species:** Mice; **Pump:** Not Stated; **Duration:** 5 days;

**ALZET Comments:** Animal info (male female, OT<sup>-/-</sup>, Otr<sup>-/-</sup>)

**P9375:** J. E. Kennett, *et al.* Antagonism of Oxytocin Prevents Suckling- and Estradiol-Induced, But Not Progesterone-Induced, Secretion of Prolactin. *Endocrinology* 2009;150(5):2292-2299

**Agents:** Oxytocin antagonist **Vehicle:** Saline; **Route:** IV (jugular); **Species:** Rat; **Pump:** 2001D; **Duration:** Not Stated;

**ALZET Comments:** Controls received mp w/ vehicle; animal info (female, Sprague Dawley, 60 days old, 250-300 g.)

**P9642:** M. Ishii, *et al.* Oxytocin hypersensitivity in pregnant P-LAP deficient mice. *LIFE SCIENCES* 2009;84(19-20):668-672

**Agents:** Oxytocin **Vehicle:** PBS; **Route:** SC; **Species:** Mice (pregnant); **Pump:** 1007D; **Duration:** Not Stated;

**ALZET Comments:** Controls received mp w/vehicle; animal info (P-lap KO, wt)

**P8954:** R. Teruyama, *et al.* Central blockade of oxytocin receptors during mid-late gestation reduces amplitude of slow afterhyperpolarization in supraoptic oxytocin neurons. *American Journal of Physiology Endocrinology and Metabolism* 2008;295(5):E1167-E1171

**Agents:** Oxytocin antagonist, desGly- **Vehicle:** CSF, artificial; **Route:** CSF/CNS (third ventricle); **Species:** Rat (pregnant); **Pump:** 2002; **Duration:** 7,8 days;

**ALZET Comments:** Controls received mp w/ vehicle; good methods (p. E1168); animal info (Sprague Dawley); polyethylene tubing used; compound is an oxytocin receptor antagonist (OTA)

**P9392:** O. J. Bosch, *et al.* Brain vasopressin is an important regulator of maternal behavior independent of dams' trait anxiety. *Proceedings of the National Academy of Sciences* 2008;105(44):17139-17144

**Agents:** Vasopressin, arginine; Oxytocin; Oligonucleotide, antisense; Oligonucleotide, missense **Vehicle:** Ringer's solution; **Route:** CSF/CNS; CSF/CNS (medial preoptic area); **Species:** Rat (pregnant); **Pump:** 1007D; **Duration:** 5-7 days;

**ALZET Comments:** Controls received mp w/ vehicle; comparison of ICV injections vs. mp; antisense (AVP-R); peptides; multiple pumps per animal (2); post op. care (Enrofloxacin, Baytril); animal info (female, Wistar, HAB, LAB, 14 wks old); behavioral testing (maternal care, pup retrieval test, elevated plus maze); cannula placement and infusion sites verified with blue ink



**P8413:** T. Ochedalski, *et al.* Interaction between oestrogen and oxytocin on hypothalamic-pituitary-adrenal axis activity. *Journal of Neuroendocrinology* 2007;19(3):189-197

**Agents:** Oxytocin **Vehicle:** Saline, sterile; **Route:** CSF/CNS; **Species:** Rat; **Pump:** 2001; **Duration:** 7 days;

**ALZET Comments:** Controls received mp w/ vehicle; replacement therapy (ovariectomy); ALZET brain infusion kit used; animal info (female, Sprague-Dawley, 250-300g.)

**P8654:** D. T. McKee, *et al.* Oxytocin action at the lactotroph is required for prolactin surges in cervically stimulated ovariectomized rats. *Endocrinology* 2007;148(10):4649-4657

**Agents:** Oxytocin antagonist **Vehicle:** Saline, sterile; **Route:** IV (jugular); **Species:** Rat; **Pump:** 2001D; **Duration:** 24 hours;

**ALZET Comments:** Controls received mp w/ vehicle; replacement therapy (ovariectomy); animal info (female, Sprague-Dawley, 200-250g); endocrinology

**P7831:** R. J. Windle, *et al.* Gonadal steroid modulation of stress-induced hypothalamo-pituitary-adrenal activity and anxiety behavior: Role of central oxytocin. *Endocrinology* 2006;147(5):2423-2431

**Agents:** Oxytocin antagonist; oxytocin antagonist, desGly- **Vehicle:** Not Stated; **Route:** CSF/CNS; **Species:** Rat; **Pump:** 1007D; **Duration:** 5 days;

**ALZET Comments:** Controls received mp w/ saline; replacement therapy (ovariectomy); ALZET brain infusion kit used; peptides; animal info (female, Sprague-Dawley, 225-250g.); mp primed overnight in isotonic saline

**P8187:** M. G. Welch, *et al.* Brain effects of chronic IBD in areas abnormal in autism and treatment by single neuropeptides secretin and oxytocin. *Journal of Molecular Neuroscience* 2005;25(3):259-273

**Agents:** Secretin; oxytocin **Vehicle:** Saline; **Route:** IV (femoral); **Species:** Rat; **Pump:** 2002; **Duration:** 20 days;

**ALZET Comments:** Controls received mp w/ vehicle; post op. care (Bacitracin); animal info (male, Sprague-Dawley, 250-450 grams); autism

**P7571:** A. Sarkis, *et al.* Cytochrome P-450-dependent metabolism of arachidonic acid in the kidney of rats with diabetes insipidus. *American Journal of Physiology Renal Physiology* 2005;289(6):F1333-F1340

**Agents:** Oxytocin **Vehicle:** Saline; **Route:** IP; **Species:** Rat; **Pump:** 2002; **Duration:** 8 days;

**ALZET Comments:** Controls received mp w/ vehicle; functionality of mp verified by plasma oxytocin levels; animal info (male, Brattleboro, Long-Evans, 9-10 wk old); vasopressin agonist

**P7301:** C. A. Perez, *et al.* Influence of the paraventricular nucleus and oxytocin on the retrograde stain of pubococcygeus muscle motoneurons in male rats. *Brain Research* 2005;1041(1):11-18

**Agents:** Oxytocin **Vehicle:** Not Stated; **Route:** CSF/CNS (intrathecal); **Species:** Rat; **Pump:** 2002; **Duration:** 2 weeks;

**ALZET Comments:** Controls received mp w/ vehicle; comparison of intrathecal injections vs. mp

**P6360:** R. J. Windle, *et al.* Oxytocin attenuates stress-induced c-fos mRNA expression in specific forebrain regions associated with modulation of hypothalamo-pituitary-adrenal activity. *Journal of Neuroscience* 2004;24(12):2974-2982

**Agents:** Oxytocin; vasopressin **Vehicle:** Saline; **Route:** CSF/CNS; **Species:** Rat; **Pump:** 1007D; **Duration:** 7 days;

**ALZET Comments:** Controls received mp w/ vehicle; ALZET brain infusion kit; peptides; dental cement used

**P6565:** T. Morita, *et al.* Oxytocin inhibits the progression of human ovarian carcinoma cells in vitro and in vivo. *International Journal of Cancer* 2004;109(4):525-532

**Agents:** Oxytocin **Vehicle:** Not Stated; **Route:** IP; **Species:** Mice (nude); **Pump:** 2002; **Duration:** 2 weeks;

**ALZET Comments:** Controls received w/ physiological saline; no stress (see pg.530); cancer (ovarian carcinoma)

**P6061:** Y. Liu, *et al.* Nucleus accumbens oxytocin and dopamine interact to regulate pair bond formation in female prairie voles. *Neuroscience* 2003;121(3):537-544

**Agents:** Eticlopride; oxytocin; oxytocin receptor antagonist **Vehicle:** CSF, artificial; **Route:** CSF/CNS; **Species:** Prairie vole;

**Pump:** 1007D; **Duration:** 7 days;

**ALZET Comments:** Plastics One cannula; eticlopride is a D1 and D2 receptor antagonist



**P5361:** J. T. Winslow, *et al.* The social deficits of the oxytocin knockout mouse. *Neuropeptides* 2002;36(2-3):221-229

**Agents:** Oxytocin antagonist **Vehicle:** Not Stated; **Route:** Not Stated; **Species:** Mice; **Pump:** Not Stated; **Duration:** 5 days;

**ALZET Comments:** Pumps mentioned on p.224; review of studies in oxytocin knockout mice

**P4201:** W. Huang, *et al.* Dehydration natriuresis in male rats is mediated by oxytocin. *American Journal of Physiology Regulatory, Integrative, and Comparable Physiology* 1996;270(R427-R433)

**Agents:** Oxytocin receptor antagonist **Vehicle:** Saline; **Route:** IV (jugular); **Species:** Rat; **Pump:** 2001; **Duration:** Not Stated;

**ALZET Comments:** Controls received mp w/saline

**P4208:** P. Cassoni, *et al.* Oxytocin and oxytocin-analogue F314 inhibit cell proliferation and tumor growth of rat and mouse mammary carcinomas. *Int. J. Cancer* 1996;66(817-820)

**Agents:** F314; Oxytocin **Vehicle:** Not Stated; **Route:** Not Stated; **Species:** Rat; Mice; **Pump:** Not Stated; **Duration:** 14 days;

**ALZET Comments:** Controls received mp w/saline; F314 is an oxytocin-analog; oxytocin pellets used in some animals; cancer;

**P3062:** J. R. Williams, *et al.* Oxytocin administered centrally facilitates formation of a partner preference in female prairie voles (*Microtus ochrogaster*). *J. Neuroendocrinology* 1994;6(247-250)

**Agents:** Oxytocin; Oxytocin receptor antagonist **Vehicle:** CSF, artificial;; **Route:** SC; CSF/CNS; **Species:** Prairie vole; **Pump:** 1007D; **Duration:** Not Stated;

**ALZET Comments:** Controls received mp with aCSF; peptides; antagonist was OTA (d(CH<sub>2</sub>)<sup>5</sup>-[Tyr(me)<sub>2</sub>,Thr<sub>4</sub>,Try-NH<sub>2</sub>,9]; oxytocin given singly or concomitantly with antagonist

**P8043:** J. T. Winslow, *et al.* A role for central vasopressin in pair bonding in monogamous prairie voles. *Letters to Nature* 1993;365(6446):545-548

**Agents:** Vasopressin, arginine; Oxytocin **Vehicle:** Not Stated; **Route:** CSF/CNS; **Species:** Prairie vole; **Duration:** 48 hours;

**ALZET Comments:** Controls received mp w/ vehicle; cannula secured w/ dental cement

**P2669:** L. Cao, *et al.* Effects of oxytocin and uterine and luteal prostaglandins on the functional regression of the corpus luteum in pseudopregnant rats. *J. Reprod. Fertil* 1993;99(181-186)

**Agents:** Oxytocin, [Pen<sup>1</sup>,Phe(me)<sup>2</sup>,Thyr<sup>4</sup>,Orn<sup>8</sup>]- **Vehicle:** Acetic acid; **Species:** Rat; **Pump:** 1003D; **Duration:** 3 days;

**ALZET Comments:** controls received saline via injections and/or mp; [Pen<sup>1</sup>,Phe(me)<sup>2</sup>,Thyr<sup>4</sup>,Orn<sup>8</sup>]-oxytocin is a selective oxytocin and V1a-receptor antagonist

**P2605:** V. J. Ayad, *et al.* Effects of pregnancy and systemic or intrauterine oxytocin infusion on the distribution of endometrial oxytocin receptors in the ewe: an autoradiographic study. *J. Endocrinol* 1993;137(423-431)

**Agents:** Oxytocin **Vehicle:** Sodium chloride; Acetic acid; **Route:** SC; Intrauterine; **Species:** Sheep; **Pump:** 2ML1;

**ALZET Comments:** Controls received mp w/ vehicle; tissue perfusion (uterus); functionality of mp verified by in vitro analysis and RIA of plasma levels; peptides; intrauterine infusion less effective than systemic infusion in reduction of endometrial oxytocin receptor concentration

**P3050:** D. M. Witt, *et al.* Enhanced social interactions in rats following chronic, centrally infused oxytocin. *Pharmacol. Biochem. Behav* 1992;43(3):855-861

**Agents:** Oxytocin **Vehicle:** Not Stated; **Route:** CSF/CNS; **Species:** Rat; **Pump:** 2002; **Duration:** Not Stated;

**ALZET Comments:** Controls received mp with aCSF; stability verified by RDA; 44% destruction after 10 days in vivo; peptides

**P1976:** T. R. Insel, *et al.* Homologous regulation of brain oxytocin receptors. *Endocrinology* 1992;130(5):2606-2608

**Agents:** Oxytocin **Vehicle:** Not Stated; **Route:** CSF/CNS; **Species:** Rat; **Pump:** 2002; **Duration:** 10 days;

**ALZET Comments:** comparison of b.i.d. injections vs. mp; stability information given for 10 days of infusion in vivo; controls received mp w/vehicle; hypophysectomy - excision or destruction of hypophysis cerbri; replacement therapy (lesion in paraventricular nucleus of hypothalamus); comparison of icv injections vs pumps; peptides; stability: "assay of pump contents revealed about 44% destruction of oxytocin over a 10 day period in vivo" p. 2603; "due to the short half-life of oxytocin... the injection study... provided insufficient stimulus to down-regulate oxytocin receptors." p. 2604; replacement therapy (lesion in PVN of hypothalamus); comparison of ICV injections vs. mp; peptides





**P3044:** D. C. Wathes, *et al.* Influence of oxytocin infusion during oestrus and the early luteal phase on progesterone secretion and the establishment of pregnancy in ewes. *J. Reprod. Fertil* 1991;92(383-391

**Agents:** Oxytocin **Vehicle:** Saline; Acetic acid; **Route:** SC; **Species:** Sheep; **Pump:** 2001; 2ML2; **Duration:** 12 days;

**ALZET Comments:** Controls received mp with saline or no treatment; functionality of mp verified by plasma levels; peptides

**P1760:** J. G. Verbalis, *et al.* Oxytocin produces natriuresis in rats at physiological plasma concentrations. *Endocrinology* 1991;128(3):1317-1322

**Agents:** Oxytocin antagonist; Oxytocin; Vasopressin antagonist **Vehicle:** Not Stated; **Route:** SC; **Species:** Rat; **Pump:** 2001;

**Duration:** Not Stated;

**ALZET Comments:** 4 doses of oxytocin infused, some animals received 2 pumps

**P2354:** S. L. Lutz, *et al.* Effect of constant infusion of oxytocin on luteal lifespan and oxytocin-induced release of prostaglandin F2-a in heifers. *Domestic Animal Endocrinology* 1991;8(4):573-585

**Agents:** Oxytocin **Vehicle:** Saline; **Route:** SC; **Species:** Cattle; **Pump:** 2ML2; **Duration:** Not Stated;

**ALZET Comments:** Controls received mp w/ saline; functionality of mp verified by RIA analysis of plasma levels; comparison of jugular infusion by computer-controlled pump; peptides

**P1530:** E. Arnould, *et al.* Effects of chronic ICV infusion of vasopressin on sleep-waking cycle of rats. *American Journal of Physiology Regulatory, Integrative, and Comparable Physiology* 1989;256(R674-R684

**Agents:** Antibody, anti-oxytocin; Antibody, anti-vasopressin, arginine; Oxytocin, 2-phenylalanine, 8-ornithine; Serum, rabbit; Oxytocin; Vasopressin, 1-desamino-8-D arginine; Vasopressin, arginine **Vehicle:** CSF, artificial; **Route:** CSF/CNS; **Species:** Rat; **Pump:** 2002; **Duration:** 9, 10 days;

**ALZET Comments:** dose-response; functionality of mp verified by plasma levels; peptides

**P1358:** T. Engstrom, *et al.* Oxytocin receptors and contractile response of the myometrium after long term infusion of prostaglandin F2a, indomethacin, oxytocin and an oxytocin antagonist in rats. *Regul. Pept* 1988;20(65-72

**Agents:** Oxytocin, desamino-; Oxytocin; Prostaglandin F2a **Vehicle:** Saline; **Route:** IP; **Species:** Rat; **Pump:** 2001; **Duration:** 5 days;

**ALZET Comments:** peptides

**P1045:** H. Vilhardt, *et al.* Antidiuretic antagonism and agonism of

1-deamino-pentamethylene-2-D-phenylalanine-4-isoleucine-arginine vasopressin in rats with diabetes insipidus. *J. Endocrinol* 1987;112(439-442

**Agents:** Oxytocin; Vasopressin antagonist; Vasopressin, arginine **Vehicle:** Saline; **Route:** IP; **Species:** Rat; **Pump:** 2001; **Duration:** 7 days;

**ALZET Comments:** controls received mp w/vehicle; peptides; concomitant infusion of AVP w/antagonist and oxytocin w/antagonist; functionality of mp verified

**P0653:** F. J. Auletta, *et al.* Oxytocin is luteolytic in the rhesus monkey (*Macaca mulatta*). *J. Reprod. Fertil* 1984;72(2):401-406

**Agents:** Oxytocin **Vehicle:** Chlorobutanol; Saline; **Route:** Intraovarian (corpus luteum); **Species:** Monkey; **Pump:** 2001; **Duration:** 1 week;

**ALZET Comments:** Tissue perfusion (ovarian - corpus luteum); methods/surgery p. 402; value of mp p. 403; pumps were left in place up to 10 days; peptides

**P0256:** M. Gellai. The role of vasopressin in the control of renal hemodynamics. The Brattleboro rat as an experimental model. *Annals of the New York Academy of Sciences* 1982;394(343-349

**Agents:** Oxytocin; Vasopressin, arginine **Vehicle:** Not Stated; **Route:** SC; **Species:** Rat; **Pump:** Not Stated; **Duration:** 10 days;

**ALZET Comments:** peptides