



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

**Q8149:** K. Ouk, *et al.* Chronic paroxetine treatment prevents disruption of methamphetamine-sensitive circadian oscillator in a transgenic mouse model of Huntington's disease. *Neuropharmacology* 2018;131(337-350

**Agents:** Cocaine hydrochloride **Vehicle:** Saline; **Route:** SC; **Species:** Mice; **Pump:** 1004; **Duration:** 4 weeks;

**ALZET Comments:** Dose (30 mg/kg/day); 0.9% Saline used; Controls received mp w/ vehicle; animal info (12 weeks old); neurodegenerative (Huntington's Disease);

**R0335:** R. M. Post. Epigenetic basis of sensitization to stress, affective episodes, and stimulants: implications for illness progression and prevention. *Bipolar Disord* 2016;18(4):315-24

**ALZET Comments:** Cocaine;

**Q4278:** A. K. Radke, *et al.* Cocaine withdrawal in rats selectively bred for low (LoS) versus high (HiS) saccharin intake. *PHARMACOLOGY BIOCHEMISTRY AND BEHAVIOR* 2015;129(51-55

**ALZET Comments:** Cocaine hydrochloride; Saline, sterile; SC; Rat; 2ML2; 2 weeks; Controls received mp w/ vehicle; animal info (male, Holtzman/Harlan Sprague Dawley); no stress (see pg.53); post op. care (topical antibiotic ointment); behavioral testing (saccharin intake); dependence; pumps removed after 2 weeks;.

**Q3606:** C. M. Pudiak, *et al.* Tolerance to cocaine in brain stimulation reward following continuous cocaine infusions. *Pharmacology Biochemistry and Behavior* 2014;122(246-252

**ALZET Comments:** Cocaine; Saline; sodium metabisulfate; SC; Rat; 2ML2; 14 days; Controls received mp w/ vehicle; animal info (male, Long-Evans, 275-350g); functionality of mp verified by residual volume; 0.3% sodium metabisulfate used to prevent degradation; stress/adverse reaction: (see pg.294); post op. care (neosporin); dependence; "Cocaine delivered continuously via osmotic minipump may better mimic the high drug-plasma concentrations maintained by an addict during a binge than daily administered cocaine injections." pg 250; pumps removed after 14 days; pumps primed at 37C for at least 4 hours;.

**Q3579:** P. A. Narayana, *et al.* Chronic cocaine administration causes extensive white matter damage in brain: Diffusion tensor imaging and immunohistochemistry studies. *PSYCHIATRY RESEARCH-NEUROIMAGING* 2014;221(3):220-230

**ALZET Comments:** Cocaine; Saline; SC; Rat; 2ML4; 28 days; Controls received mp w/ vehicle; animal info (male, Sprague Dawley, 280-300g); behavioral testing (fine motor movement; ambulation; rearing activities; general motor behavior); dependence; MRI; pumps primed for 24 hours in 37C saline;.

**Q3428:** F. F. Caputi, *et al.* Dynorphin/KOP and nociceptin/NOP gene expression and epigenetic changes by cocaine in rat striatum and nucleus accumbens. *PROGRESS IN NEURO-PSYCHOPHARMACOLOGY & BIOLOGICAL PSYCHIATRY* 2014;49(;):36-46

**ALZET Comments:** Cocaine; SC; Rat; 2001; 7 days; Controls received mp w/ saline; animal info (male, Sprague Dawley, 200-250g); dependence; pumps primed overnight in 37C saline;.

**Q2161:** A. K. Stoker, *et al.* Involvement of metabotropic glutamate receptor 5 in brain reward deficits associated with cocaine and nicotine withdrawal and somatic signs of nicotine withdrawal. *Psychopharmacology* 2012;221(2):317-327

**ALZET Comments:** Nicotine; cocaine hydrochloride; Saline, sterile; SC; IP; Mice; 2004; 1003D; 3, 28 days; Controls received mp w/ vehicle; animal info (mGlu5 KO, wt).

**Q1704:** A. K. Stoker, *et al.* Withdrawal from chronic cocaine administration induces deficits in brain reward function in C57BL/6J mice. *Behavioural Brain Research* 2011;223(1):176-181

**ALZET Comments:** Cocaine hydrochloride; Saline, sterile; IP; Mice; 1003D; 3 days; Controls received mp w/ saline; animal info (C57BL/6, male, 7-8 wks old) withdrawal; "continuous cocaine administration via intraperitoneal osmotic minipumps is an excellent tool for the assessment of the effects of cocaine administration and withdrawal on various behavioral measures." pg 180.



**P9733:** P. A. Narayana, *et al.* Diffusion tensor imaging of cocaine-treated rodents. *PSYCHIATRY RESEARCH-NEUROIMAGING* 2009;171(3):242-251

**ALZET Comments:** Cocaine; SC; Rat; 2ML4; 28 days; Controls received mp w/saline; good methods pg. 243; animal info (male, Sprague Dawley, 250-300 g); microdialysis fiber attached to exit port to prevent development of necrotic skin.

**P8166:** M. Di Benedetto, *et al.* Alterations of CREB and DARPP-32 phosphorylation following cocaine and monoaminergic uptake inhibitors. *Brain Research* 2007;1128(1):33-39

**ALZET Comments:** Cocaine; fluoxetine; GBR12909; nisoxetine; Water, sterile; SC; CSF/CNS; Rat; 2001; 2ML1; 7 days; Controls received mp w/ vehicle; no stress (see pg. 37); animal info (male, Sprague-Dawley, 200-250 grams).

**P8233:** C. D'Addario, *et al.* Role of serotonin in the regulation of the dynorphinergic system by a kappa-opioid agonist and cocaine treatment in rat CNS. *Neuroscience* 2007;144(1):157-164

**ALZET Comments:** Cocaine; Water, sterile; CSF/CNS; Rat; 7 days; Controls received mp w/ vehicle; animal info (male, Sprague-Dawley, 200-250 grams).

**P6682:** M. S. Matell, *et al.* Differential modulation of clock speed by the administration of intermittent versus continuous cocaine. *Behavioral Neuroscience* 2004;118(1):150-156

**ALZET Comments:** Cocaine, hydrochloride; Saline; SC; Rat; 2ML2; 2 weeks; Controls received mp w/ vehicle; functionality of mp verified by residual volume; comparison of IP injections vs. SC mp; tolerance; "The cocaine pumps were slightly modified by adding a microdialysis fiber to the output portal to minimize tissue necrosis from the cocaine." p. 151; behavioral study.

**P7061:** G. R. King, *et al.* The effects of continuous cocaine dose, treatment, and withdrawal duration on the induction of behavioral tolerance and dopamine autoreceptor function. *Pharmacology Biochemistry and Behavior* 2004;78(2):293-300

**ALZET Comments:** Cocaine HCL; Saline, isotonic; SC; Rat; 2ML2; 3,7 days; Controls received mp w/ vehicle; dose-response; tolerance; "mp slightly modified by adding a microdialysis fiber to the output portal to eliminate tissue necrosis from the cocaine." (pg. 294); mp primed in 37 degree Celsius water for 4 hours.

**P5441:** G. R. King, *et al.* The effects of continuous cocaine duration on the induction of behavioral tolerance and dopamine autoreceptor function. *European Journal of Pharmacology* 2002;446(1-3):111-118

**ALZET Comments:** Cocaine HCL; Saline, isotonic; SC; Rat; 2ML2; 14 days; Controls received mp w/ vehicle; tolerance; dependence; "The pumps were slightly modified by adding a microdialysis fiber to the output portal to eliminate tissue necrosis from the cocaine." (p. 112).

**P5446:** S. Izenwasser, *et al.* Tolerance and sensitization to the locomotor-activating effects of cocaine are mediated via independent mechanisms. *Pharmacology Biochemistry and Behavior* 2002;73(4):877-882

**ALZET Comments:** Cocaine; SC; Rat; 2001; 7 days; Tolerance.

**P5488:** E. H. Ellinwood, *et al.* Effect of daily dosing duration of direct and indirect dopamine receptor agonists: cocaine cross-tolerance following chronic regimens. *European Neuropsychopharmacology* 2002;12(5):407-415

**ALZET Comments:** Cocaine; pramipexole; Saline; SC; Rat; 2ML2; 14 days; Functionality of mp verified by measuring residual volume; pulsed delivery - drugs administered either continuously or for 16 or 20 hrs per day (p. 409); study included behavioral testing; pramipexole is a direct dopamine agonist; microdialysis fiber attached to pump via catheter to minimize tissue necrosis caused by the cocaine (p. 408); intermittent delivery made possible by disconnecting and reconnecting an externalized catheter.

**P6339:** S. L. Collins, *et al.* Chronic Cocaine Increases k-Opioid Receptor Density: Lack of Effect by Selective Dopamine Uptake Inhibitors. *Synapse* 2002;45(153-158)

**ALZET Comments:** Cocaine; RTI-117; GBR 12909; Saline; DMSO; water, sterile; SC; Rat; 2ML1; 2ML2; 7, 14 days; Controls received mp w/ vehicle; brain tissue distribution; 50% DMSO used for GBR12909.



**P4779:** L. L. Howell, *et al.* Fetal development in rhesus monkeys exposed prenatally to cocaine. *Neurotoxicol. Teratol* 2001;23(133-140)

**ALZET Comments:** Cocaine;; Saline;; SC;; monkey (pregnant);; 2ML4;; ~ 180 days;; Controls received mp w/ vehicle; functionality of mp verified by cocaine serum levels; dose-response (table 4 p. 136); long-term study, pumps replaced every 28 days for up to 180 days (until birth); teratology;.

**P4882:** E. H. Ellinwood, *et al.* The dopamine D-2/D-3 antagonist DS121 potentiates the effect of cocaine on locomotion and reduces tolerance in cocaine tolerant rats. *Behavioural Brain Research* 2000;116(169-175)

**ALZET Comments:** Cocaine HCl; Saline; SC; Rat; 2ML2; 14 days; controls received mp w/ vehicle; functionality of mp verified by residual volume; "The pumps were modified by adding a microdialysis fiber to the output portal to eliminate cocaine-induced tissue necrosis". p. 170.

**P4517:** T. H. Lee, *et al.* Altered activity of midbrain dopamine neurons following 7-day withdrawal from chronic cocaine abuse is normalized by D<sub>2</sub> receptor stimulation during the early withdrawal phase. *Neuropsychopharmacology* 1999;21(127-136)

**ALZET Comments:** Cocaine;; Saline;; SC;; Rat;; 2ML2;; 14 days;; comparison of SC injections vs. mp; tolerance; modified flow moderators used;.

**P4518:** G. R. King, *et al.* Blockade of accumbens 5-HT<sub>3</sub> receptor down-regulation by ondansetron administered during continuous cocaine administration. *European Journal of Pharmacology* 1999;364(79-87)

**ALZET Comments:** Cocaine HCl;; Saline, isotonic;; SC;; Rat;; 2ML2;; 14 days;; controls received mp w/vehicle; functionality of mp verified by measuring residual volume; comparison of SC injections vs. mp; tolerance; microdialysis; pumps were modified by adding a microdialysis fiber to eliminate tissue necrosis from cocaine administration.

**P4300:** S. Izenwasser, *et al.* Continuous infusion of selective dopamine uptake inhibitors or cocaine produces time-dependent changes in rat locomotor activity. *Behav. Brain Res* 1999;99(201-208)

**ALZET Comments:** Cocaine; GBR 12909; Fluoxetine HCl; Nisoxetine HCl, RTI-117;; DMSO; Water, sterile;; SC;; Rat;; 2001; 2ML1; 2ML2;; 7, 14 days; antidepressant; controls received mp w/ saline; RTI-117 is a dopamine uptake inhibitor; 2ML1 used to deliver GBR 12909, due to its limited solubility;.

**P4563:** M.-Y. Li, *et al.* Continuous cocaine treatment and monoamine transmission measured by microdialysis in the rat ventral tegmental area. *Addiction Biology* 1998;3(447-451)

**ALZET Comments:** Cocaine;; Saline;; SC;; Rat;; 2ML2;; 2 weeks;; controls received mp w/vehicle; functionality of mp verified by residual volume; no stress (P. 448); tolerance; At the end of the experiment, the tissue surrounding the minipumps was inspected and found to be normal (p. 448);.

**P4179:** P. M. Kunko, *et al.* Alterations in locomotor activity during chronic cocaine administration: effect of dopamine receptors and interaction with opioids. *J. Pharmacol. Exp. Ther* 1998;285(1):277-284

**ALZET Comments:** Cocaine; Naltrexone HCl; Morphine sulfate; Saline; SC; Rat; 2001; 7 days; controls received mp w/vehicle; functionality of mp verified by plasma levels; dose-response (p. 279-280); tolerance.

**P3955:** G. R. King, *et al.* Blockade of the expression of sensitization and tolerance by aldosterone, a 5-HT<sub>3</sub> receptor antagonist, administered during withdrawal from intermittent and continuous cocaine. *Psychopharmacology* 1998;135(263-269)

**ALZET Comments:** Cocaine HCl; Saline, sterile; SC; Rat; 2ML2; 14 days; controls received mp w/vehicle; functionality of mp verified by residual volume; good methods (p.265); dependence; microdialysis.

**P4191:** A. V. Azaryan, *et al.* Transient upregulation of m opioid receptor mRNA levels in nucleus accumbens during chronic cocaine administration. *Can. J. Physiol. Pharmacol* 1998;76(278-283)

**ALZET Comments:** Cocaine HCl; SKF-82958; Bromocriptine; Hydrobromide, R(+)-6-bromo-APB; PD 128907; Saline; SC; Rat; 2ML1; 24,48,66,72,90,96,168,336 hours; controls received mp w/vehicle; dopamine agonists.



**P3484:** M. S. Matell, *et al.* 5-HT(3) receptor mediated dopamine release in the nucleus accumbens during withdrawal from continuous cocaine. *Psychopharmacology* 1997;130(242-248)

**ALZET Comments:** Cocaine HCl; Saline; SC; Rat; 2ML2; 14 days; controls received mp w/ saline; functionality of mp verified by residual solution; tolerance; microdialysis fiber added to delivery port to eliminate tissue necrosis.

**P3749:** P. M. Kunko, *et al.* Chronic administration of the selective dopamine uptake inhibitor GBR 12909, but not cocaine, produces marked decreases in dopamine transporter density. *Naunyn-Schmiedeberg's Arch. Pharmacol* 1997;356(562-569)

**ALZET Comments:** Cocaine HCl; GBR 12909; Saline; DMSO; Water, sterile; SC; Rat; 2001; 2ML1; 7 days; controls received mp w/ vehicle; tolerance.

**P3863:** G. R. King, *et al.* Blockade of cocaine sensitization and tolerance by the co-administration of odansetron, a 5-HT3 receptor antagonist, and cocaine. *Psychopharmacology* 1997;130(159-165)

**ALZET Comments:** Cocaine HCl; Saline, sterile isotonic; SC; Rat; 2ML2; 14 days; controls received saline injection; functionality of mp verified by measuring residual volume; comparison of injections vs mp; tolerance; microdialysis.

**P3558:** C. M. Bernards, *et al.* Effect of chronic cocaine administration on the hemodynamic response to acute hemorrhage in awake and anesthetized sheep. *J. Trauma: Injury, Infection and Crit. Care* 1997;42(1):42-48

**ALZET Comments:** Cocaine HCl; SC; sheep; 2ML2; 15, 18 days; no comment posted.

**P3502:** P. Romualdi, *et al.* Chronic intracerebroventricular cocaine differentially affects prodynorphin gene expression in rat hypothalamus and caudate-putamen. *Mol. Brain Research* 1996;40(153-156)

**ALZET Comments:** Cocaine HCl; CSF/CNS; Rat; 2001; 7 days; controls received mp w/ aCSF.

**P3466:** J. L. Neisewander, *et al.* Changes in behavioral sensitivity to SKF-38393 and quinpirole following withdrawal from continuous cocaine administration in rats. *Pharmacol. Biochem. Behav* 1996;53(4):935-942

**ALZET Comments:** Cocaine HCl; Saline; SC; Rat; 2ML2; 2 weeks; functionality of mp verified by measuring residual volume; no stress (see p. 936) - no observed skin necrosis.

**P3513:** M. Lundien, *et al.* Dextrorphan effects on cocaine and brainstem perturbation. *Integrative Physiological and Behavioral Science* 1996;31(3):224-230

**ALZET Comments:** Cocaine; IV (femoral); Rat; 2001; 3 days; no comment posted.

**P3428:** S. Izenwasser, *et al.* Continuous cocaine administration enhances m- but not d-opioid receptor-mediated inhibition of adenylyl cyclase activity in nucleus accumbens. *Eur. J. Pharmacol* 1996;297(187-191)

**ALZET Comments:** Cocaine HCl; SC; Rat; 2001; 7 days; no comment posted.

**P3520:** A. Hitri, *et al.* Effect of cocaine on dopamine transporter receptors depends on routes of chronic cocaine administration. *Neuropsychopharm* 1996;14(3):205-210

**ALZET Comments:** Cocaine HCl; SC; Rat; 2ML2; 14 days; controls received saline infusion; comparison of intermittent sc injections vs. mp; pump connected to 3 cm of dialysis tubing.

**P3313:** A. V. Azaryan, *et al.* Effect of chronic cocaine treatment on m- and d-opioid receptor mRNA levels in dopaminergically innervated brain regions. *J. Neurochem* 1996;66(443-448)

**ALZET Comments:** Cocaine HCl; Eticlopride; SCH-23390; Saline; SC; Rat; 2001; 3 days; controls received mp w/saline; eticlopride is a D1 & D2 receptor antagonist.

**P3446:** A. V. Azaryan, *et al.* Mu opioid receptor mRNA in nucleus accumbens is elevated following dopamine receptor activation. *Neurochem. Res* 1996;21(11):1411-1415

**ALZET Comments:** Hydrobromide, R(+)-6-bromo-APB-SKF-38393; Nafadotride, (5)-bromocriptine; Cocaine HCl; Saline; Rat; 2ML1; 3 days; controls received mp w/ saline.



- P2807:** G. R. King, *et al.* 5-HT<sub>3</sub> agonist-induced dopamine overflow during withdrawal from continuous or intermittent cocaine administration. *Psychopharmacology* 1995;117(458-465)  
**ALZET Comments:** Cocaine HCl; Saline; SC; Rat; 2ML2; 14 days; controls received mp with saline; comparison of sc injections vs. mp; tolerance.
- P3070:** J. L. Neisewander, *et al.* Time-dependent changes in sensitivity to apomorphine and monoamine receptors following withdrawal from continuous cocaine administration in rats. *Synapse* 1994;16(1-10)  
**ALZET Comments:** Cocaine HCl; Saline, sterile; SC; Rat; 2ML2; 2 weeks; controls received mp with saline; functionality of mp verified by residual volume; possible minipump failure noted.
- P3270:** P. R. Mahone, *et al.* Cocaine and metabolites in amniotic fluid may prolong fetal drug exposure. *Am. J. Obstet. Gynecol* 1994;171(2):465-469  
**ALZET Comments:** Cocaine; sheep (fetus); no duration posted; functionality of mp verified by plasma, amniotic fluid, and meconium samples; stability verified by in vitro testing at 39 degrees; teratology; pump released drug into amniotic fluid; pump placed on fetal back; ampicillin added to amniotic fluid.
- P2576:** C. H. Kinsley, *et al.* Cocaine alters the onset and maintenance of maternal behavior in lactating rats. *Pharmacol. Biochem. Behav* 1994;47(4):857-864  
**ALZET Comments:** Cocaine; Saline; SC; Rat (pregnant); 2ML2; 14 days; controls received mp w/ saline; comparison of sc injections vs. mp.
- P2575:** G. R. King, *et al.* 5-HT<sub>3</sub> receptor modulation of behavior during withdrawal from continuous or intermittent cocaine. *Pharmacol. Biochem. Behav* 1994;47(3):399-407  
**ALZET Comments:** Cocaine HCl; Saline, sterile; SC; Rat; 2ML2; 14 days; functionality of mp verified by measuring residual amount; comparison of ip injections vs mp; no stress (pg. 400); good methods: "minipumps were modified by adding a microdialysis fiber . . . to increase surface area over which cocaine is delivered." This allowed higher dose delivery without necrotic skin lesion.
- P2808:** G. R. King, *et al.* Continuous or intermittent cocaine administration: effects of flupenthixol treatment during withdrawal. *Pharmacol. Biochem. Behav* 1994;49(4):883-889  
**ALZET Comments:** Cocaine HCl; Saline; SC; Rat; 2ML2; 14 days; functionality of mp verified by residual volume; comparison of sc injections vs. mp; tolerance; microdialysis fiber added to pump's outflow portal to increase surface area distribution, and to avoid necrotic skin lesions.
- P2875:** Y. K. Fung, *et al.* Behavioural consequences of cocaine withdrawal in rats. *J. Pharm. Pharmacol* 1994;46(150-152)  
**ALZET Comments:** Cocaine; Saline; SC; Rat; 2ML4; 28 days; controls received mp with saline; dependence; pump incision site covered with an antibiotic and 5% lignocaine to prevent discomfort and infection.
- P2339:** G. R. King, *et al.* Dopamine efflux during withdrawal from continuous or intermittent cocaine. *Psychopharmacology* 1993;111(179-184)  
**ALZET Comments:** Cocaine HCl; Saline; SC; Rat; 2ML2; 14 days; functionality of mp verified measuring residual amount; comparison of SC injections vs. mp; no stress (see pg. 180); tolerance; microdialysis fiber.
- P2398:** G. R. King, *et al.* Withdrawal from continuous or intermittent cocaine: effects of NAN-190 on cocaine-induced locomotion. *Pharmacol. Biochem. Behav* 1993;44(253-262)  
**ALZET Comments:** Cocaine HCl; Saline; SC; Rat; 2ML2; 14 days; Controls received mp w/ saline; comparison of sc injections vs. mp; tolerance; animal info (male, Sprague-Dawley, 100-125 grams).
- P2328:** C. Joyner, *et al.* Technique for the continuous infusion of high doses of cocaine by osmotic minipump. *Pharmacol. Biochem. Behav* 1993;44(4):971-973  
**ALZET Comments:** Cocaine; Saline; SC; Rat; 14 days; good methods; microdialysis; pump modified; modification eliminated necrosis.



**P3149:** J. L. Gingras, *et al.* Prenatal cocaine exposure alters postnatal ornithine decarboxylase activity in rabbit brain. *Biochem. Med. Meta. Bio* 1993;50(284-291)

**ALZET Comments:** Cocaine; Water, sterile; rabbit (pregnant); 22 days; controls received mp with water; teratology; 2 mps implanted.

**P2260:** E. M. Factor, *et al.* Neurochemical development of the raphe after continuous prenatal cocaine exposure. *Brain Res. Bull* 1993;31(49-56)

**ALZET Comments:** Cocaine; SC; Rat (pregnant); 2ML2; 14 days; controls received sham op; functionality of mp verified by plasma levels; no stress (see p. 50).

**P2672:** N.-H. Chen, *et al.* Dopamine and serotonin release-regulating autoreceptor sensitivity in A9/A10 cell body and terminal areas after withdrawal of rats from continuous infusion of cocaine. *J. Pharmacol. Exp. Ther* 1993;267(3):1445-1453

**ALZET Comments:** Cocaine HCl; Saline; SC; Rat; 2ML2; 14 days; controls received mp w/ saline; functionality of mp verified by residual volume; tolerance; gentamicin applied after surgery; no tissue necrosis seen.

**P2218:** S. T. Cain, *et al.* Chronic continuous or intermittent infusion of cocaine differentially alter the concentration of neurotensin-like immunoreactivity in specific rat brain regions. *Neuropsychopharmacology* 1993;8(259-265)

**ALZET Comments:** Cocaine HCl; Saline; SC; Rat; 2ML2; 14 days; controls received mp w/saline; functionality of mp verified upon removal; stability verified upon removal; tolerance.

**P2185:** L. Y. Burger, *et al.* Day/night differences in D1 but not D2 DA receptor protection from EEDQ denaturation in rats treated with continuous cocaine. *Synapse* 1993;13(20-29)

**ALZET Comments:** SCH-23390; Cocaine HCl; Raclopride; Water; SC; Rat; 2ML2; 14 days; no comment posted.

**P2445:** G. Torres, *et al.* Cocaine-induced ACTH secretion: dependence of plasma levels of the drug and mode of exposure. *Brain Res. Bull* 1992;29(1):51-56

**ALZET Comments:** Cocaine HCl; Sodium chloride; IP; Rat; 2001; 6 days; controls received mp w/ vehicle; functionality of mp verified by residual pump volume and plasma levels; comparison of iv injections vs. mp.

**P2010:** G. Torres, *et al.* Differential effects of intermittent or continuous exposure to cocaine on the hypothalamic-pituitary-adrenal axis and c-fos expression. *Brain Research* 1992;571(2):204-211

**ALZET Comments:** Cocaine HCl; Saline; IV (jugular); Rat; 2001; 2,4,6 days; comparison of intermittent injections vs mp.

**P2340:** G. R. King, *et al.* Intermittent and continuous cocaine administration: residual behavioral states during withdrawal. *Pharmacol. Biochem. Behav* 1992;43(243-248)

**ALZET Comments:** Cocaine HCl; Saline; SC; Rat; 2ML2; 14 days; functionality of mp verified by residual volume upon explant; comparison of sc injections vs. mp; tolerance; advantages of mp (pg. 247).

**P2028:** S. Izenwasser, *et al.* Inhibition of dopamine uptake by cocaine and nicotine: tolerance to chronic treatments. *Brain Research* 1992;573(119-125)

**ALZET Comments:** Cocaine HCl; Nicotine tartrate; Saline; SC; Rat; 2001; 7 days; tolerance.

**P2581:** T. Inada, *et al.* Behavioral and neurochemical effects of continuous infusion of cocaine in rats. *Neuropharmacology* 1992;31(7):701-708

**ALZET Comments:** Cocaine; Saline; IV (vena cava); Rat; 2ML2; 11 or 12 days; controls received mp w/ saline; tolerance; loop of catheter tubing exposed to terminate infusion.

**P1977:** D. E. Weese-Mayer, *et al.* Effects of prenatal cocaine exposure on perinatal morbidity and postnatal growth in the rabbit. *Dev. Pharmacol. Ther* 1991;4(221-230)

**ALZET Comments:** Cocaine HCl; Water; SC; rabbit; 2ML4; 22 days; teratology.



**P1901:** M. E. A. Reith, *et al.* Sertraline and cocaine-induced locomotion in mice. *Psychopharmacology* 1991;103(306-313)  
**ALZET Comments:** Cocaine HCl; Saline; SC; mice; 2002; 3 weeks; no comment posted.

**P3494:** M. Maillet, *et al.* Myocardial damage induced by cocaine administration of a week's duration in the rat. In 'Advances in the Biosciences', Pergamon Press 1991;80(187-197)  
**ALZET Comments:** Cocaine HCl; Rat; 8 days; controls received mp w/ saline; cardiovascular.

**P1881:** R. J. Krueger, *et al.* Effect of chronic administration of nicotine or cocaine on steroidogenesis in rat adrenocortical cells. *J. Pharm. Pharmacol* 1991;43(200-203)  
**ALZET Comments:** Cocaine HCl; Nicotine tartrate; Saline; SC; Rat; 2002; 14 days; no comment posted.

**P4170:** P. Digeon, *et al.* Cardiovascular tolerance to cocaine and b2 lymphocytes adrenoreceptors. *Advances Biosciences* 1991;80(177-185)  
**ALZET Comments:** Cocaine; IP; Rat; 7-14 days; controls received mp w/saline; dose-response; comparison of injections vs. mp; tolerance.

**P2194:** P. Di Francesco, *et al.* Effect of acute or daily cocaine administration on cellular immune response and virus infection in mice. *Nat. Immun. Cell Growth Regul* 1990;9(397-405)  
**ALZET Comments:** Cocaine HCl; Hank's solution; SC; mice; 2001; 7 days; no comment posted.

**P1484:** D. K. Pitts, *et al.* Chronic cocaine reduces alpha2-adrenoceptor elicited mydriasis and inhibition of locus coeruleus neurons. *Eur. J. Pharmacol* 1989;160(201-209)  
**ALZET Comments:** Cocaine; Water; SC; Rat; 2001; 1, 2 weeks; controls received plastic sham pumps; stress/adverse reaction (localized vasoconstriction); pump replaced.

**P1490:** L. L. Howell, *et al.* Behavioral effects of chronically administered cocaine in squirrel monkeys. *Psychopharmacology* 1989;97(12-16)  
**ALZET Comments:** Cocaine HCl; Saline; SC; monkey; 2002; 14 days; dose-response; functionality of mp verified by plasma levels; pump replaced > than or = to 2 months elapsed between implants; toxicology/teratology.

**P1516:** Y. K. Fung, *et al.* Prenatal cocaine exposure fails to modify neurobehavioral responses and the striatal dopaminergic system in newborn rats. *Gen. Pharmacol* 1989;20(5):689-693  
**ALZET Comments:** Cocaine; Saline; SC; Rat (pregnant); 2ML4; 28 days; toxicology/teratology.

**P1547:** L. J. Ryan, *et al.* Continuous amphetamine administration induces tyrosine hydroxylase immunoreactive patches in the adult rat neostriatum. *Brain Research* 1988;21(133-137)  
**ALZET Comments:** Amphetamine sulfate, d-; Cocaine HCl; Saline; IV (jugular); SC; Rat; 2ML1; 3, 30 days; controls received silastic plug implant.

**P1249:** M. Kleven, *et al.* Behavioral and neurochemical effects of repeated or continuous exposure to cocaine. *NIDA Res. Monogr. Ser.* 81 1988;81(86-93)  
**ALZET Comments:** Cocaine; IV (jugular); Rat; 2ML4; 21 days; tolerance.

**P1120:** M. E. A. Reith, *et al.* Cocaine disposition in the brain after continuous or intermittent treatment and locomotor stimulation in mice. *J. Pharmacol. Exp. Ther* 1987;243(1):281-287  
**ALZET Comments:** Cocaine HCl; Saline; SC; mice; no duration posted; no comment posted.

**P1244:** A. Shah, *et al.* Effect of chronic exposure of cocaine on antipyrine disposition in rats. *Res. Commun. Subst. Abuse* 1985;6(1):59-62  
**ALZET Comments:** Cocaine HCl; Saline; SC; Rat; 2 weeks; pump model not stated; controls received mp w/ saline.