



**References (2000-2019) on the Administration of Dexamethasone
Using ALZET® Osmotic Pumps**

Q7109: S. Chakraborty, *et al.* Dexamethasone-induced Intra-Uterine Growth Restriction impacts NOSTRIN and its downstream effector genes in the rat mesometrial uterus. *Sci Rep* 2018;8(1):8342

ALZET Comments: Dexamethasone; Ethanol; SC; Rat; 2ML1; 7 days; Dose (200 ug/kg/day); 10% ethanol used; Controls received mp w/ vehicle; animal info (Sprague Dawley, 8-10 weeks old); gene therapy;.

Q6226: A. J. Turner, *et al.* Tubuloglomerular feedback responses in offspring of dexamethasone-treated ewes. *Am J Physiol Renal Physiol* 2017;313(4):F864-F873

ALZET Comments: Dexamethasone 21-phosphate disodium salt; IV (lateral saphenous vein); Sheep (pregnant); 2ML1; 48 hours; Dose (0.48 mg/h);.

Q6126: S. Saha, *et al.* MicroRNA regulation of Transthyretin in trophoblast differentiation and Intra-Uterine Growth Restriction. *Sci Rep* 2017;7(1):16548

ALZET Comments: Dexamethasone acetate; SC; Rats (pregnant); 7 days; Dose (200 µg/kg maternal body weight/day); Controls received mp w/ vehicle;.

Q6754: S. Raitsin, *et al.* Subchronic glucocorticoids, glutathione depletion and a postpartum model elevate monoamine oxidase a activity in the prefrontal cortex of rats. *Brain Res* 2017;1666(1-10)

ALZET Comments: Dexamethasone; Saline; SC; Rat; 2ML4; 28 days; Dose (0.0, 0.05, 0.5, and 2.0 mg/kg/day); Controls received mp w/ vehicle; animal info (Male Sprague Dawley rats (325–375 g));.

Q5950: C. Quarta, *et al.* Molecular Integration of Incretin and Glucocorticoid Action Reverses Immunometabolic Dysfunction and Obesity. *Cell Metab* 2017;26(4):620-632 e6

ALZET Comments: Glucagon-like peptide-1, Dexamethasone; Saline; CSF/CNS; Mice; 1002; 14 days; Controls received mp w/ vehicle; Dose (GLP-1: 0.1 mg/24h; Dexa: 0.0219mg/ml); animal info (20 week-old male C57bl6j); post op. care (meloxicam for post-surgical pain (3 mg/kg); ALZET brain infusion kit 3 used; Brain coordinates (anteroposterior: 0.5 mm from bregma, lateral: +/-1;2 mm to bregma and dorsoventral: 2.1 mm below skull); Therapeutic indication (obesity);.

Q6441: E. Latres, *et al.* Activin A more prominently regulates muscle mass in primates than does GDF8. *Nat Commun* 2017;8(15153)

ALZET Comments: Dexamethasone; Saline; Mice; 2 weeks; Dose (23.0 mg per day); Controls received mp w/ vehicle; animal info (9-week-old male C57BL/6 mice); Industry authored (Regeneron Pharmaceuticals);.

Q6646: Y. C. Rah, *et al.* Extended use of systemic steroid is beneficial in preserving hearing in guinea pigs after cochlear implant. *Acta Otolaryngol* 2016;136(12):1213-1219

ALZET Comments: Dexamethasone; Saline; DMSO; SC; Guinea pig; 2ML1; 3 days; 7 days; Dose (2.59 mg/kg for 3-day, 2.32 mg/kg for 7-day;); animal info (21 female Hartley guinea pigs aged; 8 weeks; 350–450 mg);.

Q4838: H. JIA, *et al.* PREVENTION OF TRAUMA-INDUCED COCHLEAR FIBROSIS USING INTRACochlear APPLICATION OF ANTI-INFLAMMATORY AND ANTIPROLIFERATIVE DRUGS. *neuroscience* 2016;316(261-278)

ALZET Comments: Dexamethasone; Ara-C; Perilymph, artificial; Ear (cochlea); Rat; 2001; 7 days; Controls received mp w/ vehicle; animal info (Wistar, adult); animal info (Wistar, adult); stability verified by (incubation in 37C saline for 7 days see pg 268); one cochlea received vehicle only, while other recieved drug;.

Q4646: B. A. Williams, *et al.* Multimodal Perineural Analgesia with Combined Bupivacaine-Clonidine-Buprenorphine-Dexamethasone: Safe In Vivo and Chemically Compatible in Solution. *PAIN MEDICINE* 2015;16(186-198)

ALZET Comments: Bupivacaine; clonidine; dexamethasone; Saline; CSF/CNS (sciatic nerve); Rat; 2ML1; 7 days; Controls received mp w/ vehicle; animal info (male, albino, CD[SD]); no stress (see pg. 192); post op. care (IM butorphanol tartrate



0.05 mg/kg, ceftiofur sodium 5 mg/kg); stability verified by (pg. 195); used polyurethane catheter 0.5mm ID 0.9 mmOD; pumps removed after 1 week; dose (66.6 ug/mL).

Q7008: M. Y. Lee, *et al.* Continuous topical drug delivery using osmotic pump in animal cochlear implant model: Continuous steroid delivery is effective for hearing preservation. *Acta Otolaryngol* 2015;135(8):791-8

ALZET Comments: Dexamethasone; Saline; Ear (cochlea); Guinea pig; 1007D; 7 days; Dose (4 mg/ml); Controls received mp w/ vehicle; animal info (female Harley Albino guinea pigs, 255–455 g, 7–9 weeks old); dependence;.

Q5006: E. Latres, *et al.* Myostatin blockade with a fully human monoclonal antibody induces muscle hypertrophy and reverses muscle atrophy in young and aged mice. *Skelet Muscle* 2015;5(1-13

ALZET Comments: Dexamethasone; Saline; SC; Mice; 2 weeks; Controls received mp w/ saline; animal info (male, C57BL6, 11 weeks old); Dose (23 ug/day); dose-response (pg. 9).

Q3950: J. M. Kwiecien, *et al.* Subdural infusion of dexamethasone inhibits leukomyelitis after acute spinal cord injury in a rat model. *FOLIA NEUROPATHOLOGICA* 2015;53(41-51

ALZET Comments: Dexamethasone; PBS; CSF/CNS (intrathecal); Rat; 2ML2; 7 days; Controls received mp w/ vehicle; animal info (Long Evans); spinal cord injury; post op. care (ketoprofen 0.3 ml of 10 mg/ml injection, saline administration 1-2 times daily); behavioral testing (Open field testing); "Subdural infusion of dexamethasone, a powerfully anti-inflammatory, stable, synthetic analogue of glucocorticoids, allowed for circumvention of the blood-brain barrier and apparently for achieving a sufficiently high concentration of this drug in the cerebrospinal fluid in proximity of the crush lesion to prevent severe, phagocyte-rich inflammation." pg 48; used rat IT catheter; dose: 2 mg/ml.

Q4387: J. S. M. Cuffe, *et al.* Differential mRNA Expression and Glucocorticoid-Mediated Regulation of TRPM6 and TRPM7 in the Heart and Kidney throughout Murine Pregnancy and Development. *PLoS One* 2015;10(U1394-U1410

ALZET Comments: Dexamethasone sodium phosphate; corticosterone; Saline; SC; Mice (pregnant); 1003D; 60 hours; Controls received mp w/ saline; animal info (female, E12.5, C57BL6J, 8-10 weeks old); teratology; cardiovascular;.

Q3668: K. Terada, *et al.* Fluvoxamine moderates reduced voluntary activity following chronic dexamethasone infusion in mice via recovery of BDNF signal cascades. *NEUROCHEMISTRY INTERNATIONAL* 2014;69(9-13

ALZET Comments: Dexamethasone; Saline; SC; Mice; 14 days; Controls received mp w/ vehicle; behavioral testing (spontaneous locomotor activity; forced swim test); "our chronic infusion model captures aspects of chronic stress loads and reduces experimental error" pg 11; depression animal model; 0.5 mg/kg/day.

Q3659: E. Somm, *et al.* Protective effects of maternal nutritional supplementation with lactoferrin on growth and brain metabolism. *PEDIATRIC RESEARCH* 2014;75(1):51-61

ALZET Comments: Dexamethasone; SC; Rat (pregnant); 7 days; Controls received mp w/ vehicle; animal info (female, Sprague Dawley OFA, gestational day 14); teratology; pumps used to induce intrauterine growth restriction; dose: 100 ug/kg/day.

Q4033: D. R. Overby, *et al.* Ultrastructural Changes Associated With Dexamethasone-Induced Ocular Hypertension in Mice. *INVESTIGATIVE OPHTHALMOLOGY & VISUAL SCIENCE* 2014;55(4922-4933

ALZET Comments: Dexamethasone; Cyclodextrin; PBS; SC; Mice; 1004; 3 weeks; 4 weeks; Controls received mp w/ vehicle; animal info (male, C57BL6J, 10-14 weeks); functionality of mp verified by serum plasma levels; post op. care (carprofen or buprenorphine given 12 hours after surgery); solutions were sterile-filtered using 0.22-um inline syringe filter; used Tissue Bond glue to close incision;.

Q3985: G. Malkoc, *et al.* Histopathological and audiological effects of mechanical trauma associated with the placement of an intracochlear electrode, and the benefit of corticosteroid infusion: prospective animal study. *Journal of Laryngology and Otology* 2014;128(702-708

ALZET Comments: Dexamethasone; Saline; Ear (round window); Rat; 14 days; Controls received mp w/ vehicle; animal info (female, Albino, 250-33g, adult); used ALZET IT catheter to cannulate round window; "Dexamethasone infusion given after



implantation of the intracochlear model electrode was more effective for preventing hearing loss than the administration of just one dose of dexamethasone" pg 702;.

Q3501: R. Hatano, *et al.* Glucocorticoid mediates the transcription of OAT-PG, a kidney-specific prostaglandin transporter. PFLUGERS ARCHIV-EUROPEAN JOURNAL OF PHYSIOLOGY 2014;466(925-935

ALZET Comments: Dexamethasone; SC; Rat; 2002; 7 days; Controls received mp w/ saline; animal info (Sprague Dawley Rats, 180-250g); replacement therapy (adrenalectomy);.

Q3439: P. Chimin, *et al.* Chronic glucocorticoid treatment enhances lipogenic activity in visceral adipocytes of male Wistar rats. ACTA PHYSIOLOGICA 2014;211(409-420

ALZET Comments: Dexamethasone; Saline; SC; Rat; 1004; 4 weeks; Controls received mp w/ vehicle; animal info (male, Wistar, 10 weeks old); diabetes;.

Q3136: E. M. Thompson, *et al.* Inhibition of SUR1 Decreases the Vascular Permeability of Cerebral Metastases. NEOPLASIA 2013;15(5):535-543

ALZET Comments: Glyburide; dexamethasone; DMSO; saline; SC; Rat (nude); 2002; Controls received mp w/ vehicle; animal info (rnu/rnu); cancer (brain tumor/metastases); Glyburide aka glibenclamide;.

Q2758: V. Proserpio, *et al.* The methyltransferase SMYD3 mediates the recruitment of transcriptional cofactors at the myostatin and c-Met genes and regulates skeletal muscle atrophy. GENES & DEVELOPMENT 2013;27(11):1299-1312

ALZET Comments: Dexamethasone; SC; Mice; 2002; 14 days; Control animals received mp w/ saline; animal info (C57BL/6, male, 8-10 wks old).

Q2821: C. B. M. Platania, *et al.* Regulation of intraocular pressure in mice: Structural analysis of dopaminergic and serotonergic systems in response to cabergoline. Biochemical Pharmacology 2013;86(9):1347-1356

ALZET Comments: Dexamethasone; Cyclodextrin; PBS; SC; Mice; 1004; 4 weeks; Control animals received mp w/ vehicle; animal info (C57BL/6 D3R -/-, male, 8-12 wks old).

Q3587: B. A. O'Connell, *et al.* Treatment of pregnant spiny mice at mid gestation with a synthetic glucocorticoid has sex-dependent effects on placental glycogen stores. PLACENTA 2013;34(10):932-940

ALZET Comments: Dexamethasone; Saline; SC; Mice (pregnant); 1003D; 72 hours; Controls received mp w/ vehicle; animal info (female, spiny mouse, day 20 gestation); teratology; pumps removed after 72 hours;.

Q2545: B. A. O'Connell, *et al.* Synthetic Glucocorticoid Dexamethasone Inhibits Branching Morphogenesis in the Spiny Mouse Placenta. Biology of Reproduction 2013;88(1):U241-U248

ALZET Comments: Dexamethasone; SC; Mice (pregnant); 1003D; 60 hours; Control animals received mp w/ saline; animal info (A. Cahirinus).

Q5646: N. J. Heo, *et al.* Effect of estradiol on the expression of renal sodium transporters in rats. Climacteric 2013;16(2):265-73

ALZET Comments: Dexamethasone; DMSO, Saline; SC; Rat; 2ML4; 4 weeks; Controls received mp w/ vehicle ; animal info (female, Sprague-Dawley, 9 weeks old, 180-220g) ; antihypertensive; Adrenalectomy; Therapeutic indication (Kidney, Hypertension, Renal Sodium Transporters); Dose (1.2 ug x 100g/body weight x day);.

Q2134: C. Veyrat-Durebex, *et al.* Central Glucocorticoid Administration Promotes Weight Gain and Increased 11 beta-Hydroxysteroid Dehydrogenase Type 1 Expression in White Adipose Tissue. PLoS One 2012;7(3):U954-U965

ALZET Comments: Dexamethasone; NaCl; CSF/CNS; Rat; 2001; 1003D; 2, 3 days; Controls received mp w/ vehicle; animal info (Sprague Dawley, male, 200-225 g, Wistar, male, 200-225 g); PE tubing used.

Q2648: E. Somm, *et al.* Early Metabolic Defects in Dexamethasone-Exposed and Undernourished Intrauterine Growth Restricted Rats. PLoS One 2012;7(11):U933-U943

ALZET Comments: Dexamethasone; Rat; Animal info (Sprague Dawley, OFA, male, female, 275-350 g);.



Q1842: S. I. Hu, *et al.* MNK2 Inhibits eIF4G Activation Through a Pathway Involving Serine-Arginine-Rich Protein Kinase in Skeletal Muscle. *Science Signaling* 2012;5(211):U22-U30

ALZET Comments: Dexamethasone sodium phosphate; Mice; 21 days; Animal info (MNK1, MNK2, MNK1/2 KO).

Q2047: I. De Meyer, *et al.* Toll-like receptor 7 stimulation by imiquimod induces macrophage autophagy and inflammation in atherosclerotic plaques. *Basic Research In Cardiology* 2012;107(3):U36-U48

ALZET Comments: Dexamethasone; imiquimod; IA (carotid); Rabbit; 2ML1; 3, 7 days; Animal info (male, New Zealand, white, 2.5-4.0 kg); one group contained mixture of dexamethasone and imiquimod.

Q2413: D. I. Carrasco, *et al.* Motor terminal degeneration unaffected by activity changes in SOD1(G93A) mice; a possible role for glycolysis. *NEUROBIOLOGY OF DISEASE* 2012;48(1):132-140

ALZET Comments: Tetrodotoxin; dexamethasone; CSF/CNS (sciatic nerve); Mice; 2002; Animal info (SOD1 G93A); good methods, pg 133.

Q2064: E. Bas, *et al.* Efficacy of three drugs for protecting against gentamicin-induced hair cell and hearing losses. *British Journal of Pharmacology* 2012;166(6):1888-1904

ALZET Comments: Gentamicin; dexamethasone; melatonin; Ear (round window); Rat; 2001; 7 days; Controls received mp w/ saline; animal info (Wistar, male, 220-250 g); stability verified after 7 days (data not shown).

Q1376: N. van der Lubbe, *et al.* Angiotensin II induces phosphorylation of the thiazide-sensitive sodium chloride cotransporter independent of aldosterone. *Kidney International* 2011;79(1):66-76

ALZET Comments: Dexamethasone; aldosterone; angiotensin II; Rat; 2ML2; 8 days; Controls received mp w/ vehicle; animal info (male, Sprague Dawley, 15 wks old, 300 g); replacement therapy (adrenalectomy); blood pressure measured via tail-cuff (Kent Scientific).

Q0896: K. Rafiq, *et al.* Effects of mineralocorticoid receptor blockade on glucocorticoid-induced renal injury in adrenalectomized rats. *Journal of Hypertension* 2011;29(2):290-298

ALZET Comments: Hydrocortisone; dexamethasone; SC; Rat; 2004; 8 weeks; Controls received mp w/ vehicle; animal info (male, Wistar-Kyoto, 160-183 g, uninephrectomy, bilateral adrenalectomy); long-term study; pumps replaced after 4 weeks; blood pressure (SBP) was measured by tail plethysmography (BP-98A; Softron Co., Tokyo, Japan).

Q1460: B. A. O'Connell, *et al.* The Placental Response to Excess Maternal Glucocorticoid Exposure Differs Between the Male and Female Conceptus in Spiny Mice. *Biology of Reproduction* 2011;85(5):1040-1047

ALZET Comments: Dexamethasone; SC; Mice (pregnant); 1003D; 3 days; Controls received mp w/ saline; animal info (spiny, female).

Q1691: S. D. Kraner, *et al.* Upregulation of the Ca(V) 1.1-ryanodine receptor complex in a rat model of critical illness myopathy. *American Journal of Physiology-Regulatory Integrative and Comparative Physiology* 2011;300(6):R1384-R1391

ALZET Comments: Dexamethasone; DMSO; ethanol; water; SC; Rat; 2ML1; 7 days; Controls received mp w/ vehicle; animal info (Wistar, female, adult, 250-350 g); 50% DMSO used; 15% ethanol used; post op. care (buprenorphine).

Q1828: J. S. M. Cuffe, *et al.* Sex specific changes in placental growth and MAPK following short term maternal dexamethasone exposure in the mouse. *PLACENTA* 2011;32(12):981-989

ALZET Comments: Dexamethasone; Mice (pregnant); 1003D; Controls received mp w/ saline; animal info (E12.5, C57BL/6).

Q0321: X. L. Yao, *et al.* Apolipoprotein E Negatively Regulates House Dust Mite-induced Asthma via a Low-Density Lipoprotein Receptor-mediated Pathway. *AMERICAN JOURNAL OF RESPIRATORY AND CRITICAL CARE MEDICINE* 2010;182(10):1228-1238

ALZET Comments: Dexamethasone; apolipoprotein E (130-149), mimetic; Mice; 2004; 3 weeks; Controls received mp w/ apolipoprotein E scrambled, or saline; animal info (female A/J, C57BL/6, apo E^{-/-}, LDLR^{-/-}, 6-8 wk old); peptides.



P9986: Y. Wu, *et al.* REDD1 Is a Major Target of Testosterone Action in Preventing Dexamethasone-Induced Muscle Loss. *Endocrinology* 2010;151(3):1050-1059

ALZET Comments: Dexamethasone; testosterone; Propylene glycol; Rat; 7 days; Controls received mp w/ vehicle; animal info (male, Wistar, 250 g.).

Q1603: N. A. Whitlock, *et al.* Increased Intraocular Pressure in Mice Treated with Dexamethasone. *INVESTIGATIVE OPHTHALMOLOGY & VISUAL SCIENCE* 2010;51(12):6496-6503

ALZET Comments: Dexamethasone; PBS; SC; Mice; 1004; 4 weeks; Controls received mp w/ vehicle; animal info (B6.129, 10-13 wks old), post op. care (buprenorphine).

Q1390: W. K. Ward, *et al.* Controlled release of dexamethasone from subcutaneously-implanted biosensors in pigs: Localized anti-inflammatory benefit without systemic effects. *JOURNAL OF BIOMEDICAL MATERIALS RESEARCH PART A* 2010;94A(1):280-287

ALZET Comments: Dexamethasone; Cyclodextrin, 2-hydroxypropyl-b-; SC; Pig (mini); 2004; 2ML4; 28 days; Controls received mp w/ normal saline; animal info (Yucatan, adult, 60-70 kg); functionality of mp verified by opening and inspecting the pump; dose-response; multiple pumps per animal (2); Fig 1, image of biosensor array with ALZET pump.

Q0344: W. J. Henderson, *et al.* Inhibition of Wnt/beta-catenin/CREB binding protein (CBP) signaling reverses pulmonary fibrosis. *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA* 2010;107(32):14309-14314

ALZET Comments: Dexamethasone; ICG-001; Saline; SC; Mice (transgenic); 2001; 10, 21 days; Controls received mp w/ vehicle; animal info (C57BL/6, BAT-gal transgenic).

P9463: M. S. Willis, *et al.* Muscle ring finger 1 mediates cardiac atrophy in vivo. *American Journal of Physiology-Heart and Circulatory Physiology* 2009;296(4):H997-H1006

ALZET Comments: Dexamethasone; DMSO; SC; Mice; 2002; 2 weeks; Comparison of SC injections vs. mp; cardiovascular; animal info (male, female, wt, MuRF1 -/-, 12-15 wks old); murine cardiac atrophy model; "osmotic pump experiments demonstrated a greater overall atrophy than the daily dexamethasone injections." (p. H1004).

P9440: T. Saito, *et al.* Vasopressin-dependent upregulation of aquaporin-2 gene expression in aged rats with glucocorticoid deficiency. *ACTA PHYSIOLOGICA* 2009;196(2):239-247

ALZET Comments: Aldosterone; dexamethasone; SC; Rat; 2ML4; 17 days; Controls received mp w/ both agents; replacement therapy (adrenalectomy); animal info (male, Sprague Dawley, 6 wks old, 200-250 g.; 52 wks old, 650-700 g.); nephrology.

P9295: W. D. Zhao, *et al.* Testosterone protects against dexamethasone-induced muscle atrophy, protein degradation and MAFbx upregulation. *Journal of Steroid Biochemistry and Molecular Biology* 2008;110(1-2):125-129

ALZET Comments: Testosterone; dexamethasone; Propylene glycol; Rat; 1, 7 days; Controls received mp w/ vehicle; animal info (male, Wistar, 250 g.).

P9292: R. J. Vivero, *et al.* Dexamethasone Base Conserves Hearing from Electrode Trauma-Induced Hearing Loss. *Laryngoscope* 2008;118(11):2028-2035

ALZET Comments: Dexamethasone base; Perilymph, artificial; Ear (scala tympani); Guinea pig; 2001; 8 days; Controls received mp w/ vehicle; replacement therapy (cochleostomy); tissue perfusion (scala tympani); animal info (pigmented, 250-300 g.).

R0266: E. E. L. Swan, *et al.* Inner ear drug delivery for auditory applications. *Advanced Drug Delivery Reviews* 2008;60(15):1583-1599

ALZET Comments: Cisplatin; Sodium thiosulfate; Brain-derived neurotrophic factor; Fibroblast growth factor; D-JNK1-1; BN82270; Tetrodotoxin; Perilymph, artificial; Dexamethasone; Methylprednisone; Caroverine; Methionine, D-; Thiourea; Liposome, cationic; Neomycin; SC; Ear (round window membrane); Ear (cochlea); Ear (scala tympani); Ear; Guinea pig; 3, 7, 14, 28 days; Gene therapy; peptides; no stress; enzyme inhibitor (peroxidase); stress/adverse reaction (see pg 1593) "Ref



#161 found local trauma and inflammatory responses"; tissue perfusion (scala tympani, cochlea, round window membrane); comparison of middle ear injections vs. mp; Review, see pgs. 1587 - 1589, 1591, 1593 - 1595, refs #49, 50, 60, 63, 72, 75, 102, 104,180, 181, 194-201.

P9442: J. Scholz, *et al.* Low-dose methotrexate reduces peripheral nerve injury-evoked spinal microglial activation and neuropathic pain behavior in rats. *Pain* 2008;138(1):130-142

ALZET Comments: Methotrexate; dexamethasone; CSF, artificial; PBS; CSF/CNS (intrathecal); Rat; 7, 14 days; Controls received mp w/ vehicle; dose-response (fig. 7); comparison of IP injections vs. mp; enzyme inhibitor (dihydrofolate reductase); animal info (male, Sprague Dawley, 160-200 g., SNI); behavioral testing (paw withdrawal, mechanical allodynia, cold allodynia); "sustained intrathecal treatment may therefore suppress microglial activation much more efficiently than intermittent high-dose bolus injections." (p. 140).

P8703: M. Y. Zhu, *et al.* Chronic treatment with glucocorticoids alters rat hippocampal and prefrontal cortical morphology in parallel with endogenous agmatine and arginine decarboxylase levels. *Journal of Neurochemistry* 2007;103(5):1811-1820

ALZET Comments: Dexamethasone; agmatine; Saline; SC; Rat; 7, 21 days; Controls received mp w/ vehicle; dose-response (fig. 4); animal info (male, Sprague-Dawley, 250-300g); "One advantage of this study is the use of osmotic mini-pump... to ensure consistent elevations over 24-h cycle (sic)." (p. 1818).

P8037: G. J. Wu, *et al.* The effect of dexamethasone on spinal glutamine synthetase and glutamate dehydrogenase expression in morphine-tolerant rats. *Anesthesia and Analgesia* 2007;104(3):726-730

ALZET Comments: Morphine; dexamethasone; CSF/CNS (intrathecal); Rat; 2001; 5 days; Animal info (male, Wistar, 350-370 grams).

P8577: C. Grossmann, *et al.* Aldosterone-induced EGFR expression: interaction between the human mineralocorticoid receptor and the human EGFR promoter. *Am. J. Physiol Endocrinol. Metab* 2007;292(6):E1790-E1800

ALZET Comments: Aldosterone; dexamethasone; DMSO; Rat; 2ML1; 6 days; Controls received mp w/ vehicle; functionality of mp verified by plasma concentrations; replacement therapy (adrenalectomy); animal info (male, Munich-Wistar, 200-250 grams); endocrinology.

P9777: S. Giraud, *et al.* In vitro apoptotic induction of human glioblastoma cells by Fas ligand plus etoposide and in vivo antitumour activity of combined drugs in xenografted nude rats. *INTERNATIONAL JOURNAL OF ONCOLOGY* 2007;30(273-281

ALZET Comments: Fas ligand; etoposide; dexamethasone; CSF, artificial; CSF/CNS (intratumoral); Rat (nude); 1002; 15 days; Tissue perfusion (tumor); functionality of mp verified by residual volume; cancer (glioblastoma); animal info (female 2 months old, 159 g.).

P8103: H. Dickinson, *et al.* Maternal dexamethasone treatment at midgestation reduces nephron number and alters renal gene expression in the fetal spiny mouse. *American Journal of Physiology-Regulatory Integrative and Comparative Physiology* 2007;292(1):R453-R461

ALZET Comments: Dexamethasone; SC; Mice (pregnant); 1003D; 60 hours; Controls received mp w/ saline; no stress (see p.R455); good methods p.R454; teratology; post op. care (xylocaine, betadine); animal info (female, gestation day 20); nephrology.

P8457: B. A. Clarke, *et al.* The E3 ligase MuRF1 degrades myosin heavy chain protein in dexamethasone-treated skeletal muscle. *Cell Metabolism* 2007;6(5):376-385

ALZET Comments: Dexamethasone; Saline; SC; Mice; 2002; 14 days; Controls received mp w/ vehicle; animal info (MuRF1 -/- or wt, 3 months old, 25-30g).

P7684: Y. Moussy, *et al.* Distribution of ³H Dexamethasone in Rat Subcutaneous Tissue after Delivery from Osmotic Pumps. *Biotechnol. Prog* 2006;22(819-824



ALZET Comments: Dexamethasone; Saline, sterile; radio-isotopes; ³H tracer; SC; Rat; 1003D; Good methods p. 820; animal info (male, Sprague-Dawley, 375-399 g); distribution study using auto radiography, agent distributed as far as 3 mm near catheter tip; catheter length was 4 cm's to avoid tissue irritation variables near pump; tissue distribution.

P7771: W. J. Henderson, *et al.* Reversal of allergen-induced airway remodeling by CysLT₁ receptor blockade. AMERICAN JOURNAL OF RESPIRATORY AND CRITICAL CARE MEDICINE 2006;173(7):718-728

ALZET Comments: Montelukast sodium; dexamethasone; SC; Mice; 2004; 90 days; Controls received mp w/ saline; pumps replaced every 30 days; animal info (female, BALB/C, 6-8 wk old); long-term study.

P7496: R. A. Fenton, *et al.* UT-A urea transporter promoter, UT-A alpha, targets principal cells of the renal inner medullary collecting duct. American Journal of Physiology-Renal Physiology 2006;290(1):F188-F195

ALZET Comments: Dexamethasone; DMSO; saline, isotonic; SC; Mice (transgenic); 2001; 6 days; Controls received mp w/ vehicle; animal info (male, C57BL6); 20% DMSO.

P7859: S. de Seigneux, *et al.* Increased expression but not targeting of ENaC in adrenalectomized rats with PAN-induced nephrotic syndrome. American Journal of Physiology-Renal Physiology 2006;291(1):F208-F217

ALZET Comments: Dexamethasone; DMSO; saline, isotonic; SC; Rat; 2002; 14 days; Animal info (Hannover-Wistar, male, 240-250g.); mp primed 4 hours in saline.

P7414: Z. H. Wen, *et al.* Dexamethasone modulates the development of morphine tolerance and expression of glutamate transporters in rats. Neuroscience 2005;133(3):807-817

ALZET Comments: Dexamethasone; morphine; CSF/CNS (intrathecal, occipital); Rat; 2001; 5 days; Controls received mp w/ saline or dex; animal info (male, wistar, 400-500 g).

P7177: S. D. Crowley, *et al.* Distinct roles for the kidney and systemic tissues in blood pressure regulation by the renin-angiotensin system. Journal of Clinical Investigation 2005;115(4):1092-1099

ALZET Comments: Aldosterone; dexamethasone; PEG 400; saline, normal; SC; Mice; 2004; Replacement therapy (adrenalectomy, nephrectomy).

P6433: R. X. Zhang, *et al.* Endogenous and exogenous glucocorticoid suppresses up-regulation of preprodynorphin mRNA and hyperalgesia in rats with peripheral inflammation. Neuroscience Letters 2004;359(1-2):85-88

ALZET Comments: Dexamethasone; Propylene glycol; SC; Rat; 2001; 7 days; Controls received mp w/ vehicle; replacement therapy (adrenalectomy); half-life (p. 86) 36-72 hours.

P6993: M. Thomas, *et al.* Dual hormonal regulation of endocrine tissue mass and vasculature by adrenocorticotropin in the adrenal cortex. Endocrinology 2004;145(9):4320-4329

ALZET Comments: Dexamethasone; ACTH (1-39), human; Cyclodextrin; SC; Mice; 2002; 1-14 days; Controls received mp w/ vehicle; functionality of mp verified by plasma ACTH and corticosterone levels; multiple pumps per animal (2).

P6752: N. Narayanan, *et al.* Dexamethasone treatment improves sarcoplasmic reticulum function and contractile performance in aged myocardium. MOLECULAR AND CELLULAR BIOCHEMISTRY 2004;266(1-2):31-36

ALZET Comments: Dexamethasone; SC; Rat; 2001; 5 days; Controls received mp w/ vehicle; good methods (p.32); cardiovascular.

P7129: Y. Liu, *et al.* Cytokines participate in neuronal death induced by trimethyltin in the rat hippocampus via type II glucocorticoid receptors. NEUROSCIENCE RESEARCH 2004;50(209-217)

ALZET Comments: Aldosterone; dexamethasone; SC; Rat; 11,21 days; Controls received sham operation; replacement therapy (adrenalectomy).

P6605: R. A. Gertner, *et al.* Aldosterone decreases UT-A1 urea transporter expression via the mineralocorticoid receptor. Journal of the American Society of Nephrology 2004;15(3):558-565



ALZET Comments: Aldosterone; spironolactone; dexamethasone; Saline; DMSO; SC; Rat; 14 days; Controls received mp w/ vehicle; replacement therapy (adrenalectomy); <10% DMSO used.

P6807: P. E. Christie, *et al.* Increase in laminin expression in allergic airway remodelling and decrease by dexamethasone. *European Respiratory Journal* 2004;24(1):107-115

ALZET Comments: Dexamethasone; SC; Mice; 2004; 50 days; Controls received mp w/ saline; pumps replaced after 28 days; no stress (see pg. 110); Asthma.

P6252: M. L. Langdown, *et al.* Effects of prenatal glucocorticoid exposure on cardiac calreticulin and calsequestrin protein expression during early development and in adulthood. *Biochemical Journal* 2003;371(61-69)

ALZET Comments: Dexamethasone sodium phosphate; Rat (pregnant); 2001; 7 days; Dose-response (Table 1); cardiovascular; teratology; priming dose of agent given by SC injection prior to mp implantation.

P6120: A. W. Krug, *et al.* Aldosterone stimulates surface expression of NHE3 in renal proximal brush borders. *PFLUGERS ARCHIV-EUROPEAN JOURNAL OF PHYSIOLOGY* 2003;446(4):492-496

ALZET Comments: Aldosterone; dexamethasone; SC; Rat; 2ML1; 5 days; Functionality of mp verified by aldosterone plasma levels; replacement therapy (adrenalectomy).

P5985: D. A. de la Rosa, *et al.* Distribution and regulation of expression of serum- and glucocorticoid-induced kinase-1 in the rat kidney. *JOURNAL OF PHYSIOLOGY-LONDON* 2003;551(2):455-466

ALZET Comments: Dexamethasone; SC; Rat; 2002; 1 week; Replacement therapy (adrenalectomy).

P5941: S. Benedetti, *et al.* Dexamethasone inhibits the anti-tumor effect of interleukin 4 on rat experimental gliomas. *Gene Therapy* 2003;10(2):188-192

ALZET Comments: Dexamethasone; SC; Rat; 2002; 2ML4; 14,28 days; Dex plasma levels taken; cancer (glioma).

P6267: I. Ader, *et al.* Inhibition of Rho pathways induces radiosensitization and oxygenation in human glioblastoma xenografts. *ONCOGENE* 2003;22(55):8861-8869

ALZET Comments: Dexamethasone; SC; 6 days; Cancer (glioblastoma); transplantation; pump and animal model not listed.

P5405: P. Val, *et al.* A 77-base pair LINE-Like sequence elicits androgen-dependent *mvdpa/akr1-b7* expression in mouse vas deferens, but is dispensable for adrenal expression in rats. *Endocrinology* 2002;143(9):3435-3448

ALZET Comments: Testosterone; Dexamethasone acetate; Cyclodextrin; PEG; SC; Rat; 2001; 2002; 8, 10 days; Replacement therapy (orchidectomy); testosterone dissolved in cyclodextrin solution and delivered for 10 days via 2002 pumps; dexamethasone was infused via 2001 pumps in PEG vehicle; animal info (adult, male, Wistar).

P5120: L. Sahlin, *et al.* Effects of estradiol and estradiol sulfamate on the liver of ovariectomized or ovariectomized and hypophysectomized rats. *Journal of Steroid Biochemistry and Molecular Biology* 2002;80(457-467)

ALZET Comments: Estradiol, 17B-; Estradiol sulfamate; Dexamethasone; Growth hormone, human; Propylene glycol; SC; Rat; 2001; 7 days; controls received mp w/ vehicle; replacement therapy (ovariectomy, hypophysectomy, p. 458); comparison of oral administration vs. mp; steroid administered in PG, human GH pre-formulated.

P5429: J. Nielsen, *et al.* Sodium transporter abundance profiling in kidney: effect of spironolactone. *American Journal of Physiology-Renal Physiology* 2002;283(5):F923-F933

ALZET Comments: Dexamethasone; aldosterone, D-; DMSO; saline, sterile; SC; Rat; 2002; 10 days; Replacement therapy (adrenalectomy).

P6144: T. H. Kwon, *et al.* Regulation of collecting duct AQP3 expression: response to mineralocorticoid. *American Journal of Physiology-Renal Physiology* 2002;283(6):F1403-F1421

ALZET Comments: Aldosterone; dexamethasone; DMSO; saline; SC; Rat; 2002; 10 days; Controls received mp w/ vehicle; functionality of mp verified by plasma levels; replacement therapy (adrenalectomy).



P5481: C. Himeno, *et al.* Intra-cochlear administration of dexamethasone attenuates aminoglycoside ototoxicity in the guinea pig. *Hearing Research* 2002;167(1-2):61-70

ALZET Comments: Dexamethasone; Perilymph, artificial; Ear (cochlea); Guinea pig; 2002; 14, 28 days; Controls received mp w/ vehicle; pumps replaced after 14 days; no stress (see pg. 67); "The current study indicates that intra-cochlear administration using osmotic pumps can provide a stable and continuous delivery of Dexamethasone without causing functional changes or tissue damage." (p. 67); tissue perfusion (cochlea).

P5552: S. Boulkroun, *et al.* Characterization of rat *NDRG2* (N-Myc downstream regulated gene 2), a novel early mineralocorticoid-specific induced gene. *Journal of Biological Chemistry* 2002;277(35):31506-31515

ALZET Comments: Dexamethasone; Rat; 1007D; 7 days; Replacement therapy (adrenalectomy).

P5224: M. K. Rao, *et al.* Glucocorticoid modulation of protein phosphorylation and sarcoplasmic reticulum function in rat myocardium. *Am. J Physiol Heart Circ. Physiol* 2001;281(1):H325-H333

ALZET Comments: Dexamethasone; SC; Rat; 2001; 7 days; Controls received mp w/ vehicle; replacement therapy (adrenalectomy p. H326); cardiovascular.

P4801: M. L. Langdown, *et al.* Early growth retardation induced by excessive exposure to glucocorticoids in utero selectively increases cardiac GLUT1 protein expression and Akt/protein kinase B activity in adulthood. *Journal of Endocrinology* 2001;169(11-22)

ALZET Comments: Dexamethasone;; SC;; Rat (pregnant);; 7 days;; Controls received sham surgery; cardiovascular; teratology; dexamethasone causes excess glucocorticoid exposure (causes hypertension and hyperinsulinemia).

P4929: H. Imai, *et al.* Type II glucocorticoid receptors are involved in neuronal death and astrocyte activation induced by trimethyltin in the rat hippocampus. *Experimental Neurology* 2001;171(22-28)

ALZET Comments: Dexamethasone; Aldosterone; SC; Rat; 21 days; controls received sham surgery; replacement therapy (adrenalectomy); corticosterone pellets also used;

P4906: M. J. Holness, *et al.* Dexamethasone during late gestation exacerbates peripheral insulin resistance and selectively targets glucose-sensitive functions in beta cell and liver. *Endocrinology* 2001;142(9):3742-3748

ALZET Comments: Dexamethasone; SC; Rat (pregnant); 5 days; controls received sham surgery; administration of dexamethasone was from day 14 to day 19 of gestation; "priming" SC injection of dexamethasone given before pump implantation; insulin resistance, diabetes;.

Q6814: K. J. BILLER, *et al.* Distal tubular electrolyte transport during inhibition of renal 11b-hydroxysteroid dehydrogenase. *Am J Physiol Renal Physiol* 2001;280(F172-F179)

ALZET Comments: Aldosterone, D-; Dexamethasone; PEG 400; SC; Rat; 2002; 14 days; Dose (Aldosterone (5 µg/kg/day); Dexamethasone (12 µg/kg/day)); Controls received mp w/ vehicle; animal info (Adult male Sprague-Dawley rats weighing 220-240 g); post op. care (1.2 mg/kg buprenorphine hydrochloride s.c.);.

P4939: M. A. Bailey, *et al.* In vivo inhibition of renal 11-beta-hydroxysteroid dehydrogenase in the rat stimulates collecting duct sodium reabsorption. *Clinical Science* 2001;101(195-198)

ALZET Comments: Aldosterone; Dexamethasone; SC; Rat; 2002; 8-12; functionality of mp verified by plasma aldosterone levels; replacement therapy (adrenalectomy p.195); "the plasma concentration of aldosterone achieved via osmotic minipump is just sufficient to maintain the rats in good health without causing over-stimulation." p. 197; mineralocorticoids.

P4830: G. S. Y. Yang, *et al.* Intratympanic immunosuppressives for prevention of immune-mediated sensorineural hearing loss. *American Journal of Otology* 2000;21(499-504)

ALZET Comments: Dexamethasone;; PBS;; Ear (round window membrane);; Guinea pig;; 2002;; Controls received mp w/ vehicle; tissue perfusion (bullae); comparison of IP injections vs. mp; multiple pumps per animal (2) (one containing dexamethasone for one ear, the other containing PBS for the other ear);.



P4041: T. Saito, *et al.* Vasopressin-dependent upregulation of aquaporin-2 gene expression in glucocorticoid-deficient rats. *Am. J. Physiological. Renal Physiol* 2000;279(F502-F508)

ALZET Comments: Aldosterone; Dexamethasone;; SC;; Rat;; 2ML4;; 7 days;; Controls received mp with Aldosterone or Dexamethasone; replacement therapy (adrenalectomy); glucocorticoid;

P4885: A. Attmane-Elakeb, *et al.* Regulation by glucocorticoids of expression and activity of rBSC1, the Na⁺-K⁺ (NH₄⁺)-2Cl⁻ cotransporter of medullary thick ascending limb. *Journal of Biological Chemistry* 2000;275(33548-33553)

ALZET Comments: Dexamethasone; SC; Rat; 6 days; controls received sham adrenalectomy; functionality of mp verified by plasma electrolyte levels; replacement therapy (adrenalectomy); dexamethasone dose restores normal glucocorticoid activity after adrenalectomy, controls electrolyte levels.