



References on the Administration of Testosterone  
Using ALZET® Osmotic Pumps

**Q11272:** M. D. Dorfman, *et al.* Central androgen action reverses hypothalamic astrogliosis and atherogenic risk factors induced by orchietomy and high-fat diet feeding in male mice. *American Journal of Physiology: Endocrinology and Metabolism* 2023;324(5):E461-E475

**Agents:** Testosterone; dihydrotestosterone **Vehicle:** Cyclodextrin, 2-hydroxypropyl-Beta-; **Route:** CSF/CNS (lateral ventricle);

**Species:** Mice; **Strain:** C57BL/6J; **Pump:** 1004; **Duration:** 28 days;

**ALZET Comments:** Dose (Testosterone 0.9 ug/uL; DHT 0.2 ug/uL); Controls received mp w/ vehicle; animal info (Male; 12-16 weeks old); ALZET brain infusion kit used; Brain coordinates (0.7 mm posterior to bregma, 1.3 mm lateral, 2.1 mm below skull surface); "Chronic central infusion of testosterone (T) and dihydrotestosterone (DHT) reduces hypothalamic astrogliosis and peripheral risk markers in orchietomized (ORX) mice exposed to high-fat, high-sucrose diet (HFHS)." p. 10

**Q11090:** A. Aslan, *et al.* Denervation Atrophy of Skeletal Muscle is Not Influenced by Numb Levels in Mice. *International Journal of Medical Sciences* 2023;20(3):376-384

**Agents:** Nandrolone; testosterone **Vehicle:** Ethanol; propylene glycol; **Route:** SC; **Species:** Mice; **Strain:** C57B6J;

**Pump:** 1002; 1004; **Duration:** Not Stated;

**ALZET Comments:** Dose (Nandrolone 0.75 mg/kg/week; Testosterone 2.8 mg/kg/week); 5% ethanol in propylene glycol used; animal info (Male; 12-20 weeks old);

**Q9875:** A. H. Zahalka, *et al.* Using CT-guided stereotactic prostate radiation therapy (CT-SPRT) to assess sustained murine prostate ablation. *Scientific Reports* 2021;11(1):6571

**Agents:** Testosterone **Vehicle:** Not Stated; **Route:** SC; **Species:** Mice; **Pump:** Not Stated; **Duration:** 4 weeks;

**ALZET Comments:** Dose (1.875 µg/h); animal info (male mice, 8-weeks-old); cancer (Prostate Cancer);

**Q10324:** Z. L. Sebo, *et al.* Testosterone metabolites differentially regulate obesogenesis and fat distribution. *molecular Metabolism* 2021;44(10)1141

**Agents:** Testosterone; Dihydrotestosterone; Estradiol; Letrozole; Bicalutamide **Vehicle:** 2-hydroxypropyl-B-cyclodextrin; PBS; DMSO; **Route:** SC; **Species:** Mice; **Pump:** 1004; **Duration:** Not Stated;

**ALZET Comments:** Dose: Testosterone (2 mg/kg body weight/day); Estradiol (2 ug/kg body weight/day); Letrozole (0.4 mg/kg body weight/day); Dutasteride (0.5 mg/kg body weight/day); 10% DMSO vehicle used Controls received mp w/ vehicle; animal info: ARdY mice and mTmG mice 3 weeks of age; replacement therapy; (Testosterone)dependence;

**Q9508:** B. Tuku, *et al.* Testosterone Protects Against Severe Influenza by Reducing the Pro-Inflammatory Cytokine Response in the Murine Lung. *Frontiers in Immunology* 2020;11(697)

**Agents:** Testosterone **Vehicle:** "Cyclodextrin, 2-β-Hydroxypropyl-"; **Route:** SC; **Species:** Mice; **Pump:** 2004; **Duration:** 2 weeks;

**ALZET Comments:** Dose (5 mg/ml); 45% "Cyclodextrin, 2-β-Hydroxypropyl-" used; Controls received mp w/ vehicle; animal info (Six weeks old female mice); replacement therapy (testosterone);

**Q8957:** D. K. Singh, *et al.* Testosterone Acts Within the Medial Amygdala of Rats to Reduce Innate Fear to Predator Odor Akin to the Effects of *Toxoplasma gondii* Infection. *Frontiers in Psychiatry* 2020;11(630)

**Agents:** Testosterone **Vehicle:** CSF, artificial; **Route:** CSF/CNS; **Species:** Rat; **Pump:** Not Stated; **Duration:** Not Stated;

**ALZET Comments:** Controls received mp w/ vehicle; animal info (Male, Wistar); Brain coordinates (AP = -3.0, L = ±3.8, v = -7.0); bilateral cannula used; dependence;

**Q8962:** J. Sellau, *et al.* Androgens predispose males to monocyte-mediated immunopathology by inducing the expression of leukocyte recruitment factor CXCL1. *Nature Communications* 2020;11(1):3459

**Agents:** Testosterone **Vehicle:** Not Stated; **Route:** SC; **Species:** Mice; **Pump:** 2004; **Duration:** Not Stated;

**ALZET Comments:** Dose (5 mg/ml); Controls received mp w/ vehicle; animal info (8 weeks old, Male, C57BL/6J); dependence;



**Q8646:** S. K. Mamta, *et al.* Controlled release of sex steroids through osmotic pump alters brain GnRH1 and catecholaminergic system dimorphically in the catfish, *Clarias gariepinus*. *Brain Research Bulletin* 2020;164(325-333

**Agents:** Estradiol, 17B-; Testosterone, 17a-methyl **Vehicle:** Ethanol; Saline; **Route:** IP; **Species:** Fish; **Pump:** 1007D; **Duration:** 21 days;

**ALZET Comments:** Dose (0.48 ug/day); Controls received mp w/ vehicle; animal info (male and female catfish); functionality of mp verified by residual volume; replacement therapy (testosterone; estradiol);

**Q8612:** A. Krishnan, *et al.* Effect of DHT-Induced Hyperandrogenism on the Pro-Inflammatory Cytokines in a Rat Model of Polycystic Ovary Morphology. *Medicina (Kaunas)* 2020;56(3):

**Agents:** Dihydrotestosterone **Vehicle:** Not Stated; **Route:** SC; **Species:** Rat; **Pump:** Not Stated; **Duration:** 90 days;

**ALZET Comments:** Dose (83 µg/day); Controls received mp w/ vehicle; animal info (female Wistar albino rats, 21 days old); long-term study; Dihydrotestosterone aka DHT; dependence;

**Q9789:** B. Huang, *et al.* CMKLR1 deficiency attenuates androgen-induced lipid accumulation in mice. *American Journal of Physiology Endocrinology Metabolism* 2020;318(3):E371-E380

**Agents:** 5a-dihydrotestosterone or 2-(a-Naphthoyl) ethyltrimethylammonium iodide **Vehicle:** Not Stated; **Route:** SC; **Species:** Rat; **Pump:** 1004; **Duration:** 28 days;

**ALZET Comments:** Dose (83.3 ug/day-DHT, 1.7 ug/day- a-NETA); animal info (C57BL/6); 5a-dihydrotestosterone aka DHT, 2-(a-Naphthoyl) ethyltrimethylammonium iodide aka a-NETA ; cardiovascular;

**Q10184:** V. Hoghooghi, *et al.* Cystatin C Plays a Sex-Dependent Detrimental Role in Experimental Autoimmune Encephalomyelitis. *Cell Reports* 2020;33(1):108236

**Agents:** Testosterone **Vehicle:** Ethanol; Saline; **Route:** SC; **Species:** Mice; **Pump:** Not Stated; **Duration:** 60 days;

**ALZET Comments:** Dose: Testosterone (0.083mg/day)10.9% ethanol vehicle used animal info: four-week-old anaesthetized female. male mice 4 week-old neurodegenerative (Multiple Sclerosis);

**Q9876:** A. H. Zahalka, *et al.* Impact of CT guided high-dose prostate irradiation on rodent gland regeneration. *European Urology Supplements* 2019;18(1):

**Agents:** Testosterone **Vehicle:** Not Stated; **Route:** SC; **Species:** Mice; **Pump:** Not Stated; **Duration:** 2 days;

**ALZET Comments:** Animal info (10-12 weeks old, Male); cancer (Prostate Cancer);

**Q7505:** B. M. Warner, *et al.* Development and Characterization of a Sin Nombre Virus Transmission Model in *Peromyscus maniculatus*. *Viruses* 2019;11(2):

**Agents:** Testosterone enanthate **Vehicle:** Propylene Glycol; **Route:** SC; **Species:** Mice; **Pump:** 1004; **Duration:** 28 days;

**ALZET Comments:** Dose (200 g/day); Controls received mp w/ vehicle; animal info (deer mice); post op. care (meloxicam 2mg/kg);

**Q8024:** M. Hanoun, *et al.* Nestin(+)NG2(+) Cells Form a Reserve Stem Cell Population in the Mouse Prostate. *Stem Cell Reports* 2019;12(6):1201-1211

**Agents:** Testosterone **Vehicle:** Not stated; **Route:** SC; **Species:** Mice; **Pump:** Not stated; **Duration:** 3-4 weeks;

**ALZET Comments:** Dose (1:875 g/hour); animal info (Male, C57BL6);

**Q7651:** H. Zhao, *et al.* Chemokine-like receptor 1 deficiency leads to lower bone mass in male mice. *Cellular and Molecular Life Sciences* 2018;76(2):355-367

**Agents:** dihydrotestosterone, 5alpha-; ethyltrimethylammonium iodide, 2-(alpha-naphthoyl)- **Vehicle:** Not stated; **Route:** SC; **Species:** Mice; **Pump:** 1004; **Duration:** 28 days;

**ALZET Comments:** Dose ((DHT 83.3 µg/day), (alpha-NETA 33 µg/day)); Controls received empty mp; animal info (8 or 10 weeks, male, C57BL/6 or CMKLR1 -/-); DHT is a nonaromatizable androgen. Alpha-NETA is a small molecule reported to function as a CMKLR1 antagonist; replacement therapy (testosterone);



**Q8144:** G. Navarro, *et al.* Androgen excess in pancreatic beta cells and neurons predisposes female mice to type 2 diabetes. *JCI Insight* 2018;3(12):

**Agents:** Dihydrotestosterone **Vehicle:** Not stated; **Route:** CSF/CNS (lateral ventricle); **Species:** Mice; 4 weeks;  
**ALZET Comments:** Controls received mp w/ vehicle; animal info (8 weeks old, Female, C57BL/6J); Dihydrotestosterone aka DHT, nonaromatizable AR agonist ; Brain coordinates (L +1 mm, AP -0.2 mm, DV -2 mm); bilateral cannula used; diabetes;

**Q7922:** H. Ito, *et al.* Castration increases PGE2 release from the bladder epithelium in male rats. *Life Sci* 2018;193(252-256

**Agents:** Testosterone **Vehicle:** Not Stated; **Route:** SC; **Species:** Rat; **Pump:** Not Stated; **Duration:** 2 weeks;  
**ALZET Comments:** Dose (1 mg/kg/day); animal info (Male, 10 week old, Sprague Dawley, 31-330 g); dependence;

**Q7117:** C. W. Chua, *et al.* Differential requirements of androgen receptor in luminal progenitors during prostate regeneration and tumor initiation. *eLife Journal* 2018;7(**Agents:** Testosterone **Vehicle:** Ethanol; **Route:** SC; **Species:** Mice; **Pump:** 2004;  
**Duration:** 28 days;

**ALZET Comments:** Dose (1.875 ug/hr/day); animal info (Nkx3.1); cancer (Prostate);

**Q5923:** Q. Xie, *et al.* Transcriptional regulation of the Nkx3.1 gene in prostate luminal stem cell specification and cancer initiation via its 3' genomic region. *J Biol Chem* 2017;292(33):13521-13530

**Agents:** Testosterone **Vehicle:** Ethanol, PEG-400; **Route:** SC; **Species:** mice (transgenic); **Pump:** Not Stated; **Duration:** 4 weeks;  
**ALZET Comments:** animal info (CK18-CreERT2 transgenic, Nkx3.1, C57BL/6N); cancer (prostate); replacement therapy (testosterone infusion); Dose (1.875 ug/h);

**Q5712:** Q. Xie, *et al.* Dissecting cell-type-specific roles of androgen receptor in prostate homeostasis and regeneration through lineage tracing. *Nat Commun* 2017;8(14284

**Agents:** Testosterone **Vehicle:** Ethanol; PEG 400; **Route:** SC; **Species:** Mice; **Pump:** Not Stated; **Duration:** 4 weeks;  
**ALZET Comments:** animal info (male, adult, castrated); Dose (1.875 ug/hr);

**Q6568:** T. Kaniyas, *et al.* Testosterone-dependent sex differences in red blood cell hemolysis in storage, stress, and disease. *Transfusion* 2016;56(10):2571-2583

**Agents:** Testosterone **Vehicle:** Propylene glycol; **Route:** SC; **Species:** Mice; **Pump:** 2004; **Duration:** 32 days;  
**ALZET Comments:** Dose (1 mg/kg/day); Controls received mp w/ vehicle; animal info (15-16 week old Orchiectomy FVB/NJ mice); replacement therapy (orchietomized);

**Q4821:** Daniel G. Donner, *et al.* Trenbolone Improves Cardiometabolic Risk Factors and Myocardial Tolerance to Ischemia-Reperfusion in Male Rats With Testosterone-Deficient Metabolic Syndrome. *Endocrinology* 2016;157(1):368-381

**Agents:** Testosterone; trenbolone **Vehicle:** Cyclodextrin, 2-hydroxypropyl-b-; **Route:** SC; **Species:** Rat; **Pump:** 2004;  
**Duration:** 8 weeks;  
**ALZET Comments:** Controls received mp w/ vehicle; animal info (male, Wistar, 12 weeks old, 300g); functionality of mp verified by plasma; pumps replaced every 4 weeks; 45% cyclodextrin used; ischemia (cardiac); post op. care (buprenorphine 10 ug/kg/day IM; enrofloxacin 5 mg/kg ip for 3 days); long-term study; Dose (2 mg/kg/day);

**Q4252:** R. E. Sorge, *et al.* Different immune cells mediate mechanical pain hypersensitivity in male and female mice. *NATURE NEUROSCIENCE* 2015;18(1081-+

**Agents:** Testosterone **Vehicle:** Polyethylene glycol; **Route:** SC; **Species:** Mice (nude); **Pump:** 2002; **Duration:** 14 days;  
**ALZET Comments:** animal info (naive, adult, young, 7-12 wks old, male, female, CD-1, nude CD-1)

**Q4285:** Y. Reizel, *et al.* Gender-specific postnatal demethylation and establishment of epigenetic memory. *GENES & DEVELOPMENT* 2015;29(923-933

**Agents:** Testosterone **Vehicle:** Not Stated; **Route:** SC; **Species:** Mice; **Pump:** 2004; **Duration:** 3 months;  
**ALZET Comments:** Controls received mp w/ vehicle; animal info (C57BL6, 3 or 20 weeks old); pumps replaced every 28 days; replacement therapy (testosterone replacement); long-term study; pumps primed for 48 hours in 37C saline;



**Q4158:** L. Wan, *et al.* Dietary Tomato and Lycopene Impact Androgen Signaling- and Carcinogenesis-Related Gene Expression during Early TRAMP Prostate Carcinogenesis. *Cancer Prevention Research* 2014;7(1228-1239)

**Agents:** Testosterone propionate **Vehicle:** Cyclodextrin, sterile; **Route:** Not Stated; **Species:** Mice; **Duration:** 5 days;

**ALZET Comments:** Animal info (male, TRAMP +/- C57BL/6xFVB/N hybrid, 9 weeks old); cancer (prostate); replacement therapy (gonadectomy; testosterone replacement);

**Q6779:** L. Sun, *et al.* Anabolic steroids reduce spinal cord injury-related bone loss in rats associated with increased Wnt signaling. *J Spinal Cord Med* 2013;36(6):616-22

**Agents:** Nandrolone; testosterone **Vehicle:** Propylene glycol; **Species:** Rat; **Pump:** Not Stated; **Duration:** 28 days;

**ALZET Comments:** Dose (0.75 mg/kg/week nandrolone; 2.8 mg/kg/week); Controls received mp w/ vehicle; animal info (Male Wistar rats aged 8 weeks); spinal cord injury;

**Q2816:** J. R. Chen, *et al.* Testosterone modulation of dendritic spines of somatosensory cortical pyramidal neurons. *Brain Structure and Function* 2013;218(6):1407-1417

**Agents:** Testosterone; flutamide; anastrozole **Vehicle:** DMSO; ethanol; **Route:** SC; **Species:** Rat; **Pump:** 2ML2; **Duration:** 4 w

**ALZET Comments:** Control animals received mp w/ vehicle; animal info (Sprague Dawley, male, adult, 350-400 g); pumps replaced after 2 weeks; replacement therapy (castrated)

**Q3401:** K. Akita, *et al.* A novel selective androgen receptor modulator, NEP28, is efficacious in muscle and brain without serious side effects on prostate. *European Journal of Pharmacology* 2013;720(1-3):107-114

**Agents:** Dihydrotestosterone; methyltestosterone; NEP28 **Vehicle:** Not Stated; **Route:** SC; **Species:** Rat; **Pump:** Not Stated; **Duration:** 2 weeks;

**ALZET Comments:** Controls received mp w/ vehicle; animal info (male, Sprague Dawley, 13 weeks old); dose-response (pg.110-112); neurodegenerative (Alzheimer's disease); replacement therapy (orchidectomized; androgen therapy); dihydrotestosterone aka DHT; methyltestosterone aka MT; NEP28 is a selective androgen receptor modulator (SARM); notes the use of a 21 day pump;

**Q2177:** Y. Wu, *et al.* Nandrolone Normalizes Determinants of Muscle Mass and Fiber Type after Spinal Cord Injury. *Journal of Neurotrauma* 2012;29(8):1663-1675

**Agents:** Testosterone; nandrolone **Vehicle:** Propylene glycol; **Route:** SC; **Species:** Rat; **Pump:** 2004; **Duration:** 56 days;

**ALZET Comments:** Controls received mp w/ vehicle; animal info (Wistar, male); post op. care (amoxicillin); pumps replaced after 28 days; long-term study

**Q1844:** Y. Wu, *et al.* Testosterone reduced methylprednisolone-induced muscle atrophy in spinal cord-injured rats. *SPINAL CORD* 2012;50(1):57-62

**Agents:** Methylprednisolone; testosterone **Vehicle:** Propylene glycol; **Route:** SC; **Species:** Rat; **Pump:** 2001; 2002; **Duration:** 24 hours; 7 days;

**ALZET Comments:** Controls received mp w/ vehicle; animal info (Wistar, male); multiple pumps used (2); spinal cord injury

**Q2389:** J. A. Johnson, *et al.* Testosterone interacts with the feedback mechanisms engaged by Tyr985 of the leptin receptor and diet-induced obesity. *Journal of Steroid Biochemistry and Molecular Biology* 2012;132(3-5):212-219

**Agents:** Estradiol; testosterone **Vehicle:** Ethanol; propylene glycol; PBS; **Route:** SC; **Species:** Mice; **Pump:** 1002; 1004; **Duration:** 2, 4 weeks;

**ALZET Comments:** Control animals received mp w/ vehicle; animal info (LEPR-B Tyr985Leu, male, female, OVX, castrated); 10% ethanol used; replacement therapy (ovariectomy); post op. care (analgesic, carprofen)

**Q1951:** R. E. Sorge, *et al.* Spinal Cord Toll-Like Receptor 4 Mediates Inflammatory and Neuropathic Hypersensitivity in Male But Not Female Mice. *Journal of Neuroscience* 2011;31(43):15450-15454

**Agents:** Testosterone propionate **Vehicle:** Polyethylene glycol; **Route:** SC; **Species:** Mice; **Pump:** 2002; **Duration:** 14 days;

**ALZET Comments:** animal info (naive, adult, 6-12 wks old, male, female, CD-1); wound clips used



**Q2246:** M. Sinnesael, *et al.* 7 $\alpha$ -methyl-19-nortestosterone vs. testosterone implants for hypogonadal osteoporosis: a preclinical study in the aged male orchidectomized rat model. *International Journal of Andrology* 2011;34(6):E601-E611

**Agents:** Testosterone; nortestosterone, androgen 7 alpha methyl 19 **Vehicle:** Not Stated; **Route:** SC; **Species:** Rat; **Pump:** 2004; **Duration:** 4 months;

**ALZET Comments:** Controls received mp w/ vehicle; animal info (Wistar, male, aging, 11 mo old); incorrectly listed Model 20004; pumps replaced every 4 weeks; long-term study; replacement therapy (orchidectomy)

**Q1459:** X. H. Liu, *et al.* Nandrolone reduces activation of Notch signaling in denervated muscle associated with increased Numb expression. *Biochemical and Biophysical Research Communications* 2011;414(1):165-169

**Agents:** Nandrolone; testosterone **Vehicle:** Propylene glycol; **Route:** SC; **Species:** Mice; **Pump:** Not Stated; **Duration:** 7, 28 days;

**ALZET Comments:** Controls received mp w/ vehicle; mixture of nandrolone and testosterone in same pump

**Q2213:** P. L. Kovalenko, *et al.* Dietary Vitamin D and Vitamin D Receptor Level Modulate Epithelial Cell Proliferation and Apoptosis in the Prostate. *Cancer Prevention Research* 2011;4(10):1617-1625

**Agents:** Testosterone propionate **Vehicle:** DMSO; ethanol; **Route:** SC; **Species:** Mice; **Pump:** Not Stated; **Duration:** 5 days;

**ALZET Comments:** Animal info (castrated, TAPT121); "4:1 mixture of DMSO and ethanol"; replacement therapy (orchidectomy)

**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

**Agents:** Dexamethasone; testosterone **Vehicle:** Propylene glycol; **Route:** Not Stated; **Species:** Rat; **Pump:** Not Stated; **Duration:** 7 days;

**ALZET Comments:** Controls received mp w/ vehicle; animal info (male, Wistar, 250 g.)

**Q0518:** X. Wang, *et al.* A luminal epithelial stem cell that is a cell of origin for prostate cancer. *Nature* 2009;461(7263):495-U61

**Agents:** Testosterone **Vehicle:** Ethanol; PEG 400; **Route:** SC; **Species:** Mice; **Pump:** Not Stated; **Duration:** 4 weeks;

**ALZET Comments:** Animal info (adult, male, castrated, Nkx3-1CreERT2/+); replacement therapy (orchidectomy)

**Q0624:** T. Tsuneda, *et al.* Deficiency of Testosterone Associates with the Substrate of Atrial Fibrillation in the Rat Model. *Journal of Cardiovascular Electrophysiology* 2009;20(9):1055-1060

**Agents:** Testosterone propionate **Vehicle:** Not Stated; **Route:** SC; **Species:** Rat; **Pump:** Not Stated; **Duration:** 3 weeks;

**ALZET Comments:** Animal info (male, Sprague-Dawley, 6 mo old); replacement therapy (orchidectomy)

**P9510:** C. H. Alves, *et al.* Androgen Receptor is Expressed in Murine Choroid Plexus and Downregulated by 5 alpha-Dihydrotestosterone in Male and Female Mice. *Journal of Molecular Neuroscience* 2009;38(1):41-49

**Agents:** Dihydrotestosterone, 5 $\alpha$ - **Vehicle:** Ethanol; polypropylene glycol; **Route:** SC; **Species:** Mice; **Pump:** 1007D; **Duration:** 1 week;

**ALZET Comments:** Controls received mp w/ vehicle; animal info (male, female, 5 mo old, OVX, ORDX, 129s1/sv); 0.5% ethanol

**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

**Agents:** Testosterone; Dexamethasone **Vehicle:** Propylene glycol; **Route:** Not Stated; **Species:** Rat; **Pump:** Not Stated; **Duration:** 1, 7 days;

**ALZET Comments:** Controls received mp w/ vehicle; animal info (male, Wistar, 250 g.)

**P8938:** T. Quintela, *et al.* 5 $\alpha$ -dihydrotestosterone up-regulates transthyretin levels in mice and rat choroid plexus via an androgen receptor independent pathway. *Brain Research* 2008;1229(18-26)

**Agents:** Dihydrotestosterone, 5 alpha- **Vehicle:** Ethanol; Propylene glycol; **Route:** SC; **Species:** Rat; Mice; **Pump:** 1007D; **Duration:** 1 week;

**ALZET Comments:** Controls received mp w/ vehicle; replacement therapy (orchidectomy); animal info (129s1/sv, HM male); 0.5% ethanol used





**P9088:** T. Henriques, *et al.* Androgen increases AT1a receptor expression in abdominal aortas to promote angiotensin II-induced AAAs in apolipoprotein E-deficient mice. *Arteriosclerosis, Thrombosis, and Vascular Biology* 2008;28(7):1251-1256

**Agents:** Dihydrotestosterone; Angiotensin II **Vehicle:** Saline; **Route:** SC; **Species:** Mice (knockout); **Pump:** 2004;

**Duration:** 5 weeks; 28 days;

**ALZET Comments:** Controls received mp w/ vehicle; peptides; animal info (male, female, ApoE -/-, 12 wks old, castrated)

**P9314:** I. Goncalves, *et al.* Transthyretin is up-regulated by sex hormones in mice liver. *Molecular and Cellular Biochemistry* 2008;317(1-2):137-142

**Agents:** Estradiol, 17b-; dihydrotestosterone, 5a- **Vehicle:** Polypropylene glycol; Ethanol; **Route:** SC; **Species:** Mice; **Pump:** 1007D; **Duration:** 1 week;

**ALZET Comments:** Controls received mp w/ vehicle or sham operation; replacement therapy (ovariectomy, orchidectomy); animal info (male, female, 129S1/Sv, 5 months old): 0.5% EtOH

**R0253:** L. Fusani. Endocrinology in field studies: Problems and solutions for the experimental design. *General and Comparative Endocrinology* 2008;157(3):249-253

**Agents:** Testosterone **Vehicle:** Not Stated; **Route:** SC; **Species:** Not Stated; **Pump:** Not Stated; **Duration:** Not Stated;

**ALZET Comments:** Replacement therapy (gonadectomy); comparison of silastic implants vs. time release pellets vs. mp; endocrinology; mp not used, just discussed as available option

**P8640:** J. Meitzen, *et al.* Steroid hormones act transsynaptically within the Forebrain to regulate neuronal phenotype and song stereotypy. *Journal of Neuroscience* 2007;27(44):12045-12057

**Agents:** Dihydrotestosterone; ICI-182,780; estradiol, 17B-; flutamide **Vehicle:** DMSO; PEG 300; propanediol, 1, 2-; **Route:** SC; CSF/CNS (HVC); CSF/CNS (robust nucleus arcopallium); **Species:** Bird (sparrow); **Pump:** 1007D; 1002; **Duration:** 14, 21 days;

**ALZET Comments:** Controls received mp w/ vehicle; pumps replaced after 14 days; cyanoacrylate adhesive; animal info (male, Gambel's white crowned, adult); HVC is the proper name for the telencephalic song nucleus; mp placed in custom built backpack strapped to bird's back w/harness made from surgical dressing, and a microcentrifuge tube; "pilot experiments showed that this arrangement kept the pump at its proper operating temperature (37°C), and that the pump retained saline throughout the entire release period." (p. 12047); ICI-182,780 is also known as faslodex

**P8443:** W. Banach-Petrosky, *et al.* Prolonged exposure to reduced levels of androgen accelerates prostate cancer progression in Nkx3.1; Pten mutant mice. *Cancer Research* 2007;67(19):9089-9096

**Agents:** Testosterone propionate **Vehicle:** PEG 400; **Route:** SC; **Species:** Mice; **Pump:** 2004; **Duration:** 7 months;

**ALZET Comments:** Controls received mp w/ vehicle, or no treatment; replacement therapy (castration); dose-response (fig 1A); long-term study; pumps replaced every 28 days; cancer (prostate); animal info (male, Nkx3.1 +/+, Pten +/+, Nkx3.1 +/-, Pten +/-, 6 wks old)

**P7944:** T. C. Shao, *et al.* Comparison of the growth-promoting effects of testosterone and 7-alpha-methyl-19-nor-testosterone (MENT) on the prostate and levator ani muscle of LPB-Tag transgenic mice. *PROSTATE* 2006;66(4):369-376

**Agents:** Testosterone; nortestosterone, 7 alpha-methyl-19- **Vehicle:** Cyclodextrin; **Route:** SC; **Species:** Mice (transgenic);

**Pump:** 2004; **Duration:** 4 weeks;

**ALZET Comments:** Replacement therapy (orchidectomy); cancer (prostate); animal info (male, transgenic, 32 grams, ORX); MENT (7-alpha-methyl-19-nor-testosterone) and testosterone dissolved in 45% cyclodextrin

**P7581:** Y. A. Rojas-Ortiz, *et al.* Modulation of elevated plus maze behavior after chronic exposure to the anabolic steroid 17alpha-methyltestosterone in adult mice. *Hormones and Behavior* 2006;49(1):123-128

**Agents:** Testosterone, 17a-methyl- **Vehicle:** Saline; Cyclodextrin, B-; **Route:** SC; **Species:** Mice; **Pump:** 2002; **Duration:** 17 d

**ALZET Comments:** Controls received mp w/ vehicle; animal info (male, C57BL/6, 90 days old); behavioral study; 30% cyclodextrin used



**P7300:** K. Venken, *et al.* Bone and muscle protective potential of the prostate-sparing synthetic androgen 7alpha-methyl-19-nortestosterone: Evidence from the aged orchidectomized male rat model. *Bone* 2005;36(4):663-670

**Agents:** Nortestosterone, 7a-methyl-19- **Vehicle:** Propandiol, 1, 2-; **Route:** SC; **Species:** Rat; **Pump:** 2004; **Duration:** 16 weeks; **ALZET Comments:** Controls received mp w/ vehicle; replacement therapy (orchidectomy); dose-response (fig. 1); long-term study; pumps replaced every 4 weeks; animal info (male, 13 month old, Wistar, 600-650 g)

**P7200:** M. Robichaud, *et al.* Oestrogen and testosterone modulate the firing activity of dorsal raphe nucleus serotonergic neurones in both male and female rats. *Journal of Neuroendocrinology* 2005;17(3):179-185

**Agents:** Estradiol, 17B-; Testosterone; Progesterone; Pregnane-3, 20 dione, 5B-; Pregnane-3a-ol, 20-one, 5a-; Dehydroepiandrosterone; Testosterone, 5a-dihydroxy **Vehicle:** Ethanol; Water, distilled; **Route:** CSF/CNS; **Species:** Rat; **Pump:** 2ML1; **Duration:** 3, 7 days;

**ALZET Comments:** Controls received mp w/ vehicle; ALZET brain infusion kit used; 3% ethanol; animal info (SD, 250-325 g)

**P6259:** T. Yokota, *et al.* Functional and anatomical effects of hormonally induced experimental prostate growth: A urodynamic model of benign prostatic hyperplasia (BPH) in the beagle. *PROSTATE* 2004;58(2):156-163

**Agents:** Dihydrotestosterone, 5 alpha-; Estradiol, 17B- **Vehicle:** Not Stated; **Route:** SC; **Species:** Dog; **Pump:** 2ML4; **Duration:** 28 days;

**ALZET Comments:** Animal info (Beagle, 3.5-7.2 yrs); testosterone induced BPH animal model

**P6273:** A. M. Traish, *et al.* Binding characteristics of [<sup>3</sup>H]Delta5-androstene-3beta 17beta-diol to a nuclear protein in the rabbit vagina. *Steroids* 2004;69(1):71-78

**Agents:** Estradiol; testosterone **Vehicle:** PEG; **Route:** SC; **Species:** Rabbit; **Pump:** 2002; **Duration:** 2 weeks;

**ALZET Comments:** Replacement therapy (ovariectomy); animal info (female, New Zealand, white, 4.5-5.0 kg, OVX)

**P6517:** N. N. Kim, *et al.* Effects of ovariectomy and steroid hormones on vaginal smooth muscle contractility. *International Journal of Impotence Research* 2004;16(1):43-50

**Agents:** Testosterone; estradiol; dihydrotestosterone; dehydroepiandrosterone **Vehicle:** PEG 300; **Route:** SC; **Species:** Rabbit; **Pump:** 2002; **Duration:** 2 weeks;

**ALZET Comments:** Controls received mp w/ vehicle; replacement therapy (ovariectomy); animal info (female, New Zealand, white, 4.5-5.0 kg, OVX (for some))

**P6800:** W. Q. Gao, *et al.* Comparison of the pharmacological effects of a novel selective androgen receptor modulator, the 5 alpha-reductase inhibitor finasteride, and the antiandrogen hydroxyflutamide in intact rats: New approach for benign prostate hyperplasia. *Endocrinology* 2004;145(12):5420-5428

**Agents:** SARM, s-1; SARM s-2; testosterone propionate **Vehicle:** Ethanol; PEG 300; DMSO; **Route:** SC; **Species:** Rat; **Pump:** 2002; **Duration:** 14 days;

**ALZET Comments:** Controls received mp w/ vehicle; selective androgen receptor modulator (SARM) are flutamide and bicalutamide analogs; animal info (ORX, male, Sprague-Dawley, 187-214 g)

**P6920:** J. Aronson. The Nicolas Andry Award - Modulation of distraction osteogenesis in the aged rat by fibroblast growth factor. *Clinical orthopaedics and related research* 2004;425):264-283

**Agents:** Fibroblast growth factor, recomb. human; dihydrotestosterone **Vehicle:** Sodium citrate; **Route:** SC; bone (tibia); **Species:** Rat; **Pump:** 1007D; 1002; 2002; **Duration:** 7, 14 days;

**ALZET Comments:** Functionality of mp verified by residual volume; comparison of injections vs. mp; post op. care (heated cage/analgesics); pumps used for systemic or targeted delivery; silastic tubing used; "The pumps were well tolerated without inflammatory reaction, infection, or pain." (p. 273); picture of pump and catheter (radiograph image) p. 277, fig 10A-B; animal info (Sprague-Dawley)



- P5619:** D. H. Yin, *et al.* Pharmacology, pharmacokinetics, and metabolism of acetothiolutamide, a novel nonsteroidal agonist for the androgen receptor. *The Journal of Pharmacology and Experimental Therapeutics* 2003;304(3):1323-1333  
**Agents:** Testosterone propionate; acetothiolutamide; bicalutamide, R- **Vehicle:** PEG 300; **Route:** SC; **Species:** Rat; **Pump:** 2002; **Duration:** 2 weeks;  
**ALZET Comments:** Controls received mp w/vehicle; functionality of mp verified by residual volume; replacement therapy (orchidectomy); comparison of bolus IV injections vs. mp (p. 1327); stability verified by preliminary experiments (14 days at 37 C. of acetothiolutamide; half-life (p. 1327) acetothiolutamide (26 min); bicalutamide is a nonsteroidal androgen; acetothiolutamide is a nonsteroidal androgen receptor ligand; agents in separate pumps for separate groups.
- P5704:** D. H. Yin, *et al.* Pharmacodynamics of selective androgen receptor modulators. *The Journal of Pharmacology and Experimental Therapeutics* 2003;304(3):1334-1340  
**Agents:** Testosterone propionate; bicalutamide derivatives; hydroxyflutamide derivatives **Vehicle:** PEG 300; DMSO; ethanol; **Route:** SC; **Species:** Rat; **Pump:** 2002; **Duration:** 14 days;  
**ALZET Comments:** Controls received mp w/ vehicle; dose-response; multiple pumps per animal (1-2) due to limited solubility; derivatives were isomers of novel nonsteroidal androgens; functionality of mp verified by residual volume; animal info (male, Sprague-Dawley, 90-100 g, castrated)
- P6480:** A. M. Traish, *et al.* Sex steroid hormones differentially regulate nitric oxide synthase and arginase activities in the proximal and distal rabbit vagina. *International Journal of Impotence Research* 2003;15(6):397-404  
**Agents:** Testosterone; dehydroepiandrosterone; dihydrotestosterone, 5-alpha-; androstenediol, delta 5-3B, 17B; estradiol; progesterone **Vehicle:** PEG; **Route:** SC; **Species:** Rabbit; **Pump:** 2002; **Duration:** 2 weeks;  
**ALZET Comments:** Controls received mp w/ vehicle; replacement therapy (ovariectomy); multiple pumps per animal (2)
- P5927:** T. C. Shao, *et al.* In vivo preservation of steroid specificity in CWR22 xenografts having a mutated androgen receptor. *PROSTATE* 2003;57(1):1-7  
**Agents:** Testosterone; estradiol; progesterone; flutamide **Vehicle:** Cyclodextrin, 2-beta-hydroxypropyl; **Route:** SC; **Species:** Mice (nude); **Pump:** 2004; **Duration:** 4 weeks;  
**ALZET Comments:** Replacement therapy (castration); cancer (prostate); CWR22 xenograft used; flutamide is an anti-androgen; animal info (5-6 week old, nude ,ORX)
- P5894:** M. Jalouli, *et al.* Sex difference in hepatic peroxisome proliferator-activated receptor alpha expression: Influence of pituitary and gonadal hormones. *Endocrinology* 2003;144(1):101-109  
**Agents:** Growth hormone, bovine; testosterone; estradiol, 17B- **Vehicle:** Phosphate buffer; glycerol; sodium azide; propylene glycol; **Route:** SC; **Species:** Rat; **Pump:** 2001; **Duration:** 7 days;  
**ALZET Comments:** Replacement therapy (gonadectomy); comparison of daily injections vs. chronic mp; peptides; GH was recomb bovine & diluted in 0.05 m phosphate buffer, ph 8.6, with 1.6% glycerol & 0.02% sodium azide; testosterone & estradiol were diluted in propylene glycol
- P5951:** L. A. Comeau, *et al.* Modifying thyroidal status in Atlantic cod by osmotic pump delivery of thyroid and antithyroid agents. *TRANSACTIONS OF THE AMERICAN FISHERIES SOCIETY* 2003;132(5):1021-1026  
**Agents:** Triiodothyronine; iodide, potassium; methimazole; Estradiol, 17B-; testosterone; thiourea **Vehicle:** Saline; **Route:** IP; **Species:** Fish (cod); **Pump:** 2ML1; **Duration:** 17 days;  
**ALZET Comments:** Controls received mp w/ vehicle; functionality of mp verified by residual volume; drug plasma levels taken; potassium iodide, methimazole and thiourea are thyroid inhibitors; sex hormones were in a separate study where the ALZET pump model was not listed; "this study demonstrates the value of osmotic pumps as effective delivery vehicles for drugs in wild demersal fish." p. 1024





- 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  
**Agents:** Testosterone; Dexamethasone acetate **Vehicle:** Cyclodextrin; PEG; **Route:** SC; **Species:** Rat; **Pump:** 2001; 2002;  
**Duration:** 8, 10 days;  
**ALZET Comments:** 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)
- P5313:** G. Shetty, *et al.* Inhibition of recovery of spermatogenesis in irradiated rats by different androgens. *Endocrinology* 2002;143(9):3385-3396  
**Agents:** Testosterone; nortestosterone, 7 $\alpha$ -methyl-19- **Vehicle:** Molecusol (cyclodextrin); water; **Route:** SC; **Species:** Rat;  
**Pump:** 2004; **Duration:** 4 weeks;  
**ALZET Comments:** Testosterone plasma levels checked; 45% aqueous solution of Molecusol (cyclodextrin) used; nortestosterone, 7 $\alpha$ -methyl-19- is a.k.a. MENT; animal info (adult, male, 9-12 weeks old)
- P5319:** S. G. Ramachandra, *et al.* Effect of chronic administration of 7 $\alpha$ -methyl-19-nortestosterone on serum testosterone, number of spermatozoa and fertility in adult male bonnet monkeys (*Macaca radiata*). *Reproduction* 2002;124(2):301-309  
**Agents:** Nortestosterone, 7 $\alpha$ -methyl-19- **Vehicle:** Not Stated; **Route:** SC; **Species:** Monkey; **Pump:** 2ML4; **Duration:** 195 days;  
**ALZET Comments:** Long-term study, pumps replaced every 28 days; a.k.a. MENT; animal info (m, bonnet,
- P6166:** K. Min, *et al.* Effects of ovariectomy and estrogen and androgen treatment on sildenafil-mediated changes in female genital blood flow and vaginal lubrication in the animal model. *American Journal of Obstetrics & Gynecology* 2002;187(5):1370-1376  
**Agents:** Estradiol; testosterone **Vehicle:** PEG; **Route:** SC; **Species:** Rabbit; **Pump:** 2002; **Duration:** 14 days;  
**ALZET Comments:** Controls received mp w/ vehicle; estradiol plasma levels taken; replacement therapy (ovariectomy); multiple pumps per animal used (2) for estradiol and testosterone group; animal info (female, New Zealand, white, 3.5-4.0 kg)
- P5169:** Y. Gotoh, *et al.* Gender difference in the Oatp1-mediated tubular reabsorption of estradiol 17 $\beta$ -D-glucuronide in rats. *American Journal of Physiology Endocrinology and Metabolism* 2002;282(E1245-E1254)  
**Agents:** Testosterone **Vehicle:** PEG 400; **Route:** SC; **Species:** Rat; **Pump:** 2001; **Duration:** 1 week;  
**ALZET Comments:** Controls received mp w/ vehicle; replacement therapy (orchidectomy); multiple pumps per animal (2)
- P4636:** L.-J. Zhu, *et al.* Effects of androgen on androgen receptor expression in rat testicular and epididymal cells: A quantitative immunohistochemical study. *Biology of Reproduction* 2000;63(2):368-376  
**Agents:** Azaline B; Testosterone, 7 $\alpha$ -methyl-19-nor **Vehicle:** Water; Mannitol; Cyclodextrin, hydroxypropyl (molecusol); **Route:** Not Stated; **Species:** Rat; **Pump:** 2ML2; 2ML4; **Duration:** 1,2,3,4,8 weeks;  
**ALZET Comments:** Replacement therapy; Azaline B is a LHRH-antagonist; agents infused together or singly; the vehicle for nortestosterone was hydroxypropyl beta-cyclodextrin (trappsol); long-term study
- P4656:** C. E. L. Dammann, *et al.* Androgen regulation of signaling pathways in late fetal mouse lung development. *Endocrinology* 2000;141(8):2923-2929  
**Agents:** Dihydrotestosterone **Vehicle:** Not Stated; **Route:** Not Stated; **Species:** Mice (pregnant); **Pump:** Not Stated; **Duration:** 7 days;  
**ALZET Comments:** Teratology; pellets also used to administer DHT
- P4643:** D. E. Cummings, *et al.* Prostate-sparing effects in primates of the potent androgen 7 $\alpha$ -Methyl-19-Nortestosterone: A potential alternative testosterone for androgen replacement and male contraception. *Journal of Clinical Endocrinology and Metabolism* 1998;83(12):4212-4219  
**Agents:** Nortestosterone, 7 $\alpha$ -methyl-19-; Testosterone acetate **Vehicle:** Cyclodextrin, B-; **Route:** SC; **Species:** Monkey; **Pump:** Not Stated; **Duration:** 20 weeks;  
**ALZET Comments:** Functionality of mp verified by hormone serum levels; replacement therapy (castration); dose-response (p.4213); long-term study, pumps replaced weekly during 1st treatment, bi-weekly during 2nd period, & every 4 weeks during the last 2 periods; both steroids were dissolved in 45% solution of 2-hydroxypropyl-B-cyclodextrin; MRI



**P3800:** N. Kumar, *et al.* Pharmacokinetics of 7 $\alpha$ -methyl-19-nortestosterone in men and cynomolgus monkeys. *J. Androl* 1997;18(4):352-358

**Agents:** Nortestosterone, 7 $\alpha$ -methyl-19- **Vehicle:** Not Stated; **Route:** SC; **Species:** Monkey; **Pump:** 2ML2; **Duration:** Not Stated;

**ALZET Comments:** Functionality of mp verified by serum MENT levels; MENT (7 $\alpha$ -methyl-19-nortestosterone) and MENT-acetate used

**P3629:** R. I. Wood, *et al.* 7 $\alpha$ -methyl-19-nortestosterone facilitates sexual behavior in the male syrian hamster. *Hormones and Behavior* 1996;30(131-137

**Agents:** Testosterone; Nortestosterone, 7 $\alpha$ -methyl-19- **Vehicle:** Cyclodextrin; **Route:** SC; **Species:** Hamster; **Pump:** 2002; **Duration:** Not Stated;

**ALZET Comments:** Replacement therapy (castration); dose response; long-term study, pumps replaced weekly or biweekly; 7 $\alpha$ -methyl-19-nortestosterone is also known as MENT; 35(010) Molecusol used as vehicle

**P6293:** R. Lu, *et al.* Regulation of renal oatp mRNA expression by testosterone. *American Journal of Physiology Renal Physiology* 1996;F332-F337

**Agents:** Testosterone; estradiol; dexamethasone **Vehicle:** PEG 600; PEG; **Route:** SC; **Species:** Rat; **Pump:** 2001; **Duration:** 1 w

**ALZET Comments:** Controls received mp w/ vehicle; replacement therapy (gonadectomy, adrenalectomy, orchidectomy, oophorectomy)

**P3151:** E. van Breda, *et al.* Steroid drug delivery systems in endocrine and metabolic research: evaluation of three models. *Horm. Metab. Res* 1995;27(436-437

**Agents:** Testosterone **Vehicle:** PEG 400; **Route:** SC; **Species:** Rat; **Pump:** 2002; **Duration:** 14 days;

**ALZET Comments:** controls received mp with PEG; functionality of mp verified by plasma levels; comparison of depot injections, silastic tubes and mp; no stress (see pg. 437)

**P3139:** R. F. Tutrone Jr, *et al.* Benign prostatic hyperplasia in a transgenic mouse: a hormonally responsive investigatory model. *Urol. Repro. Biol* 1993;149(3):697-700

**Agents:** Testosterone; Finasteride **Vehicle:** Not Stated; **Route:** SC; **Species:** Mice; **Pump:** Not Stated; **Duration:** 30 days;

**ALZET Comments:** Controls received sham castration; replacement therapy (castration); enzyme inhibitor; finasteride is Proscar, a 5- $\alpha$  reductase inhibitor

**P3176:** G. Morali, *et al.* Induction of male sexual behavior in the rat 7 $\alpha$ -Methyl-19-Nortestosterone, an androgen that does not undergo 5 $\alpha$ -reduction. *Biology of Reproduction* 1993;49(577-581

**Agents:** Testosterone, 7 $\alpha$ -methyl-19-nor- **Vehicle:** Cyclodextrin; Water; **Route:** SC; **Species:** Rat; **Pump:** 2002; **Duration:** 4 weeks;

**ALZET Comments:** replacement therapy (castration); pumps replaced after 14 days; MENT is a synthetic steroid; cyclodextrin was Molecusol

**P3238:** M. J. Lobo, *et al.* Effect of chronic intravenous injection of steroid hormones on body weight and composition of female rats. *Biochem. Molec. Biol. Intl* 1993;29(2):349-358

**Agents:** Progesterone; Cortisol; Cortisone; Corticosterone; Dehydroepiandrosterone; Androstenedione, 4-; Androstendiol, 5-; Testosterone; Nortestosterone, 19-; Estradiol, B-; Estrone; Estriol; Deoxycorticosterone **Vehicle:** PEG 400; **Route:** IV (lower cava); **Species:** Rat; **Pump:** 2002; **Duration:** 15 days;

**ALZET Comments:** controls received mp with PEG; no stress (see pg. 351); pumps placed into peritoneal cavity and sutured to musculature; surgical wound sprinkled with sulphathiazol

**R0122:** R. Bouillon. Diabetic bone disease low turnover osteoporosis related to decreased IGF-I production. *Verh K Acad Geneesk Belg* 1992;54(4):365-391

**Agents:** Testosterone; Insulin; Insulin-like growth factor I **Vehicle:** Acetic acid; **Route:** SC; **Species:** Rat; **Pump:** 2001; 2002; **Duration:** 14 days;

**ALZET Comments:** peptides; review; medical category: bone & endocrinology



**P1425:** P. J. Marie, *et al.* Somatostatin infusion inhibits the stimulatory effect of testosterone on endosteal bone formation in the mouse. *Metabolism* 1988;37(5):429-435

**Agents:** Octreotide; Somatostatin; Testosterone propionate **Vehicle:** Propylene glycol; **Route:** SC; **Species:** Mice; **Pump:** Not Stated; **Duration:** 10 days;

**ALZET Comments:** Concomitant infusion of T and SMS from 2 pumps implanted simultaneously; functionality of mp verified after delivery; peptides; somatostatin analog

**P0566:** P. C. Will, *et al.* Regulation of amiloride-sensitive electrogenic sodium transport in the rat colon by steroid hormones. *American Journal of Physiology Gastrointestinal and Liver Physiology* 1985;248(1):G124-G132

**Agents:** Aldosterone; Corticosterone; Dexamethasone phosphate; Estradiol, 17B-; Progesterone; Testosterone **Vehicle:** PEG 400; PEG 600; **Route:** IP; **Species:** Rat; **Pump:** 1701; 2001; **Duration:** 3, 8 days;

**ALZET Comments:** Comparison of agents effects; replacement therapy (adrenalectomy & ovariectomy); controls received mp with solvent or glass rods of mp size; no stress implied G125, weight regained; functionality of mp verified

**P0728:** P. Kjellstrand, *et al.* Effects of solvent exposure on testosterone levels and butyrylcholinesterase activity in mice. *Basic & Clinical Pharmacology & Toxicology* 1985;57(4):242-249

**Agents:** Testosterone **Vehicle:** PEG; **Route:** SC; **Species:** Mice; **Pump:** 2002; **Duration:** 13 days;

**ALZET Comments:** Replacement therapy (castration); stress/adverse reaction (infection at site of mp implantation)

**P0521:** C. Y. Guezennec, *et al.* Metabolic effects of testosterone during prolonged physical exercise and fasting. *European Journal of Applied Physiology* 1984;52(300-304)

**Agents:** Testosterone propionate **Vehicle:** Ethanol; Propylene glycol; Saline; **Route:** SC; **Species:** Rat; **Pump:** Not Stated; **Duration:** 6 days;

**ALZET Comments:** comparison of hCG im injec vs. testosterone mp infusion; mp delivery rate verified

**P0189:** J. C. Mittler, *et al.* Positive feedback effect of dihydrotestosterone on follicle-stimulating hormone secretion in the male rat: implications and a possible relation to the onset of puberty. *Hormone and Metabolic Research* 1981;13(10):569-570

**Agents:** Dihydrotestosterone **Vehicle:** PEG 300; **Route:** SC; **Species:** Rat; **Pump:** 2001; **Duration:** 6 days;

**ALZET Comments:** no comment posted

**P0061:** P. C. Will, *et al.* Polyethylene glycols as solvents in implantable osmotic pumps. *Journal of Pharmaceutical Sciences* 1980;69(6):747-749

**Agents:** Aldosterone; Corticosterone; Deoxycorticosterone acetate; Dexamethasone acetate; Estradiol, 17B-; Hydrocortisone; Progesterone; Spironolactone; Testosterone **Vehicle:** PEG; PEG 400; PEG 600; **Route:** IP; **Species:** Rat; **Pump:** 1701; **Duration:** Not Stated;

**ALZET Comments:** 3-7 days aldosterone, 6 days PEG only; replacement therapy (adrenalectomy)