



References on the Administration of Testosterone Using ALZET® Osmotic Pumps

Q7117: C. W. Chua, *et al.* Differential requirements of androgen receptor in luminal progenitors during prostate regeneration and tumor initiation. *Elife* 2018;7(**ALZET Comments:** Testosterone; Ethanol; SC; Mice; 2004; 28 days; 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

ALZET Comments: Testosterone; Ethanol, PEG-400; SC; mice (transgenic); 4 weeks; 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

ALZET Comments: Testosterone; Ethanol; PEG 400; SC; Mice; 4 weeks; 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

ALZET Comments: Testosterone; Propylene glycol; SC; Mice; 2004; 32 days; Dose (1 mg/kg/day); Controls received mp w/ vehicle; animal info (15-16 week old Orchiectomy FVB/NJ mice); replacement therapy (orchiectomized);.

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

ALZET Comments: Testosterone; trenbolone; Cyclodextrin, 2-hydroxypropyl-b-; SC; Rat; 2004; 8 weeks; 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-+

ALZET Comments: Testosterone; Polyethylene glycol; SC; Mice (nude); 2002; 14 days; 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

ALZET Comments: Testosterone; SC; Mice; 2004; 3 months; 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

ALZET Comments: Testosterone propionate; Cyclodextrin, sterile; Mice; 5 days; 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

ALZET Comments: Nandrolone; testosterone; Propylene glycol; Rat; 28 days; 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 & Function* 2013;218(6):1407-1417



ALZET Comments: Testosterone; flutamide; anastrozole; DMSO; ethanol; SC; Rat; 2ML2; 4 weeks; 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

ALZET Comments: Dihydrotestosterone; methyltestosterone; NEP28; SC; Rat; 2 weeks; 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

ALZET Comments: Testosterone; nandrolone; Propylene glycol; SC; Rat; 2004; 56 days; 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

ALZET Comments: Methylprednisolone; testosterone; Propylene glycol; SC; Rat; 2001; 2002; 24 hours; 7 days; 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

ALZET Comments: Estradiol; testosterone; Ethanol; propylene glycol; PBS; SC; Mice; 1002; 1004; 2, 4 weeks; 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

ALZET Comments: Testosterone propionate; Polyethylene glycol; SC; Mice; 2002; 14 days; animal info (naive, adult, 6-12 wks old, male, female, CD-1); wound clips used.

Q2246: M. Sinnesael, *et al.* 7 α -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

ALZET Comments: Testosterone; nortestosterone, androgen 7 alpha methyl 19; SC; Rat; 2004; 4 months; 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

ALZET Comments: Nandrolone; testosterone; Propylene glycol; SC; Mice; 7, 28 days; 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

ALZET Comments: Testosterone propionate; DMSO; ethanol; SC; Mice; 5 days; 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

ALZET Comments: Dexamethasone; testosterone; Propylene glycol; Rat; 7 days; 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

ALZET Comments: Testosterone; Ethanol; PEG 400; SC; Mice; 4 weeks; 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

ALZET Comments: Testosterone propionate; SC; Rat; 3 weeks; 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

ALZET Comments: Dihydrotestosterone, 5 α -; Ethanol; polypropylene glycol; SC; Mice; 1007D; 1 week; Controls received mp w/ vehicle; animal info (male, female, 5 mo old, OVX, ORDX, 129s1/sv); 0.5% ethanol used.

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.).

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

ALZET Comments: Dihydrotestosterone, 5 alpha-; Ethanol; propylene glycol; SC; Rat; mice; 1007D; 1 week; 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

ALZET Comments: Dihydrotestosterone; angiotensin II; Saline; SC; Mice (knockout); 2004; 5 weeks; 28 days; 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

ALZET Comments: Estradiol, 17 β -; dihydrotestosterone, 5 α -; Polypropylene glycol; ethanol; SC; Mice; 1007D; 1 week; 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

ALZET Comments: Testosterone; SC; 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

ALZET Comments: Dihydrotestosterone; ICI-182,780; estradiol, 17 β -; flutamide; DMSO; PEG 300; propanediol, 1, 2-; SC; CSF/CNS (HVC); CSF/CNS (robust nucleus arcopallium); Bird (sparrow); 1007D; 1002; 14, 21 days; 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

ALZET Comments: Testosterone propionate; PEG 400; SC; Mice; 2004; 7 months; 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 +/-, 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

ALZET Comments: Testosterone; nortestosterone, 7 alpha-methyl-19-; Cyclodextrin; SC; Mice (transgenic); 2004; 4 weeks; 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

ALZET Comments: Testosterone, 17a-methyl-; Saline; cyclodextrin, B-; SC; Mice; 2002; 17 days; 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

ALZET Comments: Nortestosterone, 7a-methyl-19-; Propandiol, 1, 2-; SC; Rat; 2004; 16 weeks; 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

ALZET Comments: Estradiol, 17B-; testosterone; progesterone; pregnane-3, 20 dione, 5B-; pregnane-3a-ol, 20-one, 5a-; dehydroepiandrosterone; testosterone, 5a-dihydroxy; Ethanol; water, distilled; CSF/CNS; Rat; 2ML1; 3, 7 days; Controls received mp w/ vehicle; ALZET brain infusion kit used; 3% ethanol; animal info (Sprague-Dawley, 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

ALZET Comments: Dihydrotestosterone, 5 alpha-; Estradiol, 17B-; SC; Dog; 2ML4; 28 days; Animal info (Beagle, 3.5-7.2 yrs); testosterone induced BPH animal model.

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

ALZET Comments: Estradiol; testosterone; PEG; SC; Rabbit; 2002; 2 weeks; 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

ALZET Comments: Testosterone; estradiol; dihydrotestosterone; dehydroepiandrosterone; PEG 300; SC; Rabbit; 2002; 2 weeks; 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



ALZET Comments: SARM, s-1; SARM s-2; testosterone propionate; Ethanol; PEG 300; DMSO; SC; Rat; 2002; 14 days; 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

ALZET Comments: Fibroblast growth factor, recomb. human; dihydrotestosterone; Sodium citrate; SC; bone (tibia); Rat; 1007D; 1002; 2002; 7, 14 days; 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. *Journal of Pharmacology and Experimental Therapeutics* 2003;304(3):1323-1333

ALZET Comments: Testosterone propionate; acetothiolutamide; bicalutamide, R-; PEG 300; SC; Rat; 2002; 2 weeks; 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. *Journal of Pharmacology and Experimental Therapeutics* 2003;304(3):1334-1340

ALZET Comments: Testosterone propionate; bicalutamide derivatives; hydroxyflutamide derivatives; PEG 300; DMSO; ethanol; SC; Rat; 2002; 14 days; 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

ALZET Comments: Testosterone; dehydroepiandrosterone; dihydrotestosterone, 5-alpha-; androstenediol, delta 5-3B, 17B; estradiol; progesterone; PEG; SC; Rabbit; 2002; 2 weeks; 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

ALZET Comments: Testosterone; estradiol; progesterone; flutamide; Cylodextrin, 2-beta-hydroxypropyl; SC; Mice (nude); 2004; 4 weeks; 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

ALZET Comments: Growth hormone, bovine; testosterone; estradiol, 17B-; Phosphate buffer; glycerol; sodium azide; propylene glycol; SC; Rat; 2001; 7 days; 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

ALZET Comments: Triiodothyronine; iodide, potassium; methimazole; Estradiol, 17B-; testosterone; thiourea; Saline; IP; Fish (cod); 2ML1; 17 days; 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 *mvdpr/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).

P5313: G. Shetty, *et al.* Inhibition of recovery of spermatogenesis in irradiated rats by different androgens. *Endocrinology* 2002;143(9):3385-3396

ALZET Comments: Testosterone; nortestosterone, 7 α -methyl-19-; Molecusol (cyclodextrin); water; SC; Rat; 2004; 4 weeks; Testosterone plasma levels checked; 45% aqueous solution of Molecusol (cyclodextrin) used; nortestosterone, 7 α -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 α -methyl-19-nortestosterone on serum testosterone, number of spermatozoa and fertility in adult male bonnet monkeys (*Macaca radiata*). *REPRODUCTION* 2002;124(2):301-309

ALZET Comments: Nortestosterone, 7 α -methyl-19-; SC; Monkey; 2ML4; 195 days; 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 and Gynecology* 2002;187(5):1370-1376

ALZET Comments: Estradiol; testosterone; PEG; SC; Rabbit; 2002; 14 days; 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 β -D-glucuronide in rats. *AMERICAN JOURNAL OF PHYSIOLOGY-ENDOCRINOLOGY AND METABOLISM* 2002;282(E1245-E1254)

ALZET Comments: Testosterone; PEG 400; SC; Rat; 2001; 1 week; 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. *Biol. Reprod* 2000;63(2):368-376

ALZET Comments: Azaline B; Testosterone, 7 α -methyl-19-nor; Water; Mannitol; Cyclodextrin, hydroxypropyl (molecusol); Rat; 2ML2; 2ML4; 1,2,3,4,8 weeks; 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

ALZET Comments: Dihydrotestosterone; mice (pregnant); 7 days; teratology; pellets also used to administer DHT.

P4643: D. E. Cummings, *et al.* Prostate-sparing effects in primates of the potent androgen 7 α -Methyl-19-Nortestosterone: A potential alternative testosterone for androgen replacement and male contraception. *Journal of Clinical Endocrinology and Metabolism* 1998;83(12):4212-4219

ALZET Comments: Nortestosterone, 7 α -methyl-19-; Testosterone acetate; Cyclodextrin, B-; SC; monkey; 20 weeks; 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 7alpha-methyl-19-nortestosterone in men and cynomolgus monkeys. *J. Androl* 1997;18(4):352-358

ALZET Comments: Nortestosterone, 7a-methyl-19-; SC; monkey; 2ML2; no duration posted; functionality of mp verified by serum MENT levels; MENT (7a-methyl-19-nortestosterone) and MENT-acetate used.

P3629: R. I. Wood, *et al.* 7a-methyl-19-nortestosterone facilitates sexual behavior in the male syrian hamster. *Horm. Behav* 1996;30(131-137)

ALZET Comments: Testosterone; Nortestosterone, 7a-methyl-19-; Cyclodextrin; SC; hamster; 2002; no duration posted; replacement therapy (castration); dose response; long-term study, pumps replaced weekly or biweekly; 7a-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 Physiological Society* 1996;F332-F337

ALZET Comments: Testosterone; estradiol; dexamethasone; PEG 600; PEG; SC; Rat; 2001; 1 week; 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)

ALZET Comments: Testosterone; PEG 400; SC; Rat; 2002; 14 days; 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

ALZET Comments: Testosterone; Finasteride; SC; mice; 30 days; 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 7a-Methyl-19-Nortestosterone, an androgen that does not undergo 5a-reduction. *Biol. Reprod* 1993;49(577-581)

ALZET Comments: Testosterone, 7a-methyl-19-nor-; Cyclodextrin; Water; SC; Rat; 2002; 4 weeks; 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

ALZET Comments: Progesterone; Cortisol; Cortisone; Corticosterone; Dehydroepiandrosterone; Androstenedione, 4-; Androstendiol, 5-; Testosterone; Nortestosterone, 19-; Estradiol, B-; Estrone; Estriol; Deoxycorticosterone; PEG 400; IV (lower cava); Rat; 2002; 15 days; 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

ALZET Comments: Testosterone; Insulin; Insulin-like growth factor I; Acetic acid; SC; Rat; 2001; 2002; 14 days; peptides; review; medical category: bone & endocrinol.

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

ALZET Comments: Octreotide; Somatostatin; Testosterone propionate; Propylene glycol; SC; mice; 10 days; 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. *Am. J. Physiol* 1985;248(1):G124-G132



ALZET Comments: Aldosterone; Corticosterone; Dexamethasone phosphate; Estradiol, 17B-; Progesterone; Testosterone; PEG 400; PEG 600; IP; Rat; 1701; 2001; 3-8 days; 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. *Acta Pharmacol. Toxicol* 1985;57(4):242-249

ALZET Comments: Testosterone; PEG; SC; mice; 2002; 13 days; 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. *Eur. J. Appl. Physiol* 1984;52(300-304)

ALZET Comments: Testosterone propionate; Ethanol; Propylene glycol; Saline; SC; Rat; 6 days; 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. *Horm. Metab. Res* 1981;13(10):569-570

ALZET Comments: Dihydrotestosterone; PEG 300; SC; Rat; 2001; 6 days; no comment posted.

P0061: P. C. Will, *et al.* Polyethylene glycols as solvents in implantable osmotic pumps. *J. Pharm. Sci* 1980;69(6):747-749

ALZET Comments: Aldosterone; Corticosterone; Deoxycorticosterone acetate; Dexamethasone acetate; Estradiol, 17B-; Hydrocortisone; Progesterone; Spironolactone; Testosterone; PEG; PEG 400; PEG 600; IP; Rat; 1701; no duration posted; 3-7 days aldosterone, 6 days PEG only; replacement therapy (adrenalectomy).