



**References on the Administration of Luteinizing Hormone and LHRH
Using ALZET® Osmotic Pumps**

Q6743: H. Pierce, *et al.* Cholinergic Signals from the CNS Regulate G-CSF-Mediated HSC Mobilization from Bone Marrow via a Glucocorticoid Signaling Relay. *Cell Stem Cell* 2017;20(5):648-658 e4

ALZET Comments: Pirenzepine; Scopolamine hydrobromide; Metyrapone; luteinizing hormone; ACTH; PBS; CSF/CNS (Third ventricle); Mice (knockout); 1002; Dose (0.6 mg/kg/day Pirenzepine; 1.0 mg/kg Scopolamine hydrobromide; 100mg/kg/day Metyrapone; 2.8 mg/kg/day ACTH; 16ug/day LH); Controls received mp w/ vehicle; animal info (wild-type and *Chrm1*^{-/-}); luteinizing hormone aka LH and adrenocorticotrophic hormone aka ACTH; peptides; Brain coordinates (A/R.6 mm posterior to bregma, D/V -4.7 mm);.

Q0948: G. K. Mak, *et al.* Paternal recognition of adult offspring mediated by newly generated CNS neurons. *Nature Neuroscience* 2010;13(6):753-U134

ALZET Comments: Prolactin, mouse, recomb.; luteinizing hormone, mouse, recomb.; antibody, prolactin neutralizing; Albumin, mouse serum; PBS;; SC; CSF/CNS; Mice; 1003D; 1007D; 2 days; Controls received mp w/ vehicle or normal goat antibody; animal info (8 wks old, *Prlr* +/+, *Prlr* -/-, male).

Q0928: G. Mak, *et al.* Male pheromone-stimulated neurogenesis in the adult female brain: possible role in mating behavior. *Nature Medicine* 2008;10(8):1003-1011

ALZET Comments: Luteinizing hormone; ara-C; Saline; SC; CSF/CNS; Mice; 1007D; 2 days; Controls received mp w/ vehicle; animal info (8-10 wks old, female, CD1).

P8066: M. Bielinska, *et al.* GATA-4 is required for sex steroidogenic cell development in the fetal mouse. *Developmental Dynamics* 2007;236(1):203-213

ALZET Comments: Luteinizing HRH, D-Trple; SC; Mice (nude); 3 weeks; Replacement therapy (gonadectomy); peptides; animal info (female, NU/J, chimeric teratoma).

P7590: A. G. Geiser, *et al.* A new selective estrogen receptor modulator with potent uterine antagonist activity, agonist activity in bone, and minimal ovarian stimulation. *Endocrinology* 2005;146(10):4524-4535

ALZET Comments: Luteinizing HRH, D-Trple; Rat; 35 days; Peptides; animal info (female, Sprague-Dawley, 270 g); GnRH agonist.

P5142: I. S. Kim, *et al.* Changes in the testis interstitium of Brown Norway rats with aging and effects of luteinizing and thyroid hormones on the aged testes in enhancing the steroidogenic potential. *Biol Reprod* 2002;66(1359-1366

ALZET Comments: Luteinizing hormone; Thyroxine; Saline; SC; Rat; 2ML4; 4 weeks; controls received mp w/ saline; functionality of mp verified by residual volume and plasma levels of LH & T4 via radioimmunoassay; dose-response (table, p. 1364); multiple pumps per animal (1-2): one for T4 and one for LH.

P3972: S. M. L. C. Mendis-Handagama, *et al.* The effect of chronic luteinizing hormone treatment on adult rat leydig cells. *Tissue & Cell* 1998;30(1):64-73

ALZET Comments: Luteinizing hormone; Borate buffer; SC; Rat; 2002; 2 weeks; controls received no treatment; peptides.

P4407: F. W. Grzywacz, *et al.* Does age-associated reduced leydig cell testosterone production in brown Norway rats result from under-stimulation by luteinizing hormone? *Journal of Andrology* 1998;19(5):625-630

ALZET Comments: Luteinizing hormone, ovine;; Buffer, borate;; SC;; Rat;; 5 days;; controls received mp with peanut oil; pulsed delivery-LH was alternated with peanut oil;.

P4615: D. Dondi, *et al.* Growth-Inhibitory effects of luteinizing hormone-releasing hormone (LHRH) agonists on xenografts of the DU 145 human androgen-independent prostate cancer cell line in nude mice. *Int. J. Cancer* 1998;76(506-511

ALZET Comments: Luteinizing HRH agonist;; Propylene glycol; Water;; SC;; Mice (nude);; 2002;; 14 days;; controls received mp/vehicle; cancer (prostate); Zoladex was the LHRH agonist used;.



R0134: A. Rothen-Weinhold, *et al.* Controlled and/or prolonged parental (sic) delivery of peptides from the hypothalamic (sic) pituitary axis. *Eur. J. Pharmaceutics Biopharmaceutics* 1997;43(115-131

ALZET Comments: Growth hormone; Thyrotropin-rel. factor; Luteinizing HRH; no duration posted; review of various controlled/continuous drug delivery systems; brief mention of mp (p. 116); peptides.

P2859: J. Pinski, *et al.* Inhibitory effects of analogs of luteinizing hormone-releasing hormone on the growth of androgen-independent Dunning R-3327-AT-1 rat prostate cancer. *Int. J. Cancer* 1994;59(51-55

ALZET Comments: SB-75; Luteinizing HRH; Propylene glycol; Water; SC; Rat; 2ML4; 2 weeks; Cancer (prostate); peptides; D-Trp6-LHRH used.

P3205: J. P. Jarow, *et al.* In vivo model for chronic direct intratesticular drug administration. *J. Androl* 1994;15(5):456-461

ALZET Comments: Luteinizing hormone; Buffer, borate; Albumin, bovine serum; SC; intratesticular; Rat; 2002; 12-14 days; controls received sham surgery, tubing only, or mp with buffer; tissue perfusion (parenchyma of testis); comparison of sc infusion vs. targeted infusion; peptides; no stress/stress; surgery and buffer infusion had no effect on spermatogenesis or steroidogenesis; localized inflammatory response to tubing; targeted delivery more effective than systemic infusion; ovine LH used.

P3185: M. J. Gibson, *et al.* Continuous gonadotrophin-releasing hormone infusion stimulates dramatic gonadal development in hypogonadal female mice. *Biol. Reprod* 1994;50(680-685

ALZET Comments: Luteinizing HRH; Saline; SC; mice; 2002; 15, 30 days; controls received mp with saline; pumps replaced after 2 weeks; peptides.

P3128: A. J. Tilbrook, *et al.* Treatment of young rams with an agonist of GnRH delays reproductive development. *Horm. Behav* 1993;27(5-28

ALZET Comments: Luteinizing HRH; SC; sheep; 2001; 28 days; 16 weeks; comparison of biocompatible implant vs. mp; long-term study, pumps replaced every 4 weeks; pumps placed in foreleg; pumps more effective than implants in suppressing LH and FSH secretion; D-Trp6-pro9N-ethyl amide-LHRH used.

P2924: E. Ronayne, *et al.* Effects of continuous administration of gonadotropin-releasing hormone (GnRH) or a potent GnRH analogue on blood luteinizing hormone and testosterone concentrations in prepubertal bulls. *Domest. Anim. Endocrinol* 1993;10(3):179-189

ALZET Comments: Luteinizing HRH; Leuprolide acetate; Saline; SC; cattle; 2ML4; 28,56 days; controls received mp with vehicle; functionality of mp verified by plasma levels; long-term study, pumps replaced at 28 days; peptides.

P2468: J. Pinski, *et al.* Inhibition of growth of experimental prostate cancer in rats by LH-RH analogs linked to cytotoxic radicals. *The Prostate* 1993;23(165-178

ALZET Comments: Luteinizing HRH; Methotrexate; AJ-004; G-HMAQ; T-98; Propylene glycol; Water; SC; Rat; 2ML4; 7-8 weeks; controls received tumors and mp w/ vehicle; long-term study, pumps replaced after 4 weeks; cancer (prostate); toxicology; peptides; T-98 and AJ-004 are hybrid cytotoxic LH-RH analogs; D-Lys6-LHRH used.

P2541: J. Pinski, *et al.* Antagonists of bombesin/gastrin-releasing peptide as adjuncts to agonists of luteinizing hormone-releasing hormone in the treatment of experimental prostate cancer. *Cancer* 1993;72(11):3263-3270

ALZET Comments: RC-3095; Luteinizing HRH; Propylene glycol; Water; SC; Rat; 2ML4; 7 weeks; controls received injection of vehicle only; long-term study, pumps replaced after 4 weeks; cancer (prostate); peptides; agents given concomitantly in some cases; D-Lys6-LHRH used; 50 U/ml of heparin; animal info (SD, F, 200-250 g).

P3280: D. W. Matt, *et al.* Apparent absence of negative feedback in middle-aged persistent-estrous rats following luteinizing hormone-releasing hormone agonist treatment: relation to plasma inhibin and 17 β -estradiol. *Biol. Reprod* 1993;48(333-339

ALZET Comments: Luteinizing HRH; Saline; SC; Rat; 12 days; peptides; D-Trp6,Pro9-NHEt-LHRH used.



P2321: M. Ishimatsu, *et al.* Continuous luteinizing hormone infusion prevents atretic changes of the follicles during superovulation in hamsters. *Endocrine J* 1993;40(665-671)

ALZET Comments: Follicle stimulating hormone, human; Luteinizing hormone; PBS; Albumin, bovine serum; SC; hamster; 2001; 4 days; controls received mp w/ vehicles only; agents infused alone and in combination; human LH used.

P2503: J. H. Hyland. Uses of gonadotrophin releasing hormone (GnRH) and its analogues for advancing the breeding season in the mare. *Anim. Reprod. Sci* 1993;33(195-207)

ALZET Comments: Luteinizing HRH; SC; horse; 2ML2; 2ML4; 14 or 28 days; comprehensive review of other GnRH induced estrous studies (pp. 198-199).

P2359: A. Meseguer, *et al.* Effects of pituitary hormones on the cell-specific expression of the KAP gene. *Mol. and Cellular Endocrin* 1992;89(153-162)

ALZET Comments: Luteinizing hormone; ACTH, human; Thyroid-stimulating hormone, rat; Follicle stimulating hormone, rat; Growth hormone, rat; Prolactin, ovine; SC; mice; 2001; 7 days; controls received mp w/ vehicles; replacement therapy (hypophysectomy); peptides.

P2219: W. J. Debertin, *et al.* An investigation of the requirement for increased LH secretion during the compensatory response in androgen secretion after unilateral castration of the adult rat. *J. Androl* 1992;13(3):199-207

ALZET Comments: Luteinizing hormone; Saline; SC; Rat; no duration posted; controls received empty mp; peptides; ovine LH used.

P2684: S. M. L. Chamindrani Mendis-Handagama, *et al.* Leydig cell peroxisomes and sterol carrier protein-2 in luteinizing hormone-deprived rats. *Endocrinology* 1992;131(6):2839-2845

ALZET Comments: Luteinizing hormone; Borate buffer; SC; Rat; 2002; 8 days; no comment posted.

P3241: S. E. Becker, *et al.* Effects of gonadotropin-releasing hormone infused in a pulsatile or continuous fashion on serum gonadotropin concentrations and ovulation in the mare. *J. Anim. Sci* 1992;70(1208-1215)

ALZET Comments: Luteinizing HRH; IV (jugular); horse; 2ML1; 7-16 days; controls received no treatment; functionality of mp verified by LH plasma levels; comparison of iv pulsatile infusion vs. mp; peptides.

P1846: C. J. Smith, *et al.* Changes in rat luteal ultrastructure and P450scc mRNA and protein content after in vivo treatment with a gonadotropin-releasing hormone agonist. *Biol. Reprod* 1991;44(382-391)

ALZET Comments: Luteinizing HRH agonist; SC; Rat (pregnant); 2001; 24 hours; no comment posted.

P3231: B. J. McLeod, *et al.* Efficacy of intermittent or continuous administration of GnRH in inducing ovulation in early and late seasonal anoestrus in the pere david's deer hind (*elaphurus davidianus*). *J. Reprod. Fertil* 1991;91(229-238)

ALZET Comments: Luteinizing HRH; Saline; SC; deer; 2ML2; 14 days; functionality of mp verified by LH plasma levels; comparison of intermittent iv injections vs. mp; peptides.

P2042: T. C. Lewis, *et al.* The effect of an extended artificial photoperiod and gonadotrophin-releasing hormone infusions in inducing fertile oestrus in anoestrous mares. *Aust. Vet. J* 1991;68(12):400-402

ALZET Comments: Luteinizing HRH; Saline; SC; horse; 28 days; peptides.

P2337: M. Khalid, *et al.* Regulation of pituitary GnRH receptors by continuous infusion of GnRH in the seasonally anoestrous ewe: evidence of ovarian involvement. *Anim. Reprod. Sci* 1991;24(271-282)

ALZET Comments: Luteinizing HRH; Saline; SC; sheep; 2ML1; 20 hours; controls received mp w/ vehicle; functionality of mp verified by plasma levels of LH and estradiol.

P1975: K. Bretzlaff, *et al.* Luteinizing hormone and progesterone concentrations and induction of estrus after use of norgestomet ear implants or constant infusion of gonadotropin-releasing hormone in anestrus, nonlactating dairy goats. *Am. J. Vet. Res* 1991;52(9):1423-1426

ALZET Comments: Luteinizing HRH; SC; Goat; 48 hours; pumps placed on side of neck.



P1858: J. D. Brannian, *et al.* Involvement of prostaglandins in LH-induced superovulation in the cyclic hamster. *Prostaglandins* 1991;41(2):123-133

ALZET Comments: Luteinizing hormone; Albumin, bovine serum; PBS; SC; hamster; 2001; no duration posted; no comment posted.

P1984: C. G. V. Ainsworth, *et al.* Continuous infusion of gonadotrophin-releasing hormone (GnRH) advances the onset of oestrous cycles in thoroughbred mares on Australian studfarms. *J. Reprod. Fertil* 1991;44(235-240)

ALZET Comments: Luteinizing HRH; Saline; SC; horse; 2ML4; 28 days; peptides.

P1631: B. Szende, *et al.* Suppression of meiosis of male germ cells by an antagonist of luteinizing hormone-releasing hormone. *Proc. Natl. Acad. Sci* 1990;87(901-903)

ALZET Comments: Luteinizing HRH antagonist; Propylene glycol; Water; SC; Mice (nude); 2002; 30 days; comparison of SC injections vs. mp; pump replaced at 2 weeks; states mp is standard for continuous admin.

P1732: O. P. Sharma, *et al.* Effects of androgens on bioactivity and immunoreactivity of pituitary FSH in GnRH antagonist-treated male rats. *Acta Endocrinol. (Copenh)* 1990;122(2):168-174

ALZET Comments: Luteinizing HRH antagonist; SC; Rat; 21 days; silastic implants used for testosterone.

P1799: A. J. Rao, *et al.* Effect of constant infusion of gonadotropin releasing hormone (GnRH) agonist buserelin and antagonist CDB 2085 A using osmotic minipumps on testicular function in adult male bonnet monkey (*Macaca radiata*). *Andrologia* 1990;22(567-573)

ALZET Comments: Buserelin; Luteinizing HRH antagonist; Saline; SC; monkey; 2001; 2002; 15 weeks; long-term study, pumps replaced every 36th day (2002) or every 30th day (2001).

P1712: D. R. Mann, *et al.* A potential primate model for bone loss resulting from medical oophorectomy or menopause. *J. Clin. Endocrinol. Metab* 1990;71(1):105-110

ALZET Comments: Luteinizing HRH agonist; SC; monkey; 2ML4; 10 months; long-term study, pumps replaced every 4 weeks.

P1698: D. S. Keeney, *et al.* Reversal of long-term LH deprivation on testosterone secretion and Leydig cell volume, number and proliferation in adult rats. *J. Endocrinol* 1990;127(47-58)

ALZET Comments: Luteinizing HRH; Follicle stimulating hormone, ovine; SC; Rat; 2002; 2 weeks; peptides; ovine LHRH used.

P1587: D. C. Johnson, *et al.* The cytochrome P450(17a) (17a-hydroxylase/C17,20-lyase) activity of the junctional zone of the rat placenta. *J. Endocrinol* 1990;125(217-224)

ALZET Comments: Luteinizing hormone; Rat; 5 days; ovine LH used.

P1755: K. M. Henderson, *et al.* Oocyte production and ovarian steroid concentrations of immature rats in response to some commercial gonadotrophin preparations. *Reprod. Fertil. Dev* 1990;2(671-682)

ALZET Comments: Luteinizing hormone; Follicle stimulating hormone; SC; Rat; 2001; 72 hours; FSH-P, Folltropin, Oragen, Folligon; horse and porcine LH used.

P1728: Y. Amir-Zaltsman, *et al.* Pharmacological effects of the continuous administration of an LHRH agonist in the ageing male rat: comparison with orchidectomy. *J. Endocrinol* 1990;124(261-268)

ALZET Comments: Luteinizing HRH-13; Saline; SC; Rat; 2ML2; 2ML4; 2, 4 weeks; functionality of mp verified by blood vessels of LHRH-13.

P1750: G. A. Schuiling, *et al.* Interdependence of oestradiol and 5a-dihydrotestosterone in modulating LH and FSH secretion in rats. *J. Endocrinol* 1989;123(257-262)

ALZET Comments: Luteinizing HRH; SC; Rat; 2001; 6 days; controls received silastic sham; peptides.



P1666: W. R. McVey, *et al.* Effects of temporary calf removal and osmotic pump delivery of gonadotropin-releasing hormone on synchronized estrus, conception to a timed artificial insemination and gonadotropin secretion in norgestomet-estradiol valerate-treated cattle. *Theriogenology* 1989;32(6):969-978

ALZET Comments: Luteinizing HRH; Potassium phosphate; SC; cattle; 2001; 6, 7 days; pump placed s.c. in ear.

P1189: G. E. Lamming, *et al.* Continuous infusion of GnRH reduces the LH response to an intravenous GnRH injection but does not inhibit endogenous LH secretion in cows. *J. Reprod. Fertil* 1989;82(237-245)

ALZET Comments: Luteinizing HRH; Saline; SC; cattle; 2ML2; 14 days; pump primed 10 hours before implant; bolus iv injections given the day before and 14th day of GnRH infusion; functionality of mp verified by incubation in vitro for 15 hours after removal; peptides.

P1848: M. Khalid, *et al.* Pituitary responses of seasonally anoestrous ewes to long-term continuous infusion of low doses of GnRH. *Anim. Prod* 1989;49(95-102)

ALZET Comments: Luteinizing HRH; Saline; SC; sheep; 2ML4; 21 days; peptides.

P1880: I. S. Kang, *et al.* Effect of treatment with gonadotropin-releasing hormone analogues on pregnancy outcome in the baboon. *Fertil. Steril* 1989;52(5):846-853

ALZET Comments: Luteinizing HRH antagonist; Water; SC; Monkey (baboon, pregnant); 7 days; no comment posted.

P1501: M. J. D'Occhio, *et al.* Pituitary and ovarian responses of post-partum acyclic beef cows to continuous long-term GnRH and GnRH agonist treatment. *J. Reprod. Fertil* 1989;85(495-502)

ALZET Comments: Buserelin; Luteinizing HRH; SC; cattle; 2ML4; 4, 8, 12, 16, 28 days; dose-response; multiple pumps per animal (1 or 2) depending upon dose; functionality of mp verified indirectly by plasma levels; peptides.

P1522: M. Berria, *et al.* Role of prolactin and luteinizing hormone in regulating timing of implantation in the spotted skunk. *Biol. Reprod* 1989;40(232-238)

ALZET Comments: Luteinizing HRH; Saline; SC; skunk; 2001; 6 weeks; long-term study; pump replaced weekly; peptides.

P1608: K. M. Ataya, *et al.* Effect of GnRH agonists on the thymus in female rats. *Acta Endocrinol* 1989;121(833-840)

ALZET Comments: Luteinizing HRH; Radio-isotopes; Thymidine; 3H tracer; Saline; Rat; 2001; 2002; 2, 13 days; dose-response (graph); 2001 pumps filled with tracer and saline only, pellets and silastic capsules also used, some 2002 pumps filled with LHRH.

P1383: R. Sridaran, *et al.* Inhibitory effects of a gonadotropin-releasing hormone agonist on the luteal synthesis of progesterone, estradiol receptors, and prolactin surges during early pregnancy. *Endocrinology* 1988;123(4):1740-1746

ALZET Comments: Luteinizing HRH agonist; Wy-40972; SC; Rat (pregnant); 2001; 1, 3, 5 days; peptides.

P1428: G. A. Schuiling, *et al.* Effect of estradiol on the secretion of LH in the GnRH-pretreated rat after treatment with the GnRH-antagonist, org 30093. *Acta Endocrinol* 1988;119(582-588)

ALZET Comments: Luteinizing HRH; SC; Rat; 2001; 10 days; controls received silastic sham pump; pump replaced on day 5; peptides.

P1238: J. J. Milette, *et al.* The importance of follicle-stimulating hormone in the initiation of testicular growth in photostimulated djungarian hamsters. *Endocrinology* 1988;122(1060-1066)

ALZET Comments: Follicle stimulating hormone, ovine; Luteinizing hormone; Saline; IP; hamster; 2001; 8 days; controls left untreated; dose-response (graph); peptides; ovine LH used.

P1257: M. R. A. Laloz, *et al.* Gonadotropin-releasing hormone desensitization preferentially inhibits expression of the luteinizing hormone B-subunit gene in vivo. *Endocrinology* 1988;122(4):1689-1694

ALZET Comments: Buserelin; Luteinizing HRH; Albumin, bovine serum; PBS; IP; Rat; 7, 14, 28 days; pump model not stated; buserelin infused for 28 days; agents infused separately; functionality of mp verified; pump replaced after 2 weeks; peptides.



P1258: M. R. A. Lalloz, *et al.* Gonadotropin-releasing hormone is required for enhanced luteinizing hormone subunit gene expression in vivo. *Endocrinology* 1988;122(4):1681-1688

ALZET Comments: Luteinizing HRH antagonist; Albumin, bovine serum; DMSO; PBS; IP; Rat; 7, 14 days; pump model not stated.

P1491: D. J. Kesler, *et al.* The effect of constant delivery of GnRH on the episodic secretion of equine LH. *J. Controlled Release* 1988;8(55-61)

ALZET Comments: Luteinizing HRH; SC; horse; 2001; 6 days; functionality of mp verified in vitro; peptides.

P1322: J. H. Hyland, *et al.* Control of transitional anestrus in mares by infusion of gonadotropin releasing hormone. *Theriogenology* 1988;29(6):1383-1391

ALZET Comments: Luteinizing HRH; Saline; SC; horse; 2ML4; 28 days; peptides.

P1294: K. Ataya, *et al.* Effect of luteinizing hormone releasing hormone (LHRH) agonists on body weight in rats. *Drug Dev. Res* 1988;13(45-56)

ALZET Comments: Luteinizing HRH; Saline; SC; Rat; 2ML4; 26 days; dose-response (graph); comparison of sc injections vs. mp infusion; peptides.

P1006: G. F. Weinbauer, *et al.* Suppression of spermatogenesis in a nonhuman primate (*macaca fascicularis*) by concomitant gonadotropin-releasing hormone antagonist and testosterone treatment. *Acta Endocrinol* 1987;114(138-146)

ALZET Comments: Luteinizing HRH antagonist; Propylene glycol; Water; SC; monkey; 2002; 2ML1; 104 days; mp w/vehicle; pumps replaced every 16 days; peptides; 4 pumps/animal until last wk when 1-week pump was implanted; functionality of mp verified by comp. volume left in pump after removal; long-term study.

P1197: K. Sundaram, *et al.* Reversal of testicular function after prolonged suppression with an LHRH agonist in rhesus monkeys. *J. Androl* 1987;8(2):103-107

ALZET Comments: Luteinizing HRH agonist; Water; SC; monkey; 2ML4; 18 months; supplemental androgen therapy; long-term study; pump replaced at 4 week intervals.

P1007: G. A. Schuiling, *et al.* Suppression by LRH of the stimulatory effect of oestradiol on the secretion of LH by the rat pituitary gland. *Acta Endocrinol* 1987;114(488-496)

ALZET Comments: Luteinizing HRH; SC; Rat; 2001; 6 days; controls received silicone elastomer the size of mp; peptides.

P1399: J. A. Phillips, *et al.* Modification of reproductive rhythm in lizards via GnRH therapy. *Ann. N. Y. Acad. Sci* 1987;519(128-136)

ALZET Comments: Luteinizing HRH analog, chicken; Peanut oil; IP; iguana; 2ML2; 10 days; coiled catheter; continuous versus pulsed delivery both by mp; pulsed delivery; peptides.

P1048: J. A. Phillips, *et al.* Exogenous GnRH overrides the endogenous annual reproductive rhythm in green iguanas, iguana iguana. *J. Exp. Zool* 1987;241(227-236)

ALZET Comments: Luteinizing HRH; Peanut oil; IP; iguana; 2ML2; 14 days; controls received mp w/vehicle; peptides; pumps primed in saline before implantation; pulsed delivery; chicken & mammal LHRH used.

P1141: C. L. Marte, *et al.* Induced spawning of maturing milkfish (*chanos chanos forsskal*) with gonadotropin-releasing hormone (GnRH) analogues administered in various ways. *Aquaculture* 1987;60(3/4):303-310

ALZET Comments: Luteinizing HRH; HCl; IP; fish; 2002; no duration posted; mp primed 12 hrs. at 4 degrees C; concomitant infusion; comparison of im inject. vs. LHRH pellet vs. mp infusion; functionality of mp verified; stress/adverse reaction (tissue necrosis); peptides; salmon & mammal LHRH used.



P1193: D. R. Mann, *et al.* Effect of continuous infusion of a low dose of GnRH antagonist on serum LH and testosterone concentrations, spermatogenesis and semen quality in the rhesus monkey (*Macaca mulatta*). *J. Reprod. Fertil* 1987;81(485-493)

ALZET Comments: Luteinizing HRH antagonist; SC; monkey; 2ML4; 36-50 weeks; iv bolus of GnRH given at monthly intervals; long-term study; pump replaced every 4 weeks; peptides.

P1131: D. J. Kesler, *et al.* Constant delivery of GnRH to infertile or subfertile females with hypothalamic-pituitary axes that release hormones in episodic bursts. *Proc. 14th Int'l Symp. on Controlled Release of Bioactive Materials* 1987;47-48

ALZET Comments: Luteinizing HRH; Potassium phosphate; SC; horse; 2001; 7 days; controls receive mp w/ vehicle; dose-response; mp primed 4 hours before implant; 2 experiments using mp; progesterin silastic implants used concomitantly with GnRH; peptides.

P1134: J. H. Hyland, *et al.* Infusion of gonadotrophin-releasing hormone (GnRH) induces ovulation and fertile oestrus in mares during seasonal anoestrus. *J. Reprod. Fertil* 1987;35(211-220)

ALZET Comments: Luteinizing HRH; Saline; SC; horse; 2ML4; 28 days; controls remained untreated; dose-response; infusion of GnRH via mp did not produce linear plasma increases, possibly because of stability of GnRH in solution or pooling at implant site; peptides.

P1060: I. T. Huhtaniemi, *et al.* Blockade of rat testicular gonadotropin releasing hormone (GnRH) receptors by infusion of a GnRH antagonist has no major effects on Leydig cell function in vivo. *Mol. Cell. Endocrinol* 1987;49(89-97)

ALZET Comments: Luteinizing HRH antagonist; DMSO; Saline; intratesticular; Rat; 2001; 2002; 7, 14 days; controls received cannula without mp; mp connected to cannula buried in the testis; functionality of mp verified by measuring vol. of fluid left in mp; tissue perfusion (testis); peptides.

P1046: B. D. Greenstein, *et al.* Regeneration of the thymus in old male rats treated with a stable analogue of LHRH. *J. Endocrinol* 1987;112(345-350)

ALZET Comments: Luteinizing HRH analog; Citrate; SC; Rat; 2ML4; 28 days; controls received mp w/vehicle; peptides.

P0800: R. Sridaran. Effects of gonadotropin-releasing hormone treatment on ovarian steroid production during midpregnancy. *Proc. Soc. Exp. Biol. Med* 1986;182(120-126)

ALZET Comments: Luteinizing HRH; Wy-40972; SC; Rat (pregnant); 2002; 8 days; mps primed in saline overnight; controls received sham surgery only; dose-response (plasma hormone levels); peptides.

P0867: C. L. Skaggs, *et al.* Pulsatile or continuous infusion of luteinizing hormone-releasing hormone and hormonal concentrations in prepubertal beef heifers. *J. Anim. Sci* 1986;62(1034-1048)

ALZET Comments: Luteinizing HRH; Saline; SC; cattle; 2ML1; 4 days; controls were untreated; dose-response; half-life data for FSH; comparison of ip injections vs. mp infusion; peptides.

P1010: G. A. Schuiling, *et al.* Effect of clomiphene citrate on the in vitro release of LH and FSH by the pituitary gland of the long-term ovariectomized rat pretreated with LRH or with LRH and oestradiol benzoate. *Acta Endocrinol* 1986;113(35-41)

ALZET Comments: Luteinizing HRH; SC; Rat; 2001; 5 days; controls received mp sized silicone elastomer; peptides.

P0902: M. C. Ruiz de Elvira, *et al.* A backpack system for long-term osmotic minipump infusions into unrestrained marmoset monkeys. *Lab. Anim* 1986;20(329-334)

ALZET Comments: Luteinizing HRH; SC; monkey; 2001; up to 22 days; mp conn. to cannula, external pump application; pumps replaced every 10 days; mp cont. in saline filled vial attached to backpack; sys. used for long-term inf. up to 3 mths; pulsed delivery of LHRH using backpack system; peptides.

P0789: A. Krishna, *et al.* Histamine and increased ovarian blood flow mediate LH-induced superovulation in the cyclic hamster. *J. Reprod. Fertil* 1986;76(1):23-29



ALZET Comments: Fluoromethylhistidine, a-; Luteinizing hormone; Albumin, bovine serum; PBS; SC; hamster; 2001; 5 days; Multiple pumps per animal (2) in some groups-one pump per agent; comparison of fluoromethylhistidine or cimetidine injections vs. mp infusion; peptides; ovine LH used.

P0837: I. Huhtaniemi, *et al.* Regulation of testicular steroidogenesis by gonadotropin-releasing hormone agonists and antagonists. *J. Steroid Biochem* 1986;24(1):169-176

ALZET Comments: Luteinizing HRH antagonist; DMSO; Saline; intratesticular; IP; Rat; 7 days; mp conn. to polystyrene cannula imbedded in testis in one exp.; bromocriptine admin. concomitantly w/mp infusion; treatment w/ GnRH antiserum vs. mp infusion of antagonist; controls received mp w/vehicle or piece of tubing similar to mp; peptides; tissue.

P0992: G. W. Asher, *et al.* Induction of oestrus and ovulation in anoestrous fallow deer (*Dama dama*) by using progesterone and GnRH treatment. *J. Reprod. Fertil* 1986;78(6):693-697

ALZET Comments: Luteinizing HRH; Albumin, bovine serum; Saline; SC; deer; 2001; 7 days; 2001, 7 days; 2 doses of agent infused; peptides.

P1034: T. E. Adams, *et al.* Gonadotropin-releasing hormone (GnRH) receptor dynamics and gonadotrope responsiveness during and after continuous GnRH stimulation. *Biol. Reprod* 1986;35(8):881-889

ALZET Comments: Luteinizing HRH; Saline; IP; Rat; 2001; 6, 12, 18, 24, 48, or 96 hours; peptides; comparison of iv injections vs. mp infusion.