



References on the Administration of Human Chorionic Gonadotropin Using ALZET® Osmotic Pumps

- Q7399:** J. A. Blair, *et al.* CNS luteinizing hormone receptor activation rescues ovariectomy-related loss of spatial memory and neuronal plasticity. *Neurobiol Aging* 2019;78(111-120
Agents: Chorionic gonadotropin hormone, human **Vehicle:** CSF, artificial; **Route:** CSF/CNS (right lateral ventricle); **Species:** Mice; **Pump:** 1004; **Duration:** Not Stated;
ALZET Comments: Controls received mp w/ vehicle; animal info (Female, C57Bl/6J); behavioral testing (Morris water maze); hCG aka LHR agonist; enzyme inhibitor (Luteinizing hormone inhibitor); ALZET brain infusion kit 3 used; Brain coordinates (AP=-0.5, ML= -1.1, DV= -2.5); bilateral cannula used; Cannula placement verified via injecting fast green, observing cannula track by cryosectioning ; neurodegenerative (Spatial memory);
- Q7077:** C. Laldinsangi, *et al.* Expression profiling of c-kit and its impact after esiRNA silencing during gonadal development in catfish. *Gen Comp Endocrinol* 2018;266(38-51
Agents: Chorionic gonadotropin hormone, human **Vehicle:** Saline; **Route:** IP; **Species:** Fish (catfish); **Pump:** Not Stated; **Duration:** Not Stated;
ALZET Comments: Dose (5000 IU/100 ul); Controls received mp w/ vehicle;
- Q5617:** R. Murugananthkumar, *et al.* In vivo induction of human chorionic gonadotropin by osmotic pump advances sexual maturation during pre-spawning phase in adult catfish. *Gen Comp Endocrinol* 2017;251(74-84
Agents: Gonadotrophin, human chorionic **Vehicle:** Saline; **Route:** IP; **Species:** Fish (catfish); **Pump:** 1002; **Duration:** 21 days; **ALZET Comments:** Dose (5000 IU); Controls received mp w/ vehicle; animal info (21 month old); "...the sustained-release of hCG through osmotic pump has been shown to be a reliable method to induce vitellogenesis and ovulation in females" pg. 75;
- Q5608:** A. Miura, *et al.* Administration of 17 α -hydroxyprogesterone into mature male Japanese eel reduces sperm motility by decreasing potassium ion concentrations in the seminal plasma. *Aquaculture* 2013;414-415(217-223
Agents: Gonadotrophin, human chorionic **Vehicle:** Not Stated; **Route:** Not Stated; **Species:** Fish (Eel); **Pump:** 1002; **Duration:** 6 weeks;
ALZET Comments: animal info (male, 303g, freshwater) ; ""The osmotic pump releases 5 μ l of solution per day for approximately 45–50 days when the fish are maintained at a water temperature of 20 °C"" (pg 218); Therapeutic indication (sperm motility); Dose (330 IU/week);
- Q2691:** H. Kagawa, *et al.* Using osmotic pumps to deliver hormones to induce sexual maturation of female Japanese eels, *Anguilla japonica*. *Aquaculture* 2013;388(;):30-34
Agents: Salmon pituitary extract; gonadotrophin, human chorionic; gonadotropin-releasing hormone analogue **Vehicle:** Sodium chloride; **Route:** IP; **Species:** Fish (eel); **Pump:** 2002; **Duration:** Not Stated;
ALZET Comments: Control animals received mp w/ saline, vehicle; animal info (female, cultured); functionality of mp verified via residual volume; "osmotic pump was implanted into the peritoneal cavity of each eel after cutting an approximately 8-mm opening in the abdomen with a fine scalpel. The wound was not sutured, but healed naturally within 2 weeks." pg 31; "This study confirms the effectiveness of using osmotic pumps to induce the maturation of captive female eels..." pg 33; comparison of mp vs injections
- Q1551:** J. R. A. Sherwin, *et al.* The Endometrial Response to Chorionic Gonadotropin Is Blunted in a Baboon Model of Endometriosis. *Endocrinology* 2010;151(10):4982-4993
Agents: Chorionic gonadotropin hormone, human recomb. **Vehicle:** Saline; **Route:** SC; intrauterine; **Species:** Monkey (baboon); **Pump:** 2ML1; **Duration:** Not Stated;
ALZET Comments: Animal info (30 mo old, spontaneous endometriosis); tissue perfusion (oviductal lumen)
- Q1005:** J. J. Brosens, *et al.* Proteomic analysis of endometrium from fertile and infertile patients suggests a role for apolipoprotein A-I in embryo implantation failure and endometriosis. *MOLECULAR HUMAN REPRODUCTION* 2010;16(4):273-285



Agents: Chorionic gonadotropin hormone, human recomb. **Vehicle:** Not Stated; **Route:** Oviductal; **Species:** Monkey (baboon); **Pump:** Not Stated; **Duration:** 5 days;

ALZET Comments: Animal info (cycling, female, 7-12 years old, 12-18 kg); tissue perfusion (oviduct)

Q0235: J. Evans, *et al.* Prokineticin 1 mediates fetal-maternal dialogue regulating endometrial leukemia inhibitory factor. *FASEB Journal* 2009;23(7):2165-2175

Agents: Gonadotrophin, human chorionic **Vehicle:** Not Stated; **Route:** Oviductal; **Species:** Monkey (baboon); **Pump:** Not Stated; **Duration:** 5 days;

ALZET Comments: Animal info (papio annubis)

P9567: G. A. Dissen, *et al.* Excessive Ovarian Production of Nerve Growth Factor Facilitates Development of Cystic Ovarian Morphology in Mice and Is a Feature of Polycystic Ovarian Syndrome in Humans. *Endocrinology* 2009;150(6):2906-2914

Agents: Gonadotrophin, human chorionic **Vehicle:** Not Stated; **Route:** SC; **Species:** Mice; **Pump:** 1007D; **Duration:** 1 week;

ALZET Comments: Animal info (immature, 24-27d)

Q0835: Y. Kasuga, *et al.* Induction of sexual maturation of male Japanese eel (*Anguilla japonica*) by continuous administration of various hormones using osmotic pump. *Cybiurn* 2008;32(2):171-171

Agents: Chorionic gonadotropin hormone, human; salmon pituitary extract; gonadotropin-releasing hormone agonist **Vehicle:** Not Stated; **Route:** IP; **Species:** Fish (eel); **Pump:** 2006; **Duration:** 42 days;

ALZET Comments: Animal info (male, Japanese); long-term study; comparison of IP injections vs IP mp; incorrectly listed Model 2002; "HCG administration of 50 IU day⁻¹ by using OS was an efficient and reliable method for the artificial maturation of male Japanese eel, instead of the weekly injections method." pg 171

P8047: J. R. A. Sherwin, *et al.* Identification of novel genes regulated by chorionic gonadotropin in baboon endometrium during the window of implantation. *Endocrinology* 2007;148(2):618-626

Agents: Gonadotrophin, human chorionic **Vehicle:** Not Stated; **Route:** Oviductal; **Species:** Monkey (baboon); **Pump:** Not Stated; **Duration:** 5 days;

ALZET Comments: Animal info (female, adult)

Q5660: A. T. Fazleabas. A Baboon Model for Simulating Pregnancy. *Methods in Molecular Medicine* 2006;121(101-110)

Agents: Gonadotrophin, chorionic **Vehicle:** Not Stated; **Route:** Oviductal lumen; **Species:** Monkey (baboon); **Pump:** 2ML1; **Duration:** 7 days;

ALZET Comments:

P7516: Z. Strakova, *et al.* In vivo infusion of interleukin-1 beta and chorionic gonadotropin induces endometrial changes that mimic early pregnancy events in the baboon. *Endocrinology* 2005;146(9):4097-4104

Agents: Gonadotrophin, human chorionic, recomb.; interleukin-1, beta, recomb. human; interleukin-1 receptor antagonist, recomb. human **Vehicle:** Not Stated; **Route:** Oviductal; **Species:** Monkey (baboon); **Pump:** Not Stated; **Duration:** 10 days;

ALZET Comments: Controls received no treatment; pumps replaced at day 5; animal info (female, adult)

P5846: R. V. Nemade, *et al.* Involvement of nitric oxide and the ovarian blood follicle barrier in murine follicular cyst development. *Fertility and Sterility* 2002;78(6):1301-1308

Agents: L-NAME; D-NAME; Gonadotrophin, human chorionic **Vehicle:** Water, sterile; **Route:** SC; **Species:** Mice; **Pump:** 1003D; 1007D; **Duration:** 3,4,7 days;

ALZET Comments: Functionality of mp verified by plasma levels taken; enzyme inhibitor (nitric oxide synthase) "L-NAME"; multiple pumps per animal in some groups; human choriogonadotropin is (hCG)

Q6839: C. J. P. Jones, *et al.* Ultrastructure of epithelial plaque formation and stromal cell transformation by post-ovulatory chorionic gonadotropin treatment in the baboon (*papio anubis*). *Human Reproduction* 2001;16(12):2680-2690

Agents: Chorionic gonadotropin hormone, human; follicle stimulating hormone **Vehicle:** Not Stated; **Route:** Not Stated; **Species:** Monkey (baboon); **Pump:** Not Stated; **Duration:** 5 days;

ALZET Comments: animal info (normally cycling adult female baboon);



Q7694: C. J. Jones, *et al.* Ultrastructure of epithelial plaque formation and stromal cell transformation by post-ovulatory chorionic gonadotrophin treatment in the baboon (*Papio anubis*). *Hum Reprod* 2001;16(12):2680-90

Agents: Gonadotrophin, human chorionic; Follicle stimulating hormone, recomb. **Vehicle:** Not Stated; **Route:** Not Stated;

Species: Baboon; **Pump:** Not Stated; **Duration:** 4 days;

ALZET Comments: Controls received mp w/ FSH; animal info (adult, female); Bioactive vs heat-inactivated HCG were compared to FSH treatment. Pump usage described in other study "The HCG treatment protocol has previously been described (Christensen *et al.*, 1995; Fazleabas *et al.*, 1999) and involves infusion of HCG between days 6 and 10 post-ovulation via a cannula attached to an Alzet minipump." p.2680;

P9110: S. Banaszak, *et al.* Modulation of the action of chorionic gonadotropin in the baboon (*Papio anubis*) uterus by a progesterone receptor antagonist (ZK 137. 316). *Biology of Reproduction* 2000;63(3):820-825

Agents: Gonadotrophin, human chorionic **Vehicle:** Not Stated; **Route:** Intraovarian; **Species:** Monkey (baboon); **Pump:** Not Stated; **Duration:** 4 days;

ALZET Comments: Animal info (ovariectomized)

P4635: L. Zhang, *et al.* Estrogen mediates the protective effects of pregnancy and chorionic gonadotropin in a mouse model of vascular injury. *Arteriosclerosis, Thrombosis, and Vascular Biology* 1999;19(2059-2065)

Agents: Estradiol, 17B-; Progesterone; Gonadotrophin, human chorionic **Vehicle:** Not Stated; **Route:** SC; **Species:** Mice;

Pump: 2002; **Duration:** 14 days;

ALZET Comments: Controls received sham operation; functionality of mp verified by serum levels; replacement therapy (ovariectomy); vascular cuff injury; B human chorionic gonadotropin used;

P4163: A. T. Fazleabas, *et al.* Modulation of the baboon (*papio anubis*) uterine endometrium by chorionic gonadotropin during the period of uterine receptivity. *Proc. Natl. Acad. Sci. USA* 1999;96(2543-2548)

Agents: Gonadotrophin, recomb. human chorionic **Vehicle:** Not Stated; **Route:** Intraovarian (corpus luteum); **Species:**

Monkey (baboon); **Pump:** 2ML1; **Duration:** 7 days;

ALZET Comments: tissue perfusion (corpus luteum)

P1951: G. S. Hamilton, *et al.* The superovulation of synchronous adult rats using follicle-stimulating hormone delivered by continuous infusion. *Biology of Reproduction* 1991;44(851-856)

Agents: Follicle stimulating hormone; Gonadotrophin, human chorionic **Vehicle:** Not Stated; **Route:** SC; **Species:** Rat; **Pump:** 2001; **Duration:** 3, 4, 7 days;

ALZET Comments: peptides

P1859: J. A. Carnegie. Immunolocalization of fibronectin and laminin within rat blastocysts cultured under serum-free conditions. *J. Reprod. Fertil* 1991;91(423-434)

Agents: Follicle stimulating hormone; Gonadotrophin, human chorionic **Vehicle:** Saline; **Route:** SC; **Species:** Rat; **Pump:** 2001; **Duration:** 1 day;

ALZET Comments: pumps removed and reimplanted into different animals

P1745: P. E. Patton, *et al.* The effect of intraluteal infusion of deglycosylated human chorionic gonadotropin on the corpus luteum in rhesus monkeys. *J. Clin. Endocrinol. Metab* 1990;70(4):1213-1218

Agents: Gonadotrophin, human chorionic **Vehicle:** Albumin, bovine serum; Saline; **Route:** intraovarian (corpus luteum);

Species: monkey; **Pump:** 2ML1; **Duration:** 7 days;

ALZET Comments: tissue perfusion (corpus luteum); functionality of mp verified by sectioning

P3801: M.-C. Leveille, *et al.* Preimplantation embryo development and serum steroid levels in immature rats induced to ovulate or superovulate with pregnant mares' serum gonadotropin injection of follicle-stimulating hormone infusions. *Gamete Res* 1989;23(127-138)

Agents: Follicle stimulating hormone, porcine; Gonadotrophin, human chorionic **Vehicle:** Saline, sterile; **Route:** SC; **Species:** Rat; **Pump:** 2001; **Duration:** 72 hours;



ALZET Comments: comparison of sc PMSG injections vs. mp; peptides

P0520: F. Garza, *et al.* Luteinizing hormone increases the number of ova shed in the cyclic hamster and guinea-pig. *J. Endocrinol* 1984;101(289-298

Agents: Gonadotrophin, pregnant mare serum; Luteinizing hormone; Follicle stimulating hormone, ovine; Gonadotrophin, human chorionic **Vehicle:** Albumin, bovine serum; PBS; **Route:** SC; **Species:** Guinea pig; hamster; mice; Rat; **Pump:** 2001;

Duration: 2-5 days;

ALZET Comments: comparison of agents effects; replacement therapy (hypophysectomy); agents admin. singly; peptides; bovine, ovine, & human LH used