



Research Models and Services

Reproductive Endocrinology - Outbred Rats



Sprague Dawley® Rat

Hsd:Sprague Dawley® SD®

Established in 1925 by Robert Dawley, the original Sprague Dawley rat colony was obtained by Harlan in 1980 through the acquisition of Sprague-Dawley, Inc. Harlan became Envigo in 2015. The Hsd:Sprague Dawley® SD® rat has a wide array of historical research use including in the field of reproductive endocrinology. In order to provide historical and reference data for the research community, several of these articles are outlined below.

Custom Reproductive Endocrinology Models

- + Androgen deficiency - Castration
- + Estrogen deficiency - Ovariectomy
- + Osteoporotic model - Ovariectomy and maintained on a calcium deficient diet

Research Use

Localized Gene Regulation

- + Prostate – Prostatein subunit C3, Clu (35) and Proml2 (72)
- + Uterus – EET1 (21), CrabplI (41), eRoLDH, RaLDHII (42), Ncoa1, SPA, RAC3, RIP140, GRIP1 and p300 (54)
- + Ovary – Foxo1, Igf1r and Slc2a1 (59)
- + Pituitary – LH, FSH (5) and GH (29)
- + Liver – Scarb1 (73)

Sex Hormone Developmental Effects

- + Neonatal (6, 26, 65)
- + Skeletal (45, 69)

Gender Specificity

- + Aortic smooth muscle calcium concentration (14)
- + Cocaine self-administration (28)

Neurological Localization

- + Estrogen (1)
- + Estrogen receptor (7, 8, 74)

Neurological Effects

- + Neuroprotection by estrogen (10, 27, 55)
- + Control of testosterone secretion (61)
- + Neurotrophin transport regulation by estrogen (31)
- + Neurotransmission (56)

Regulation of Estrogens

- + Endogenous (2, 18, 30, 51)
- + Exogenous (4, 19, 32, 47, 60)

Estrogenic Effects

- + Memory enhancement (24, 43)
- + Cardiovascular (14, 16, 40, 49)
- + Estrous cycle (19, 46)
- + Skeletal (33)

Estrogen Deficiency

- + Osteoporosis (17, 63) and treatment (39, 62, 67)
- + Leptinemia (50)
- + Cholesterolemia (3)
- + Histomorphometric and biochemical changes (63)

Androgenic Effects

- + Cancer treatment/prevention (22, 66)
- + Musculoskeletal (23, 52, 58)
- + Reproductive capacity (52)

Testosterone Deficiency

- + Cellular apoptosis (36, 37, 53)
- + Testicular atrophy (57)
- + Testosterone suppression and reversible castration (15, 38)

Receptor Mediated Response

- + Androgen receptor (6, 9, 22, 23, 34, 52, 58, 70, 71)
- + Estrogen receptor (12, 13, 20, 25, 29, 33, 64, 68)
- + Progesterone receptor (44)

Estrogens and Tumor Induction

- + Pituitary (11)
- + Mammary (13, 46, 48)

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