ENVIGO

Research Models and Services

Cardiology - 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 cardiology. In order to provide historical and reference data for the research community, several of these articles are outlined below.

Custom Cardiology Models

+ Left Ventricular Hypertrophy - Aortic Banding

Research Use

Induced Hypertension

+ High-salt diet (13, 21, 37, 45, 51, 62)
+ Insulin resistance (12, 27, 50)
+ Sleep apnea (7)
+ Angiotensin (1, 6, 44, 66)
+ Oxidative stress (20)
+ Reduced nitric oxide (15, 29)
+ Pregnancy/Preeclampsia (2, 3, 15, 29, 55)
+ Endothelin (17, 53)
+ Lead (60)

Portal Hypertension

+ Response to flow and shear stress (25)
+ Increased nitric oxide production (26, 54)
+ Portosystemic shunting (63)

Hypertension Treatment

+ Losartan (6)
+ Angiotensin-converting enzyme inhibitors (17)
+ Heme oxygenase 1 and CO pathway (42)
+ Vitamin E (60)
+ Exercise (50)
+ Pioglitizone (65)
+ Antioxidants (20, 44, 66)
+ Prevention by cold exposure (61)

Pressor response regulation

+ Endogenous endothelin (13)
+ Angiotensin II (46)
+ Muscle mechanoreflex (56)
+ Orexins (9)

Oxidative Stress

+ Glutathione effects (6, 32)
+ Antioxidant effects (62, 64)
+ Inhibition by amlodipine (20, 66)
+ Impairment of vasodilation (11)
+ Stimulation (70, 71)

Baroreceptor Reflex

+ Regulation of arterial pressure (45)
+ Aging effects (59)
+ Methods of measurement (41)
+ Response to stress (47)

Ischemia/Reperfusion/Hypoxia

+ Detection of hypoxia (4, 43)
+ Susceptibility through KATP channels (28)
+ Recovery with reactive oxygen species (30)
+ Glutathione treatment (32, 49)
+ Cardiomyopathy (56)
+ Hypoxia and erythropoietin protection (8)
+ Growth retardation (52)
+ Intermittent hypoxia (7, 8, 18, 19, 52)
+ Chronic hypoxia (16,22)

Cardiomyopathy

+ Myocardial infarction (5, 38, 57)
+ Cardiotoxicity-induced cardiomyopathy (24)
+ Cardiac arrest and hypothermia (14)
+ Hypertrophy (36, 61)
+ Congestive heart failure (68)

Hemodynamics

+ Orexin regulation (12)
+ Stress response (5, 13, 31, 35, 47)
+ Cardiac output measurement (23)
+ Diet restriction effects (39)
+ Calcium entry regulation (10)
+ Vasodilation by catabolism of kinins (17)
+ Vasopressin effects (16, 33)
+ Relaxation by GTP cyclohydrolase1 (40)
+ Cerebral microcirculation (37)
+ Renal hemodynamics (2, 34, 53, 69)
+ Nitric oxide bioavailability (66)

Inflammation

+ Aldosterone response (51, 58)
+ Fibrosis (48, 57)

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