

Historical Control Data in Mice

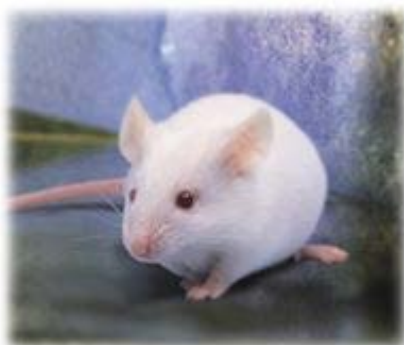


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Crl:CD1(ICR) Mice

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¹ Additional HCD endpoints and years are available upon request.

Charles River Laboratories - Mattawan
Historical Control Fertility and
Early Embryonic Development to Implantation Data
CD-1 Mouse - Charles River Laboratories
1 Apr 2014 to 1 Jan 2020

Reproductive and Fertility Parameters	Number of Control Groups	Number of Animals
No. Females on Study	11	295
No. Females Paired	11	295
No. Females Mated	11	293
No. Pregnant	11	281
No. Males on Study	9	232
No. Males Paired	9	232
No. Males Mated	9	230
No. Males Impregnating a Female	9	221
Females with Confirmed Mating Day	11	289

Reproductive and Fertility Parameters	Number of Control Groups	Mean	Minimum	Maximum
Female Mating Index	11	99.40	96.7	100.0
Female Fertility Index	11	95.39	90.0	100.0
Female Fecundity Index	11	95.97	92.0	100.0
Male Mating Index	9	99.22	96.4	100.0
Male Fertility Index	9	95.38	89.3	100.0
Male Fecundity Index	9	96.11	92.0	100.0
Mean Copulatory Interval (Days)	11	2.30	1.6	3.0

Charles River Laboratories - Mattawan
Historical Control Fertility and
Early Embryonic Development to Implantation Data
CD-1 Mouse - Charles River Laboratories
1 Apr 2014 to 1 Jan 2020

Maternal and Developmental Observations at Uterine Examination	Number of Control Groups	Number of Animals
No. Females on Study	4	120
No. Not Pregnant	4	8
No. Pregnant	4	112
No. Died Pregnant	4	1
No. Females with All Resorptions	4	0
No. Pregnant Detected by Stain	4	0
No. Females Pregnant No Confirmed Mating Date	4	3
No. Females with Viable Embryos Day 13 Gestation	4	108

Maternal and Developmental Observations at Uterine Examination	Number of Control Groups	Mean	Minimum	Maximum
Corpora Lutea (Mean No. per Animal)	4	15.10	14.7	15.8
Implantation Sites (Mean No. per Animal)	4	13.98	13.1	15.0
Preimplantation Loss (Mean % Implants per Animal)	4	7.533	4.74	11.00
Viable Embryos (Mean No. per Animal)	4	13.10	12.2	13.8
Postimplantation Loss (Mean % Implants per Animal)	4	6.358	2.43	8.24
Resorptions (Mean No. per Animal)	4	0.90	0.4	1.2

Sperm Evaluation	Number of Control Groups	Mean	Minimum	Maximum
Sperm Motility (Mean % Motility)	9	74.32	54.7	93.6
Total Sperm Concentration per Cauda Epididymis x 10 ⁸ (Mean)	9	0.3087	0.264	0.468
Sperm Concentration per gram Cauda Epididymis x 10 ⁸ (Mean)	9	17.4648	6.353	27.499
Percent Abnormal (Mean)	9	6.250	3.40	10.23

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Historical Control Fertility and
Early Embryonic Development to Implantation Data
CD-1 Mouse - Charles River Laboratories
1 Apr 2014 to 1 Jan 2020

Organ Weights - Males

				Compared to Body Weight, percent		
	N	Mean	Range	N	Mean	Range
Body weight, g	9	39.79	37.2 - 41.3	NA	NA	NA
Epididymides, g	9	0.1071	0.100 - 0.114	9	0.27013	0.2580 - 0.2871
Prostate gland, g	9	0.0313	0.029 - 0.035	9	0.07941	0.0712 - 0.0857
Seminal vesicles with coagulating glands, g	9	0.4087	0.359 - 0.450	9	1.02783	0.9565 - 1.1132
Testes, g	9	0.2624	0.250 - 0.270	9	0.66284	0.6189 - 0.7237

Organ Weights - Females

	N	Mean	Range
Body weight, g	4	41.10	40.1 - 43.8
Ovaries, g	4	0.0178	0.015 - 0.021
Uterus with cervix, g	4	6.8355	6.002 - 7.363

N - Number of Control Groups
NA - Not Applicable
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Charles River Laboratories - Mattawan
Historical Control Developmental Toxicity Data
CD-1 Mouse (GD 18) - Charles River Laboratories
1 Jan 2018 to 1 Dec 2019

Pregnancy Data (GD 18)	Total
No. Control Groups	5
No. Females	120
No. Pregnant	104
No. Not Pregnant	16
No. Died Pregnant	1
No. Females with All Resorptions	0
No. Pregnant By Stain	2
No. Abortions	0
No. Females with Viable Fetuses	101

Maternal and Developmental Observations at Uterine Examination and Fetal Body Weight Values	Mean	Minimum	Maximum
Pregnancy Index (%)	86.66	83.3	91.7
Corpora Lutea (Mean No. per Animal)	15.04	14.5	15.5
Implantation Sites (Mean No. per Animal)	12.96	12.2	13.8
Preimplantation Loss (Mean % per Animal)	12.084	8.87	14.69
Viable Fetuses (Mean No. per Animal)	11.94	11.4	12.7
Fetal Sex Ratio (Mean % Males per Animal)	51.74	48.7	56.8
Postimplantation Loss (Mean % per Animal)	9.848	4.97	14.18
Nonviable Fetuses (Mean No. per Animal)	0.00	0.0	0.0
Resorptions: Early and Late (Mean No. per Animal)	0.98	0.6	1.2
Resorptions: Early (Mean No. per Animal)	0.78	0.5	1.1
Resorptions: Late (Mean No. per Animal)	0.22	0.0	0.7
Mean Fetal Body Weight Male (grams)	1.529	1.46	1.58
Mean Fetal Body Weight Female (grams)	1.472	1.42	1.53
Mean Fetal Body Weight Males and Females (grams)	1.505	1.46	1.56

Charles River Laboratories - Mattawan
Historical Control Developmental Toxicity Data
CD-1 Mouse (GD 18) - Charles River Laboratories
1 Jan 2018 to 1 Dec 2019

Litter Data	Total
No. Litters Evaluated	101
No. External Fetuses Evaluated	1221
No. Visceral Fetuses Evaluated	1230
No. Skeletal Fetuses Evaluated	1230

	Total Number		Maximum %	
	Fetuses	Litters	Fetuses	Litters
External Malformation				
Head, eye(s), open eye	1	1	0.4	4.5
Head, palate, cleft palate	2	1	0.8	4.8
Hind limb(s), digits, polydactyly	2	2	0.5	5.6
Hind limb(s), digits, syndactyly	1	1	0.5	5.6
Hind limb(s), entire, malrotated	3	3	0.5	5.6
Hind limb(s), hind paw, malrotated	2	2	0.8	9.5
Visceral Malformation				
Abdominal cavity, kidney, smaller than normal	2	2	0.4	5.3
Visceral Pathological				
Abdominal cavity, kidney, focus/foci	1	1	0.4	4.8
Head, eye(s), hemorrhagic	1	1	0.4	4.5
Visceral Variation				
Thoracic cavity, common carotid artery, arising from innominate artery	1	1	0.4	4.8
Thoracic cavity, thyroid, smaller than normal	1	1	0.4	5.3
Skeletal Malformation				
Cervical vertebra(e), neural arch(es), branched	2	2	0.4	4.8
Cervical vertebra(e), neural arch(es), misshapen	1	1	0.4	4.8
Hind limb(s), phalanges, extra	2	2	0.5	5.6
Lumbar vertebra(e), centra, fused	2	2	0.5	5.6
Lumbar vertebra(e), neural arch(es), misshapen	1	1	0.5	5.6
Rib(s), costal cartilage, branched	2	1	0.8	4.8
Rib(s), costal cartilage, fused	5	3	1.4	11.1
Rib(s), discontinuous	2	2	0.9	10.5
Rib(s), misshapen	6	3	1.5	5.6
Skull, exoccipital bone, fused	4	4	1.1	14.3
Skull, palatine, misshapen	1	1	0.4	4.8
Sternum, sternebra(e), fused	19	13	2.7	19.0
Thoracic vertebra(e), centra, fused	7	5	0.9	9.1
Thoracic vertebra(e), centra, misshapen	1	1	0.5	5.6

Charles River Laboratories - Mattawan
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	Total Number		Maximum %	
	Fetuses	Litters	Fetuses	Litters
Thoracic vertebra(e), neural arch(es), misshapen	1	1	0.5	5.6
Skeletal Variation				
Cervical vertebra(e), centra, additional ossification center	2	1	0.8	4.8
Cervical vertebra(e), neural arch(es), additional ossification center	232	73	26.8	85.7
Cervical vertebra(e), neural arch(es), irregular ossification	145	67	14.3	73.7
Rib(s), costal cartilage, misaligned	8	5	1.1	9.1
Rib(s), rudimentary	122	57	12.9	61.9
Rib(s), unilateral full rib	43	30	5.2	38.9
Skull, frontal bone, additional ossification center	359	89	34.1	100.0
Skull, hyoid, not ossified	6	6	2.0	22.7
Skull, nasal bone, additional ossification center	2	2	0.9	10.5
Skull, palatine, irregular ossification	1	1	0.4	4.5
Sternum, sternebra(e), absent	3	2	0.9	5.6
Sternum, sternebra(e), extra	62	34	7.1	42.9
Sternum, sternebra(e), misaligned	72	47	7.1	57.9
Sternum, sternebra(e), misshapen	2	2	0.4	4.8
Sternum, sternebra(e), not ossified	1	1	0.4	4.5
Thoracic vertebra(e), neural arch(es), additional ossification center	1	1	0.4	4.5

Charles River Laboratories - Mattawan
Historical Control Pre- and Postnatal Development, Including Maternal Function Data
CD-1 Mouse - Charles River Laboratories
1 Jan 2015 to 1 Jan 2020

P Natural Delivery and Litter Data	Total
No. of Control Groups	4
No. of Females on Study	163
No. of Females Pregnant	147
Females Delivering Litters	145
Females With at Least One, But Not all Stillborn Pups	2
Females With All Stillborn	0

P Natural Delivery and Litter Data	Number of Control Groups	Mean	Minimum	Maximum
Mean Gestation Length (Days)	4	18.90	18.8	19.0
Mean No. of Pups at Day 0				
Total Pups Born/Litter	4	13.20	12.8	13.7
Liveborn/Litter	4	13.18	12.8	13.7
Stillborn/Litter	4	0.03	0.0	0.1
Gestation Index (%)	4	98.78	97.5	100.0
Stillborn Index (Mean %/Litter)	4	0.103	0.00	0.41
Mean Total Implantation Scars/Litter	4	15.18	14.0	18.3
Mean No. of Live Pups/Litter				
Day 4 (Preculling)	4	12.90	12.4	13.4
Day 4 (Postculling)	4	7.93	7.8	8.0
Day 7	4	7.93	7.8	8.0
Day 14	4	7.93	7.8	8.0
Day 21	4	7.93	7.8	8.0
Day 28	4	7.93	7.8	8.0
Sex Ratio (% Males per Animal) (Mean %/Litter)				
Pups Day 0	4	51.265	49.09	52.87
Pups Day 4 (Preculling)	4	51.723	49.56	53.35
Pups Day 4 (Postculling)	4	49.398	46.50	51.07
Pups Day 21	4	49.403	46.21	51.19
Pup Survival Indices (Mean %/Litter)				
Lactation Index	4	99.788	99.50	100.00
Viability Index	4	98.005	96.94	99.25

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Historical Control Pre- and Postnatal Development, Including Maternal Function Data
CD-1 Mouse - Charles River Laboratories
1 Jan 2015 to 1 Jan 2020

F1 Pup Body Weight Values, g (Mean)	Number of Control Groups	Mean	Minimum	Maximum
Day 0				
Males	4	1.660	1.64	1.69
Females	4	1.583	1.56	1.62
Males + Females	4	1.628	1.61	1.66
Day 4 Preculling				
Males	4	3.133	2.98	3.23
Females	4	2.983	2.81	3.07
Males + Females	4	3.073	2.90	3.18
Day 4 Postculling				
Males	4	3.163	3.00	3.26
Females	4	3.000	2.83	3.08
Males + Females	4	3.090	2.91	3.18
Day 7				
Males	4	5.495	5.14	5.71
Females	4	5.293	4.94	5.51
Males + Females	4	5.405	5.05	5.64
Day 14				
Males	4	9.160	8.89	9.53
Females	4	8.980	8.70	9.37
Males + Females	4	9.085	8.80	9.50
Day 21				
Males	4	15.320	14.69	15.70
Females	4	14.453	13.83	14.67
Males + Females	4	14.908	14.28	15.21
Day 28				
Males	4	25.753	24.89	26.40
Females	4	21.393	20.56	21.84
Males + Females	4	23.583	22.77	24.02

F1 Physical Development	Number of Control Groups	Mean	Minimum	Maximum
Mean Static Righting Reflex (Days)	4	2.68	2.5	3.0
Mean Pinna Detachment (Days)	4	3.73	3.6	3.8
Mean Eye Opening (Days)	4	13.93	13.8	14.1
Mean Air Drop Righting Reflex (Days)	4	16.08	16.0	16.2
Mean Auditory Response (Percent Pups Passing/Dam)	4	99.93	99.7	100.0

F1 Sexual Maturation	Number of Control Groups	Mean	Minimum	Maximum
Mean Vaginal Opening (Days)	4	26.05	24.0	28.6
Mean Body Weight on Day Passed Vaginal Opening, g	4	19.00	18.0	20.0
Mean Preputial Separation (Days)	4	28.78	28.4	29.1
Mean Body Weight on Day Passed Preputial Separation, g	4	25.75	25.1	26.2

Charles River Laboratories - Mattawan
Historical Control Pre- and Postnatal Development, Including Maternal Function Data
CD-1 Mouse - Charles River Laboratories
1 Jan 2015 to 1 Jan 2020

F1 Behavioral Observations (Motor Activity) - Male Hamilton Kinder Motor Monitor System	Number of Control Groups	Mean	Minimum	Maximum
Mean Basic Movement (count)				
0 - 5 Minutes	4	1780.38	1690.8	1915.0
5 -10 Minutes	4	1556.05	1513.5	1618.9
10 -15 Minutes	4	1290.45	1250.4	1322.8
15-20 Minutes	4	1115.73	1033.1	1171.1
0-20 Minutes	4	5778.28	5524.8	6025.9
Mean Fine Movement (count)				
0 - 5 Minutes	4	836.08	797.6	897.5
5 -10 Minutes	4	797.68	772.8	838.2
10 -15 Minutes	4	696.78	682.1	712.3
15-20 Minutes	4	627.75	601.3	649.0
0-20 Minutes	4	2970.48	2880.1	3102.3
Mean Rearing (count)				
0 - 5 Minutes	4	64.20	55.5	75.0
5 -10 Minutes	4	71.60	64.7	77.9
10 -15 Minutes	4	64.08	59.7	68.2
15-20 Minutes	4	58.10	54.3	60.5
0-20 Minutes	4	261.55	239.5	284.3
Mean Total Distance (cm)				
0 - 5 Minutes	4	3068.68	2952.0	3278.3
5 -10 Minutes	4	2519.10	2466.4	2596.4
10 -15 Minutes	4	2047.75	1984.0	2091.3
15-20 Minutes	4	1738.90	1587.0	1816.6
0-20 Minutes	4	9374.40	9003.1	9746.7

F1 Behavioral Observations (Motor Activity) - Female Hamilton Kinder Motor Monitor System	Number of Control Groups	Mean	Minimum	Maximum
Mean Basic Movement (count)				
0 - 5 Minutes	4	1845.08	1781.1	1924.6
5 -10 Minutes	4	1554.83	1489.9	1631.6
10 -15 Minutes	4	1301.75	1223.6	1384.5
15-20 Minutes	4	1180.70	1128.6	1242.7
0-20 Minutes	4	5916.35	5682.9	6220.7
Mean Fine Movement (count)				
0 - 5 Minutes	4	839.38	822.1	868.3
5 -10 Minutes	4	770.05	736.4	794.1
10 -15 Minutes	4	673.50	632.7	703.1
15-20 Minutes	4	625.30	606.2	650.8
0-20 Minutes	4	2919.28	2809.3	3028.7
Mean Rearing (count)				
0 - 5 Minutes	4	63.60	58.0	69.5
5 -10 Minutes	4	69.73	63.4	72.7
10 -15 Minutes	4	65.55	59.2	70.1
15-20 Minutes	4	63.20	56.1	67.3
0-20 Minutes	4	265.23	241.5	276.4
Mean Total Distance (cm)				
0-5 Minutes	4	3194.98	3085.2	3338.4
5 -10 Minutes	4	2574.10	2448.4	2714.5
10 -15 Minutes	4	2125.40	1972.5	2287.3
15-20 Minutes	4	1900.78	1770.7	2038.3
0-20 Minutes	4	9795.25	9285.6	10378.5

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Charles River Laboratories - Mattawan
Historical Control Pre- and Postnatal Development, Including Maternal Function Data
CD-1 Mouse - Charles River Laboratories
1 Jan 2015 to 1 Jan 2020

F1 Behavioral Observations (Passive Avoidance) - Male	Total
No. of Control Groups	4
No. of Animals Tested	158
Non-Responsive Animals	0

F1 Behavioral Observations (Passive Avoidance) - Male	Count	Mean	Minimum	Maximum
Non-Responsive Animals (%)	4	0.00	0.0	0.0
Passive (%)	4	63.18	39.0	92.0
Non-Passive (%)	4	36.83	8.0	61.0
No. of Trials (Passive Animals Only) (%)				
3	4	11.95	0.0	47.8
4	4	26.40	23.3	30.4
5	4	60.55	17.4	76.7

F1 Behavioral Observations (Passive Avoidance) - Female	Total
No. of Control Groups	4
No. of Animals Tested	164
Non-Responsive Animals	0

F1 Behavioral Observations (Passive Avoidance) - Female	Number of Control Groups	Mean	Minimum	Maximum
Non-Responsive Animals	4	0.00	0.0	0.0
Passive (%)	4	83.90	78.3	96.0
Non-Passive (%)	4	16.10	4.0	21.7
No. of Trials (Passive Animals Only) (%)				
3	4	19.40	0.0	66.7
4	4	48.90	25.0	61.1
5	4	31.70	8.3	47.4

Charles River Laboratories - Mattawan
Historical Control Pre- and Postnatal Development, Including Maternal Function Data
CD-1 Mouse - Charles River Laboratories
1 Jan 2015 to 1 Jan 2020

F1 Reproductive and Fertility Parameters	Total
No. of Control Groups	4
No. of Females on Study	163
No. of Males on Study	163

F1 Reproductive and Fertility Parameters	Number of Control Groups	Mean	Minimum	Maximum
Female Mating Index (%)	4	99.00	96.0	100.0
Female Fertility Index (%)	4	94.83	88.0	100.0
Female Fecundity Index (%)	4	95.75	91.7	100.0
Male Mating Index (%)	4	97.90	96.0	100.0
Male Fertility Index (%)	4	93.75	88.0	100.0
Male Fecundity Index (%)	4	95.70	91.7	100.0
Mean Copulatory Interval (Days)	4	2.98	2.8	3.3

F1 Maternal and Developmental Observations at Gestation Day 13 Uterine Examination	Total
No. of Control Groups	4
No. of Females on Study	163
No. Not Pregnant	7
No. Pregnant	156
No. Died Pregnant	0
No. of Females with All Resorptions	2
No. of Females Pregnant by Stain	1
No. of Females with Viable Embryos Day 13 Gestation	150
No. of Females Pregnant with No Confirmed Mating Date	3

F1 Maternal and Developmental Observations at Gestation Day 13 Uterine Examination	Number of Control Groups	Mean	Minimum	Maximum
Corpora Lutea (Mean No. per Animal)	4	17.18	16.7	17.6
Implantation Sites (Mean No. per Animal)	4	15.40	15.2	15.9
Preimplantation Loss (Mean % per Animal)	4	9.49	6.9	11.4
Postimplantation Loss (Mean% Implants per Animal)	4	8.17	6.5	11.2
Viable Embryos (Mean No. per Animal)	4	14.25	13.8	14.8
Nonviable Embryos (Mean No. per Animal)	4	0.00	0.0	0.0
Resorptions (Mean No. per Animal)	4	1.10	0.9	1.5