



Description

Rodent Diet with 60% kcal% fat.

Used in Research

Obesity
Diabetes

Packaging

Product is packed in 12.5 kg box.
Each box is identified with the product name, description, lot number and expiration date.

Lead Time

IN-STOCK. Ready for next day shipment.

Gamma-Irradiation

Yes. Add 10 days to delivery time.

Form

Pellet, Powder, Liquid

Shelf Life

Most diets require storage in a cool dry environment. Stored correctly they should last 3-6 months. Because of the high fat content is best if kept frozen.

Control Diets

D12450B

Formula

Product #	D12492	
	gm%	kcal%
Protein	26.2	20
Carbohydrate	26.3	20
Fat	34.9	60
Total kcal/gm	5.24	100
Ingredient	gm	kcal
Casein, 80 Mesh	200	800
L-Cystine	3	12
Corn Starch	0	0
Maltodextrin 10	125	500
Sucrose	68.8	275.2
Cellulose, BW200	50	0
Soybean Oil	25	225
Lard*	245	2205
Mineral Mix, S10026	10	0
DiCalcium Phosphate	13	0
Calcium Carbonate	5.5	0
Potassium Citrate, 1 H2O	16.5	0
Vitamin Mix, V10001	10	40
Choline Bitartrate	2	0
FD&C Blue Dye #1	0.05	0
Total	773.85	4057

Formulated by E. A. Ulman, Ph.D., Research Diets, Inc., 8/26/98 and 3/11/99.

*Typical analysis of cholesterol in lard = 0.95 mg/gram.
Cholesterol (mg)/4057 kcal = 232.8
Cholesterol (mg)/kg = 300.8

D12450B, D12451, D12492 The "Original High Fat Diets"

1. Van Heek M, et al. Diet-induced Obese Mice Develop Peripheral, but not Central Resistance to Leptin. *J. Clin. Invest.* 1997; 99:385-390.
2. Taheri S, et al. Distribution and quantification of immunoreactive orexin A in rat tissues. *FEBS Lett.* 1999 Aug 20; 457(1):157-61.
3. Nonogaki K, et al. Leptin-independent hyperphagia and type 2 diabetes in mice with a mutated serotonin 5-HT_{2C} receptor gene. *Nature Medicine* 1998; 4:1152-1156.
4. El-Haschimi K, et al. Two defects contribute to hypothalamic leptin resistance in mice with diet-induced obesity. *J.Clin.Invest.* 2000; 105:1827-1832.
5. Bush EN, et al. (Metabolic Disease Research, Abbott Laboratories) Adiposity, Leptin Resistance, Hyperphagia, Hyperglycemia, Glucose Intolerance and Insulin Resistance in C57BL/6J Mice Fed High Fat Diets. *Endocrine Society Annual Meeting 2001, Poster Session.*
6. Shapiro ME, et al. (Metabolic Disease Research, Abbott Laboratories) Effects of Treatment of C57BL/6j Mice Fed High vs. Low Fat Diets with Metformin or Rosiglitazone on Adiposity, Food Intake, Hyperglycemia and Insulin Resistance. *Endocrine Society Annual Meeting 2001, Poster Session.*
7. Masuzaki H, Paterson J, Shinyama H, Morton NM, Mullins JJ, Seckl JR, Flier JS. A Transgenic Model of Visceral Obesity and the Metabolic Syndrome. *Science.* 2001; 294:2166-2170.
8. Razani B, Combs TP, Wang XB, Frank PG, Park DS, Russell RG, Li M, Tang B, Jelicks LA, Scherer PE, Lisanti MP. Caveolin-1 deficient mice are lean, resistant to diet-induced obesity, and show hyper-triglyceridemia with adipocyte abnormalities. *J. Biol. Chem.* 2001; (in press).
9. Valet P, Grujic D, Wade J, Ito M, Zingaretti MC, Soloveva V, Ross SR, Graves RA, Cinti S, Lafontan M, and Lowell BB. Expression of human alpha 2-adrenergic receptors in adipose tissue of beta 3-adrenergic receptor-deficient mice promotes diet-induced obesity. *J.Biol.Chem.* 275: 34797-34802, 2000.
10. Vidal-Puig AJ, Grujic D, Zhang CY, Hagen T, Boss O, Ido Y, Szczepanik A, Wade J, Mootha V, Cortright R, Muoio DM, and Lowell BB. Energy metabolism in uncoupling protein 3 gene knockout mice. *J.Biol.Chem.* 275: 16258-16266, 2000.
11. Ziotopoulou M, Mantzoros CS, Hileman SM, & Flier JS. Differential expression of hypothalamic neuropeptides in the early phase of diet-induced obesity in mice. *Am. J. Physiol. Endocrinol. Metab.* 279:E383-E845, 2000.
12. Scrocchi LA & Drucker DJ. Effects of Aging and a High Fat Diet on Body Weight and Glucose Tolerance in Glucagon-Like Peptide-1 Receptor -/- Mice. *Endocrinology* 139:3127-3132, 1998.
13. Ghibaoui L, Cook J, Farley C, Van Heek M, & Hwa J. Fat Intake Affects Adiposity, Comorbidity Factors, and Energy Metabolism of Sprague-Dawley Rats. *Obes. Res.* 10:956-963, 2002
14. Dube MG, Beretta E, Dhillon H, Ueno N, Kalra PS & Kalra SP. Central Leptin Gene Therapy Blocks High-Fat Diet-Induced Weight Gain, Hyperleptinemia, and Hyperinsulinemia. *Diabetes* 51:1729-1736, 2001.
15. Tang H, Vasselli JR, Wu EX, Boozer CN, & Gallagher D. High-Resolution Magnetic Resonance Imaging Tracks Changes in Organ and Tissue Mass in Obese and Aging Rats. *Am J Physiol (Regulatory Integrative Comp Physiol)* 282:R890-R899, 2002.
16. Bowen H, Mitchell TD, & Harris RBS (Dept. of Foods and Nutr, U of Georgia). Method of Leptin Dosing, Strain, and Group Housing Influence Leptin Sensitivity in High-Fat-Fed Weanling Mice. *AJP-Regul Integr Comp Physiol* 284:R87-R100, 2003.
17. Harris RBS, Mitchell TD, & Hebert S (Pennington Biomedical Research Center, Baton Rouge, LA). Leptin-Induced Changes in Body Composition in High Fat-Fed Mice. *AJP-Regul Integr Comp Physiol* 284:R87-R100, 2003.
18. Anini, Y. and Brubaker, P. L. Role of Leptin in the Regulation of Glucagon-Like Peptide-1 Secretion. *Diabetes* 52:252-259, 2003.
19. Blusher, S., Responsiveness to Peripherally Administered Melanocortins in Lean and Obese Mice. *Diabetes* 53:82-90, 2004.
20. Brunengraber, D. Z., et al. Influence of diet on the modeling of adipose tissue triglycerides during growth. *Am J Physiol Endocrinol Metab* 285: E917-E925, 2003.
21. Challis, B. G., et al. Mice lacking pro-opiomelanocortin are sensitive to high-fat feeding but respond normally to the acute anorectic effects of peptide-YY3-36. *PNAS* 101: 13: 4695-4700, 2004.
22. Cohen, A. W., B. Razani, X. B. Wang, T. P. Combs, T. M. Williams, P. E. Scherer, and M. P. Lisanti. Caveolin-1-deficient mice show insulin resistance and defective insulin receptor protein expression in adipose tissue. *Am J Physiol Cell Physiol* 285: C222-C235, 2003.
23. Combs, T. P., et al. A Transgenic Mouse with a Deletion in the Collagenous Domain of Adiponectin Displays Elevated Circulating Adiponectin and Improved Insulin Sensitivity. *Endocrinology* 145:367-383, 2004.
24. Conarello, S. L., et al. Mice lacking dipeptidyl peptidase IV are protected against obesity and insulin resistance. *PNAS*, 100:11: 6825-6830, 2003.
25. Dhar, M. S., et al. Mice Heterozygous for Atp10c, a Putative Amphipath, Represent a Novel Model of Obesity and Type 2 Diabetes. *J. Nutr.* 134: 799-805, 2004.
26. El-Haschimi, K., S. D. Dufresne, M. F. Hirshman, J. S. Flier, L. J. Goodyear, and C. Bjørnbæk. Insulin Resistance and Lipodystrophy in Mice Lacking Ribosomal S6 Kinase 2. *Diabetes* 52:1340-1346, 2003.
27. Felipe, F., M. L. Bonet, J. Ribot, and A. Palou. Modulation of Resistin Expression by Retinoic Acid and Vitamin A Status. *Diabetes* 53:882-889, 2004.
28. Felipe, F., M.L. Bonet, J. Ribot and A. Palou. Up-regulation of muscle uncoupling protein 3 gene expression in mice following high fat diet, dietary vitamin A supplementation and acute retinoic acid-treatment. *International Journal of Obesity* 27: 60-69, 2003.
29. Fu, J., et al. Oleylethanolamide regulates feeding and body weight through activation of the nuclear receptor PPAR. *Nature* 425:90-93, 2003.
30. Gavrilova, O., et al. Liver Peroxisome Proliferator-activated Receptor Contributes to Hepatic Steatosis, Triglyceride Clearance, and Regulation of Body Fat Mass. *The Journal of Biological Chemistry* 278:36:34268-34276, 2003.
31. Haluzik, M., O. Gavrilova and D. LeRoith. Peroxisome Proliferator-Activated Receptor-Deficiency Does Not Alter Insulin Sensitivity in Mice Maintained on Regular or High-Fat Diet: Hyperinsulinemic-Euglycemic Clamp Studies. *Endocrinology* 145:1662-1667, 2004.
32. Hancock, A.A. et al. Antiobesity effects of A-331440, a novel non-imidazole histamine H3 receptor antagonist. *European Journal of Pharmacology* 487:183-197, 2004.
33. Hennige, A. M., et al. Upregulation of insulin receptor substrate-2 in pancreatic b cells prevents diabetes. *J. Clin. Invest.* 112:1521-1532, 2003.34.
34. Hildebrandt, A. L., D. M. Kelly-Sullivan, S. C. Black. Validation of a high-resolution X-ray computed tomography system to measure murine adipose tissue depot mass in situ and longitudinally. *Journal of Pharmacological and Toxicological Methods* 47: 99- 106, 2002.
35. Hileman, S. M., D.D. Pierroz, H. Masuzaki, C. Bjørnbæk, K. El-Haschimi, W. A. Banks, and J. S. Flier. Characterization of Short Isoforms of the Leptin Receptor in Rat Cerebral Microvessels and of Brain Uptake of Leptin in Mouse Models of Obesity. *Endocrinology* 143:775-783, 2002.
36. Ishii, M., H. Fei, and J. M. Friedman. Targeted disruption of GPR7, the endogenous receptor for neuropeptides B and W, leads to metabolic defects and adult-onset obesity. *PNAS* 100:18:10540-10545, 2003.
37. Joseph, J. W., V. Koshkin, C-Y Zhang, J. Wang, B. B. Lowell, C. B. Chan, and M.B. Wheeler. Uncoupling Protein 2 Knockout Mice Have Enhanced Insulin Secretory Capacity After a High-Fat Diet. *Diabetes* 51:3211-3219, 2002.
38. Kim, S., et al. Effects of High-Fat, Angiotensinogen (agt) Gene Inactivation, and Targeted Expression to Adipose Tissue on Lipid Metabolism and Renal Gene Expression. *Horm Metab Res* 34:721-725, 2002.
39. Kumar, M. V., T. Shimokawa, T. R. Nagy, and M. D. Lane. Differential effects of a centrally acting fatty acid synthase inhibitor in lean and obese mice. *PNAS* 99:4: 1921-1925, 2002.
40. Lambert, P. D., et al. Ciliary neurotrophic factor activates leptin-like pathways and reduces body fat, without cachexia or rebound weight gain, even in leptin-resistant obesity. *PNAS* 98:8: 4652-4657, 2001.
41. Le Laya, S., et al. Decreased Resistin Expression in Mice with Different Sensitivities to a High-Fat Diet. *Biochemical and Biophysical Research Communications* 289:2:564-567, 2001.
42. Li, J., K. Takaishi, W. Cook, S. K. McCorkle, and R. H. Unger. Insig-1 "brakes" lipogenesis in adipocytes and inhibits differentiation of preadipocytes. *PNAS* 100:16:9476-9481, 2003.
43. Ludwig, D. S., et al. Melanin-concentrating hormone overexpression in transgenic mice leads to obesity and insulin resistance. *J. Clin. Invest.* 107:379-386, 2001.
44. Moon, Y. S., et al. Mice Lacking Paternally Expressed Pref-1/Dkl1 Display Growth Retardation and Accelerated Adiposity. *Molecular And Cellular Biology* 22:15: 5585-5592, 2002.
45. Murray, I., A. D. Sniderman, P. J. Havel, and K. Cianflonei. Acylation Stimulating Protein (ASP) Deficiency Alters Postprandial and Adipose Tissue Metabolism in Male Mice. *The Journal Of Biological Chemistry* 274:51:36219-36225, 1999.
46. Phan, L. K., F. Lin, C. A. LeDuc, W. K. Chung, and R. L. Leibel. The mouse mahoganoid coat color mutation disrupts a novel C3HC4 RING domain protein. *J. Clin. Invest.* 110:1449-1459, 2002.
47. Pierroz, D. D., M. Ziotopoulou, L. Ungsuan, S. Moschos, J. S. Flier, and C. S. Mantzoros. Effects of Acute and Chronic Administration of the Melanocortin Agonist MTII in Mice With Diet-Induced Obesity. *Diabetes* 51:1337-1345, 2002.
48. Rosenfeld, C. S., K. M. Grimm, K. A. Livingston, A. M. Brokman, W. E. Lamberson, and R. M. Roberts. Striking variation in the sex ratio of pups born to mice according to whether maternal diet is high in fat or carbohydrate. *PNAS* 100:8:4628-4632, 2003.
49. Chirala, S. S., et al. Fatty acid synthesis is essential in embryonic development: Fatty acid synthase null mutants and most of the heterozygotes die in utero. *PNAS* 100:11:6358-6363, 2003.
50. Takahashi, N., et al. Divergent Effects of Leptin in Mice Susceptible or Resistant to Obesity. *Horm Metab Res* 34:691-697, 2002.
51. Thupari, J. N., L. E. Landree, G. V. Ronnett, and F. P. Kuhajda. C75 increases peripheral energy utilization and fatty acid oxidation in diet-induced obesity. *PNAS* 99:14:9498-9502, 2002.
52. Tortoriello, D. V., J. McMinn, and S. C. Chua. Dietary-Induced Obesity and Hypothalamic Infertility in Female DBA/2J Mice. *Endocrinology* 145: 1238-1247, 2004.
53. Weisberg, S. P., et al. Obesity is associated with macrophage accumulation in adipose tissue. *J. Clin. Invest.* 112:1796-1808, 2003.
54. Xu, H. et al. Chronic inflammation in fat plays a crucial role in the development of obesity-related insulin resistance. *J. Clin. Invest.* 112:1821-1830, 2003.
55. Yamashita, T., et al. Enhanced insulin sensitivity in mice lacking ganglioside GM3. *PNAS* 100:6:3445-3449, 2003.
56. Bagnasco, M., M. G. Dube, A. Katz, P. S. Kalra, and S. P. Kalra. Leptin Expression In Hypothalamic Pvn Reverses Dietary Obesity And Hyperinsulinemia But Stimulates Ghrelin. *Obes Res.* 11:1463-1470, 2003.
57. Borowsky, B., et al. Antidepressant, anxiolytic and anorectic effects of a melanin-concentrating hormone-1 receptor antagonist. *Nature Medicine* 8:8:825-830, 2002.
58. Chan, C. B., et al. Increased Uncoupling Protein-2 Levels in b-cells Are Associated With Impaired Glucose-Stimulated Insulin Secretion. *Diabetes* 50:1302-1310, 2001.
59. Chen, L. and B. L. G. Nyomba. Glucose Intolerance and Resistin Expression in Rat Offspring Exposed to Ethanol in Utero: Modulation by Postnatal High-Fat Diet. *Endocrinology* 144:500-508, 2003.
60. Farley, C., J. A. Cook, B. D. Spar, T. M. Austin, and T. J. Kowalski. Meal Pattern Analysis Of Diet-Induced Obesity In Susceptible And Resistant Rats. *Obes Res.* 11:845-851, 2003.
61. Gao, J., L. Ghibaoui, M. Van Heek, J. J. Hwa. Characterization of diet-induced obese rats that develop persistent obesity after 6 months of high-fat followed by 1 month of low-fat diet. *Brain Research* 936:87-90, 2002.
62. Ogilvie, K. M., R. Saladin, T. R. Nagy, M. S. Urcan, R. A. Heyman, and M. D. Leibowitz. Activation of the Retinoid X Receptor Suppresses Appetite in the Rat. *Endocrinology* 145:565-573, 2004.
63. Shklyav, S., et al. Sustained peripheral expression of transgene adiponectin offsets the development of diet-induced obesity in rats. *PNAS* 100:24:14217-14222, 2003.
64. Hildebrandt, A. L., D. M. Kelly-Sullivan, S. C. Black. Antiobesity effects of chronic cannabinoid CB1 receptor antagonist treatment in diet-induced obese mice. *European Journal of Pharmacology* 462:125-132, 2003.