

Model Specification Sheet

You have received animals that exhibit a specific phenotype. Please follow these guidelines to help ensure the model displays the typical phenotypic characteristics and retain this information for the research team.

Strain	Typical Phenotypic Characteristics	Dietary Recommendations
<input type="checkbox"/> Dahl/Salt Sensitive (Dahl/SS) Species: rat Sex: male Hypertension mutation: polygenic	The Dahl/SS is a model of the low renin form of hypertension. The model exhibits sensitivity to salt and rapidly develops severe progressive hypertensive glomerulosclerosis that leads to end-stage renal disease. The model is fed Charles River's standard diet and maintained in a barrier room.	To develop the hypertension and end-stage renal disease on a systematic, programmable, and consistent basis, feed the animals AIN-76A (Research Diets, NJ) with 0.4% salt from weaning until 10 weeks of age. At that time, switch to a high salt AIN-76A diet with either 4% or 8% salt for three weeks.
<input type="checkbox"/> Stroke Prone (SHR/SP) Species: rat Sex: male Hypertension mutation: polygenic	The SHR/SP is a model of systemic hypertension, stroke, and malignant nephrosclerosis. Many of the pathological lesions associated with stroke in humans are present in this model. Stroke occurs in both sexes. The model is fed Charles River's standard diet and maintained in a barrier room.	To induce stroke in the model on a consistent basis, give the animals 1% sodium chloride in water, <i>ad libitum</i> , along with a stroke-prone diet such as Stroke Prone Rat Diet 52880000 (Zeigler Brothers, PA). If the animal begins the diet and 1% NaCl in water at 7.5 weeks old it will start to show proteinuria and a systolic blood pressure (tail cuff) of >200 mmHg by 14 weeks of age. Signs of stroke begin at 16 weeks of age. Greater than 80% of the animals should sustain a stroke by 20 weeks of age.
<input type="checkbox"/> Spontaneously Hypertensive Obese (SHROB) Phenotype: obese & lean Species: rat Sex: either Diabetes mutation: polygenic Obesity mutation: <i>Lep^{cp}</i>	The SHROB is a model for hypertension, obesity, and metabolic disease. All animals are hypertensive. The obese is hyperlipidemic, insulin resistant, hyperinsulinemic, and spontaneously develops glomerulopathy. The obese model is glucose intolerant in comparison to the lean sibling, but retains a fasting euglycemia. Hypertension and insulin resistance are under independent control in this model. The obese model is sensitive to salt. The model is fed Charles River's standard diet and maintained in a barrier room.	The obese model produces all characteristics on Purina 5008 diet. Use a diet with an increased salt concentration to show salt sensitivity.
<input type="checkbox"/> Spontaneously Hypertensive Heart Failure (SHHF) Phenotype: obese & lean Species: rat Sex: either Diabetes mutation: polygenic Obesity mutation: <i>Lep^{cp}</i>	The SHHF is a model of dilated cardiomyopathy and heart failure. The SHHF develops hypertension at an early age. All phenotypes and genotypes develop heart failure. The obese male develops Type 2 diabetes when fed Purina 5008 diet. At Charles River the model is fed irradiated Purina 5008 diet and maintained in a barrier room.	If fed Purina 5008 diet the obese male develops Type 2 diabetes, and also develops heart failure between 10-14 months of age. The obese female and lean male develop heart failure between 14-18 months of age, and the lean female at >20 months of age.
<input type="checkbox"/> Zucker Diabetic Fatty (ZDF) Phenotype: obese Species: rat Sex: male Diabetes mutation: polygenic Obesity mutation: <i>Lep^{fa}</i>	The male ZDF exhibits a blood glucose level of 250 mg/dL or greater by 8 weeks of age, increasing to >500 mg/dL by 12 weeks. Prior to 12 weeks the model is insulin resistant. By 12 weeks of age the insulin level should be ≤8 ng/ml and by 16 weeks it is ≤2 ng/ml. At Charles River the model is fed irradiated Purina 5008 diet and maintained in a barrier room.	To induce the development of Type 2 diabetes by 12 weeks of age feed the animal Purina 5008 diet. Other diets slow or prevent the development of diabetes, while others induce the disease too rapidly.

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<input type="checkbox"/> Zucker Diabetic Fatty (ZDF) Phenotype: obese Species: rat Sex: female Diabetes mutation: polygenic Obesity mutation: <i>Lepr^{fa}</i>	On a certain high-fat diet, female ZDF rats develop Type 2 diabetes that follows the same pattern as in the male. If the diet provided is not high-fat, overt diabetes does not develop, and the model becomes insulin-resistant with normal glycemic values. At Charles River the model is fed irradiated Purina 5008 diet and maintained in a barrier room.	Use a high-fat diet to display the Type 2 diabetic phenotype before 26 weeks of age. We recommend C13004 diet (Research Diets, NJ). When fed this diet for four weeks animals become diabetic. When fed the high-fat diet for six weeks, the phenotype does not revert to the non-diabetic state.
<input type="checkbox"/> Zucker Phenotype: obese Species: rat Sex: either Obesity mutation: <i>Lepr^{fa}</i>	The Zucker is an outbred obese model that carries the <i>Lepr^{fa}</i> mutation. The model is normoglycemic, insulin resistant, hyperinsulinemic, and hyperlipidemic. Overt diabetes does not occur in this model. The model is fed Charles River's standard diet and maintained in a barrier room.	No special conditions or diet are necessary for phenotype development.
<input type="checkbox"/> ZSF1 Phenotype: obese Species: rat Sex: either Diabetes mutation: polygenic Obesity mutation: <i>Lepr^{fa} Lepr^{cp}</i>	The ZSF1 is a hybrid obese model that carries both the <i>Lepr^{fa}</i> and <i>Lepr^{cp}</i> genetics. It is a model of end-stage kidney disease. The female becomes diabetic on a high-fat diet. The male becomes diabetic when fed Purina 5008 diet. At Charles River the model is fed irradiated Purina 5008 diet and maintained in a barrier room.	The obese male will develop diabetes on Purina 5008 diet. The female will display the Type 2 diabetic phenotype when fed a high-fat diet before 26 weeks of age. We recommend C13004 diet (Research Diets, NJ). When fed this diet for four weeks, the females become diabetic. When fed the diet for six weeks or more, the phenotype will not revert to the non-diabetic state.
<input type="checkbox"/> Diet Induced Obesity (DIO) Phenotype: obesity prone Species: rat Sex: male	The DIO demonstrates the interaction of environmental influences with a polygenic propensity to develop obesity. The model develops obesity when fed a High Energy (HE) diet. The DIO is insulin resistant, has impaired glucose tolerance, dyslipidemia, lower growth hormone secretion, and a propensity to oxidize carbohydrates preferentially over fat. The model is fed Charles River's standard diet and maintained in a barrier room.	To induce obesity, feed the model a normal laboratory diet until 10 weeks of age, and then feed it a High Energy diet (HE) such as D12266B (Research Diets, NJ). To induce metabolic syndrome in this model, feed the HE diet from 5 weeks of age. At 16 weeks, this model exhibits glucose intolerance and hyperinsulinemia.
<input type="checkbox"/> Diet Resistant (DR) Phenotype: obesity resistant Species: rat Sex: male	The DR is the control model for the DIO, developed from the same parental stock. The DR gains no more weight or carcass fat when on the HE diet than when on a Low Energy diet. The model is fed Charles River's standard diet and maintained in a barrier room.	Feed the DR a normal laboratory diet until 10 weeks of age, and then feed it an HE diet such as D12266B (Research Diets, NJ).