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## **ADVISORY NOTICE regarding NONcNZO10/LtJ Male – Strain 004456M ("NONNZO Male")**

### **Type: Recombinant Congenic**

**Strain Highlights NONNZO Male** is a recombinant congenic strain developed at The Jackson Laboratory to model human obesity-induced Type 2 diabetes and metabolic syndrome. Type 2 diabetes in males of this strain results from polygenic interactions producing a moderate obesity rather than the massive obesity elicited by mutations in the leptin/leptin receptor axis. Unlike mice with monogenic obesity syndromes, NONNZO males do not exhibit hypercorticism, are not hyperphagic, and show no obvious thermoregulatory defects. NONNZO male mice are weaned onto LabDiet® 5K20 (a chow diet containing 10-11% fat by weight) and develop visceral obesity, maturity-onset hyperglycemia, dyslipidemia, moderate liver steatosis, and pancreatic islet atrophy.

#### **Characteristics**

- Increased body weight due primarily to visceral adiposity
- Progressively increasing plasma glucose (280-600 mg/dl) with age
- Moderately increased serum insulin and leptin
- Elevated serum triglycerides
- Pancreatic islet atrophy following chronic hyperglycemia
- Moderate liver steatosis following chronic hyperglycemia
- Normal reproductive performance
- Modestly increased food consumption
- Intact leptin/leptin receptor axis
- Normal corticosteroid levels
- Sensitive to changes in dietary fat

Advisory for working with NONNZO male mice:

- For investigators studying hyperglycemia in these mice, we recommend that they order mice between 10 and 12 weeks of age or older. Mice shipped at younger ages have been reported to not develop the same degree of hyperglycemia and penetrance of hyperglycemia as those shipped at an older age.
- Mice that are older than 6 weeks of age should not be reassigned cage mates (randomized) as they will have a tendency to fight.
- Mice should be allowed to acclimate in your vivarium for 7 to 10 days prior to studies to reduce phenotype variability caused by stress of shipment and new surroundings. If possible, mice should be placed in the quietest section of your vivarium and kept away from loud noises.
- The elevated blood glucose characteristic of these mice is related to their body weight. Differences in housing density can affect food intake and energy expenditure which affect body weight. We recommend group housing in density of

3 to 5 per pen. Over time, mice housed individually can be expected to weigh less than mice housed in groups.

- Changes in diet (macronutrient content of diet as well as hardness) can affect body weight and non-fasted blood glucose. When the cages are changed, we recommend sprinkling some food on the bottom of the mouse cage to make it more accessible for these mice.
- These mice become polyuric by 8 to 10 weeks of age. Bedding should be changed once per week. More frequent bedding changes are not normally necessary and could cause the rate of body weight gain to decline. We recommend that mice be provided nesting materials (we use Nestpacks) for enrichment.

If you have questions about working with the NONNZO Male, please contact our Technical Support group at 1-800-422-MICE (6423) or e-mail them at [micetech@jax.org](mailto:micetech@jax.org).