1. No.
   2020T007

2. Title
   Establishment of a Model Rat of Sarcopenic Obesity and Effects of Smoking on the Onset and Progression of Sarcopenia

3. Period
   2020-2024

4. Summary
   Ob/ob mice/rats and *BSCL2*-deficient rats with increased fat accumulation in skeletal muscle showed decreased skeletal muscle mass and muscle strength, suggesting that they are a valid model for sarcopenic obesity. In addition, the study using *ob/ob* mice showed that weight loss treatment may restore skeletal muscle mass and muscle strength. Furthermore, the study using *ob/ob* mice showed that nicotine administration for a short term had no apparent effect on skeletal muscle mass or muscle strength. In the future, we would like to conduct comprehensive gene and protein expression analyses to discover new biomarkers and drug targets.

   In clinical studies, the utility of Phase angle (PhA) as an indicator for evaluating muscle quality was demonstrated using a cohort of patients undergoing health checkups, and PhA alone was shown to have a high diagnostic ability for sarcopenia. Furthermore, a study using an obesity cohort showed that a composite index using abdominal circumference and muscle quality is useful as a diagnostic index for sarcopenic obesity. Furthermore, the ABSI, a new obesity assessment index, was shown to be effective in identifying obese patients with high CVD risk and reduced skeletal muscle-evaluated index, independent of BMI. In the future, we intend to validate the findings of the basic study in humans using data from the clinical cohort obtained in this study.