Elucidation of the mechanism of muscle mass regulation by dysfunction of proteolytic system

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The aim of this study is to generate mice that can undergo muscle-specific proteasome dysfunction at any given time and to elucidate its effects on skeletal muscle homeostasis mechanisms. After individual maturation, skeletal muscle proteasome dysfunction in mice inhibited proteasome-mediated proteolysis, leading to muscle atrophy and reduced myofiber size. Furthermore, proteasome dysfunction was associated with necrotic cells and inflammatory cell infiltration, suggesting a link to disease. In the future, the relationship between muscle proteasome dysfunction and aging and disease should be further investigated. We expect that further elucidation of this relationship will help to elucidate one aspect of the normal homeostatic mechanism of skeletal muscle.