The proper function of muscles is indispensable for daily life activities including eating, speaking, breathing, etc. The integrity of sarcolemma (muscle membrane) is maintained by the dystrophin-associated glycoprotein complex (DGC). The activities of the DGC is compromised in many muscular dystrophies. For example, the lack of dystrophin due to mutation is the cause of Duchenne muscular dystrophy (DMD). Currently there is no cure for DMD and the treatments aim only to control symptoms. Many clinical trials are underway and most of them are focused on restoring functions dystrophin. Remarkably, the lack of dystrophin leads to degradation of β-dystroglycan (β-DG) which connects the extracellular matrix to the intracellular actin cytoskeleton. This is due to the exposure of the PPXY motif of β-DG which gets phosphorylated in the absence of dystrophin what triggers β-DG degradation. Despite decades of studies on DMD, we still know little about the molecules that regulate the stability of β-DG. This proposal seeks to identify novel proteins that interacts with the PPXY motif of β-DG and provide stability to β-DG by preventing its phosphorylation. Additionally, we will study the endocytic pathway of β-DG in steady state and upon its degradation. It is currently unknown what the degradation route of β-DG in DMD and how molecules regulate this pathway. We will investigate a possibility that specific β-DG-interacting proteins play a role in stabilization of β-DG. The results of our project could have therapeutic applications in the treatment of DMD.