Reviewers' comments:   
  
Reviewer #1 (Technical Comments to the Author):   
  
1) Molecular weight markers and/or arrows to indicate the band of interest are required for the Western blots in Fig 1 c) since multiple bands are shown. 

**These have now been added to Figure 1c**

2) Figure legends missing from Fig 7 b) 

**This figure legend is included:**

**b) Climbing activity for flies described in a, measured between 2 and 19 days of age.**

Reviewer #1 (Remarks to the Author):   
  
The manuscript is much improved based on the additional data, the separate discussion section and the changes made to the conclusions of the experiments. On the whole, the work is technically sound and the conclusions made are appropriate. However, I have a two points based on the new data that I would like the authors to comment on before I can recommend publication of this work in Scientific Reports.   
  
1) The statement "Furthermore, this activation is independent of Akt signaling, which was actually decreased during the transition from 10% FBS to 2% horse serum." has not been demonstrated. This data is suggestive of an association with altered Akt signalling. I would suggest that the text should be altered to reflect this difference. 

**This sentence has been altered to read:**

**Furthermore, this activation is unlikely to be due to increased of Akt signaling, which was actually decreased during the transition from 10% FBS to 2% horse serum.**

2) A helpful addition to the Drosophila data in Fig 6 and 7 would be some basic histology (e.g. H and E stain) of the adult musculature of the flies that have enclosed at different ages. Based on the differences observed in the function, but not lifespan, of MHC-GAL4 vs other GAL4 lines this seems a very simple way to gain significant insight into the observed phenotypes. Can the authors explain why they have not done this? 

**We agree that this is an important question, and we examined developing and adult fly musculature as requested. We could not detect any gross morphological changes in our initial examination. We were unable to perform conclusive studies that would have unambiguously ruled in or out changes in fly muscle morphology, fiber type or efficiency that are likely to underlie these changes in muscle function. We therefore decided that making strong conclusions for or against morphological changes in mediating these effects. We have begun a detailed molecular study of the morphological, transcriptomic and biochemical changes associated with muscle *Raptor* knockdown in both flies and mice to answer this question in a the comprehensive manner it deserves, but we believe that these experiments are both beyond the scope of this manuscript, and are unlikely to be completed in a timely manner. We addressed this point in the revised discussion:**

**This study did not address biochemical or morphological differences between wild-type and *Raptor* knockdown muscles, though the exact molecular nature of these changes in muscle strength warrants further study.**

Reviewer #2 (Remarks to the Author):   
  
The Authors are to be commended for generating new data in responses to my comments.