# BMAL1 and CLOCK proteins exhibit differential association with mitochondrial dynamics, protein synthesis pathways and muscle strength in human muscle

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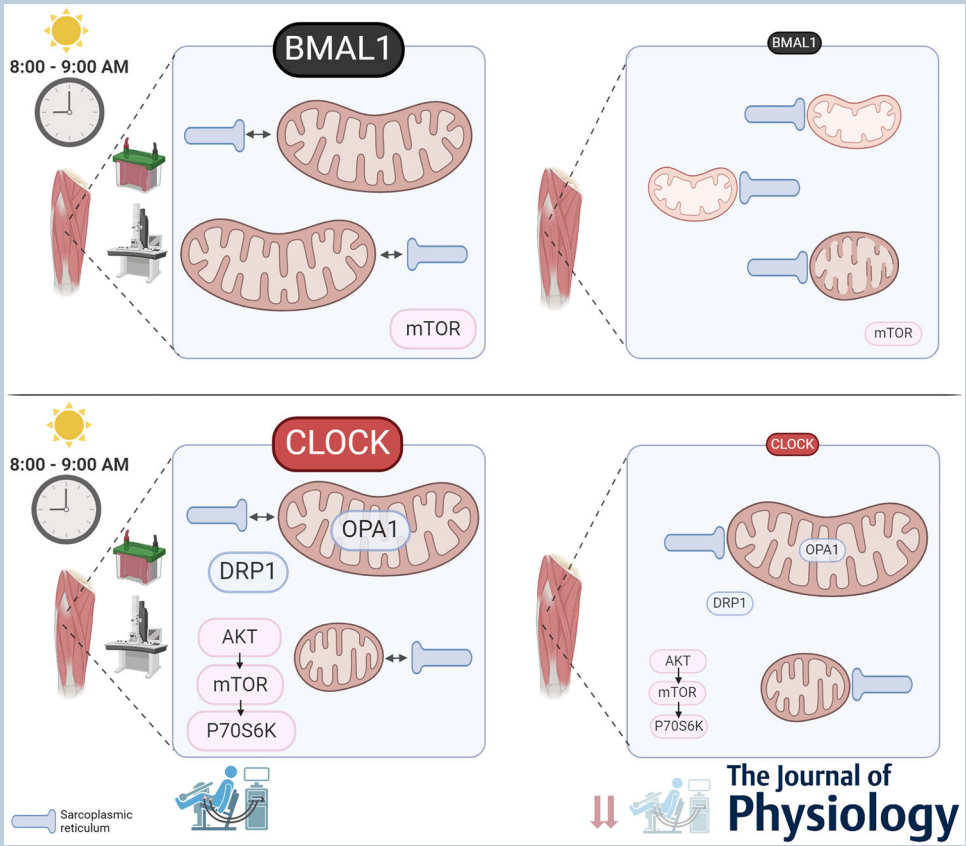
Handling Editors: Karyn Hamilton & Josiane Broussard

The peer review history is available in the Supporting Information section of this article (https://doi.org/10.1113/JP285955#support-information-section).




**Abstract** Murine models lacking CLOCK/BMAL1 proteins in skeletal muscle (SkM) present muscle deterioration and mitochondria abnormalities. It is unclear whether humans with lower levels of these proteins in the SkM have similar alterations. Here we evaluated the association between BMAL1 and CLOCK protein mass with mitochondrial dynamics parameters and molecular and functional SkM quality markers in males. SkM biopsies were taken from the vastus lateralis of 16 male (non-athletes, non-obese and non-diabetic) subjects (8–9 A.M.). The morphology of mitochondria and their interaction with the sarcoplasmic reticulum (mitochondria-SR) were determined using transmission electron microscopy images. Additionally, protein abundance of

 DOI: 10.1113/JP285955