

COVID-19 is an emerging, rapidly evolving situation.

Get the latest public health information from CDC: <https://www.coronavirus.gov>.

Get the latest research from NIH: <https://www.nih.gov/coronavirus>.

Find NCBI SARS-CoV-2 literature, sequence, and clinical content: <https://www.ncbi.nlm.nih.gov/sars-cov-2/>.

FULL TEXT LINKS



[Biochem Biophys Res Commun](#). 2020 Nov 10;S0006-291X(20)32060-X.
doi: 10.1016/j.bbrc.2020.11.016. Online ahead of print.

CFL2 is an essential mediator for myogenic differentiation in C2C12 myoblasts

Mai Thi Nguyen ¹, Kyung-Ho Min ¹, Dough Kim ¹, Seung-Yoon Park ¹, Wan Lee ²

Affiliations

PMID: 33187645 DOI: [10.1016/j.bbrc.2020.11.016](https://doi.org/10.1016/j.bbrc.2020.11.016)

Abstract

CFL2, a skeletal muscle-specific member of the actin depolymerizing factor/cofilin protein family, is known to be involved in the regulation of actin filament dynamics. Although the impact of CFL2 has been studied in human myopathy, its functional contribution to myogenic differentiation, in terms of its effects on cell proliferation, cell cycle, and myogenic factor modulation, remains largely unknown. Here, we report that CFL2 is required for the myogenic differentiation of C2C12 myoblasts by regulating proliferation and myogenic transcription factors expressions. CFL2 expression was induced during myogenic progression, and its knockdown by siRNA in myoblasts enhanced phalloidin staining, indicating increased filamentous actin formation. Interestingly, CFL2 depletion stimulated cell proliferation and induced a cell cycle shift from G0/G1 to G2/M phases, which are known to inhibit progenitor cell differentiation. CFL2 knockdown markedly downregulated the protein expressions of myogenic transcription factors (MyoD, MyoG, and MEF2C) and thereby impaired the differentiation and myotube formation of C2C12 myoblasts. Collectively, this study highlights the roles played by CFL2 on cell cycle progression and proliferation and suggests a novel regulatory mechanism of myogenic differentiation mediated by CFL2.

Keywords: Actin remodeling; CFL2; Differentiation; Myogenesis; Proliferation.

Copyright © 2020. Published by Elsevier Inc.

Related information

[MedGen](#)

LinkOut – more resources

Full Text Sources

[Elsevier Science](#)

