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The International Journal of Biochemistry & Cell Biology 37 (2005) 1931
IJBCB
www.elsevier.com/locate/biocel

Editorial

Muscle wasting: On the brink of new therapies

Muscle wasting has serious consequences for patients with a broad range of illnesses including those with diabetes, chronic lung diseases, HIV and cancer. It also occurs in the healthy. For example, as people age or during periods of muscle inactivity such as that experienced in space or when muscle use is restricted during recovery from bone fractures. This broad range of muscle wasting patients presents a challenge to researchers trying to better understand what regulates the balance of muscle protein synthesis and degradation. It is known that this balance is influenced by physical, genetic, nutritional and psychiatric factors. Many avenues of biochemical and cellular research are being investigated as we try to better understand the molecular pathways leading to muscle loss.

Research into the molecular and cellular mechanisms controlling muscle wasting is ongoing and important progress continues to be made. For example, one of our guest editors (P.-O.H.) and colleagues have recently discovered the involvement of specific transcription factors, such as IKKbeta/NF-kappaB, as central to muscle wasting (Cai et al., 2004). It is hoped that new discoveries such as this, will lead to potential drug targets and therapies that have the capacity to improve the quality of life of patients.

This directed issue of the *International Journal of Biochemistry and Cell Biology* focuses on recent progress being made in muscle wasting research and the important potential therapies arising from this research. It results from the commitment and expertise of our two guest editors, Prof. Per-Olof Hasselgren of the Beth Israel Deaconess Medical Center, Harvard, US, and Dr. Didier Attaix of the Nutrition and Protein Metabolism Unit, Clermont-Ferrand, France. Both are leaders in their fields and have produced an excellent issue containing state of the art research, reviews and In Focus articles. I would like to thank both of our guest editors and all the authors who have helped make this splendid issue. I believe it will be welcomed as an informative summary of current research in muscle wasting and the challenges that remain as we go forward in this area.

Reference

Cai, D., Frantz, J. D., Tawa, N. E., Jr., Melendez, P. A., Oh, B. C., Lidov, H. G., et al. (2004). IKKbeta/NF-kappaB activation causes severe muscle wasting in mice. *Cell*, *119*, 285–298.

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21 June 2005

1357-2725/$ – see front matter
doi:10.1016/j.biocel.2005.06.020