A molecular imaging analysis of Cx43 association with Cdo during skeletal myoblast differentiation

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1. Introduction

The study of cell signalling pathways is of particular interest for the identification of specific interactions between proteins and other cellular components. Fluorescence microscopy has become a powerful technique to probe such cellular activity, because it allows the selective and specific detection of molecules at low concentration levels [1]. Intensity images, however, only reveal cellular organization, while functional measurements such as fluorescence lifetime imaging (FLIM) can probe cellular activity and protein interactions in a single cell. For a complete study on cellular activity, a combination of fluorescence measurements is needed: intensity, lifetime, and spectral imaging.

In the recent years much attention has been drawn to the role played by several classes of intercellular junctional proteins and related signaling in the cell-contact-based regulation of myoblast differentiation [2]. Skeletal myoblasts are undifferentiated mononuclear precursor cells which are responsible for postnatal muscle growth and injury-induced muscle regen-