Stage de Master 2 (Septembre 2025)

Groupe de recherche : Cell Therapy & Musculoskeletal Disorders, CMU, Faculté de Médecine.

https://www.unige.ch/medecine/chiru/

Sous la direction du Dr Thomas Laumonier

Project: To study the single cell energy metabolism of human muscle stem cell.

Introduction: Muscle stem cell (MuSC)-based cell therapy has great potential to provide muscle regeneration and genetic complementation for patients suffering from muscle diseases, including DMD. However, the strategy needs to be improved as culture conditions are known to affect the regenerative capacity of expanded MuSC. We have previously shown that human myogenic reserve cells (MuRC) are quiescent Pax7+ MuSC arrested in a G0 reversible cell cycle state with increased regenerative potential compared to proliferating human myoblasts. Human MuRC also have the advantage of being generated in vitro in a quiescent state without the need for in situ fixation techniques prior to isolation.

Methods: Isolation and culture of human primary myoblasts. Immunofluorescence, Western blot, flow cytometry, SCENITH (flow cytometry-based method that allows functional profiling of energy metabolism at a single cell level).

References :

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2. Kindler V, Paccaud J, Hannouche D, **Laumonier T#**. Human myoblasts differentiate in various mesenchymal lineages and inhibit allogeneic T cell proliferation through an indolamine 2,3 dioxygenase dependent pathway. Exp Cell Res. 2021 Apr 8:112586.
3. **Laumonier T#,** Ruffieux E, Paccaud J, Kindler V, Hannouche D. In vitro evaluation of human myoblast function after exposure to cobalt and chromium ions. J Orthop Res. 2020 Jun;38(6):1398-1406.
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