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Human induced pluripotent stem cells: A new source for brown and white adipocytes

Christain Dani French National Institute for Health and Medical Research, France

Mesenchymal Stem Cells (MSCs) derived from human induced Pluripotent Stem Cells (hiPSCs) provide a novel source for generating adipocytes, thus opening new avenues for fundamental research and clinical medicine. We present the adipogenic potential of hiPSCs and the various methods to derive hiPSC-MSCs. We discuss the main characteristic of hiPSC-MSCs, which is their low adipogenic capacity as compared to adult-MSCs. Finally, we propose several hypotheses to explain this feature, underlying a potential critical role of the micro-environment. We favor the hypothesis that the range of factors or culture conditions required to induce adipocyte differentiation of MSCs derived from adult tissues and from embryonic-like cells could differ.

Biography

Christain Dani, PhD, is an expert in human adipose-derived stem cells and differentiation of pluripotent stem cells into adipocytes. He did a PhD in Molecular Biology in Montpellier University (France). Then, he conducted a 2-year program research on the biology of embryonic stem cells in Pr. A. Smith's laboratory (Edindurgh, Scotland). He is now director of research at the French National Institute for Health and Medical Research (INSERM) and the director the "Stem Cells and Differentiation" laboratory at the University of Nice-Sophia Antipolis.

dani@unice.fr

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