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DIABETES AND METABOLIC
ASSOCIATED DISEASES
RESEARCH GROUP

Final Degree Project - Biochemistry and Molecular Biology
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**Implication of Succinate/SUCNR1 Signaling in the Metabolism
of HL-1 Cardiomyocytes under Physiological Conditions**

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The content of this Final Degree Project is **confidential**; for further information, please contact: Sonia Fernández Veledo, PhD (Head of DIAMET Research Group; sonia.fernandezveledo@gmail.com / sonia.fernandez@iispv.cat) or Amaia Peralta Aranda (amaia.peralta@estudiants.urv.cat / amaiaperalta03@gmail.com).

ABSTRACT

Succinate, traditionally known as a key intermediate of the tricarboxylic acid (TCA) cycle, has emerged as a signaling metabolite involved in the regulation of intracellular and extracellular responses. Beyond its mitochondrial function, succinate can be produced by the gut microbiota and be accumulated under pathological or physiological conditions. Extracellularly, succinate interacts with the G-protein coupled receptor SUCNR1, triggering diverse signaling pathways that vary depending on cell type and context. In the heart, a highly energy-demanding organ, adult cardiomyocytes rely primarily on mitochondrial oxidative phosphorylation of fatty acids to sustain continuous contractile activity under physiological conditions. However, this metabolic balance can be disrupted in pathological states. The succinate/SUCNR1 axis may play a role in these processes by influencing cardiac metabolism; therefore, understanding this axis in physiological cardiac conditions is necessary to elucidate its contribution to normal heart metabolism and establish a baseline for its roles in disease.