

**Stem Cell and biotherapy Team, IBPS**

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**Biophysics Team**

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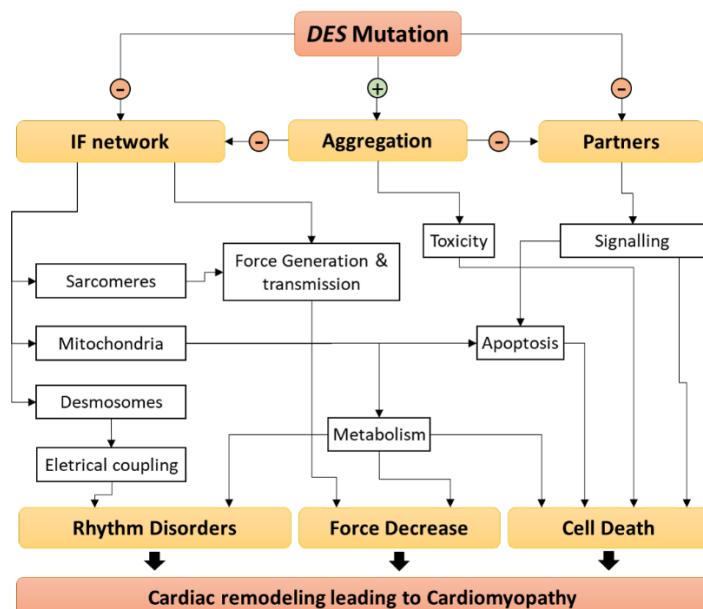
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**PHD Proposal:**

**Biomechanics of DESmin-related CARDIOMYOPATHY**

Genetic-driven dilated cardiomyopathy (DCM) is a severe disease that significantly shortens the lifespan of patients affected due to heart failure or sudden cardiac death, especially in patients with myofibrillar myopathies (MFM) and desminopathies (where mutations in a key protein desmin is observed). To date there is limited treatment, including pharmacological therapies, with the potential to revert the disease. Novel research strategies which could lead to the development of innovative treatments are therefore strongly needed. The PhD candidate will be a full participant in the project Descartes (funded by Association Française pour la Myopathie), which aims at finding new innovative strategies for helping patients by gathering very different expertises.

The goal of the thesis will be two sides: first to extent the development of new software tools for the automatic robust and fast analysis of in vitro assays, which is crucial for the drug screening aspect of the project and second to build an integrative model of the disease based on all the different data types gathered by the partners of the project and especially to try to link structural defaults (sarcomere, desmosomes organization), to their consequences in force transmission, and in particular to study the coupling with rhythms disorders.



**Areas of expertise :** Good programming skills in any language is required and a background in biology would be highly appreciated.