Master project: Application of patient centricity to \textit{in vitro} cardiovascular safety assays.

Drug-induced cardiovascular toxicity is one of the leading causes of drug attrition during preclinical and clinical development. Current models use human induced pluripotent stem cell-derived cardiomyocytes (hiPSC-CMs) from healthy donors and do not consider patient attributes such as disease pathophysiology or previous pharmacology which could lead to a lack of translation from healthy to disease states for cardiovascular safety risks. Indeed, we are in need of better predictive \textit{in vitro} tools with patient centric focused potential that allow detection of adverse cardiac liabilities early on in the drug discovery process. In this graduate project you will be at the forefront of innovative medicines working with experts across global multi-disciplinary teams in the fields cardiac and stem cell biology, to create, evaluate and utilize novel complex cardiovascular \textit{in vitro} models. More specifically, an induced or genome engineered approach will be taken to generate a diseased hiPSC-CM model that will allow us to understand if disease pathophysiology impacts on drug-induced cardiac function. From this cutting-edge work there is the potential for publication in high-impact journals and to influence the future direction of the cardiovascular safety strategy within AZ.

\textit{Preferred previous experience:} We seek master student candidates with a strong bioscience background, preferably with cell culture and molecular biology experience. We are looking for a highly motivated person with an interest in novel breakthrough technologies and a willingness to work in global multi-disciplinary teams.

\textit{Central placement objectives:} 1. Generate a hiPSC-CM disease model. 2. Perform assays to understand impact of disease pathophysiology on drug induced cardiotoxicity.

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Start date: Fall of 2020