

Technology Opportunity, Ref. No. UB-20/204

## Biomarker for sudden cardiac arrest

Every 90 seconds someone dies unexpectedly from cardiac arrest. And yet, to date, there is no way to predict this most tragic event in life. The present diagnostic tool identifies with high accuracy persons at risk of dying suddenly using only a single drop of blood.

**Keywords** Antibody, autoantibody, biomarker, cardiac arrhythmias, diagnostic chip, heart rhythm disorder, microarray, sudden cardiac arrest

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**Reference** Maguy A, Tardif JC, Busseuil D, Ribic C, Li J. Autoantibody Signature in Cardiac Arrest. *Circulation* 2020; 141(22):1764-1774.

**Background** Sudden cardiac arrest claims more lives than cancer and infectious diseases combined, with an estimated 4-5 million global deaths each year. Unfortunately, the unexpected nature of cardiac arrest makes it notoriously difficult to predict. Despite the many advances in risk stratification strategies, effective tools for the prediction of sudden cardiac arrest are still missing. Clearly, in the era of personalized care, early detection and prevention are key to saving lives. Recent research has shown that autoantibodies are associated with heart rhythm disorders, the underlying cause of cardiac arrest.

**Invention** A peptide microarray assay was developed to establish the autoantibody profile of individuals. The high-throughput test necessitates only a small blood sample volume (15 µl). The autoantibody against the pore domain of the L-type voltage-gated calcium channel was consistently identified as a biomarker of idiopathic cardiac arrest (P=0.002; false discovery rate, 0.007; classification accuracies ≥0.83)

**Fields of Use** Based on the invention, a diagnostic kit can be designed to screen the population and to identify individuals at risk for sudden cardiac arrest.

**Patent Status** European patent application filed in April 2020

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