

Fluorescence catheter for detection of vulnerable plaques

Fluorescence imaging is used to discriminate between stable and vulnerable atherosclerotic plaques.

SUMMARY OF INVESTMENT OPPORTUNITY:

Our group has unique expertise in molecular imaging technology identifying different components of vulnerable atherosclerotic plaques. We are aiming to develop a highly sensitive narrow-range wavelength fluorescence catheter.

Vulnerable atherosclerotic plaques are the most important cause of cardiovascular mortality and morbidity worldwide. Detection of these plaques has an enormous health and economic potential. Currently, the gold standard for diagnosis of coronary artery disease is coronary angiography. However, coronary angiography only provides information about the vessel lumen but not about the morphology of the vessel wall itself where the atherosclerotic plaque develops.

There have been numerous preclinical and clinical studies using different catheter-based imaging techniques to try to identify the vulnerable plaques before they rupture. Notable examples are intravascular ultrasound (IVUS), optical coherence tomography (OCT) and near-infrared spectroscopy (NIRS).

Although these techniques have been demonstrated to be able to detect some aspects of vulnerable plaque morphology, none of these proved capable to reliably identify unstable, vulnerable, rupture-prone plaques and discriminate these from stable plaques.

Our studies have shown conclusive results demonstrating fluorescence imaging could be used to detect vulnerable plaques and differentiate these from stable plaques reliably.



Autofluorescence of arteries in mice model (stable atherosclerotic plaques, healthy carotid artery, unstable carotid plaque with intra-plaque haemorrhage [IH], unstable carotid plaque with positive remodelling)

INTELLECTUAL PROPERTY:

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CONTACT DETAILS:

Guy Krippner, Executive General Manager, Commercialisation & Research Contracts

+61 3 8532 1622 ✉ guy.krippner@bakeridi.edu.au