Canterbury Medical Research Foundation

Final report for Project Grant 2017PROSarahAppleby

Grant recipient

Dr Sarah Appleby
University of Otago
Medicine

sarah.appleby@otago.ac.nz
0274626866
2 Riccarton Avenue 8011

Grant details

GRANT TYPE	Project Grant	FUNDING ROUND	2017 Major Project Grant
GRANT REFERENCE	2017PROSarahAppleby	GRANT AMOUNT	$40,000

Final report

1. Report for the Scientific Assessing Committee

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Appleby_Final report.pdf
177.1 KiB

2. Brief summary

In New Zealand, Cardiovascular disease continues to be the leading cause of death, therefore there is still a need for the discovery of new biological markers that will aid in earlier diagnosis, treatment or prognosis. The objective of this research is to explore whether a recently discovered peptide myoregulin can be used as a biomarker in acute coronary syndrome (ACS), i.e. myocardial infarction or unstable angina. This will be assessed by measuring levels of myoregulin in the circulation of both healthy participants and acute cardiac patients to see whether it is altered. Currently there are no methods available for measuring myoregulin, therefore I have begun to establish two methods concurrently; one using ELISA and the other mass spectrometry. I have developed a competitive and two-site ELISA to myoregulin, however after extensive optimisation, I have concluded that the polyclonal antibodies I raised for this method (one in rabbit and the other in sheep) are not sensitive or specific enough to establish a two-site ELISA to detect endogenous myoregulin in the plasma. The mass spectrometry method although established still requires further optimisation of the sample preparation to detect the endogenous full length myoregulin peptide in the plasma. Further to exploring myoregulin's biomarker properties, I have also begun the investigation into the bioactivity of myoregulin to determine whether it has a direct effect on the heart. This work has been done using an isolated rat heart model with both healthy hearts and those undergoing myocardial infarction (heart attack). Preliminary data suggests that myoregulin may reduce heart function, although this requires follow up with a larger sample size.

3. Photographs

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Sarah Appleby.jpg
1.0 MiB

4. Feedback