

# Heart Patch Strategy to Treat Myocardial Infarction: A Cardiac Biomechanics Study

--- Prepared by Dr Wenyi Yan, Department of Mechanical & Aerospace Engineering,  
Monash University

Heart disease, including congestive heart failure (CHF), is the leading cause of death and disability worldwide, accounting for nearly 40% of human mortality. A major cause of CHF is acute myocardial infarction. A new heart patch strategy combined with tissue engineering was proposed to treat myocardial infarction. The aim of this project is to study the effects of a heart patch on a failing heart with myocardial infarction by applying the cardiac biomechanics-based finite element method. The outcomes from this project will be applied directly to assist biomaterial scientists and surgeons to develop this novel heart patch strategy. A biomaterial scientist from material engineering department will be involved in the supervision of this PhD research project. The PhD student must be good at mathematics, solid mechanics and interested in computational simulations.

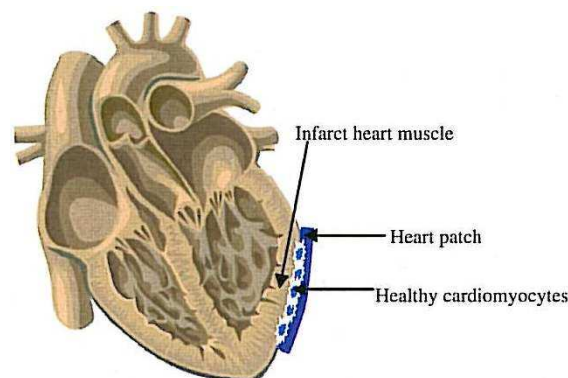


Illustration of the heart patch strategy to treat myocardial infarction.<sup>1</sup>

1. Chen QZ, Bismarck A, Hansen U, Junaid S, Tran MQ, Harding SE, et al. Biomaterials. 2008;29:47-57.