Ischemia/reperfusion (I/R) injury is the main event that causes myocardial cell death in coronary heart disease. Pharmacological studies have revealed that Chinese medicinal materials (CMM) could reduce myocardial I/R injuries by their antioxidant effects. However, Traditional Chinese Medicinal Classics have implicated another principle of treatment known as *supplementation therapy*. In view of the potential of CMM as preventive agents for myocardial I/R challenge, rat model systems were developed to study the cardioprotective effects of CMM. A hypoxia/reoxygenation model of neonatal rat cardiomyocytes was developed for the screening assay. The extracts of HERBA ANDROGRAPHITIS, RHIZOMA CORYDALIS and RADIX ANGELICA SINENSIS were shown to produce cardioprotective effects after pretreatment of the cardiomyocytes. Two pure compounds from CMM, namely andrographolide and baicalein were later identified to be cardioprotective. In addition, an ischemia/reperfusion model of Langendorff-perfused isolated rat heart and an isoproterenol-induced myocardial infarction model in rats were also developed to study the cardioprotective effects of CMM *in vivo*. The application of these models to address different biological questions as well as future approaches that are suitable for CMM investigations will be discussed.