**Comprehensive metabolomics profiling of acute myocardial ischemia and protective effects of Danqi Tongmai tablet in rats**

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**Abstract:** Acute myocardial infarction (AMI) is a serious life-threating disease in the world. The molecular mechanisms of AMI are complex and involve multiple disturbed metabolic pathways. Danqi Tongmai tablet (DQTM) is a new drug developed by combining panax notoginsenosides (PNS) and salvianolic acids (SA) based on the theory of traditional Chinese medicine (TCM) and modern pharmacological experiments. In this study, we explored both the molecular mechanisms of AMI and the cardioprotective effects of DQTM through an untargeted metabolomics strategy. Firstly, the rat AMI model was induced by ligating the left anterior descending coronary artery. Secondly, the plasma and heart tissues were comprehensively profiled using ultra-performance liquid chromatography/quadrupole time-of-flight mass spectrometry in positive/negative ion modes. Thirdly, orthogonal partial least squares discriminant analysis (OPLS-DA) or PLS-DA and nonparametric student test were used to discriminate between groups and find the changed metabolites, which were further identified by searching the METLIN and HMDB database. Finally, a total of 62 metabolites were found significantly changed during AMI, while DQTM could restore most of them and thus exert the cardioprotective effects. The changed metabolites were mainly amino acids, nucleosides, carbohydrates and fatty acids, and involved the energy metabolism and inflammation related pathways. In addition, some metabolites were found significantly changed in the heart tissues but not yet in plasma, which increased the understanding of the process of AMI.