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## Identification of haptoglobin as a potential biomarker in young adults with acute myocardial infarction by proteomic analysis

(Article) [\(Open Access\)](#)

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### Abstract

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**Background:** Acute myocardial infarction (AMI) molecular research in young adults is still limited. The aim of this study is to identify AMI proteomic biomarker(s) in young adults. **Methods:** This study comprised of two phases namely discovery and verification. In the discovery phase, proteins in the pooled plasma samples from young male adults between 18 and 45 years (10 AMI patients and 10 controls) were separated using two-dimensional electrophoresis. The protein spots that were expressed differently in the AMI patients were identified via matrix-assisted laser desorption/ionisation time-of-flight mass spectrometry. The plasma concentrations of these proteins were quantified using enzyme-linked immunosorbent assay during the verification phase (40 AMI patients and 80 controls). **Results:** Haptoglobin (Hp), apolipoprotein AI (Apo AI) and apolipoprotein AIV (Apo AIV) were up-regulated in the discovery phase. In the verification phase, the plasma concentration of Hp was significantly higher in AMI patients than the controls ( $P < 0.001$ ). Logistic regression showed an association between Hp and AMI in young adults (odds ratio [OR] = 1.016, 95% CI: 1.002–1.030,  $P = 0.025$ ) independent of other AMI risk factors. Hp was significantly correlated with high sensitivity C-reactive protein (hs-CRP) ( $r = 0.424$ ,  $P < 0.001$ ). **Conclusion:** In young adults with AMI, plasma Hp concentrations were elevated and it is independently associated with AMI. A positive correlation with hs-CRP suggests Hp could be a potential biomarker of AMI in young adults. y © Penerbit Universiti Sains Malaysia, 2020.

### SciVal Topic Prominence ⓘ

Topic: Acute Coronary Syndrome | Coronary Vessels | ST Segment Elevation Myocardial Infarction

Prominence percentile: 86.218



### Author keywords

Electrophoresis Myocardial infarction Plasma Proteins Young adults

### Indexed keywords

EMTREE drug terms: [apolipoprotein A1](#) [apolipoprotein A4](#) [C reactive protein](#) [glucose](#) [haptoglobin](#)

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two dimensional electrophoresis upregulation

## Chemicals and CAS Registry Numbers:

C reactive protein, 9007-41-4; glucose, 50-99-7, 84778-64-3; haptoglobin, 9087-69-8

## Device tradename:

AB Sciex 5800, AB Sciex

## Manufacturers:

Device manufacturer:

AB Sciex;

Elabscience, United States

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