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Authors: Doojin Kim, Sora Mun, Jiyeong Lee, Arum Park, AeEun Seok, Yeon-Tae Chun, Hee-Gyoo Kang



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Proteomics analysis reveals differential pattern of widespread protein expression and novel role of histidine-rich glycoprotein and lipopolysaccharide-binding protein in rheumatoid arthritis

Doojin Kim^{a,†}, Sora Mun^{b,†}, Jiyeong Lee^{a,†}, Arum Park^b, AeEun Seok^b, Yeon-Tae Chun^a and Hee-Gyoo Kang^{a,b,*}

^aDepartment of Biomedical Laboratory Science, College of Health Sciences, Eulji University, Seongnam 13135, Korea.

^bDepartment of Senior Healthcare, BK21 Plus Program, Graduate School, Eulji University, Seongnam 13135, Korea.

[†]These authors contributed equally.

* Corresponding author: Hee-Gyoo Kang, Tel: +82-31-740-7315, Email: kanghg@eulji.ac.kr, Address: College of Health Sciences, Eulji University, Seongnam 13135, Korea

Abstract

Rheumatoid factor (RF) is an auto-antibody against antigen–antibody immune complexes. RF is valuable as a biomarker for the screening of autoimmune and infectious diseases. However, it is suggested that RF would be a more powerful biomarker when used complementarily with RF-correlated proteins. In this study, we utilized a proteomic approach to analyze global protein expression in RF-low and RF-high subjects using high-performance liquid chromatography tandem mass spectrometry. Histidine-rich glycoprotein (HRG) and lipopolysaccharide-binding protein (LBP) were found to be differentially expressed between RF-low and RF-high subjects (cut-off > 2-fold, $p < 0.05$), which was validated by enzyme-linked immunosorbent assay. To evaluate whether both proteins allow discriminating rheumatoid arthritis patients from healthy controls, receiver-operating characteristic (ROC) curves were analyzed. Areas under the ROC curves of HRG and LBP were 0.861 and 0.888, respectively. The

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