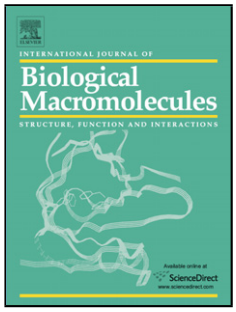

Title: Proteomics analysis reveals differential pattern of widespread protein expression and novel role of histidine-rich glycoprotein and lipopolysaccharide-binding protein in rheumatoid arthritis

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

PII: S0141-8130(17)32617-X
DOI: https://doi.org/10.1016/j.ijbiomac.2017.12.075
Reference: BIOMAC 8736

To appear in: *International Journal of Biological Macromolecules*

Received date: 19-7-2017
Revised date: 11-12-2017
Accepted date: 12-12-2017

Please cite this article as: Doojin Kim, Sora Mun, Jiyeong Lee, Arum Park, AeEun Seok, Yeon-Tae Chun, Hee-Gyoo Kang, Proteomics analysis reveals differential pattern of widespread protein expression and novel role of histidine-rich glycoprotein and lipopolysaccharide-binding protein in rheumatoid arthritis, International Journal of Biological Macromolecules https://doi.org/10.1016/j.ijbiomac.2017.12.075

International Journal of Biological Macromolecules

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,*]

[a] Department of Biomedical Laboratory Science, College of Health Sciences, Eulji University, Seongnam 13135, Korea.

[b] Department 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