

Study of differential expression of RASGRP3 in the bird's response to AIV infection compared to non-infected birds using transcriptomic analysis and real-time PCR

Salehinasab, M.¹; Rahimi Mianji, Gh.²; Ebrahimi, E.³ and Ghafouri, S.A.⁴

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Abstract

RasGRP3 is one of the genes which are probably effective in the outcome of influenza infection. This gene reduces the inflammatory response and sets a threshold to decrease intensive response which usually causes harm to host tissues. In order to evaluate the role of this gene in the host response to Influenza infection, we analyzed transcriptomic data available in data banks and then performed Real-time PCR. We used 3 transcriptomic experiments to study the gene expression changes through infection compared to control groups. Then, we performed Real-time PCR on H5N1 infected samples. Transcriptomic data analysis using R software and MetaDE package via Fisher statistical method confirmed the differential expression of RasGRP3 significantly. Real-time PCR results indicated that RasGRP3 was down regulated in response to H5N1, significantly. The results show that RasGRP3 is one of the strong candidate genes in host regulatory mechanisms against Influenza infection which can set the intensity of host response through regulating the defensive system and can also affect the outcome of infection and survival.

Key words: RasGRP3, Inflammatory response, Influenza, Gene expression, Real-time PCR

1- PhD Graduated of Genetics and Animal Breeding, Faculty of Animal Science and Fisheries, Sari University of Agricultural Sciences and Natural Resources, Sari, Iran

2- Professor, Department of Animal Science, Faculty of Animal Science and Fisheries, Sari University of Agricultural Sciences and Natural Resources, Sari, Iran

3- Associate Professor, Institute of Biotechnology, Shiraz University, Shiraz, Iran

4- Expert, Iran Veterinary Organization, Tehran, Iran

Corresponding Author: Salehinasab, M., E-mail: Monasalehinasab@gmail.com

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