



OPEN ACCESS

APPROVED BY
Frontiers Editorial Office,
Frontiers Media SA, Switzerland

*CORRESPONDENCE
Shayan Sharif
✉ shayan@uoguelph.ca

RECEIVED 03 July 2023
ACCEPTED 17 July 2023
PUBLISHED 08 August 2023

CITATION

Alizadeh M, Bavananthasivam J, Shojadoost B, Astill J, Taha-Abdelaziz K, Alqazlan N, Boodhoo N, Shoja Doost J and Sharif S (2023) Corrigendum: *In ovo* and oral administration of probiotic lactobacilli modulate cell- and antibody-mediated immune responses in newly hatched chicks. *Front. Immunol.* 14:1252523. doi: 10.3389/fimmu.2023.1252523

COPYRIGHT

© 2023 Alizadeh, Bavananthasivam, Shojadoost, Astill, Taha-Abdelaziz, Alqazlan, Boodhoo, Shoja Doost and Sharif. This is an open-access article distributed under the terms of the [Creative Commons Attribution License \(CC BY\)](https://creativecommons.org/licenses/by/4.0/). The use, distribution or reproduction in other forums is permitted, provided the original author(s) and the copyright owner(s) are credited and that the original publication in this journal is cited, in accordance with accepted academic practice. No use, distribution or reproduction is permitted which does not comply with these terms.

Corrigendum: *In ovo* and oral administration of probiotic lactobacilli modulate cell- and antibody-mediated immune responses in newly hatched chicks

Mohammadali Alizadeh¹, Jegarubee Bavananthasivam², Bahram Shojadoost¹, Jake Astill^{1,3}, Khaled Taha-Abdelaziz^{1,4}, Nadiyah Alqazlan¹, Nitish Boodhoo¹, Janan Shoja Doost¹ and Shayan Sharif^{1*}

¹Department of Pathobiology, Ontario Veterinary College, University of Guelph, Guelph, ON, Canada,

²Department of Pathology and Molecular Medicine & McMaster Immunology Research Centre, M. G. DeGroot School of Medicine, McMaster University, Hamilton, ON, Canada, ³Quality Control Department, Artemis Technologies Inc., Guelph, ON, Canada, ⁴Department of Pathology, Faculty of Veterinary Medicine, Beni-Suef University, Beni-Suef, Egypt

KEYWORDS

lactobacilli, chicken, cytokine, lymphocyte, antibody, immune response

A corrigendum on

***In ovo* and oral administration of probiotic lactobacilli modulate cell- and antibody-mediated immune responses in newly hatched chicks**

by Alizadeh M, Bavananthasivam J, Shojadoost B, Astill J, Taha-Abdelaziz K, Alqazlan N, Boodhoo N, Shoja Doost J and Sharif S (2021). *Front. Immunol.* 12:664387. doi: 10.3389/fimmu.2021.664387

Error in Figure/Table

In the published article, there was an error in **Table 2** as published. The mistake occurred during copying and pasting the sequences of primers, and so the wrong primer sequences were inserted. Corrected **Table 2** and its caption appear below.

The authors apologize for this error and state that this does not change the scientific conclusions of the article in any way. The original article has been updated.

TABLE 2 | Primer sequences used for real-time quantitative PCR¹.

Gene ²	Primer sequence ³ (5'-3')	Annealing temperature	GeneBank accession number
<i>IFN-α</i>	F: ATCCTGCTGCTCAGCTCCTTCT R: GGTGTTGCTGGTGCCAGGATG	64	AB021154
<i>IFN-β</i>	F: GCCTCCAGCTCCTTCAGAATACG R: CTGGATCTGGTTGAGGAGGCTGT	64	AY974089
<i>IFN-γ</i>	F: ACACTGACAAGTCAAAGCCGCACA R: AGTCGTTTCATCGGGAGCTTGGC	60	X99774
<i>IL-1β</i>	F: GTGAGGCTCAACATTGCGCTGTA R: TGTCCAGGCGGTAGAAGATGAAG	64	Y15006
<i>IL-2</i>	F: TGCAGTGTTACCTGGGAGAAGTGGT R: ACTTCCGGTGTGATTTAGACCCGT	60	NM_204153.2
<i>IL-6</i>	F: CGTGTGCGAGAACAGCATGGAGA R: TCAGGCATTTCTCCTCGTGAAGC	60	NM_204628.1
<i>IL-8</i>	F: CCAAGCACACCTCTCTTCCA R: GCAAGGTAGGACGCTGGTAA	64	AJ009800
<i>IL-12p40</i>	F: CCAAGACCTGGAGCACACCGAAG R: CGATCCCTGGCCTGCACAGAGA	60	AY262752.1
<i>IL-13</i>	F: ACTTGTCCAAGCTGAAGCTGTC R: TCTTGCAAGTCGGTCATGTTGTC	60	AJ621250.1
<i>IL-18</i>	F: GAAACGTCAATAGCCAGTTGC R: TCCCATGCTCTTTCTCACAACA	64	AY628648.2
<i>TGF-β⁴</i>	F: CGGCCGACGATGAGTGGCTC R: CGGGGCCCATCTCACAGGGA	60	M31160.1
<i>β-Actin</i>	F: CAACACAGTGCTGTCTGGTGGTA R: ATCGTACTCCTGCTTGCTGATCC	58	X00182

¹The listed oligonucleotides were used to analyze gene expression via real-time quantitative PCR.

²IFN, Interferon; IL, Interleukin.

³F, forward; R, reverse.

⁴TGF- β , transforming growth factor beta.

Publisher's note

All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated

organizations, or those of the publisher, the editors and the reviewers. Any product that may be evaluated in this article, or claim that may be made by its manufacturer, is not guaranteed or endorsed by the publisher.