Check for updates

OPEN ACCESS

EDITED AND REVIEWED BY Joel W. Blanchard, Icahn School of Medicine at Mount Sinai, United States

*CORRESPONDENCE Kouji Sakai, ksakai@nih.go.jp Shimpei Gotoh, gotoh.shimpei.5m@kyoto-u.ac.jp Knut Woltjen, w woltjen@cira.kyoto-u.ac.jp

[†]PRESENT ADDRESS

Yuki Yamamoto, HiLung Inc, Kyoto, Japan Thomas L. Maurissen, Roche Pharma Research and Early Development, Immunology, Infectious Diseases and Ophthalmology, Roche Innovation Center Basel, F Hoffmann-La Roche Ltd., Basel, Switzerland Mandy Siu Yu Lung, aceRNA Technologies, Innovation Hub Kyoto, Kyoto, Japan

RECEIVED 26 March 2024 ACCEPTED 20 May 2024 PUBLISHED 21 June 2024

CITATION

Niwa R, Sakai K, Lung MSY, Matsumoto T, Mikawa R, Maehana S, Suzuki M, Yamamoto Y, Maurissen TL, Hirabayashi A, Noda T, Kubo M, Gotoh S and Woltjen K (2024), Corrigendum: ACE2 knockout hinders SARS-CoV-2 propagation in iPS cell-derived airway and alveolar epithelial cells. *Front. Cell Dev. Biol.* 12:1407164. doi: 10.3389/fcell.2024.1407164

COPYRIGHT

© 2024 Niwa, Sakai, Lung, Matsumoto, Mikawa, Maehana, Suzuki, Yamamoto, Maurissen, Hirabayashi, Noda, Kubo, Gotoh and Woltjen. This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC BY). 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: ACE2 knockout hinders SARS-CoV-2 propagation in iPS cell-derived airway and alveolar epithelial cells

Ryo Niwa^{1,2}, Kouji Sakai^{3,4}*, Mandy Siu Yu Lung^{1†}, Tomoko Matsumoto¹, Ryuta Mikawa^{2,5}, Shotaro Maehana^{6,7}, Masato Suzuki⁸, Yuki Yamamoto^{2†}, Thomas L. Maurissen^{1†}, Ai Hirabayashi⁹, Takeshi Noda^{9,10}, Makoto Kubo^{6,7}, Shimpei Gotoh^{2,5}* and Knut Woltjen¹*

¹Department of Life Science Frontiers, Center for iPS Cell Research and Application (CiRA), Kyoto University, Kyoto, Japan, ²Graduate School of Medicine, Kyoto University, Kyoto, Japan, ³Department of Veterinary Science, National Institute of Infectious Diseases, Tokyo, Japan, ⁴Management Department of Biosafety, Laboratory Animal and Pathogen Bank, National Institute of Infectious Diseases, Tokyo, Japan, ⁶Department of Clinical Application, Center for iPS Cell Research and Application (CiRA), Kyoto University, Kyoto, Japan, ⁶Department of Microbiology, Kitasato University School of Allied Health Sciences, Kanagawa, Japan, ⁷Regenerative Medicine and Cell Design Research Facility, Kitasato University School of Allied Health Sciences, Kanagawa, Japan, ⁸Antimicrobial Resistance Research Center, National Institute of Infectious Diseases (NIID), Tokyo, Japan, ⁹Laboratory of Ultrastructural Virology, Graduate School of Biostudies, Kyoto University, Kyoto, Japan

KEYWORDS

iPS cells, CRISPR-Cas9, gene editing, gene knockout, ACE2, SARS-CoV-2

A Corrigendum on

ACE2 knockout hinders SARS-CoV-2 propagation in iPS cell-derived airway and alveolar epithelial cells

by Niwa R, Sakai K, Lung MSY, Matsumoto T, Mikawa R, Maehana S, Suzuki M, Yamamoto Y, Maurissen TL, Hirabayashi A, Noda T, Kubo M, Gotoh S and Woltjen K (2023). Front. Cell Dev. Biol. 11:1290876. doi: 10.3389/fcell.2023.1290876

In the published article, there was an error. The **Results** section regarding the reported proportion of DNA sequence outcomes for one gRNA contained a mistake. While the data in the associated figure was correct, an error in the main text was identified during a subsequent review of our data.

A correction has been made to **Results**, *ACE2 knockout by MMEJ-based guide RNA design*, Paragraph 3. This sentence previously stated:

"We evaluated gRNAs ACE2x138, ACE2x484, and ACE2x1371 for KO activity in the B2-3 lung reporter iPS cell line (**Gotoh et al., 2014**). Gene editing outcomes were confirmed by Sanger sequencing and TIDE analysis (**Figure 1C**). While ACE2x138 did not demonstrate any detectable indels with this assay, ACE2x484 and ACE2x1371 both showed indel formation (42% and 60.1%, respectively). In the ACE2x484 polyclonal population, 15% of indel alleles were represented by the predicted del7 mutation, while for ACE2x1371 the predicted del8 mutation was represented only 3.9% of the total population. For both gRNAs, ins1 mutations were observed in the TIDE data (14.7%

and 39.9%, respectively). The ACE2x484 gRNA had the highest MENTHU score in exon five and is also supported by being in the top four in VBC score top two in BioScore (**Supplementary Table S4**)."

The corrected sentence appears below:

"We evaluated gRNAs ACE2x138, ACE2x484, and ACE2x1371 for KO activity in the B2-3 lung reporter iPS cell line (**Gotoh et al., 2014**). Gene editing outcomes were confirmed by Sanger sequencing and TIDE analysis (**Figure 1C**). While ACE2x138 did not demonstrate any detectable indels with this assay, ACE2x484 and ACE2x1371 both showed indel formation (42% and 49.3%, respectively). In the ACE2x484 polyclonal population, 15% of indel alleles were represented by the predicted del7 mutation, while for ACE2x1371 the predicted del8 mutation was represented only 0.8% out of the total population. For both gRNAs, ins1 mutations were observed in the TIDE data (13.1% and 9.2%, respectively). The

ACE2x484 gRNA had the highest MENTHU score in exon 5. It also ranked fourth when evaluated using the VBC score and was the second best based on the BioScore out of 13 gRNA on exon 5 (**Supplementary Table S4**)".

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.

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.