Universitas Hasanuddin

Firzan Nainu <firzannainu@unhas.ac.id>

BBADIS-23-269: Dr. Paul Murphy invites you to review for BBA - Molecular Basis of Disease

1 message

BBA - Molecular Basis of Disease (ELS) <em@editorialmanager.com> Sun, Apr 2, 2023 at 12:57 PM
Reply-To: "BBA - Molecular Basis of Disease (ELS)" <support@elsevier.com>
To: Firzan Nainu <firzannainu@unhas.ac.id>

Manuscript No.: BBADIS-23-269
Title: Functional characterisation of the ACE2 orthologues in Drosophila provides insights into the neuromuscular complications of COVID-19
Article Type: Regular Paper
Journal Title: BBA - Molecular Basis of Disease
Corresponding Author: Prof. Ruben J Cauchi
All Authors: Paul Herrera; Ruben J Cauchi
Submit Date: Mar 14, 2023

Dear Dr. Nainu:

I would be grateful if you would review a paper entitled "Functional characterisation of the ACE2 orthologues in Drosophila provides insights into the neuromuscular complications of COVID-19" for the journal BBA - Molecular Basis of Disease.

The manuscript abstract appears at the end of this message.

If you are willing to review this manuscript, please click on the link below:
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Alternatively, you may register your response by accessing the Editorial Manager for BBA - Molecular Basis of Disease as a REVIEWER using the login credentials below:

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Your username is: FNainu-243
If you need to retrieve password details, please go to: click here to create your password and login

After you have entered your username and password, please log into the system by selecting the REVIEWER button.

The manuscript reference number is BBADIS-23-269.

If you agree to review, if possible, the journal would very much appreciate receiving your report within 12 days. An email will be sent to you with reviewer instructions. You may submit your comments online at the above URL. There you will find spaces for confidential Comments to the Editor (including a reviewer form to be completed) and Comments for the Author.

Please also note that authors have been invited to convert their supplementary material into a Data in Brief article (a data description article). You may notice this change alongside the revised manuscript. You do not need to review this, but may need to look at the files in order to confirm that any supporting information you requested is present there.

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Sincerely,

Paul Murphy, PhD
Executive Editor
BBA - Molecular Basis of Disease

ABSTRACT:
SARS-CoV-2, the virus responsible for the coronavirus disease of 2019 (COVID-19), gains cellular entry via interaction with the angiotensin-converting enzyme 2 (ACE2) receptor of host cells. Although SARS-CoV-2 mainly targets the respiratory system, the neuromuscular system also appears to be affected in a large percentage of patients with acute or chronic COVID-19. The cause of the well-described neuromuscular manifestations resulting from SARS-CoV-2 infection remains unresolved. These may result from the neuromuscular-invasive capacity of the virus leading to direct injury. Alternatively, they may be the consequence of ACE2 inactivation either due to viral infection, ACE2 autoantibodies or both. Here, we made use of the Drosophila model to investigate whether ACE2 downregulation is sufficient to induce neuromuscular phenotypes. We show that moderate gene silencing of ACE2 orthologues Ance or Ance3 diminished survival on exposure to thermal stress, the magnitude of which was increased on induction of neuromuscular fatigue driven by increased physical activity. A strong knockdown of Ance or Ance3 directed to muscle reduced or abolished adult viability and caused obvious motoric deficits including reduced locomotion and impaired flight capacity. Selective knockdown of Ance and Ance3 in neurons caused wing defects and an age-dependent decline in motor behaviour, respectively, in adult flies. Interestingly, RNA sequencing allowed us to discover several differentially spliced genes that are required for synaptic function downstream of Ance or Ance3 depletion. Our findings are therefore supportive of the notion that loss of a RAS-independent function for ACE2 contributes to the neuromuscular manifestations associated with SARS-CoV-2 infection.

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Biochimica et Biophysica Acta:
Molecular Basis of Disease

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presented to

FIRZAN NAINU

in recognition of the review contributed to the journal

The Editors of Biochimica et Biophysica Acta: Molecular Basis of Disease

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