



Retraction Note: Autism-like symptoms by exposure to air pollution and valproic acid–induced in male rats

Bahran Imam¹ · Masoumeh Rahmatinia² · Abbas Shahsavani^{1,3} · Fariba Khodaghali⁴ · Philip K. Hopke^{5,6} · Shahriyar Bazazzpour² · Mostafa Hadei⁷ · Maryam Yarahmadi⁸ · Mohammad-Amin Abdollahifar⁹ · Mehdi Amouei Torkmahalleh¹⁰ · Majid Kermani¹¹ · Saba Ilkhani⁹ · Seyed Hamidreza MirBehbahani⁴

Published online: 27 February 2024

© The Author(s), under exclusive licence to Springer-Verlag GmbH Germany, part of Springer Nature 2024

Retraction Note: Environmental Science and Pollution Research (2022) 29:59263-59286
<https://doi.org/10.1007/s11356-022-19865-w>

The Editor-in-Chief has retracted this article. After publication, concerns were raised regarding high similarity among multiple panels in Figs. 9-12. Further checks by the publisher have found irregularities in the western blot backgrounds in Fig. 14. The authors have been able to provide alternative data, but not the original full gel images of the blots presented in Fig. 14.

The Editor-in-Chief therefore no longer has confidence in the presented data.

Bahran Imam, Masoumeh Rahmatinia, Abbas Shahsavani, Fariba Khodaghali, Philip K. Hopke, Shahriyar Bazazzpour, Mostafa Hadei, Maryam Yarahmadi, Mohammad-Amin Abdollahifar, Mehdi Amouei Torkmahalleh and Majid Kermani do not agree to this retraction. The publisher has not been able to obtain current email addresses for Saba Ilkhani and Seyed Hamidreza MirBehbahani.

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

The original article can be found online at <https://doi.org/10.1007/s11356-022-19865-w>.

✉ Abbas Shahsavani
ashahsavani@gmail.com

¹ Department of Environmental Health Engineering, School of Public Health and Safety, Shahid Beheshti University of Medical Sciences, Tehran, Iran

² Student Research Committee, Department of Environmental Health Engineering, School of Public Health and Safety, Shahid Beheshti University of Medical Sciences, Tehran, Iran

³ Air Quality and Climate Change Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran

⁴ Neuroscience Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran

⁵ Department of Public Health Sciences, University of Rochester School of Medicine and Dentistry, Rochester, NY 14642, USA

⁶ Institute for a Sustainable Environment, Clarkson University, Potsdam, NY 13699, USA

⁷ Department of Environmental Health Engineering, School of Public Health, Tehran University of Medical Sciences, Tehran, Iran

⁸ Environmental and Occupational Health Center, Ministry of Health and Medical Education, Tehran, Iran

⁹ Department of Biology and Anatomical Sciences, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran

¹⁰ Department of Chemical and Materials Engineering, School of Engineering and Digital Sciences, Nazarbayev University, Nur-Sultan, Kazakhstan 010000

¹¹ Department of Environmental Health Engineering, School of Public Health, Iran University of Medical Sciences, Tehran, Iran