

Retraction

# RETRACTED: Di Paola et al. Combined Toxicity of Xenobiotics Bisphenol A and Heavy Metals on Zebrafish Embryos (*Danio rerio*). *Toxics* 2021, 9, 344

Davide Di Paola <sup>1,†</sup>, Fabiano Capparucci <sup>1,†</sup>, Giovanni Lanteri <sup>1</sup>, Marika Cordaro <sup>2</sup>, Rosalia Crupi <sup>3</sup>, Rosalba Siracusa <sup>1</sup>, Ramona D'Amico <sup>1</sup>, Roberta Fusco <sup>1</sup>, Daniela Impellizzeri <sup>1</sup>, Salvatore Cuzzocrea <sup>1,4,\*</sup>, Nunziacarla Spanò <sup>2,\*</sup>, Enrico Gugliandolo <sup>3,‡</sup> and Alessio Filippo Peritore <sup>1,‡</sup>

<sup>1</sup> Department of Chemical, Biological, Pharmaceutical, and Environmental Science, University of Messina, 98166 Messina, Italy; davide.dipaola@unime.it (D.D.P.); fcapparucci@unime.it (F.C.); glanteri@unime.it (G.L.); rsiracusa@unime.it (R.S.); rdamico@unime.it (R.D.); rfusco@unime.it (R.F.); dimpellizzeri@unime.it (D.I.); aperitore@unime.it (A.F.P.)

<sup>2</sup> Department of Biomedical and Dental Sciences and Morphofunctional Imaging, University of Messina, 98100 Messina, Italy; cordarom@unime.it

<sup>3</sup> Department of Veterinary Science, University of Messina, 98100 Messina, Italy; rcrupi@unime.it (R.C.); egugliandolo@unime.it (E.G.)

<sup>4</sup> Department of Pharmacological and Physiological Science, Saint Louis University School of Medicine, Saint Louis, MO 63108, USA

\* Correspondence: salvator@unime.it (S.C.); spano@unime.it (N.S.); Tel.: +39-90-6765208 (N.S.)

† The first two authors contributed equally to this study.

‡ These authors shared senior authorship.

The journal retracts the article entitled “Combined Toxicity of Xenobiotics Bisphenol A and Heavy Metals on Zebrafish Embryos (*Danio rerio*)” [1], cited above.

Following publication, concerns were brought to the attention of the Editorial Office regarding the duplication of images between this article [1] and other publications [2,3] produced by the same authorship group.

Adhering to our complaints procedure, an investigation was conducted by the Editorial Office and the Editorial Board that confirmed the duplication of a number of panels within [1] with panels contained within [2,3] presenting different experimental conditions. Following discussions with the authors, the Editorial Board were unable to fully verify the validity of the duplicated images. Consequently, the Editorial Board has lost confidence in the reliability of the findings and decided to retract this publication [1], as per MDPI’s retraction policy ([https://www.mdpi.com/ethics#\\_bookmark30](https://www.mdpi.com/ethics#_bookmark30)).

This retraction was approved by the Editor-in-Chief of the journal *Toxics*.

The authors did not agree to this retraction.



Received: 24 December 2024  
Accepted: 25 December 2024  
Published: 30 December 2024

**Citation:** Di Paola, D.; Capparucci, F.; Lanteri, G.; Cordaro, M.; Crupi, R.; Siracusa, R.; D’Amico, R.; Fusco, R.; Impellizzeri, D.; Cuzzocrea, S.; et al.

RETRACTED: Di Paola et al.  
Combined Toxicity of Xenobiotics Bisphenol A and Heavy Metals on Zebrafish Embryos (*Danio rerio*).  
*Toxics* 2021, 9, 344. *Toxics* 2025, 13, 24.  
<https://doi.org/10.3390/toxics13010024>

**Copyright:** © 2024 by the authors.  
Licensee MDPI, Basel, Switzerland.  
This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

## References

1. Di Paola, D.; Capparucci, F.; Lanteri, G.; Cordaro, M.; Crupi, R.; Siracusa, R.; D'Amico, R.; Fusco, R.; Impellizzeri, D.; Cuzzocrea, S.; et al. RETRACTED: Combined Toxicity of Xenobiotics Bisphenol A and Heavy Metals on Zebrafish Embryos (*Danio rerio*). *Toxics* **2021**, *9*, 344. [[CrossRef](#)] [[PubMed](#)]
2. Di Paola, D.; Iaria, C.; Capparucci, F.; Cordaro, M.; Crupi, R.; Siracusa, R.; D'Amico, R.; Fusco, R.; Impellizzeri, D.; Cuzzocrea, S.; et al. Aflatoxin B1 Toxicity in Zebrafish Larva (*Danio rerio*): Protective Role of *Hericium erinaceus*. *Toxins* **2021**, *13*, 710. [[CrossRef](#)] [[PubMed](#)]
3. Paola, D.D.; Iaria, C.; Marino, F.; Gugliandolo, E.; Piras, C.; Crupi, R.; Cuzzocrea, S.; Spanò, N.; Peritore, A.F. Environmental Impact of Pharmaceutical Pollutants: Synergistic Toxicity of Ivermectin and Cypermethrin. *Toxics* **2022**, *10*, 388. [[CrossRef](#)] [[PubMed](#)]

**Disclaimer/Publisher's Note:** The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.