

LETTERS

Retraction

On 28 April 2006, *Science* published the Report “Proapoptotic BAX and BAK modulate the unfolded protein response by a direct interaction with IRE1 α ” by C. Hetz *et al.* (1). Based on an internal analysis that began in February 2021, the authors have become aware of discrepancies in the controls shown in Figs. 1A and 6A and figs. S2, B and C; 3A; and S5, D to F. The authors are no longer confident that these figures support the conclusions. As a result, the authors are retracting the paper. Author Claudio Hetz disagrees with the decision to retract. Author Stanley J. Korsmeyer is deceased. Authors Bruno Antonsson, Michael C. Bassik, Paula Bernasconi, and Jill Fisher could not be reached.

Ann-Hwee Lee, Gabriel S. Brandt, Neal N. Iwakoshi, Anna Schinzel, Laurie H. Glimcher*

*Corresponding author.

Email: laurie_glimcher@dfci.harvard.edu

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Link circular economy to waste hierarchy in treaty

The fourth session of the global plastics treaty negotiations is taking place in Ottawa, Canada in April. To end plastic pollution, the final treaty must implement a circular economy, in which materials are reused and waste production—especially of single-use products—is minimized (1). Although negotiators have acknowledged the importance of this concept, the term has many definitions, and delegates have expressed varying ideas about the details of implementation [for example, (2, 3)]. To streamline discussions and ensure the most effective use of circular economy strategies, the plan should directly link the circular economy to the waste hierarchy (4), which ranks waste management from most valuable (prevention, reduction, and reuse) to least (recycling, recovery, and disposal).

A circular economy plan that prioritizes the most valuable waste management actions will require investment in waste prevention, including limiting production, designing for longevity, and building infrastructure for reuse systems. Negotiators should address the obstacles to these goals. For example, substantial subsidies buoy the linear plastics economy, which had a market



Tons of trash are deposited every day in Kenya's Dandora dump site, located adjacent to houses and schools in Nairobi. A global plastics treaty could guide the transition to policies that generate less disposable waste.

size of US\$712 billion in 2023 (5). Almost all current plastics production depends on the fossil fuel industry, which received US\$7 trillion worth of subsidies in 2022 (6). In addition, heavy investment in recycling (7) can limit the means and flexibility required to transition to better solutions (8). Although plastics damage the environment and harm human health, the costs of these effects (9–11) are often overlooked, posing another obstacle to meeting goals consistent with waste hierarchy priorities.

Aligning circular economy and waste hierarchy goals will ensure that short-term solutions do not hinder long-term success. The treaty will determine who is responsible for paying for plastic cleanup and building new infrastructure. These decisions should be made with the goal of shifting the market to one in which producing and disposing of plastics reflects the real cost to society and thus alternatives become more cost effective and attractive to consumers. To ensure that financial incentives and penalties are effective, the treaty must take into account subsidies as well as the costs of harm to the environment and human health. Prioritizing strategies according to the waste hierarchy can help to bring these challenges into sharper focus.

Kristian Syberg^{1*}, Nikoline G. Oturai¹, Steffen Foss Hansen², Terrence J. Collins³, Sedat Gündoğdu⁴, Bethanie Carney Almroth⁵, Ellen Palm⁶, Arturo Castillo Castillo⁷, Juan Baztan⁸, Natalia de Miranda Grilli⁹, Tiffany Ramos¹, Trisia Farrelly¹⁰, Jane Muncke¹¹

¹Department of Science and Environment, Roskilde University, Roskilde, Denmark.

²Department of Environmental and Resource

Engineering, Technical University of Denmark, Kongens Lyngby, Denmark. ³Institute for Green Science, Department of Chemistry, Carnegie Mellon University, Pittsburgh, PA, USA. ⁴Faculty of Fisheries, Cukurova University, Adana, Türkiye. ⁵Department of Biological and Environmental Sciences, University of Gothenburg, Göteborg, Sweden. ⁶Environmental and Energy System Studies, Lund University, Lund, Sweden. ⁷Copernicus Institute of Sustainable Development, Utrecht University, Utrecht, Netherlands. ⁸Cultures, Environments, Arctic, Representations, Climate, Versailles SQY University component of Paris-Saclay University, Guyancourt, France. ⁹School of Social Sciences, University of Tasmania, Launceston, TAS, Australia. ¹⁰Political Ecology Research Centre, Massey University, Palmerston North, New Zealand. ¹¹Food Packaging Forum Foundation, Zurich, Switzerland.

*Corresponding author. Email: ksyberg@ruc.dk

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COMPETING INTERESTS

T.F. is the (nonremunerated) coordinator and T.G. and B.C.A. are (nonremunerated) co-coordinators of the Scientists' Coalition for an Effective Plastics Treaty, which is not a legal entity. A.C.C. authored a report commissioned by Greenpeace Germany from Utrecht University in 2023 about health implications of the proposed EU-Mercosur trade agreement in relation to plastics.

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Global plastics treaty needs trusted science

The fourth session of the Intergovernmental Negotiating Committee (INC-4) to develop a global plastics treaty will convene in Canada in April. Discussions will include the negotiation of a scientific body that will set goals and monitor progress. To ensure unbiased, evidence-based decisions about the future of plastics, a science body with a robust policy on conflict of interest is needed.

At the third session of the INC, fossil fuel and chemical lobbyists outnumbered representatives from 70 countries combined and outnumbered the independent scientists representing the Scientists' Coalition for an Effective Plastics Treaty by more than three to one (1). In the latest draft treaty text (2), oil-rich countries, including the US and Saudi Arabia, recommend limiting the treaty's goals to improved recycling and waste management instead of decreasing production. These recommendations disregard the human and environmental health impacts of plastics starting at the extraction phase (3) as well as plastics' transboundary (4), cumulative (5), and global threat multiplier effects (6).

Negotiators must push back against efforts to limit the treaty's scope, given that existing multilateral environmental agreements cannot meet the scientific demands of global plastics pollution prevention (7). To address the challenge effectively, the treaty must designate a scientific body and insulate it from industry pressure by requiring a robust conflict-of-interest policy and broad regional and multistakeholder representation. The treaty should equip this entity to recommend ambitious, measurable, time-bound targets; promote equity, transparency, and accountability; and develop safety, sustainability, essentiality, and transparency assessment criteria to ensure that member states meet criteria and targets for production and consumption (8).

Given that plastics have exceeded our planet's safe operating space (4), hindering the human right to a clean and safe environment, the treaty must be designed to facilitate urgent action. Thus,

negotiators should adopt a "start and strengthen" approach that immediately prohibits the production of groups of plastics chemicals, polymers, and products currently banned or restricted in other multilateral environmental agreements and the domestic legislation of member states. Expert groups should develop assessment criteria to identify these groups before INC-5, so that once the treaty is in force, the scientific body at its helm can take immediate action.

Trisia Farrelly^{1*}, Tom Gammage², Bethanie Carney Almroth³, Richard Thompson⁴

¹School of People, Environment, and Planning, Massey University, Palmerston North, New Zealand. ²Centre for Sustainable Tropical Fisheries and Aquaculture, James Cook University, Townsville, QLD, Australia. ³Department of Biology and Environmental Sciences, University of Gothenburg, Gothenburg, Sweden. ⁴School of Biological and Marine Sciences, University of Plymouth, Plymouth, UK.

*Corresponding author.

Email: t.farrelly@massey.ac.nz

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T.F. is the (nonremunerated) coordinator and T.G., B.C.A., and R.T. are (nonremunerated) co-coordinators of the Scientists' Coalition for an Effective Plastics Treaty, which is not a legal entity.

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ERRATA

Erratum for the Research Article "Rational design of Lewis base molecules for stable and efficient inverted perovskite solar cells" by C. Li *et al.*, *Science* **384**, eadp4014 (2024).

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Erratum for the Research Article "Fast growth of single-crystal covalent organic frameworks for laboratory x-ray diffraction" by J. Han *et al.*, *Science* **384**, eadp4377 (2024).

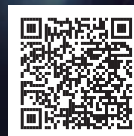
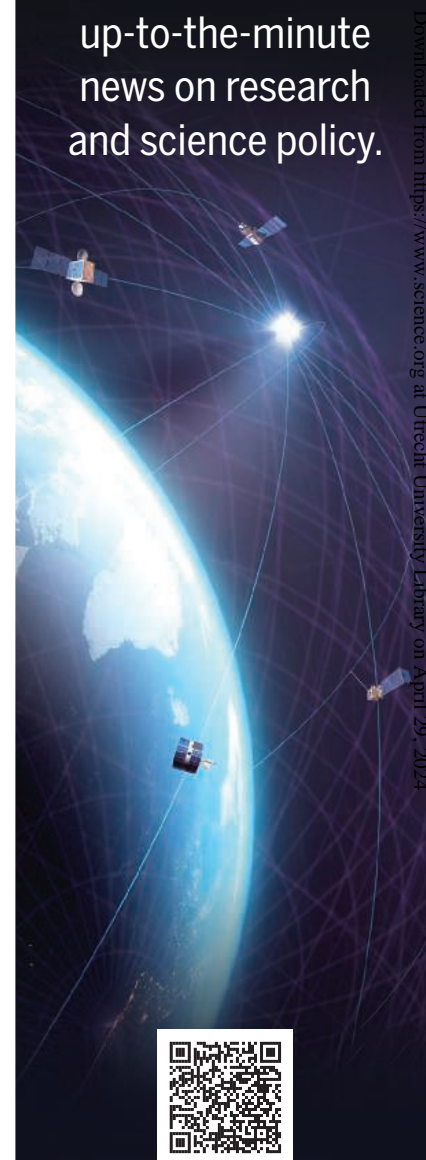
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