

CAIR-Nepal

Shaping the Future with AI

Research Ethics and Best Practices

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Research Writing (Online)

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Outline

1. Ethics
2. Importance of Ethics in Research
3. Ethical Publishing
 - 3.1 Plagiarism
 - 3.2 Authorship Ethics
 - 3.3 Ethical on Human and Animal Subjects
4. Best Practices

1.

Ethics

1. Ethics

ethic noun

eth·ic ('e-thik «) »

Synonyms of *ethic* >

- 1 **a** : a set of moral principles : a theory or system of moral values
 - | the present-day materialistic *ethic*
 - | an old-fashioned work *ethic*
 - often used in plural but singular or plural in construction
 - | an elaborate *ethics*
 - | Christian *ethics*
 - b ethics** ('e-thiks «) » plural in form but singular or plural in construction : the principles of conduct governing an individual or a group
 - | professional *ethics*
 - c** : a consciousness of moral importance
 - | forge a conservation *ethic*
 - d** : a guiding philosophy
- 2 **ethics** plural : a set of moral issues or aspects (such as rightness)
 - | debated the *ethics* of human cloning
 - 3 **ethics** plural in form but singular or plural in construction : the discipline dealing with what is good and bad and with moral duty and obligation

1. Ethics

- Ethics in research started in response to the abuses practiced by Nazi in concentration camp prisoner or the syphilis study with American prisoner [1].
- Ethics is not same as morals.
 - Morals refers to ones habits or behavior, more of a personal principle.
 - Ethics are rules (or code) of a conduct in a particular culture or society or groups (or profession).

Example: The medical code of ethics that all medical professionals must follow.

2.

Importance of Ethics in Research

2. Importance of Ethics in Research

- Ensures credibility and trust in research.
- Promotes transparency and reproducibility of research.
- Upholds the rights and welfare of participants.
 - Example: Treat all participants equally and consider their well being not just research as Nazi's case or syphilis study.
- Prevents misconduct such as plagiarism, data fabrication, and falsification.
- To avoid legal repercussions.

2. Importance of Ethics in Research

What happens if one does not follow ethics in research?

2. Importance of Ethics in Research

nature

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Article | Published: 20 June 2002

RETRACTED ARTICLE: Pluripotency of mesenchymal stem cells derived from adult marrow

[Yuehua Jiang](#), [Balkrishna N. Jahagirdar](#), [R. Lee Reinhardt](#), [Robert E. Schwartz](#), [C. Dirk Keene](#), [Xilma R. Ortiz-Gonzalez](#), [Morayma Reyes](#), [Todd Lenvik](#), [Troy Lund](#), [Mark Blackstad](#), [Jingbo Du](#), [Sara Aldrich](#), [Aaron Lisberg](#), [Walter C. Low](#), [David A. Largaespada](#) & [Catherine M. Verfaillie](#)

[Nature](#) **418**, 41–49 (2002) | [Cite this article](#)

29k Accesses | 4504 Citations | 100 Altmetric | [Metrics](#)

❗ This article was [retracted](#) on 17 June 2024

❗ A [Corrigendum](#) to this article was published on 14 June 2007

❗ This article has been [updated](#)

Abstract

We report here that cells co-purifying with mesenchymal stem cells—termed here multipotent adult progenitor cells or MAPCs—differentiate, at the single cell level, not only

Retraction Note: Pluripotency of mesenchymal stem cells derived from adult marrow

[Ortiz-Gonzalez](#), [Morayma Reyes](#), [Todd Lenvik](#), [Troy Lund](#), [Mark Blackstad](#), [Jingbo Du](#), [Sara Aldrich](#), [Aaron Lisberg](#), [Walter C. Low](#), [David A. Largaespada](#) & [Catherine M. Verfaillie](#) 

[Nature](#) **630**, 1020 (2024) | [Cite this article](#)

22k Accesses | 1 Citations | 231 Altmetric | [Metrics](#)

❗ The [Original Article](#) was published on 20 June 2002

Retraction to: [Nature](#) <https://doi.org/10.1038/nature00870> Published online 20 June 2002

The Editors have retracted this article because concerns have been raised regarding some of the panels shown in Figure 6, specifically:

- the lower half of Figure 6a (CD45/β-gal) appears to be identical to the upper half of Figure 6e (Gr-1/β-gal)
- the upper right corner of Figure 6m appears to have two regions that are duplicated within the upper right corner itself

The original images for Figures 6a, 6e and 6m could not be retrieved by the authors; therefore the Editors no longer have confidence that the conclusion that multipotent adult progenitor cells (MAPCs) engraft in the bone marrow is supported.

Given the concerns above the Editors no longer have confidence in the reliability of the data reported in this article.

Balkrishna N. Jahagirdar, R. Lee Reinhardt, Robert E. Schwartz, C. Dirk Keene, Xilma R. Ortiz-Gonzalez, Morayma Reyes, Todd Lenvik, Troy Lund, Sara Aldrich, Aaron Lisberg, Walter C. Low, David A. Largaespada and Catherine M. Verfaillie agree with this retraction. Mark Blackstad has not responded to correspondence from the Editors about this retraction. The Editors were not able to obtain a current email address for Yuehua Jiang and Jingbo Du.

2. Importance of Ethics in Research



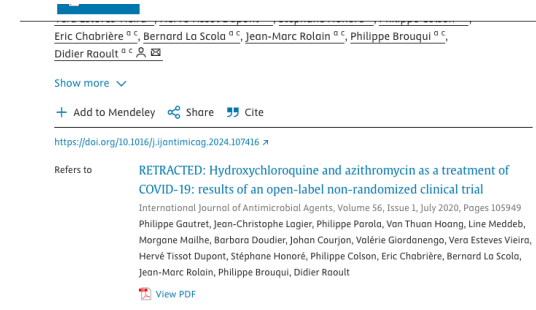
RETRACTED: Hydroxychloroquine and azithromycin as a treatment of COVID-19: results of an open-label non-randomized clinical trial

Philippe Gautret ^{a b S}, Jean-Christophe Lagler ^{a c S}, Philippe Parola ^{a b}, Van Thuan Hoang ^{a b d}, Line Meddeb ^a, Morgane Mailhe ^a, Barbara Doudier ^a, Johan Courjon ^{e f g}, Valérie Giordanengo ^h, Vera Esteves Vieira ^a, Hervé Tissot Dupont ^{a c}, Stéphane Honoré ^{i j}, Philippe Colson ^{a c}, Eric Chabrière ^{a c}, Bernard La Scola ^{a c}, Jean-Marc Rolain ^{a c}, Philippe Brouqui ^{a c}, Didier Raoult ^{a c}

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<https://doi.org/10.1016/j.ijantimicag.2020.105949>



This article has been retracted: please see Elsevier Policy on Article Withdrawal (<https://www.elsevier.com/locate/withdrawalpolicy>).

Concerns have been raised regarding this article, the substance of which relate to the articles' adherence to Elsevier's publishing ethics policies and the appropriate conduct of research involving human participants, as well as concerns raised by three of the authors themselves regarding the article's methodology and conclusions.

Elsevier's Research Integrity and Publishing Ethics Team, in collaboration with the journal's co-owner, the International Society of Antimicrobial Chemotherapy (ISAC), and with guidance from an impartial field expert acting in the role of an independent Publishing Ethics Advisor, Dr. Jim Gray, Consultant Microbiologist at the Birmingham Children's and Women's Hospitals, U.K., conducted an investigation and determined that the below points constituted cause for retraction:

- The journal has been unable to confirm whether any of the patients for this study were accrued before ethical approval had been obtained. The ethical approval dates for this article are stated as being 5th and 6th of March 2020 (ANSM and CPP respectively), while the article states that recruitment began in "early March".

The 17th author, Prof. Philippe Brouqui, has confirmed that the start date for patient accrual was 6th March 2020.

2. Importance of Ethics in Research



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ORIGINAL ARTICLE



Primary Prevention of Cardiovascular Disease with a Mediterranean Diet

🔍 This article has been corrected. [VIEW THE CORRECTION](#)

🔍 This article has been retracted. [VIEW THE RETRACTION](#)

Authors: Ramón Estruch, M.D., Ph.D., Emilio Ros, M.D., Ph.D., Jordi Salas-Salvadó, M.D., Ph.D., Maria-Isabel Covas, D.Pharm., Ph.D., Dolores Corella, D.Pharm., Ph.D., Fernando Arós, M.D., Ph.D., Enrique Gómez-Gracia, M.D., Ph.D., [+11](#), for the PREDIMED Study Investigators* [Author Info & Affiliations](#)

Published April 4, 2013 | N Engl J Med 2013;368:1279-1290 | DOI: 10.1056/NEJMoa1200303 | **VOL. 368 NO. 14**
Copyright © 2013



Abstract

BACKGROUND

Observational cohort studies and a secondary prevention trial have shown an inverse association between adherence to the Mediterranean diet and cardiovascular risk. We conducted a randomized trial of this diet pattern for the primary prevention of cardiovascular events.



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CORRESPONDENCE | RETRACTION



Retraction and Republication: Primary Prevention of Cardiovascular Disease with a Mediterranean Diet. N Engl J Med 2013;368:1279-90.

🔍 [VIEW THE RELATED ARTICLE](#)

Authors: Ramón Estruch, M.D., Ph.D., Emilio Ros, M.D., Ph.D., Jordi Salas-Salvadó, M.D., Ph.D., Maria-Isabel Covas, D.Pharm., Ph.D., Dolores Corella, D.Pharm., Ph.D., Fernando Arós, M.D., Ph.D., Enrique Gómez-Gracia, M.D., Ph.D., [+10](#), and Miguel A. Martínez-González, M.D., Ph.D. [Author Info & Affiliations](#)

Published June 13, 2018 | N Engl J Med 2018;378:2441-2442 | DOI: 10.1056/NEJMc1806491 | **VOL. 378 NO. 25**

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To the Editor: Because of irregularities in the randomization procedures, we wish to retract the following article: Primary Prevention of Cardiovascular Disease with a Mediterranean

Diet. N Engl J Med 2013;368:1279-90. DOI: 10.1056/NEJMoa1200303. We have reanalyzed the data and have published a new report: Primary Prevention of Cardiovascular Disease with a Mediterranean Diet Supplemented with Extra-Virgin Olive Oil or Nuts. N Engl J Med. DOI: 10.1056/NEJMoa1800389.²

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3.

Ethical Publishing

3.1 Plagiarism



3.1 Plagiarism

plagiarism

noun [U]

US  /ˈpleɪ.dʒə.ɪ.zəm/ UK  /ˈpleɪ.dʒər.i.zəm/

the process or practice of using another person's ideas or work and pretending that it is your own:

- *She's been accused of plagiarism.*
- *The techniques for detecting plagiarism are becoming increasingly advanced.*

See

[plagiarize](#)

— Fewer examples

- *The university decided to fire a professor for committing plagiarism and falsifying data.*
- *Universities do give guidance on avoiding plagiarism, but good practice needs to begin in schools.*
- *A spokesman said that students guilty of blatant plagiarism could be stripped of their grades.*

+ SMART Vocabulary: related words and phrases

(Definition of **plagiarism** from the [Cambridge Advanced Learner's Dictionary & Thesaurus](#) © Cambridge University Press)



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3.1 Plagiarism

- Forms of plagiarism [2].
 - Verbatim plagiarism: Submitting someone else's verbatim (exact word) without crediting/acknowledging.
 - Mosaic plagiarism: Mixing own's word in someone else's idea or opinion.
 - Paraphrasing: Rewriting any part of manuscript using your own word doesn't make it your writing and therefore not citing the source is a plagiarism.
 - Self plagiarism: Duplicate publication or copying things from your own published article without citing.

3.1 Plagiarism

- Forms of plagiarism [2].
 - Cyber plagiarism: Copying or downloading article in part or whole without proper attribution.
 - Image plagiarism: Using image or video without proper attribution or permission.
- Detecting plagiarism: Use the plagiarism checker tool. In general its hard to detect plagiarism—***that doesn't mean you should (can) plagiarize, it's unethical.***
 - <https://www.turnitin.com>
 - <https://www.ithenticate.com>

3.1 Plagiarism

- Avoiding plagiarism.
 - Make appropriate attribution and cite the required sources.
 - In case of copying the text, include it in a quote.
 - Give acknowledgment.
 - Use footnotes and obtain permission where necessary.



3.

Ethical Publishing

3.2 Authorship Ethics



3.2 Authorship Ethics

- According to ICMJE (International Committee of Medical Journal Editors) [3] an author is someone who following 4 criteria:
 - has made substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work; **AND**
 - has worked on drafting the work or reviewing it critically for important intellectual content; **AND**
 - final approval of the version to be published; **AND**
 - agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

3.2 Authorship Ethics

- Why authorship matters?
 - Because it gives recognition and has important academic (e.g., for promotion, for graduation in case of PhD) or social implications.
- Types of authors:
 - First author: The one making the most significant contributions.
 - Last author: Often, but not always, the supervisor or senior researcher supervising the research. The other co-authors are the one that contributed to the paper/research.
 - Corresponding author: Person responsible for correspondence with journal and manuscript submission.

3.2 Authorship Ethics

- The order of the author are based on the level of the contribution made.
 - Note: This might not always be the case, sometimes its also based on the alphabetical ordering, in such cases it is clearly marked by text such as “*The authors are alphabetically ordered*”.
- If two authors (or more) make equal contribution, you can mark it with text such as “*Both authors contributed equally*”.
- For disputes, consult the COPE (Committee on Publication Ethics) guidelines [4].



3.

Ethical Publishing

3.2 Authorship Ethics

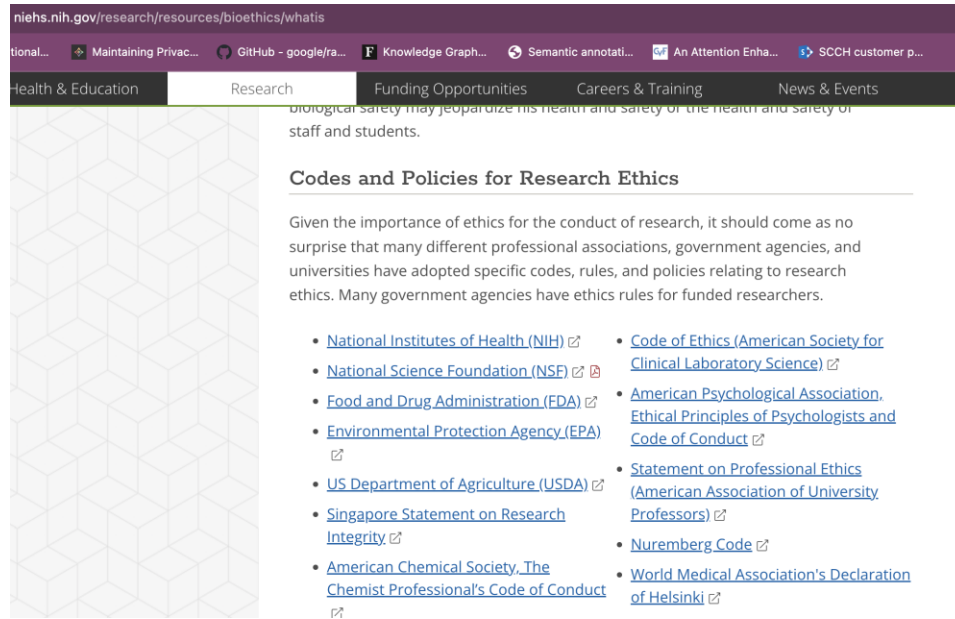


3.3 Ethical on Human and Animal Subjects

- When the humans or animals are involved in the research a special care should be taken to not violate the human privacy or cause harm.
- Various ethical guidelines exist at the government, institutional, and publisher levels. Ensure compliance by adhering to the relevant standards applicable to your research.
 - Committee on Animal Research and Ethics (CARE)
- For any research involving human participants or animals, have your research plan reviewed by Institutional Review Board (IRB) and get approval prior to starting research.

3.3 Ethical on Human and Animal Subjects

- Research ethics from US National Institute of Health.

A screenshot of the NIH bioethics website. The browser address bar shows 'niehs.nih.gov/research/resources/bioethics/whatis'. The website has a purple header with navigation links: 'Health & Education', 'Research' (selected), 'Funding Opportunities', 'Careers & Training', and 'News & Events'. Below the header, there is a section titled 'Codes and Policies for Research Ethics'. The text explains the importance of ethics in research and lists various codes and policies from different organizations. The list includes links to NIH, NSF, FDA, EPA, USDA, Singapore Statement on Research Integrity, American Chemical Society, American Society for Clinical Laboratory Science, American Psychological Association, American Association of University Professors, Nuremberg Code, and World Medical Association's Declaration of Helsinki. Each link is followed by an external link icon.

niehs.nih.gov/research/resources/bioethics/whatis

Health & Education Research Funding Opportunities Careers & Training News & Events

Codes and Policies for Research Ethics

Given the importance of ethics for the conduct of research, it should come as no surprise that many different professional associations, government agencies, and universities have adopted specific codes, rules, and policies relating to research ethics. Many government agencies have ethics rules for funded researchers.

- [National Institutes of Health \(NIH\)](#)
- [National Science Foundation \(NSF\)](#)
- [Food and Drug Administration \(FDA\)](#)
- [Environmental Protection Agency \(EPA\)](#)
- [US Department of Agriculture \(USDA\)](#)
- [Singapore Statement on Research Integrity](#)
- [American Chemical Society, The Chemist Professional's Code of Conduct](#)
- [Code of Ethics \(American Society for Clinical Laboratory Science\)](#)
- [American Psychological Association, Ethical Principles of Psychologists and Code of Conduct](#)
- [Statement on Professional Ethics \(American Association of University Professors\)](#)
- [Nuremberg Code](#)
- [World Medical Association's Declaration of Helsinki](#)

4.

Best Practices

4. Best Practices

- Always make appropriate attribution.
 - Just because you have to make an attribution does not mean you cite everything. Cite only when necessary with correct source, not random sources.
- Reduce the self-citation, only cite when required or is necessary.
- Always try to cite the original source and avoid (excessive) secondary citation where possible.
 - E.g. if Paper B cites Paper A, and both discuss the concept you want to include in your work, cite Paper A directly—especially if you have access to it—rather than citing Paper B's reference to Paper A.

4. Best Practices

- Ensure accuracy, consistent formatting and style guide (e.g., IEEE, APA). For more see <https://guides.library.upenn.edu/c.php?g=1182107&p=8644204>.
- Avoid misspelled author names, wrong publication dates, publication venue, missing page numbers, or DOI (digital object identifier).
- Use reference management tools like Zotero, Mendeley, or EndNote

Good:

Chhetri, T. R., Hohenegger, A., Fensel, A., Kasali, M. A., Adekunle, A. A., "Towards improving prediction accuracy and user-level explainability using deep learning and knowledge graphs: A study on cassava disease," *Expert Systems with Applications*, vol. 233, p. 120 955, 2023, ISSN: 0957-4174. DOI: <https://doi.org/10.1016/j.eswa.2023.120955>.

Bad: Missing DOI and publication venue

Chhetri, T. R., Hohenegger, A., Fensel, A., Kasali, M. A., Adekunle, A. A., "Towards improving prediction accuracy and user-level explainability using deep learning and knowledge graphs: A study on cassava disease," vol. 233, p. 120 955, 2023, ISSN: 0957-4174.

4. Best Practices

- Not citing common knowledge.
 - Don't cite widely accepted facts or information that is considered general knowledge.
- Avoid plagiarism by omission.
 - Failing to cite sources even when paraphrasing or summarizing information.
- Authorship requires significant contribution.
 - Just because someone is your friend or had provided funding doesn't qualify for authorship. See more at <https://www.icmje.org/recommendations/browse/roles-and-responsibilities/defining-the-role-of-authors-and-contributors.html>.

4. Best Practices

- Every conferences, journals or publishers have their guidelines. Make sure you check and follow their guidelines.
- **Never** falsify or fabricate data or result, just because you want to have good result or publish.
 - Instead of falsifying or fabricating result or data, publish the negative result, if any.
- When conducting research involving humans or animals, adhere to the ethical guidelines established by relevant research agencies. Ensure that your study receives approval from the **Institutional Review Board (IRB)** or **Institutional Animal Care and Use Committee (IACUC)** before *initiating any research activities*.



Thank you!

References

- [1] Correia, M.I.T.D., 2023. Ethics in research. Clinical Nutrition Open Science, 47, pp.121-130.
- [2] Dhammi, I.K. and Haq, R.U., 2016. What is plagiarism and how to avoid it?. Indian journal of orthopaedics, 50(6), p.581.
- [3] International Committee of Medical Journal Editors (ICMJE). Defining the role of authors and contributors. [online] Available at: <https://www.icmje.org/recommendations/browse/roles-and-responsibilities/defining-the-role-of-authors-and-contributors.html> [Accessed 29 January 2025].
- [4] Committee on Publication Ethics (COPE), 2019. Authorship discussion document. [PDF] Available at: https://publicationethics.org/files/COPE_DD_A4_Authorship_SEPT19_SCREEN_AW.pdf [Accessed 29 January 2025].