Retraction Story Assignment: Cancer Has Been Cured Without Data

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Assignment Acknowledgement

This assignment has a Turnitin originality score of 21%. This study uses Grammarly to for grammatical correctness.

1. **Why did you choose this paper from the Retraction Watch Website?**

As an aspiring MD student, I have fostered a keen interest in cardiology and oncology. This article from the Retraction Watch Website caught my eye primarily because of the novel findings and implications in the field of oncology, but also because of the sheer number of reasons for retraction. Many of the reasons for retraction given to the article are regarding the images, which were the primary reasons for the high volume of articles on Retraction Watch. However, what made this article more interesting was how the scientists responded to the retraction. After the initial suggestions regarding the images, the scientists provided images of Western Blot analyses as evidence, however when asked for the original data as a foundation they were unable to provide it. With further follow-up, the only scientist that was reachable was Xi, with all others unable to directly respond or unreachable. This article left me thinking, what happened? Why were the other scientists not available? These were the primary questions that left me wanting more information and thus became my primary reason for selection.

2. **What was the main finding or take-home message from the paper that made it novel?**

The primary take-home message that caught my attention was the introduction of SALL4, a gene, and c-Myc, a downstream region for SALL4, as novel therapeutic targets to reduce metastases and increase the survival of patients with endometrial cancer. The article discovers that in endometrial cancer, expression of SALL4 and c-Myc was upregulated and positively correlated with metastases, the stage of the tumor and the degradation of patient survival. Moreover, over-expression of ABCB1 (ATO-binding cassette multidrug transporter) increased drug resistance and was found to be a driver of SALL4-induced drug resistance. The positive correlation was further exemplified by a knockdown of SALL4, which decreased metastasis and increased drug sensitivity. The findings of this study were promising as they provided specific areas for therapy. Through investigating the role SALL4 plays at a molecular level, the paper offers novel solutions to critical components of cancer: drug resistance and metastasis.

3. **What caused this paper retracted? Provide all details here.**

As per the Retraction database, this paper was retracted due to concerns regarding the images in the article. Specifically figures 1, 2 and 5. There were multiple instances of discontinuity between lanes of a GAPDH panel (The PLOS ONE Editors, 2024). Many of the images, part of Figure 2, revealed overlapping, for example, the rotation of one image translated to an exact image below. Figure 5 revealed similar concerns of overlapping and duplication. The images within the figures all seemed to be the same image with many of them being mere rotations, duplications or flips (The PLOS ONE Editors, 2024). When the authors were contacted regarding the concerns surrounding the figures, they provided images of Western Blot analysis to address the issues. However, the supporting images raised doubt about data integrity, and thus the underlying original data was requested. The original data was deemed unavailable. The primary reasons behind the article's retraction are image manipulation, which includes duplications and errors, unreliable data and unavailability of original data.

4. **How do you think could this paper have prevented its retraction?**

If the original data had been available, this paper could have prevented its retraction by maintaining transparency in communication. Publishing articles is a form of result dissemination which constitutes communication. When working on any study original data, which are part of lab books are safeguarded and written with integrity. Study documentation is the foundation of reliability if the one follows the outlined methodology documented they should yield the same nature of results. The authors should have ensured the validity of the presented figures, errors in

the images can be grounds for unreliable data, which is what occurred in this case. However, in this situation, I do not believe that the retraction could have been prevented as there was a lack of original data, which is a fundamental flaw in the research itself resulting in a complete lack of validity and reliability in the study results.

5. Can you discern a motivation for the misconduct (if there was any present)?

I believe that this misconduct was intentional. A primary reason for this belief is that when a scientist is aware that they lack original data they will not go forward with the publication because of good practice and ethics, as the study lacks reliability and validity. Moreover, the study cannot be reproduced with a lack of original data, as the methodology will have any level of evidence as support. The motivation behind the misconduct seems to be a pressure to publish a positive result. In today's landscape of scientific communication, the culture around publication holds a bias leaning towards discovering new items, however, finding a lack of correlation between two variables is not given a limelight. In this situation, the lack of original data supporting the indication of a strong correlation describes the pressure a scientist may feel to produce a paper that indicates positive results. Furthermore, only one of the authors was reachable, with the others being unreachable or indirectly responding, this indicates a lack of genuine care for the article, as the research has implications that span the entire field of oncology. Retraction or doubt should call for great action from the authors, however that was not the case. The lack of concern indicates that the misconduct was intentional.

6. Give an example of a retraction that demonstrated integrity. Provide details.

An example of a retraction that showcased integrity was retracted by the author. Nathan Georgette wrote an article in high school regarding immunity that was published in the Internet Journal of Epidemiology (Oransky & Marcus, 2016). He continued his research as a Harvard undergraduate and published his second article in PLOS ONE. Once his second article was published, Georgette discovered a flawed assumption he made based on his earlier work which did not impact his first article but was fatal to the recent publication. As a next step, he contacted PLOS ONE and requested his article be retracted. He demonstrated transparency and accountability which increases his reliability as a scientist. Everyone makes mistakes, however, openly communicating those errors and rectification takes courage which is what Nathan Georgette exemplified.

7. What have been the benefits and costs of having retraction watch available to the scientific community and public?

The benefit of having Retraction Watch available to the scientific community and the public is the transparency it provides. Through identifying fundamental errors and misconduct it establishes accountability among institutions and researchers. Retraction Watch can preserve trust and abolish it in the scientific community. Firstly, it maintains trust as through picking out errors it upholds the integrity of the scientific process. Secondly, it can act to abolish trust, as those with a non-science background hold scientists in high regard and exposing misconduct can break that faith. Another benefit of having Retraction Watch is that it promotes higher standards in research, as it calls for more rigorous reviews and methodologies to be conducted. The costs of having Retraction Watch are the actual financial costs associated with running the platform. Additionally, a cost is the damage retraction watch can cause to a scientist's or institution's reputation due to the scrutiny. Although there are costs to Retraction Watch, the benefits outweigh the costs as it calls for more robust research regarding reliability and validity.

References

Liu, L., Zhang, J., Yang, X., Fang, C., Xu, H., & Xi, X. (2015). SALL4 as an Epithelial-Mesenchymal Transition and Drug Resistance Inducer through the Regulation of c-Myc in Endometrial Cancer. *PloS one*, *10*(9), e0138515. https://doi.org/10.1371/journal.pone.0138515 (Retraction published PLoS One. 2024 Feb 13;19(2):e0298990. doi: 10.1371/journal.pone.0298990)

Oransky, I., & Marcus, A. (2016). *This young scientist retracted a paper. And it didn't hurt his career.* STAT.

The *PLOS ONE* Editors (2024) Retraction: SALL4 as an Epithelial-Mesenchymal Transition and Drug Resistance Inducer through the Regulation of c-Myc in Endometrial Cancer. PLoS ONE 19(2): e0298990. https://doi.org/10.1371/journal.pone.0298990