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AI in publishing – AI and Publishing 2.0 – Practical Help or Integrity Hazard?

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Advanced Therapeutics - Wiley

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About me

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Academia

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Publishing

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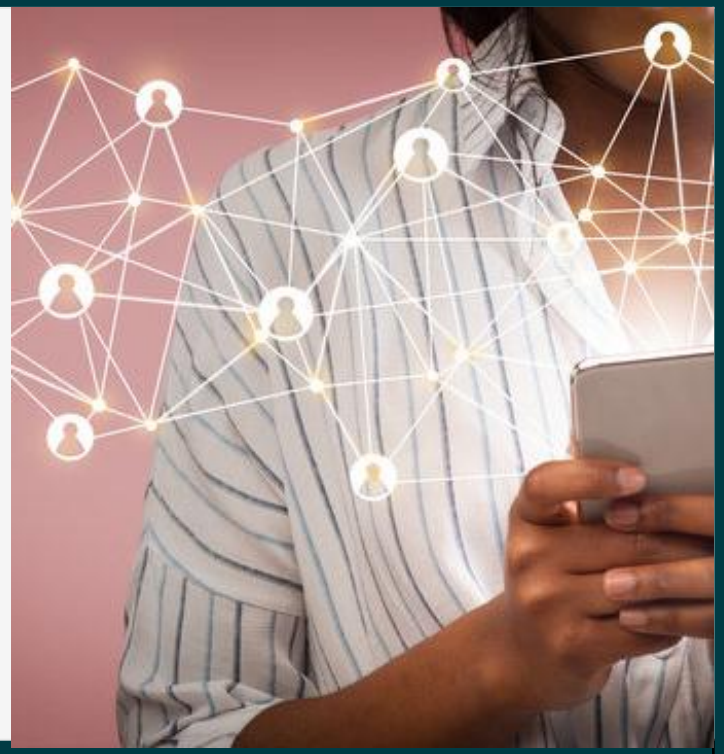
Today's topics

AI in publishing

- What is Generative AI and what can it actually do?
- How do modern AI systems work?
- What are the opportunities and integrity risks for scientific publishing?
- How should authors, reviewers, and editors use AI responsibly?
- How is AI already changing publishing and peer-review?



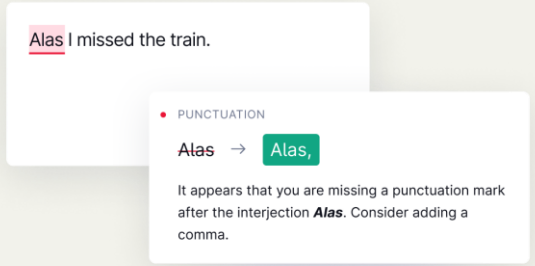
What is Generative AI?

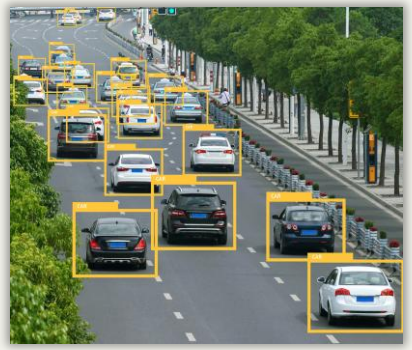
How can Generative AI be used in publishing?

What is Generative AI?

Artificial Intelligence is a broad term that describes a piece of technology that can perform tasks that mimic human intelligence. AI uses existing data to create systems capable of making predictions about future events.

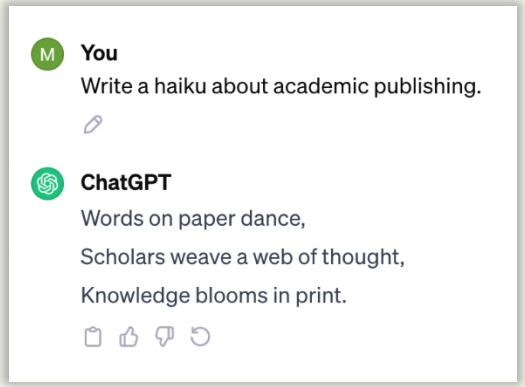
- Image recognition
- Language understanding
- Classification





Generative AI (GenAI) is a specialized branch of artificial intelligence that uses large language models (LLMs) to create **novel content** based on patterns learned from existing data (training material) and usually requires a **prompt**.

- Text generation
- Image generation
- Music generation
- Video generation



What is a Generative AI tool?

TOOL: An object that helps you accomplish a task

Important questions you need to ask before using a tool:

What was it made to do? optimized for?
What non-intended purposes can it be used for?
What should it not be used for?

TASK: Open a tin can

Available tools in the kitchen:

How modern AI Text tools work

What are they trained to do?

- **Analyze and generate human-like text** based on **patterns** and **information learned** from training data.
- They have **no true comprehension of content, nor can they check facts.**

What training data were used? Notice how quickly knowledge cutoffs become outdated!

- Current websites, Wikipedia, Common Crawl (archive of webpage data from 8 years), internet-accessible books, public-domain text.
- Information is constantly generated, so there is always a "**knowledge cutoff**". For GPT 3, this was September 2021.
  Most powerful GPT4o goes up to October 2023. GPT 4 (Turbo) goes up to December 2023. GPT 5 goes to Sept 2024, GPT 5.6 goes up to February 16 2026.

Who owns the training data?

- Claimed that training material was **publicly available with OA licenses** or in the public domain. Training datasets may include publicly available, licensed, public-domain, and other online material. The legal status of some training uses still remains disputed. For other companies, language can be vague or hard to find. Copyright protection for data mining is also complex. Current legal claims also dispute OpenAI's statement.

Is my data protected? Used in the training set?

- For non-enterprise options of ChatGPT, there is an **opt-out option** ("**turn off chat history**")
- For ChatGPT Team/Enterprise, and any API, it does not train on business data. You own your inputs, output, and how long data is retained.

Who owns the product?

- For ChatGPT/GPT, OpenAI states that authors (question-askers) own the response. (But copyright registration laws may not recognize it!)

AI tools for text generation: example

We asked ChatGPT 3.5

PROMPT: Can you write me a two-paragraph introduction about HDAC inhibitors, and include at least one reference per sentence and claim made? Please include references/citations as numbered superscripts and all references as a numbered list at the end corresponding to the citations. Also use only references from medicinal chemistry and pharmaceutical chemistry journals, dated 2017-2022.

AI tools for text generation: example

ChatGPT 3.5 responded

Reads ok at first pass. But gets redundant, and just spews back general statements and keywords from input text.

Histone deacetylase inhibitors (HDACis) are a promising class of compounds that have gained considerable attention in recent years as potential therapeutic agents for various diseases. HDACs are a group of enzymes that regulate the acetylation status of histone and non-histone proteins, thereby modulating gene expression and various cellular processes^1. HDACis work by inhibiting the activity of HDACs, leading to an increase in acetylation and altering the expression of genes involved in cell proliferation, differentiation, and apoptosis^2. Several HDACis have been approved by the FDA for the treatment of different cancers, such as lymphoma and multiple myeloma, and others are currently being investigated in clinical trials for the treatment of various diseases^3.

Research in medicinal chemistry and pharmaceutical chemistry has led to the development of novel HDACis with improved pharmacokinetic and pharmacodynamic profiles, increased selectivity for specific HDAC isoforms, and reduced toxicity^4. Several studies have shown that these newly developed HDACis have potent anti-cancer, anti-inflammatory, and neuroprotective effects^5. Additionally, these compounds have shown promise as potential therapies for various diseases, including neurodegenerative disorders, and inflammatory diseases^6. While HDACis hold great promise as a therapeutic approach, further research is needed to fully understand their mechanisms of action and potential clinical applications.

References:

References 1 & 5 were made up by ChatGPT !!! They look legit, but do NOT exist.

1.Halder R, Hennion M, Vigneron A, et al. HDACs and HDAC Inhibitors in Cancer Development and Therapy. **ChemMedChem**. 2019;14(9):829-846. doi: 10.1002/cmdc.201900056.

2.Verdin E, Ott M. 50 years of protein acetylation: from gene regulation to epigenetics, metabolism and beyond. Nat Rev Mol Cell Biol. 2015;16(4):258-264. doi: 10.1038/nrm3931.

3.Molife LR, Attard G, Fong PC, Karavasilis V, Reid AH, Patterson S, et al. Phase II clinical and pharmacodynamic study of the oral histone deacetylase inhibitor MS-275 in refractory and metastatic solid tumors. J Clin Oncol. 2008;26(15):2542-2549. doi: 10.1200/JCO.2007.14.5375.

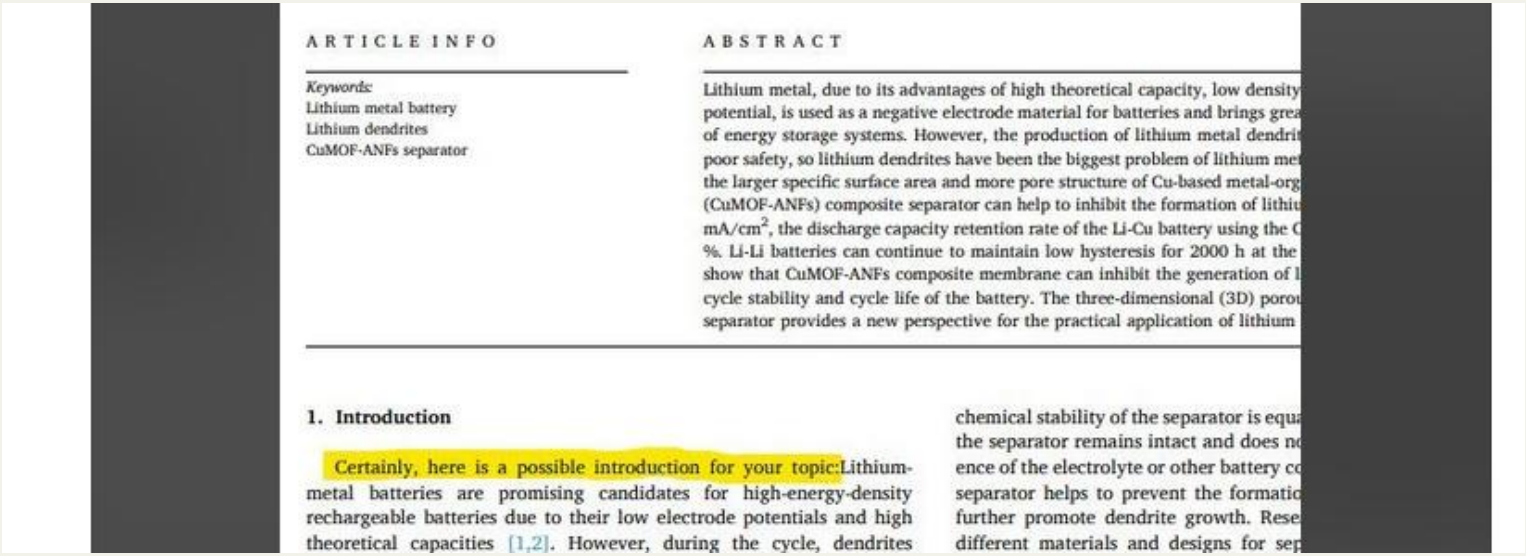
4.Bradner JE, West N, Grachan ML, et al. Chemical phylogenetics of histone deacetylases. Nat Chem Biol. 2010;6(3):238-243. doi: 10.1038/nchembio.307.

5.Oh SR, Park JH, Cho YY, et al. HDAC inhibitors as potential therapeutics for rheumatoid arthritis. Epigenomics. 2017;9(2):215-225. doi: 10.2217/epi-2016-0117.

6.Kim D, Frank CL, Dobbin MM, et al. Deregulation of HDAC1 by p25/Cdk5 in neurotoxicity. Neuron. 2008;60(5):803-817. doi: 10.1016/j.neuron.2008.10.015.

Newer models are improved but still require source verification.

If you use GenAI….don't leave prompts in!



ARTICLE INFO

Keywords:
Lithium metal battery
Lithium dendrites
CuMOF-ANFs separator

ABSTRACT

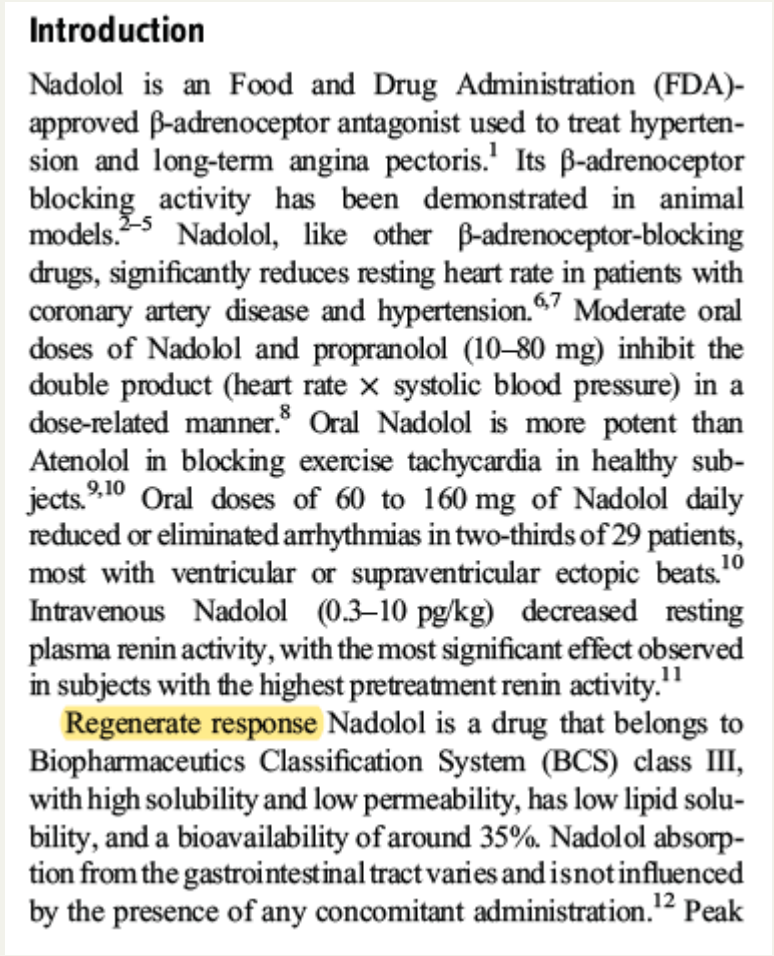
Lithium metal, due to its advantages of high theoretical capacity, low density
potential, is used as a negative electrode material for batteries and brings grea
of energy storage systems. However, the production of lithium metal dendrit
poor safety, so lithium dendrites have been the biggest problem of lithium met
the larger specific surface area and more pore structure of Cu-based metal-org
(CuMOF-ANFs) composite separator can help to inhibit the formation of lithiu
mA/cm^2, the discharge capacity retention rate of the Li-Cu battery using the C
%. Li-Li batteries can continue to maintain low hysteresis for 2000 h at the
show that CuMOF-ANFs composite membrane can inhibit the generation of l
cycle stability and cycle life of the battery. The three-dimensional (3D) porou
separator provides a new perspective for the practical application of lithium

1. Introduction

Certainly, here is a possible introduction for your topic:Lithium-metal batteries are promising candidates for high-energy-density rechargeable batteries due to their low electrode potentials and high theoretical capacities [1,2]. However, during the cycle, dendrites

chemical stability of the separator is equa
the separator remains intact and does no
ence of the electrolyte or other battery co
separator helps to prevent the formatio
further promote dendrite growth. Rese
different materials and designs for sep

https://www.reddit.com/r/ChatGPT/comments/1be5q4c/obvious_chatgpt_prompt_reply_in_published_paper/?rdt=37643



Introduction

Nadolol is an Food and Drug Administration (FDA)-approved β-adrenoceptor antagonist used to treat hypertension and long-term angina pectoris.[1] Its β-adrenoceptor blocking activity has been demonstrated in animal models.[2–5] Nadolol, like other β-adrenoceptor-blocking drugs, significantly reduces resting heart rate in patients with coronary artery disease and hypertension.[6,7] Moderate oral doses of Nadolol and propranolol (10–80 mg) inhibit the double product (heart rate × systolic blood pressure) in a dose-related manner.[8] Oral Nadolol is more potent than Atenolol in blocking exercise tachycardia in healthy subjects.[9,10] Oral doses of 60 to 160 mg of Nadolol daily reduced or eliminated arrhythmias in two-thirds of 29 patients, most with ventricular or supraventricular ectopic beats.[10] Intravenous Nadolol (0.3–10 pg/kg) decreased resting plasma renin activity, with the most significant effect observed in subjects with the highest pretreatment renin activity.[11]

Regenerate response Nadolol is a drug that belongs to Biopharmaceutics Classification System (BCS) class III, with high solubility and low permeability, has low lipid solubility, and a bioavailability of around 35%. Nadolol absorption from the gastrointestinal tract varies and is not influenced by the presence of any concomitant administration.[12] Peak

https://pubpeer.com/publications/

695BB212A50A556F45D2FE1E4E707D

Tortured Phrases in Scientific Literature

- AI-generated text can lead to **convoluted phrasing**
- Over-reliance on AI **obscures clarity** in writing
- **Scientific jargon** can become exaggerated or misused.
- AI often **lacks context**, creating awkward expressions
- **Critical thinking** is essential to refine AI text outputs

Table 1 Tortured phrases we found in the literature along with their usual, correct wording.

Tortured phrase found in publications	Correct wording expected
profound neural organization	deep neural network
(fake | counterfeit) neural organization	artificial neural network
versatile organization	mobile network
organization (ambush | assault)	network attack
organization association	network connection
(enormous | huge | immense | colossal) information	big data
information (stockroom | distribution center)	data warehouse
(counterfeit | human-made) consciousness	artificial intelligence (AI)
elite figuring	high performance computing
haze figuring	fog/mist/cloud computing
designs preparing unit	graphics processing unit (GPU)
focal preparing unit	central processing unit (CPU)
work process motor	workflow engine
facial acknowledgement	face recognition
discourse acknowledgement	voice recognition
mean square (mistake | blunder)	mean square error
mean (outright | supreme) (mistake | blunder)	mean absolute error

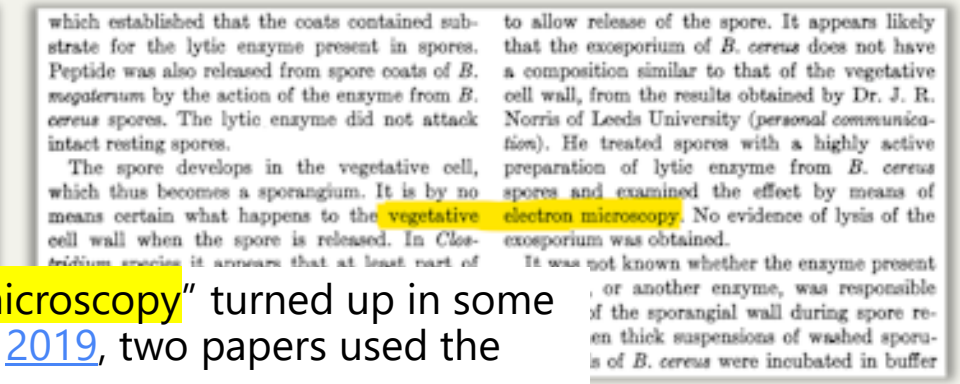
Tortured phrases: A dubious writing style emerging in science. Evidence of critical issues affecting established journals https://doi.org/10.48550/arXiv.2107.06751

7. *The Chromatin Structures in Bacterial Spores*

The most interesting aspect of spores, as Knaysi (109) has aptly remarked, is the story of their *development* but no systematic account of this process intelligible to cytologists has yet appeared. The matter has been briefly discussed by the writer in another review (76). Interesting electron micrographs of thin sections of *Bacillus cereus* and *Bacillus megaterium* engaged in the process of forming spores have recently been published by Chapman (110) *Bacillus thuringiensis* a c the cytoplasm of each sp stration of other types o

appearance are commonly found in mature *resting* spores whose nuclei one would certainly not expect to find in a state of division.

This dilemma is at present not easily resolved. One solution would be to allow that "three-granule clusters" and similar complex chromatin configurations in resting spores and vegetative cells are after all resting nuclei containing three simple chromosomes, as has been maintained by DeLamater and Mudd (107) and, in a



which established that the coats contained substrate for the lytic enzyme present in spores. Peptide was also released from spore coats of *B. megaterium* by the action of the enzyme from *B. cereus* spores. The lytic enzyme did not attack intact resting spores.

The spore develops in the vegetative cell, which thus becomes a sporangium. It is by no means certain what happens to the vegetative cell wall when the spore is released. In *Clostridium* species it appears that at least part of

to allow release of the spore. It appears likely that the exosporium of *B. cereus* does not have a composition similar to that of the vegetative cell wall, from the results obtained by Dr. J. R. Norris of Leeds University (*personal communication*). He treated spores with a highly active preparation of lytic enzyme from *B. cereus* spores and examined the effect by means of electron microscopy. No evidence of lysis of the exosporium was obtained.

It was not known whether the enzyme present or another enzyme, was responsible of the sporangial wall during spore re- en thick suspensions of washed sporu- s of *B. cereus* were incubated in buffer

Decades later, "vegetative electron microscopy" turned up in some Iranian scientific papers. In 2017 and 2019, two papers used the term in English captions and abstracts

laguing-scientific-papers-and-we-traced-it-back-to-a-glitch-in-ai-training-data-254463

AI-generated content: Who owns it?

The Times Sues OpenAI and Microsoft Over A.I. Use of Copyrighted Work
Michael N, Grynbaum and Ryan Mac
December 27, 2023
Available at https://www.nytimes.com/2023/12/27/business/media/new-york-times-open-ai-microsoft-lawsuit.html?smid=url-share

Generative AI Has a Visual Plagiarism Problem
Gary Marcus and Reid Southern
January 6, 2024 Available at https://spectrum.ieee.org/midjourney-copyright

Output from GPT-4:
exempted it from regulations, subsidized its operations and promoted its practices, records and interviews showed.
Their actions turned one of the best-known symbols of New York — its yellow cabs — into a financial trap for thousands of immigrant drivers. More than 950 have filed for bankruptcy, according to a Times analysis of court records, and many more struggle to stay afloat.
"Nobody wanted to upset the industry," said David Klahr, who from 2007 to 2016 held several management posts at the Taxi and Limousine Commission, the city agency that oversees medallions. "Nobody wanted to kill the golden goose."
New York City in particular failed the taxi industry, The Times found. Two former mayors, Rudolph W. Giuliani and Michael R. Bloomberg, placed political allies inside the Taxi and Limousine Commission and directed it to sell medallions to help them balance budgets and fund key initiatives.
During that period, much like in the mortgage lending crisis, a group of industry leaders enriched themselves by artificially inflating medallion prices. They encouraged medallion buyers to borrow as much as possible and ensnared them in interest-only loans and other one-sided deals that often required borrowers to pay hefty fees, forfeit their legal rights and give up most of their monthly incomes.
When the market collapsed, the government largely abandoned the drivers who bore the brunt of the crisis. Officials did not bail out borrowers or persuade banks to soften loan

These are the parts that have **not** been plagiarized

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These issues remain unresolved in 2026.

AI tools for text generation: What it can and cannot do - Key Issues

PROS

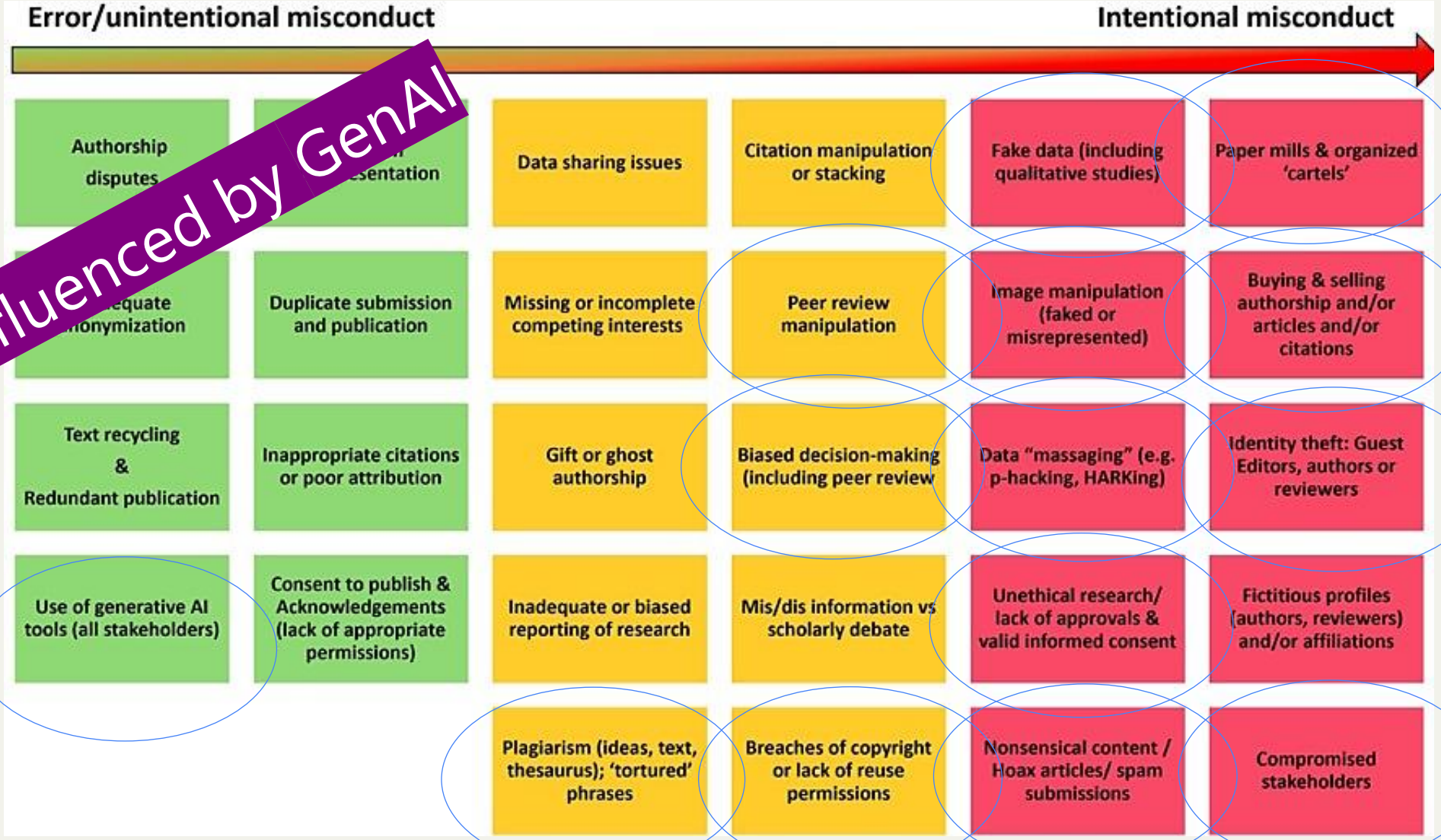
- Improved **language modeling and translation**
- Increased **efficiency** in monotonous/labor-intensive tasks.
- **Summarizing** texts
- **Transcribing** audio & **retrieving structured information**
- **Automating** transactions
- **Content editing**
- Speed in **memorizing** and **analyzing data**, helping users generate insights quicker
- Optimized **searches**
- Assisted **idea** generation
- **Organizing** large amounts of data + easy access

CONS

- **Training set limitations**
  - LLM training sets have cut-off dates
- **Misinformation** (false/inaccurate info, e.g. due to inherent errors dataset)
  - LLMs cannot fact-check training info
- **Disinformation** (deliberately creating false info)
- **AI HALLUCINATION**; LLMs respond based on patterns & associations, not facts
- **Biased Information**
  - Because of the training set and lack of transparency, LLMs can perpetuate biases (gender, ideological, racial, etc.)
- **Copyright and Privacy Concerns & Unwanted Data Mining**
  - Who owns the input? Output?
- **Ethical, Philosophical & Environmental Points**

https://deepchecks.com/top-5-risks-of-large-language-models/
https://medium.com/@fenjiro/large-language-models-llms-emergent-abilities-chatgpt-talks-moroccan-dialect-as-an-example-c945f93aa63a

The expanding role AI in research integrity issues – a matter of scale



Integrity problems are not new.

Generative AI increases the **speed**, **volume**, and **accessibility** of content creation.

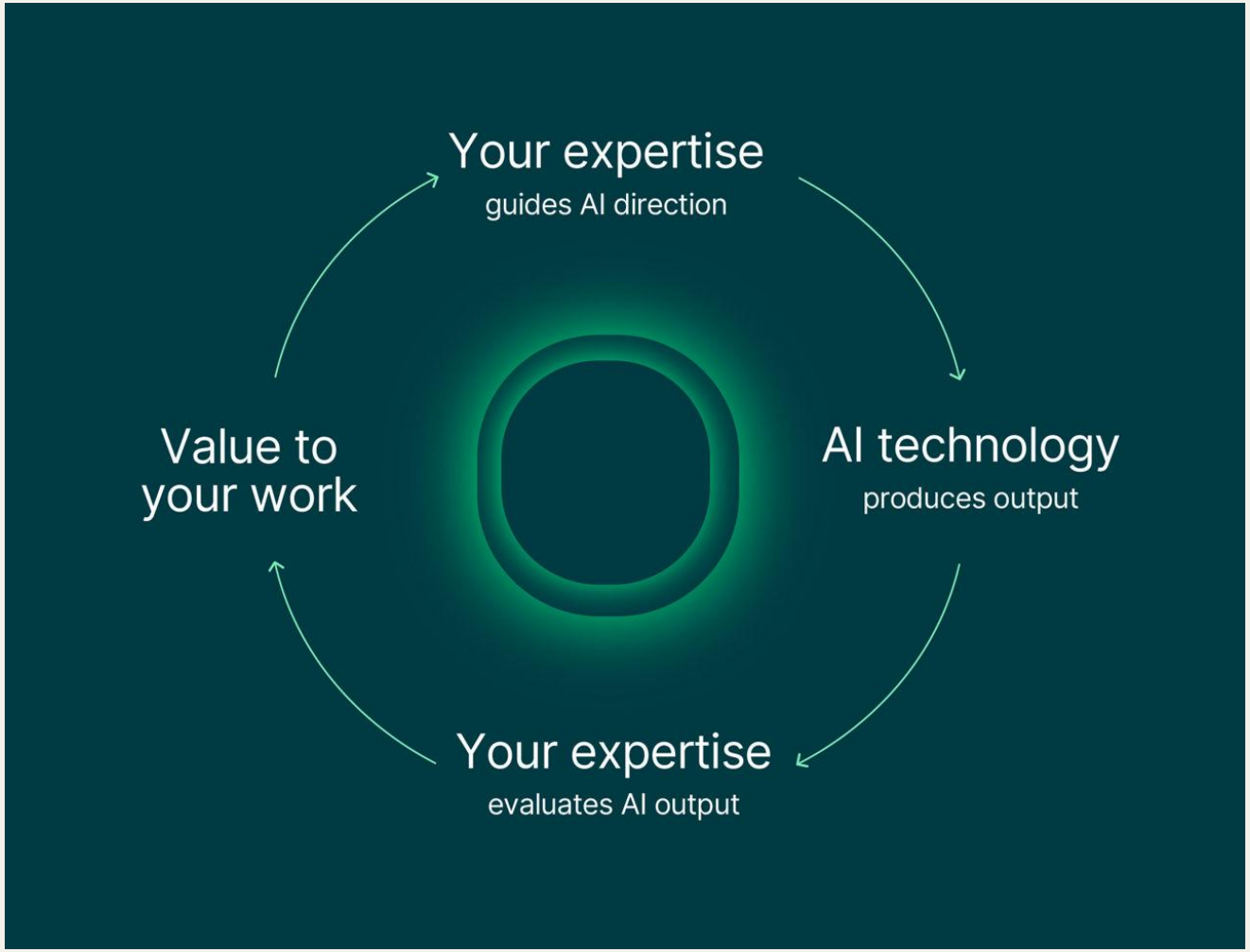
Therefore, existing integrity challenges become a problem of **scale**

Humans at the center of AI use

You must be at the center to

DIRECT AI
to support your work.

EVALUATE AI OUTPUT
based on your own expertise, to ensure accuracy and professional standards are met.



YOU are responsible and **accountable.**

AI authorship of articles

AI tools **cannot meet the requirements for authorship** as they **cannot take responsibility** for the submitted work.

As non-legal entities, they cannot assert the presence or absence of conflicts of interest nor manage copyright and license agreements."

– Commission on Publication Ethics (COPE)
https://publicationethics.org/

AI for text generation

Minor AI assistance (grammar, spelling, translation, formatting) generally does not require disclosure

Generative AI (e.g. ChatGPT, Copilot, Claude, Gemini) **is allowed but must be disclosed** in the manuscript. Authors should include details as a footnote or as additional comments in the paper. (Which AI tool, what version, how it was used, where it was used.)

POINTS TO REMEMBER: Accuracy, confidentiality, copyright, and biases

- Verify facts, references and claims
- Do not feed confidential information into tools with no privacy guarantee for you/your institute
- AI-generated/polished text is not exempt from plagiarism checks

AI for images

ALLOWED (policy has changed since 6 months ago):

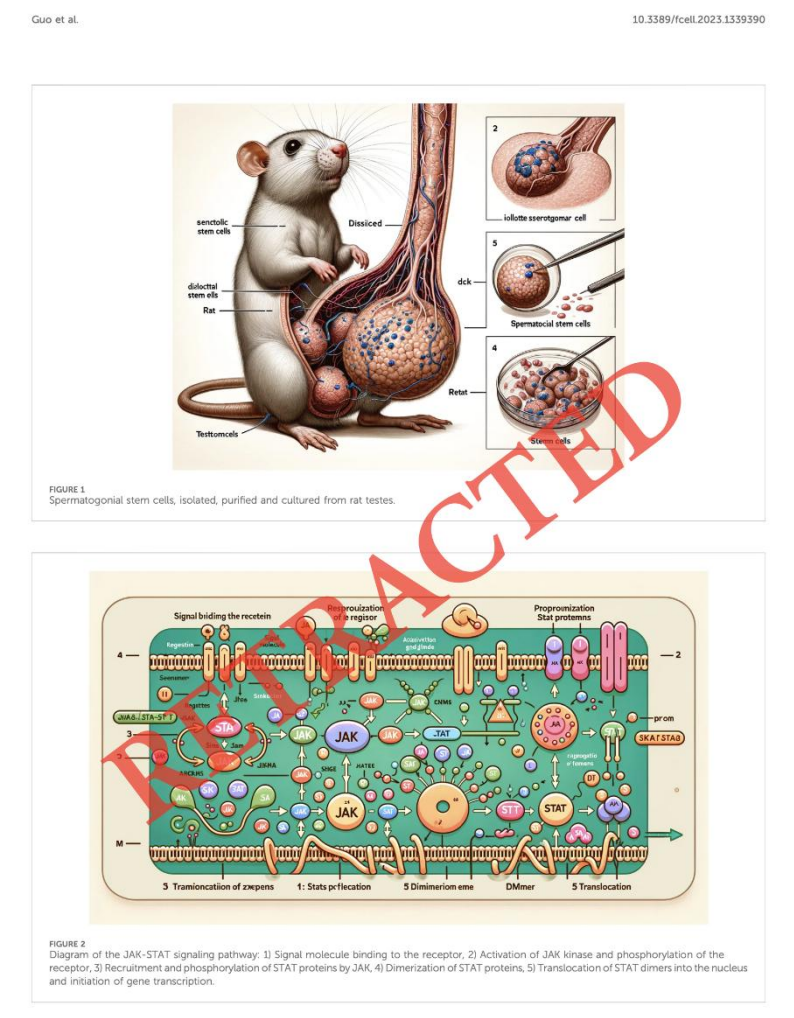
- Data visualization (charts, graphs, plots using underlying data)
- Illustrations (diagrams, conceptual frameworks, schemes, flowcharts)
- Composite image creation
- Creative aspects: ToC image, frontispieces, cover art

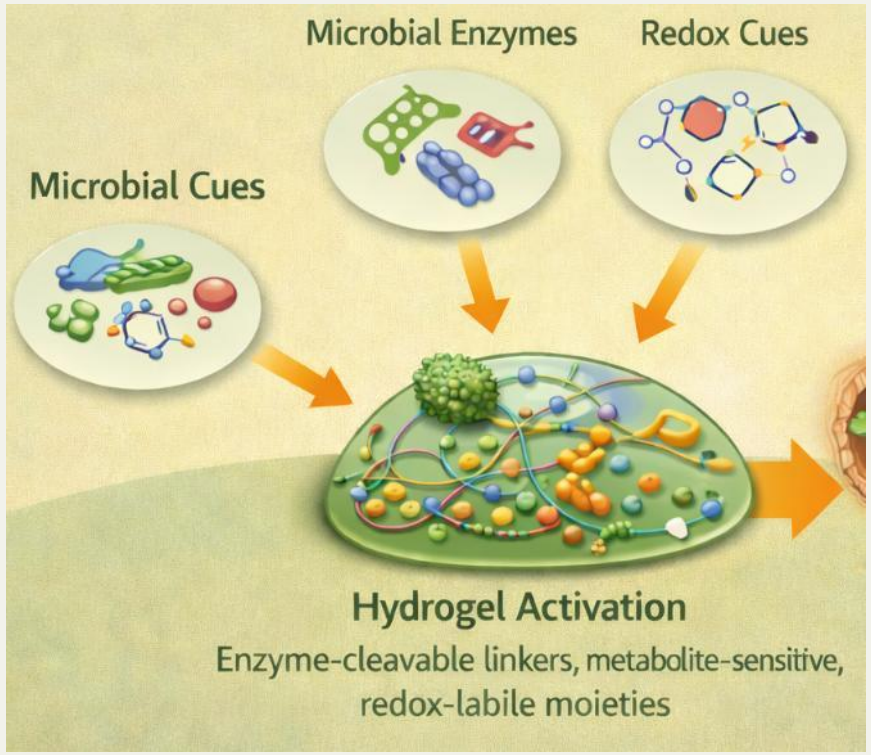
PROHIBITED IN MANUSCRIPT VISUALS; NON-CREATIVE ASPECTS OF MANUSCRIPT:

- AI-edited photographs; however AI may be used to analyze photos as part of the research
- AI output as factual or evidential images.

- **WARNING: COPYRIGHT must be clear.**
- Tool owned by third party should have assurances their material is not trained on copyrighted content/content they have no rights to.
- Check licensing / ownership / reuse restrictions. “Copyleft” licenses like CC-BY-SA or GNU Public License not allowed. If there is a commercial restriction, we cannot use it.

AI generated images are entering the Scientific Literature





https://www.mdpi.com/1999-4923/18/3/284

http://dx.doi.org/10.3389/fcell.2023.1339390

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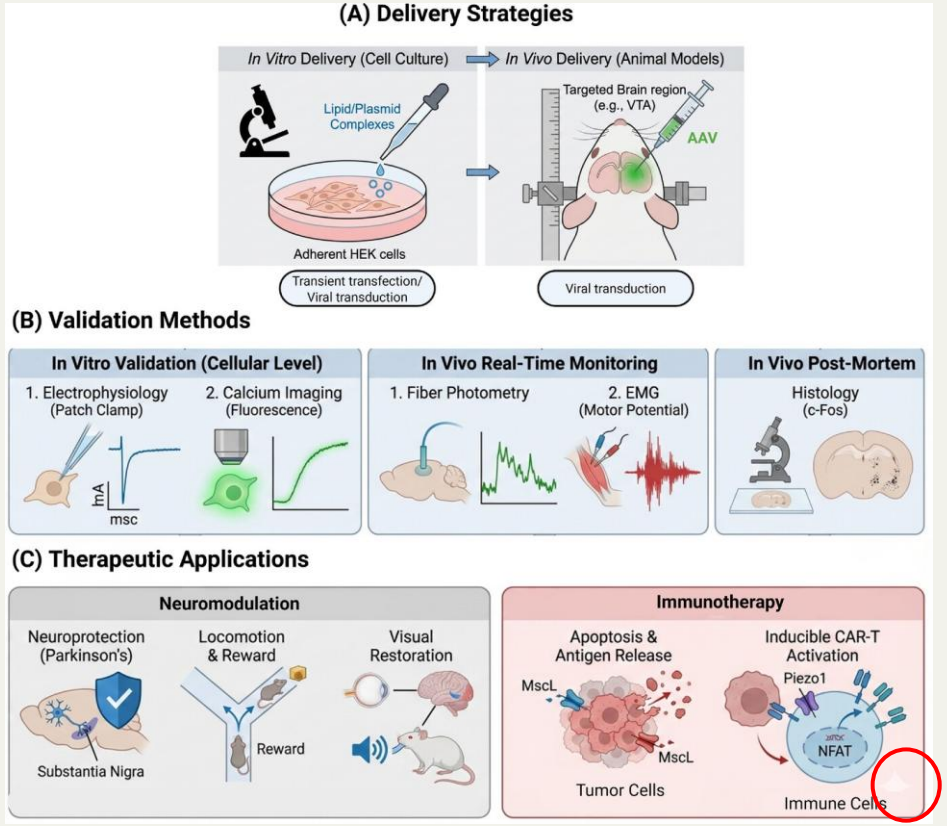
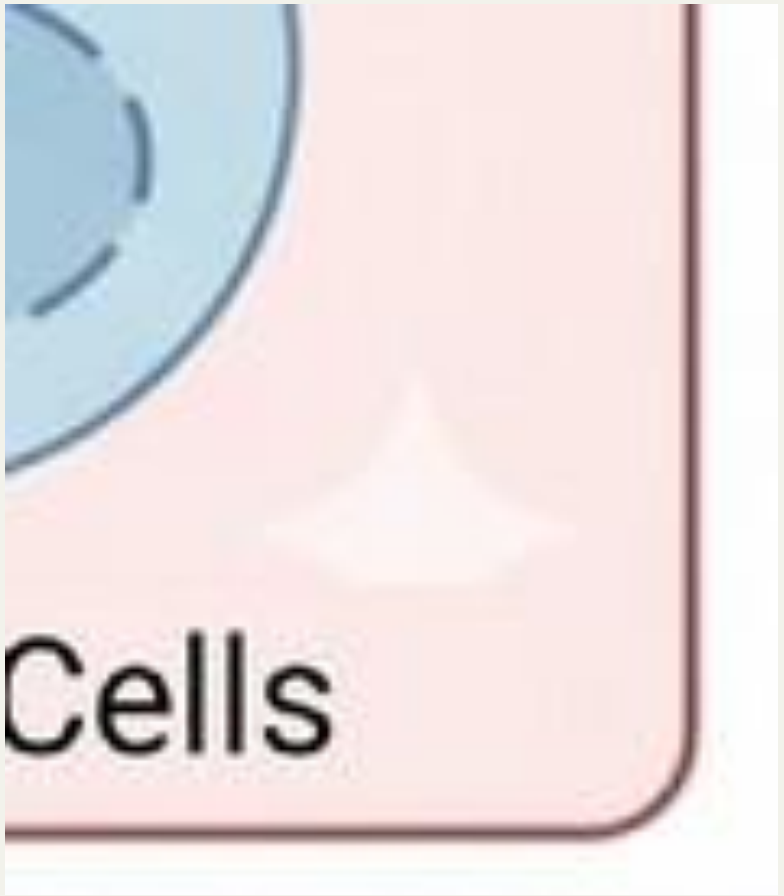
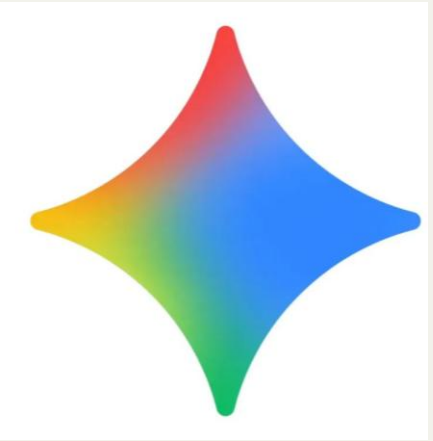
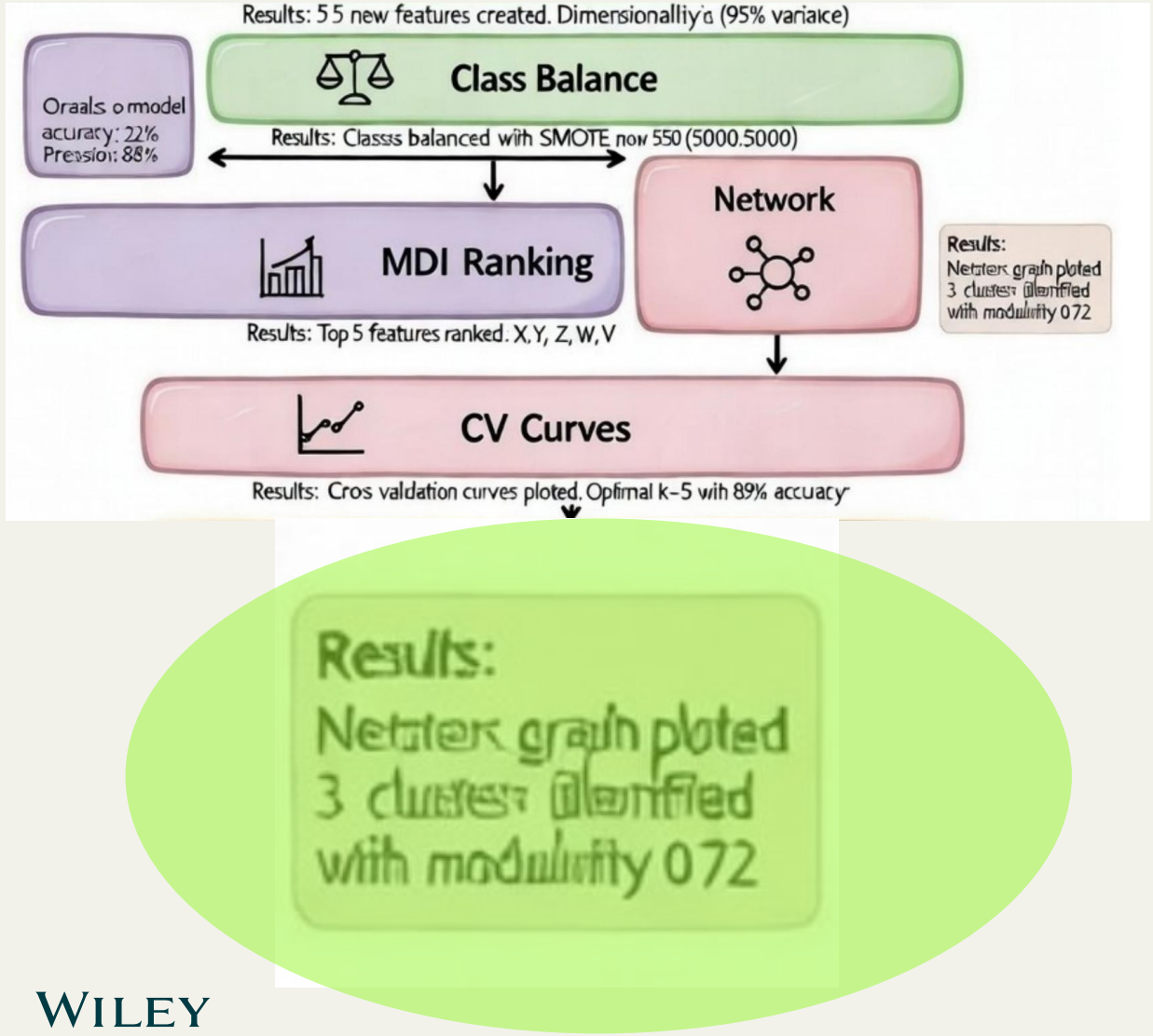
Watermarks (mostly Gemini)







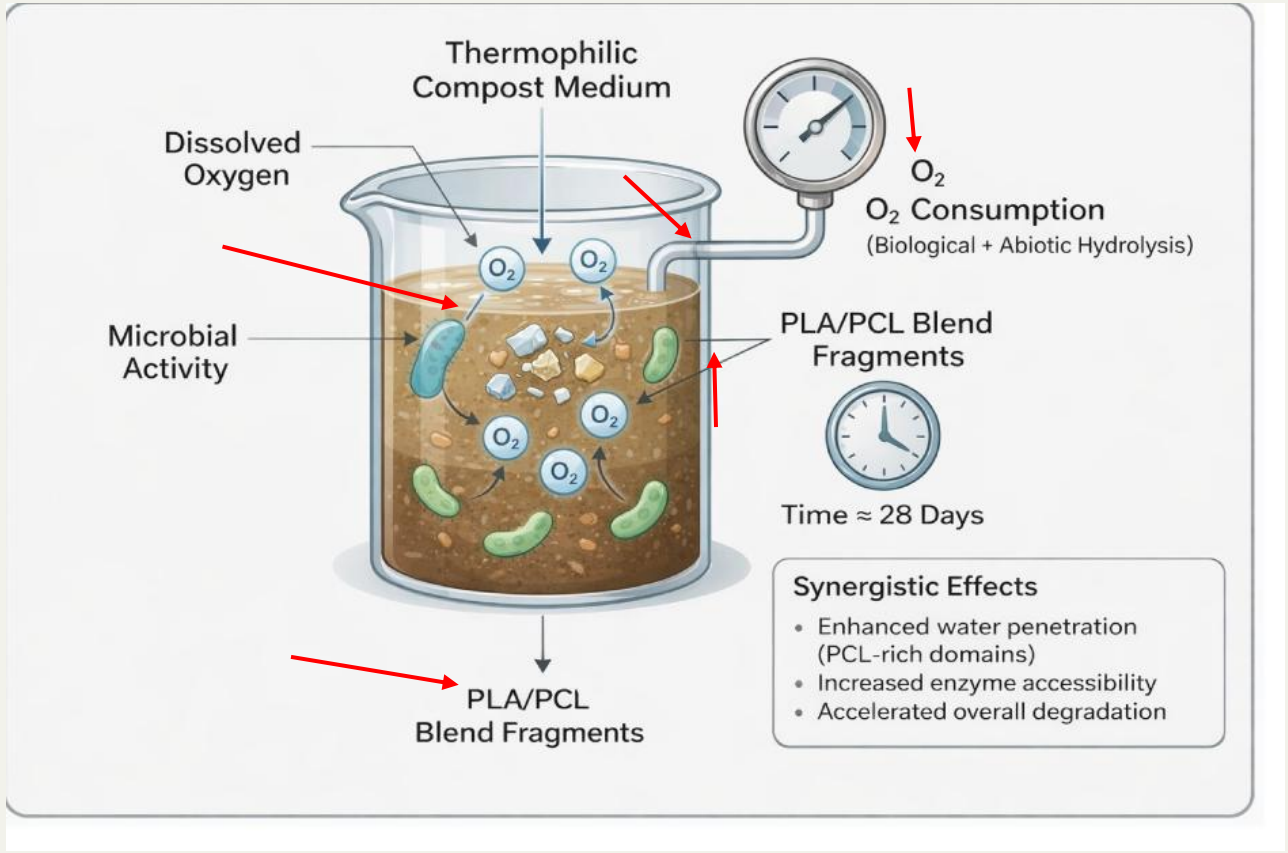
Text (Less common now)



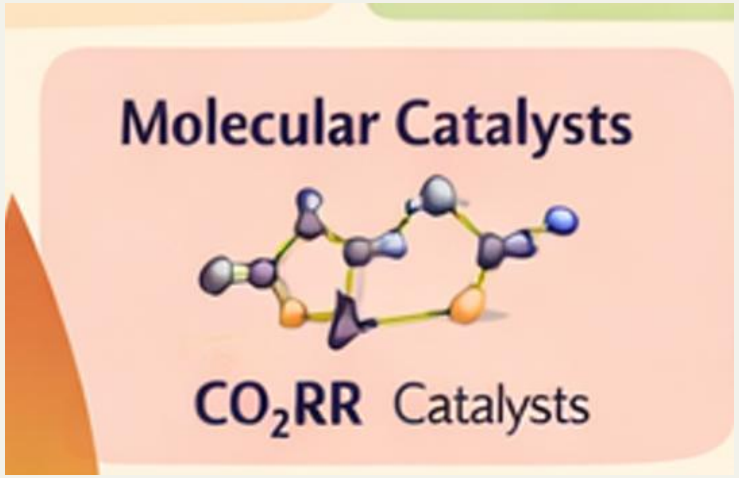
- More of a problem with old models, but still happens
- Unclear text, misspellings, nonsensical words and malformed characters

Other indicators

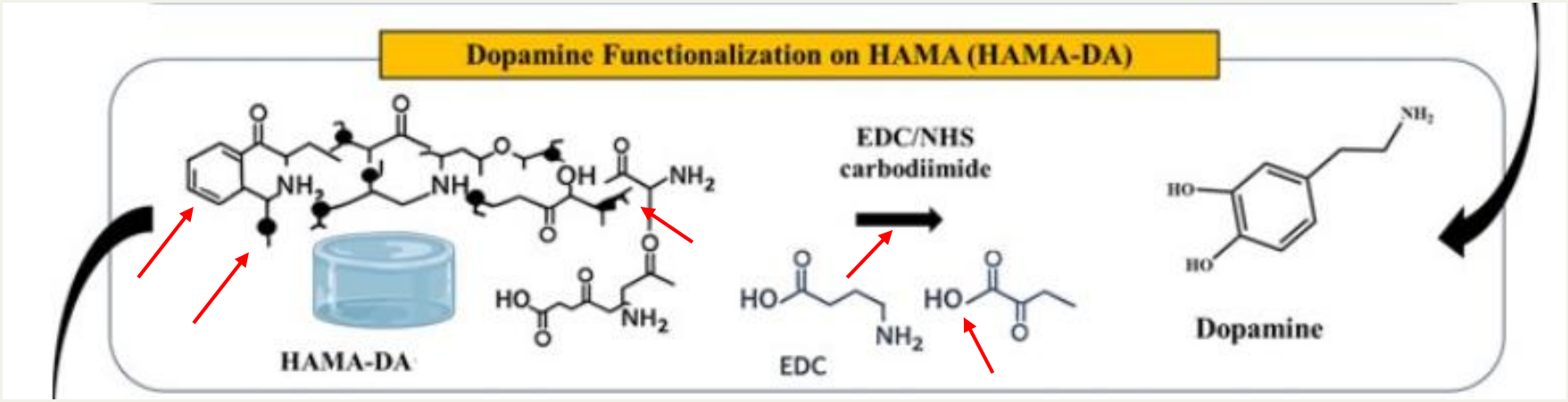
- Strange setup: Pipe through beaker?
- Duplicate Labels: Extra O2 and PLA/PCL
- Arrows pointing in the wrong direction or missing heads
- Label pointing at wrong part
- Excessive use of pictograms (that do not really mean much)



Chemical Formula



- Can vary from ridiculous to believable
- Look for irregular bond length, missing connections



Where to declare AI use

01

In your Acknowledgements

When AI assists with manuscript drafting, editing, translation, or formatting

02

In your Methods

When AI is used to assist with your research methodology, data collection or analysis, or literature review process

03

In your figure captions

When AI generates or edits any visual content that appears in your manuscript

How to declare AI use

- AI Technology name and version
- Date/year of use
- The specific use (e.g., translation, editing, text generation/organization/ argument flow, etc.)
- Specific sections where the AI was used in the document
- The author's role in directing or reviewing the work of the AI

Prompts not needed; but save these in case you are asked by the Editor especially if generating de novo.

How to declare AI use

"The authors acknowledge the use of Claude 3.5 Sonnet (accessed July 2025) to support creation of the abstract and to suggest reorganization of Discussion section for clarity and flow. All AI-generated suggestions were reviewed, revised, and approved by the authors, who take full responsibility for the accuracy and integrity of the work."

"Figure 1. Conceptual diagram of treatment pathway. Diagram created using DALL·E 3 (accessed March 2024) to generate an initial draft, with subsequent modifications by the authors in Canva. All content was reviewed for accuracy by the clinical team."

"The authors acknowledge the use of Microsoft Copilot (accessed August 2024) to generate a first draft of the Acknowledgments section and translate the Methods section from Spanish to English. Gemini (accessed July 2025) was used to reorganize the Discussion section for clarity and flow. All AI-assisted text was reviewed and revised by the authors to ensure accuracy and clarity of meaning."

"Figure 2. Cellular signaling pathway. Draft diagram created in BioRender with AI-assisted layout suggestions (accessed April 2025). Final image refined and annotated by the authors. All pathway details were cross-checked against experimental data."

AI use by reviewers

Peer review depends on strict confidentiality of unpublished work.

Referees must <u>not</u> upload manuscripts in review to AI technologies & detectors or use data/results & crucial conclusions as prompts.

<u>Safe use for reviewers</u>

- Organizing thoughts and prioritizing feedback
- Improving review clarity or tone
- Translating your review
- Finding related work, research methods, statistical approaches (without referencing manuscript specifics)

AI use must be declared

"GPT-5 was used to prioritize and polish review feedback. All original review feedback was provided by the peer reviewer, and all AI-generated content was reviewed, revised, and approved by the peer reviewer prior to sending this review."

The future of AI in manuscript submission and peer review

As more systems that assure protection of data arise,
AI technology could help expedite submission & review.

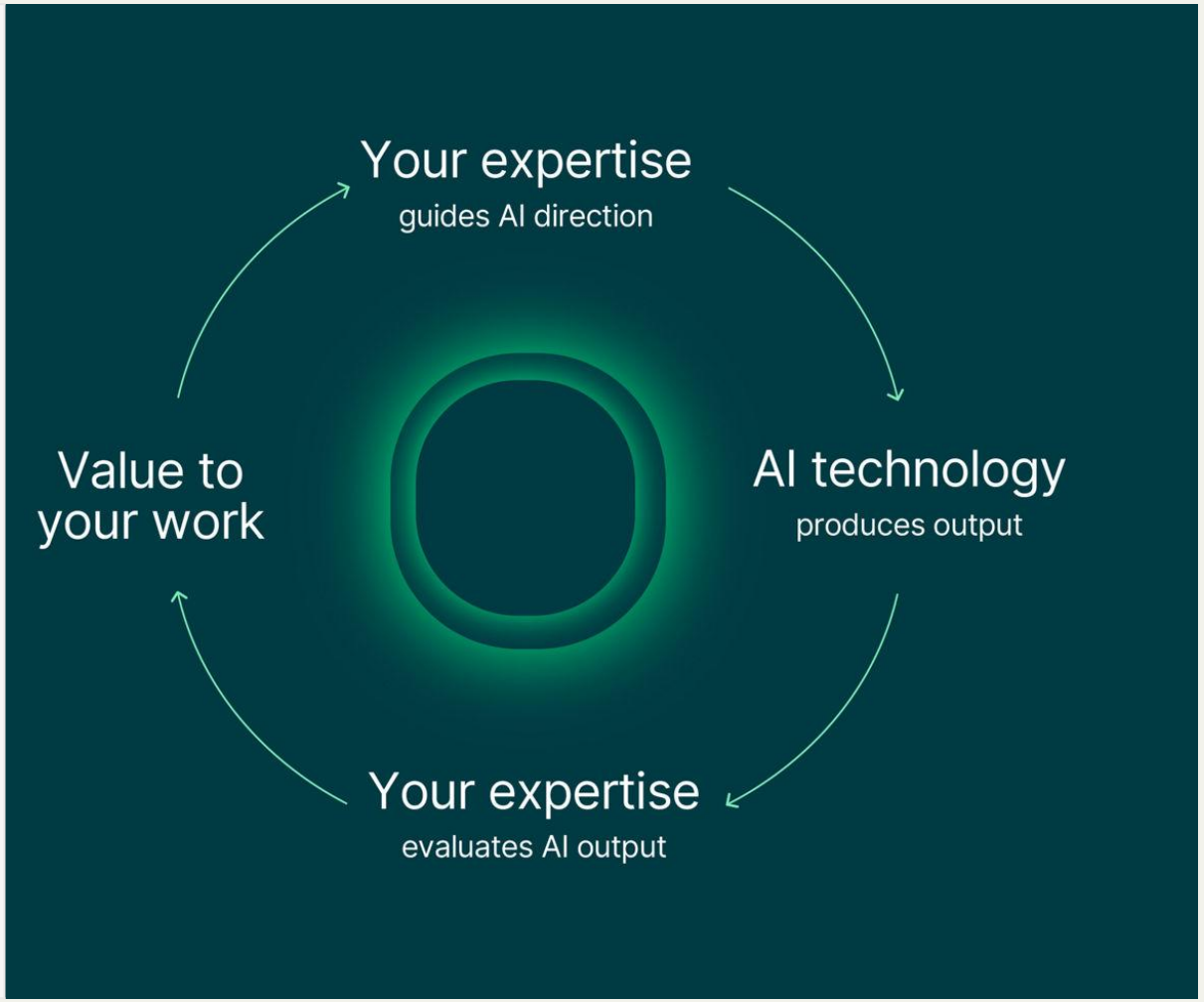
- Content validation (checking claims, citations, arguments)
- Journal recommendation
- Streamlined submission systems
- Integrity screening: plagiarism check, image manipulation, affiliation verification

- Reviewer matching and identification
- Confidential reviewer assistance
- AI-guided review processes
- Language quality enhancement

AI Can Assist. Researchers Remain Accountable.

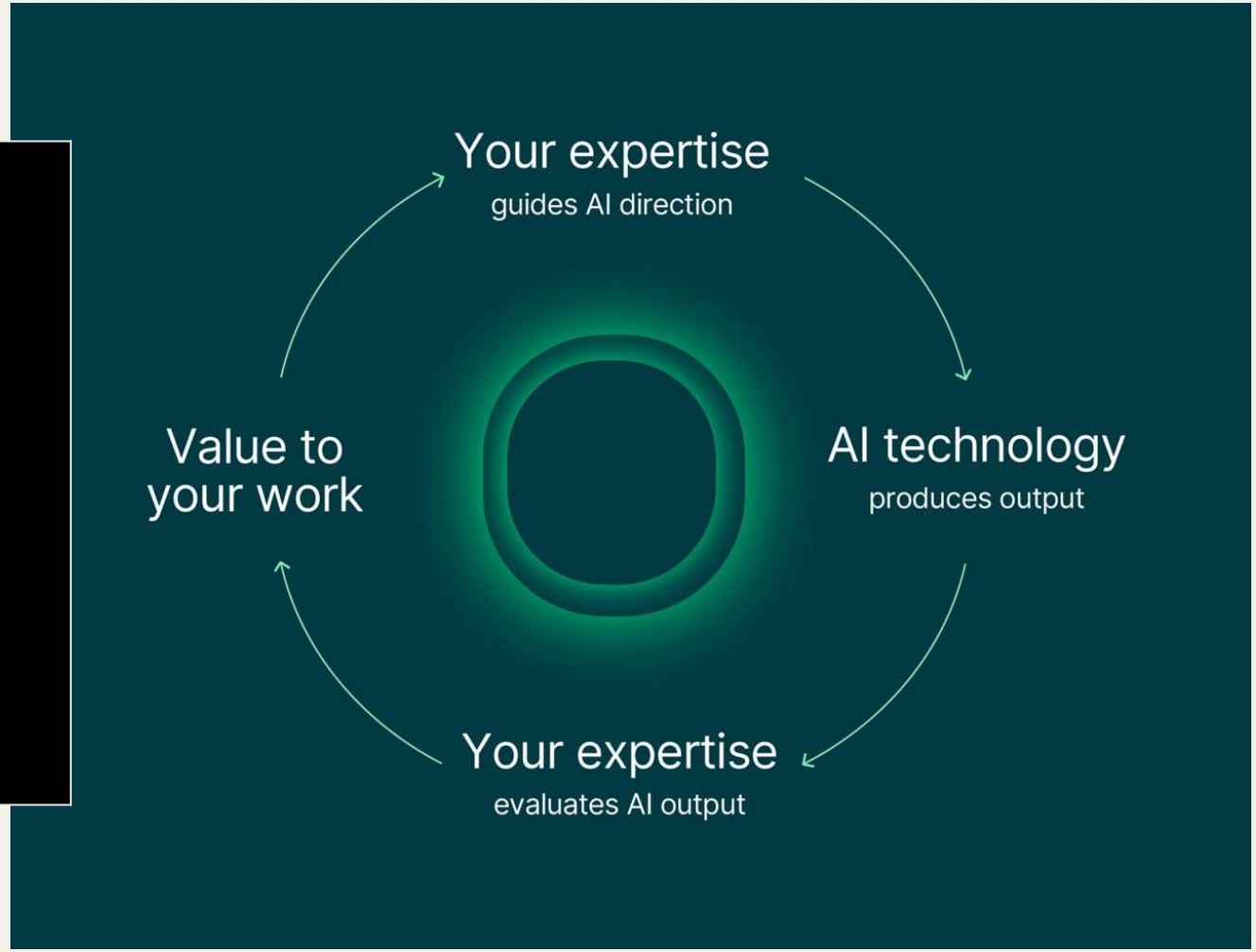
- Understand the **limits** of AI tools
- Protect **confidential and unpublished information**
- Verify **facts, references, figures, and images**
- Consider **copyright, ownership, and licensing**
- **Disclose** relevant AI use transparently
- Apply your own **scientific expertise and judgment**

AI can generate content.
Only researchers can provide accountability.



AI Can Assist. Researchers Remain Accountable.

IF everyone has access to AI, where will the next scientific breakthrough come from?



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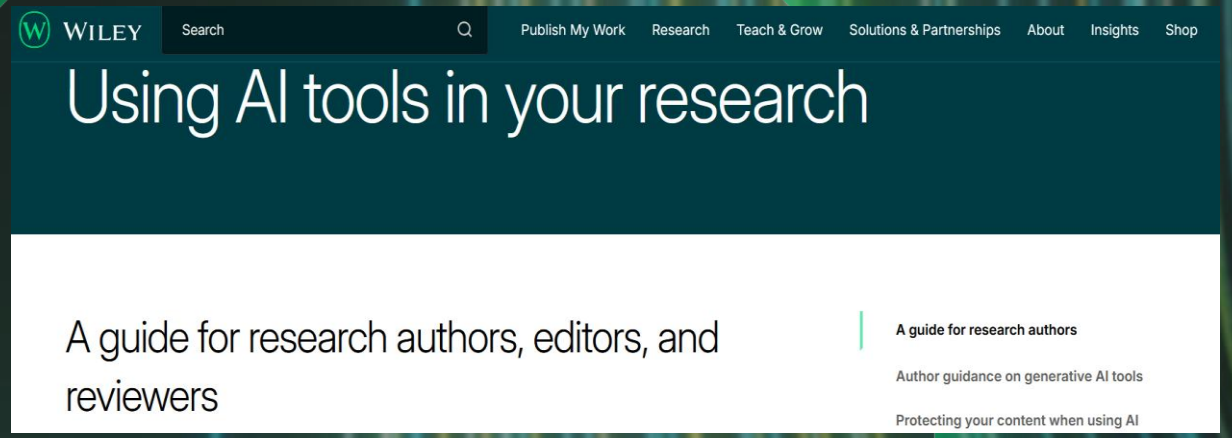

bit.ly/wileyai

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VIELEN DANK!
SALAMAT!
THANK YOU!