An editor’s advice for publishing

Matthew Pavlovich, Ph. D.
Editor, Trends in Biotechnology

Agenda

- About Matt and Trends in Biotechnology
- Choosing a journal
- Publishing models
- Navigating submission, review, and revision
- Peer review models
- Promoting your work
- Q&A

About me

- BS, Chemical and Biomolecular Engineering, Georgia Tech
- PhD, Chemical and Biomolecular Engineering, UC Berkeley
- Postdoctoral researcher, Northeastern University

- Editor of Trends in Biotechnology since 2016
- Senior manager on the Trends team, previous secondments with Cell Press Multi-Journal Submission and STAR Protocols

- Board game enthusiast, amateur trumpet player, occasional beer brewer, full-time cat owner

About Trends in Biotechnology

- One of 16 Trends journals (monthly reviews journals) published by Cell Press (a unit or imprint of Elsevier)
- Focus on clarity, accessibility, novelty, timeliness, conciseness

- Biotechnology = useful applications of biology, biobased solutions to important problems
- Everything from engineering bacteria for chemical production to biosensors to biofabricated tissues
- 42 years old and still going strong (yes, the journal is older than I am)

- Started publishing research articles in 2024

About professional scientific editors

- Full-time, doctorate-level, non-academic, non-research position
- Contrast with academic editors (professors, part-time or contract basis)
- At Elsevier, mostly but not exclusively within Cell Press and The Lancet

- Equal parts subject matter expertise, product management, customer service
  - Must at least understand the science (even if you're not an authority)
  - Liaison among production, marketing, web, commercial products, operations
  - Maintain positive relationships even when delivering bad news

- Most important part of my job: **helping authors succeed**

Choosing a journal

There are more scientific journals than ever

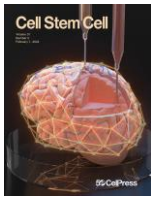
- 28,078 journals published at least one article in 2022
  - Up from 24,606 in 2016
  - Not counting books, book series, conference proceedings, trade publications (more like 32,000)
- Scopus currently indexes 45,806 journals, book series, conference proceedings, and trade publications
- More than 3 million journal articles were published in both 2021 and 2022
- Finding the right journal increases your chances of publication and makes it more likely that people will appreciate your work

Aims and scope

- **The most important consideration**

- Who do you want to read your paper? Read the journal, and think about where
  - Your collaborators (and competitors) publish
  - The research your manuscript cites was published
  - The results presented at conferences and symposia you attend are published

- Scientific scope 

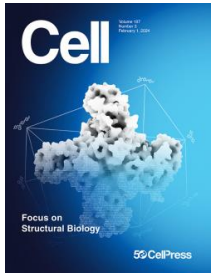
vs. 

- Breadth 

vs. 

Conceptual advance

- Can be tough to define; includes but is not limited to
  - Clarifying complex issues, changes the way people think about the field
  - Discovering a new entity, behavior, or property
  - Inventing a technology or product, implications for translation or scale-up



“findings of unusual significance”

“high-quality research [with] new insight”

“a significant contribution [and] robust results”

“scientifically accurate and valuable research”

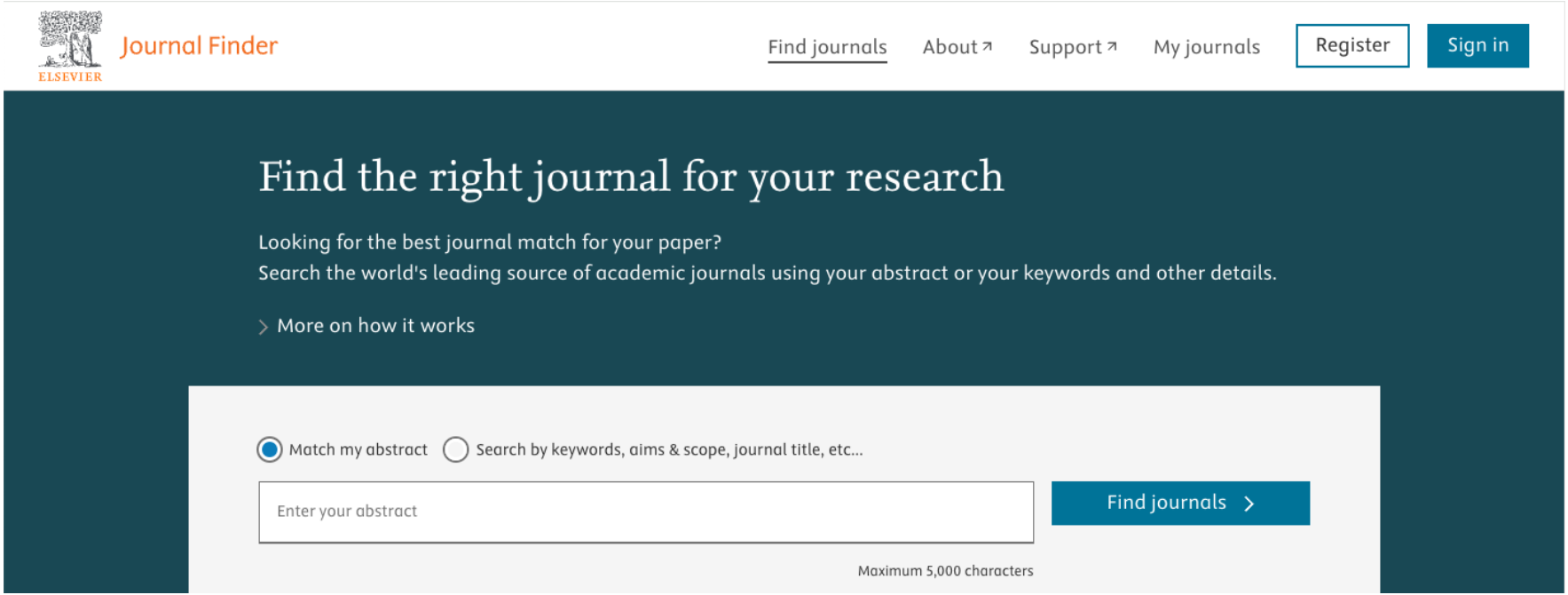
- Not the same thing as novelty, quality, or even importance of the research
- New advance on a very narrow question might be technically excellent and important to a small community but to few people outside it

Other things to consider

- Open access options
- Society affiliation
- Editorial process, peer review practice
- Promotion, press engagement
- Journal metrics
  - Journal Impact Factor, CiteScore, Immediacy Index, CAS tiers…
  - **Journal-level metrics ≠ article quality**

How to do this?

journalfinder.elsevier.com



How to do this?

cell.com/multi-journal-submission

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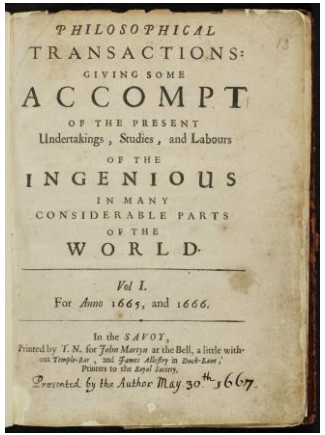
Cell Press Multi-Journal Submission helps you find the right fit for your research paper quickly and easily by considering it simultaneously for multiple Cell Press journals of your choice. Choosing Multi-Journal Submission increases the likelihood that your paper will be formally peer reviewed at Cell Press, helps you avoid serial rounds of review, and shortens the time needed to go from submission to publication. We will work with you to identify and navigate a path to publication aligned with your resources, needs, and preferences.

Publishing models

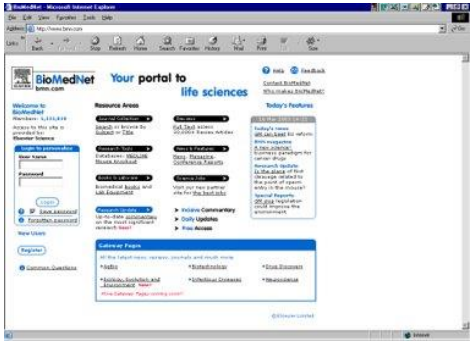
Open access, preprints, and more

Journal subscriptions

- Scientific journals date back to 1665
  - Business model: publisher solicits manuscripts, prints them in an issue, sells each issue; replaces private communications
  - Value to the author: dissemination, external validation
  - Value to the community: discoverability, archiving


PHILOSOPHICAL
TRANSACTIONS:
GIVING SOME
ACCOMPT
OF THE PRESENT
Undertakings, Studies, and Labours
OF THE
INGENIOUS
IN MANY
CONSIDERABLE PARTS
OF THE
WORLD.
Vol. I.
For Anno 1665, and 1666.
In the SAVOY,
Printed by T. N. for John Martyn at the Bell, a little without Temple-Bar, and James Allestry in Duck-Lane; Printers to the Royal Society.
Presented by the Author May 30th 1667.

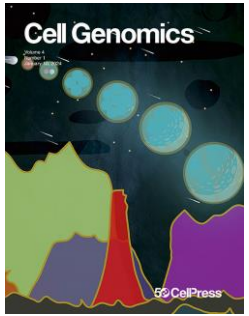
- Different value proposition with the internet
  - Not buying a physical thing anymore, but
  - Dissemination, validation, discoverability, archiving remain
  - Plus advocacy, ethics, education, technological advance



- Few if any pure subscription journals remain at Elsevier

Gold open access

- Also known as “author pays” open access (but a funding agency, library, research consortium, etc. might actually pay)
- A fee to publish (article processing charge or APC) replaces journal subscriptions, and anyone can read the published article for free

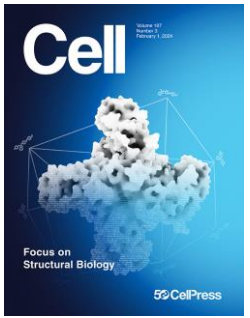


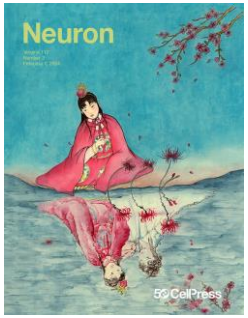
- Why people like it: immediate access for all readers upon publication; more downloads and (maybe?) citations; seen as more inclusive and equitable
- Why people don’t like it: it’s expensive, especially at highly selective journals where the APC must subsidize the editorial work put into papers that aren’t published; can incentivize predatory publishing

Hybrid open access

- A subscription journal where authors have the option to
  - Publish under subscription access at no cost OR
  - Pay an APC to make their article open access

- Why people like it: gives the author a choice; helps authors comply with mandates from their funding agency or national policy
- Why people don't like it: less open than gold OA; makes subscribing to the journal less valuable; can create confusion among readers about what's accessible and what's not; tends to require high APCs





Green open access and repositories

- Green open access: making a version of a manuscript freely accessible in a repository
  - *Version* varies but generally the initially submitted manuscript or the revised and accepted manuscript, not the final formatted article
  - *Repository*: online database containing the manuscripts and metadata (authors, title, abstract, references), may be associated with a funding agency or an institution
  - May be an embargo period after publication before this is allowed
- May need to self-archive (common for institutional repositories) or the publisher may have an agreement

PMC

Vanderbilt University Institutional Repository

NOAA Institutional Repository

Open access vs. free access

- If you paid an APC (gold or hybrid **open** access) then
  - You retain copyright and can do whatever else you want with your published article
  - Other people can use your work with attribution (maybe subject to commercial and derivative restrictions)
  - You cannot prevent anyone from accessing/using your work
  - Your article will remain freely accessible to everyone forever

- A publisher may also make an article **freely** accessible
  - In promotion, marketing, special collections
  - When in the public interest (e.g., COVID-19 articles)
  - In the open archive

Preprints

- Preprint: a manuscript that has not been submitted to a journal or peer reviewed
- Most publishers, including Elsevier, support posting preprints; some journals allow direct submission from preprint servers

- Why this is useful: make your work freely available before it's published; solicit feedback on a work in progress; get a DOI that can be cited in grant applications
- What this is not: curated by aims and scope; peer reviewed for technical correctness; assessed for importance or significance; validated by the scientific community

arXiv

bioRxiv
THE PREPRINT SERVER FOR BIOLOGY

SSRN

What can and can't I do with my manuscript or article?

- Do anything you want with your preprint, whether submitted or not
- Add your submitted or accepted manuscript to a repository after the embargo period
- Distribute your published OA article on a public website or commercial platform
- Share your published article privately among friends or colleagues
- Reuse your published article in talks or teaching

- Modify a preprint after submission based on reviewer or editorial comments (depending on the publisher)
- Distribute your published non-OA article publicly

Navigating the publishing process

Submission, review, revision
(and handling rejection)

What this process looks like

10 essential tips for submission

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1. Make sure the manuscript tells a coherent story
2. Be forthcoming about limitations of the study
3. Write a descriptive, enticing title
4. Check that the manuscript is complete
   (figures called out, essential elements included)
5. Use the cover letter to your advantage
6. Comply with journal requirements
   (but you probably don’t need to have the formatting perfect)
7. Have your metadata ready (author emails, ORCIDs, funding information)
8. Ensure data availability
9. Thoughtfully suggest reviewers
10. Be patient

What happens after you press Submit?

- Technical check (can we open your manuscript file)
- Assignment to a handling editor

- Discussion among editorial team
- Assessment by handling editor
  - Fit for journal's aims and scope
  - Comparison to related literature
- Possible external consultation (other editors, advisory board)

- Sent to peer review, transfer offer, or rejection

Handling rejection like an adult, part 1: desk rejection

- Desk rejection: the editor of the journal does not send the manuscript for peer review
- Maybe a poor fit for the journal's aims and scope, may not be in a format the journal is looking for (e.g., unsolicited review articles)
- Rejection for insufficient conceptual advance
  - Substitution
  - Incremental
  - A + B = A + B
  - Highly niche

- You may receive an offer to transfer to another journal, possibly with guaranteed peer review

Peer review 101

- Editors tend to
  - Know a little about a lot of things (professional) or
  - Have one deep area of scientific knowledge (academic)

- External peer review promotes the quality of scientific research
  - Assessment of technical rigor
  - Outline of conceptual advance
  - **Suggestion for authors to improve their manuscript**, not tear it down

- Reviews should comprise a specific recommendation (accept, revise, transfer, reject) and a reason for that recommendation

Peer review 102

- Most review is anonymized: the authors don’t know the reviewers’ identities

- 3 reviews is the gold standard, 2 can sometimes be enough if the comments are consistent
- 0-1 reviews needed for some short non-research content; 4+ rarely worth it

- A week or two is a reasonable time to review a physical, medical, earth, or life science paper (other fields, like mathematics, may take far longer)

- Conflict of interest
  - Current or recent collaborators, same department, mentor/mentee, personal friendship
  - But not distant collaborators, position paper co-authors, conference co-organizers

The anatomy of an editorial decision letter

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Thank you for submitting your manuscript entitled [redacted for confidentiality] to Trends in Biotechnology, and for your patience while waiting to hear an editorial decision. I sincerely appreciate the time and effort it took to put this work together.

I have now heard from two expert reviewers regarding your manuscript, and their comments are included below. As you will see, the reviewers felt that the topic is interesting and pertinent, although the reviewers had some significant comments that should be addressed prior to publication.

Explanation of editorial decision and outcome of peer review

The reviewers have several good suggestions for improving the manuscript, which I hope you will consider carefully during revision. For example, both reviewers remarked that the manuscript states what has been done but does not provide enough critical appraisal of the field or suggest useful avenues for future work. Please see the reviewer reports and the points they raised at the end of this letter. I have a few editorial suggestions for your paper as well. As you revise the manuscript, please keep in mind what specific message you want to give our readers and how you want to use this review to advance the discussion of this important topic.

Summary of reviewer comments

Summary of editorial comments

EDITORIAL COMMENTS:
[omitted here]

Detailed point-by-point editorial comments

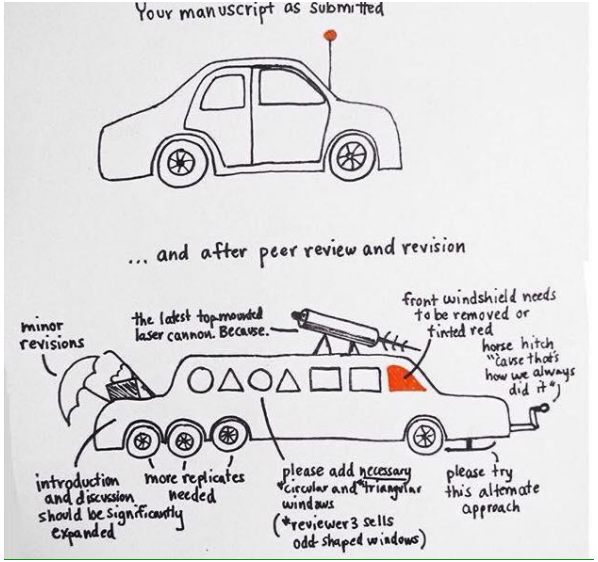
Best regards,
Matthew Pavlovich, Ph.D.
Editor, Trends in Biotechnology
mpavlovich@cell.com
Follow us @TrendsinBiotech

REVIEWER COMMENTS:
[omitted here]

Detailed point-by-point comments from both reviewers

Revising your article

- Really engage with the reviewer/editorial comments
  - “Rewrite this section” means start over from the ground up, not add a couple of phrases to a few sentences
  - Answer the reviewers’ questions in the manuscript and not just in the reply letter
- Consult the editor if something isn’t clear
  - Reviewers requested impossible/infeasible experiments
  - Reviewer comments are conflicting
  - Timelines are usually negotiable
- Warn the editor in advance if you go “off script”



https://amlbrown.com/2015/11/10/how-not-to-be-reviewer-2/comment-page-1/

What happens next?

- May be sent for re-review
  - Revision requiring new experiments (“major revision”) always re-reviewed
  - Revision requiring text modifications only (“minor revision”) or of non-research articles (review, perspective, commentary articles) may not be re-reviewed
  - Multiple review cycles (re-re-review) probably shouldn’t happen and are basically never done at Cell Press

- Accepted in principle or pre-accept: remaining editorial comments for clarity
- Finalize: nuts and bolts of journal requirements including length and formatting

- Accept 

Handling rejection like an adult, part 2: post-review

- The editor didn't want this either
- Don't accuse anyone of bias
- Don't assume you know the identity of Reviewer #2
- Take a deep breath, vent to your lab-mates, go for a walk

- **Wait 24 hours**

- Then think about your next steps
  - Did you get an offer to transfer?
  - Is rebuttal worth it? (probably not)
  - Trying again with the manuscript you have vs. putting more work into it

Peer review models

Anonymizing, collaboration, and open review

Peer review 201

- Traditional peer review is “single anonymous”
  - Editors and reviewers know who each other are and who wrote the paper
  - Authors don’t know who reviewed it

- Why this is the standard: lets reviewers give candid feedback
  - Power imbalance, e.g. an assistant professor recommending against publishing a paper by a Nobel laureate
  - Maintain good relationships: “I’m friends and colleagues with many of these people. I want them to be successful but not to publish substandard papers.”

- Why some people don’t like it: allows mean-spirited commenters to hide behind anonymity; seen as less transparent; reviewers might be biased for or against authors

Double-anonymous review

- Double-anonymous review gives less information about identity
  - Editors know who wrote the paper and who reviewed it
  - Authors don’t know who reviewed it **and reviewers don’t know who wrote it**

- Why some people like it: seen to reduce reviewer bias

- Why some people don’t: easy to inadvertently signify authorship; can make it harder for authors to build on their previous work; reviewer might have seen the work presented at a conference anyway

- Further anonymization: editors don’t know who wrote the paper, editors don’t know exactly who reviewed it?

Zero-anonymous or open review

- Open review hides nothing: authors, reviewers, and editors all know each others' identities

- Why some people like it: seen as totally transparent; makes reviewers completely accountable for their comments; reviewers can more easily claim "credit" for having reviewed

- Why some people don't: might make reviewers more deferential, especially to senior authors, and refrain from making needed critiques

Collaborative and published review

- Collaborative review lets reviewers discuss with each other as they're preparing their comments
  - Why some people like it: different reviewers have different expertise, so it helps reviewers understand if their comments are valid; assists the editor in creating a coherent revision plan
  - Why some people don't: can take longer; increases expectations on already-burdened reviewers

- Published reviews illustrate how a paper improved because of review: useful as a training experience; increased transparency whether anonymous or not


Editorial

Transparent Peer Review Comes to *Cell Systems*


Backstory

Taking the guesswork out of journal submission with Community Review

Matthew J. Pavlovich[1,*]

(since renamed to Multi-Journal Submission)

This Backstory describes the development of a research article published in *Cell Stem Cell* that was originally submitted to Community Review, a program wherein a manuscript is simultaneously considered at multiple Cell Press journals. The article,

Promoting your work

Why bother?

The British Museum has been using focus groups since the mid-2000s, said Stuart Frost, who oversees that work. Sometimes the attendees' feedback could be "a shock to the curatorial ego," Frost said, giving the example of a 2017 exhibition on the Scythians, nomadic tribespeople from Siberia. When that show was in development, he recalled, not a single focus group member had heard of the Scythians. "I remember sitting opposite the curator and seeing his eyebrows raise in surprise," Frost said — but that feedback helped the museum pitch the show at the right level for the public.

https://www.nytimes.com/2024/02/05/arts/design/british-museum-legion-focus-groups.html

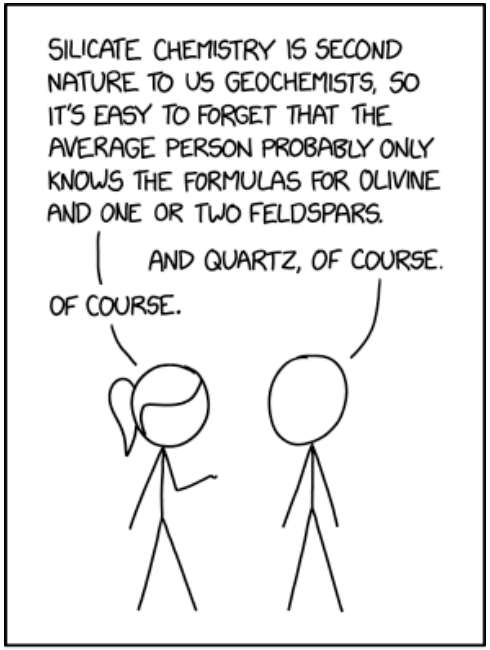
We're assuming you probably don't know very much about the Scythians. But that's OK!

Ahead of our major exhibition opening in September 2017 we've compiled a handy beginner's guide to these nomadic warriors, who galloped into the pages of history…

Introducing the Scythians

The Scythians (pronounced 'SIH-thee-uns') were a group of ancient tribes of nomadic warriors who originally lived in what is now **southern Siberia**. Their culture flourished from around 900 BC to around 200 BC, by which time they had extended their influence all over Central Asia – from China to the northern Black Sea.

https://www.britishmuseum.org/blog/introducing-scythians



https://xkcd.com/2501/

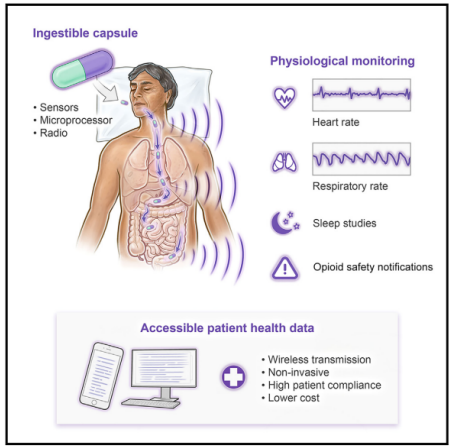
Your institution might be able to help

Device

Article

First-in-human trial of an ingestible vitals-monitoring pill

Graphical abstract



Highlights

- Development of vitals-monitoring pill for monitoring respiratory and heart rate
- First time RR and HR have been monitored from the human stomach with a free-floating capsule
- Data achieved high concordance with standard sleep study metrics
- Captured apneic events that are physiologically similar to OIRD

Authors

Giovanni Traverso, Victor Finomore, Jr., James Mahoney III, ..., Alison Hayward, Robert Langer, Ali Rezai

Correspondence

cgt20@mit.edu (G.T.), victor.finomore@hsc.wvu.edu (V.F.), bpless@celerosystems.com (B.P.)

In brief

The vitals-monitoring pill can accurately measure respiratory rate and heart rate, including apneic events, from within the human gastrointestinal tract. We anticipate that future work will include incorporating gastric residency technology to keep the device in the stomach for a week as well as closed-loop systems capable of not only detecting apneic episodes but also incorporating an on-demand drug release system that will enable the technology platform to automatically detect and reverse an opioid overdose, thereby reducing harm and saving lives.

MIT News

ON CAMPUS AND AROUND THE WORLD

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SEARCH NEWS

Ingestible electronic device detects breathing depression in patients

The new sensor measures heart and breathing rate from patients with sleep apnea and could also be used to monitor people at risk of opioid overdose.

Watch Video

Anne Trafton | MIT News
November 17, 2023

PRESS INQUIRIES

Diagnosing disorders such as sleep apnea usually requires a night in a sleep lab, hooked up to sensors and monitors. Researchers hope to ease that process with an ingestible capsule that can monitor vital signs from within a patient's GI tract.

Image: MIT News

"Measure apneic events" → "monitor vital signs"

"High concordance with standard sleep study metrics" → "usually requires a night in a sleep lab, hooked up to sensors"

Doing it yourself

FEB 1

Right Whales, Right Now

In celebration of World Whale Day in February, we are learning about the elusive and awe-inspiring North Atlantic Right Whale. You'll hear inspiring stories about this species from Cathy J. Sakas, an author, educator, and world-renowned marine biologist. You'll learn about groundbreaking research and scientific experiments from Courtney Reich, the coastal director for the Georgia Conservancy.

Join us for Georgia Aquarium's 21+ science lecture series, Science on Tap, on Thursday, February 1st. We're offering a reception with light hors d'oeuvres, beer and wine and a fascinating presentation beginning at 6:00pm. Following the talk, there will be time allocated for a Q&A session.

Come mingle, enjoy some libations, and learn! Space is limited, so please reserve your tickets now to secure your entrance into this exclusive lecture series held in our beautiful Oceans Ballroom.

Asimov Press

Making the First Transgenic Ants

Engineered ants are helping to reveal the neuroscience of pheromone signaling.

ASIMOV PRESS
FEB 5, 2024

21 4 Share

Taylor Hart writes about recording the neuronal activity of transgenic ants as they sense pheromones for Issue 01. Read it on our website here.

Dr Emily Frost
@_emilyrfrost

One BIGGGGGG question (with a million different answers):

How long until we can make human gametes entirely in a dish?

Our new opinion article is out in @TrendsinBiotech, where we discuss why we think in vitro gametogenesis (IVG) in women will be incredibly challenging🧵.

Trends in Biotechnology

CellPress

Opinion

Making human eggs in a dish: are we close?

Emily R. Frost [1,*,@] and Robert B. Gilchrist [1,*,@]

In the space of 50 years, we have seen incredible achievements in human reproductive medicine. With these leaps forward, it is no wonder that there is a major interest in women's reproductive health research, including extension of reproductive lifespan. Substantial effort is currently being made to address this challenge, including from the commercial sector. *In vitro* gametogenesis (IVG) in mice is a spectacular breakthrough and has the potential to offer hope to women with intractable infertility. However, with such lofty goals, some reflection may be called for: mastering all of the techniques required for complete and safe IVG in women is likely to be extraordinarily difficult.

Translation of IVG to humans faces enormous challenges

Highlights

In vitro gametogenesis (IVG) is a biotechnology that can generate mouse oocytes in a dish from stem cells giving rise to offspring.

The mouse IVG technology shows the potential to create oocytes from stem cells in other mammals.

Several groups have generated human primordial germ cell-like cells that can develop to the oogonial stage, but not further.

2:11 AM · Aug 24, 2023 · **5,443** Views

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Helpful resources

Elsevier Researcher Academy
https://researcheracademy.elsevier.com/

Cell Mentor
https://www.cell.com/cell-mentor

Or reach out to your favorite scientific editor