

ORCID

Research Integrity

Featuring

Signals.

Elliott Lumb

Co-Founder

Tiago Barros

Co-Founder

12 March

A brief history of research integrity

William Summerlin



Dermatologist and researcher at Sloan-Kettering Institute in New York



Reported successfully transplanting skin between genetically unrelated animals



Inquiry at Cancer Center Finds Fraud in Research

New York Times, May 25, 1974

John Darsee & Robert Slutsky



John Darsee

“Rising star” at Harvard Medical School **published over 100 articles** in a short career

Robert Slutsky
published **1 article**
every **13 days**

Both added
co-authors to
their articles to
influence journal
editors

“Slutsky did not attempt to hide his dishonesty. He told me that he had always known that the work of John Darsee was suspect, because Darsee was the only person who had published more than him”

Andrew Wakefield

Early report

Ileal-lymphoid-nodular hyperplasia, non-specific colitis, and pervasive developmental disorder in children

A. J. Wakefield, S. M. Murch, A. Simons, J. L. Smith, D. M. Gasson, M. M. Malik, M. Berelowitz, A. P. Dixon, M. A. Thomson, P. Harvey, A. Valente, S. E. Davies, J. A. Walker-Smith

Summary We investigated a consecutive series of children with chronic enterocolitis and pervasive developmental disorder.

Methods 12 children (mean age 6 years [range 3-10], 11 boys) were referred to a paediatric gastroenterology unit with a history of chronic developmental delay or loss of acquired skills, including language, together with diarrhea and abdominal pain. Children underwent gastroenterological, neurological, and developmental assessment, and review of developmental records. Histopathology and biopsy sampling, magnetic resonance imaging (MRI), electroencephalography (EEG), and lexical analysis were done where possible. Serial blood rheumatology was done where possible. Biochemical, haematological, and immunological profiles were measured.

Findings Onset of behavioural symptoms was associated with the parents, each measles, mumps, and rubella (MMR) vaccine. All children had diarrhoea, abdominal pain, and weight loss. All children had ileal-lymphoid-nodular hyperplasia (ILNH), colitis, and pervasive developmental disorder. All 11 children had receptive and expressive language delay. All 11 children had autistic spectrum disorder (ASD). There were no focal neurological signs, and EEG tests were normal. Rheumatology investigations significantly raised serum immunoglobulin G compared with age-matched controls. No haemoglobin in stool (Hb+) was observed. Immunological investigations were normal. Environmental triggers were considered.

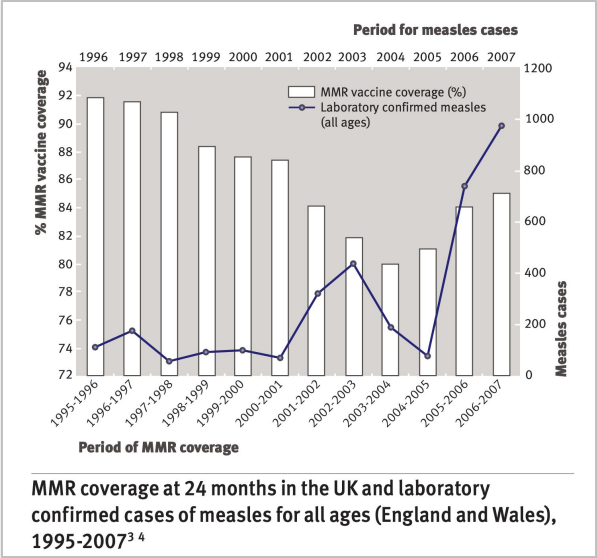
Conclusions This study was generally associated in time with the MMR vaccine.

Laboratory investigations Throat swabs, which include both viral and serological tests, were measured to exclude recent onset of childhood immunodeficiency disease. Urinary tract infections and urinary tract infections were excluded. Urinary tract infections were excluded. Urinary tract infections were excluded. Urinary tract infections were excluded. Urinary tract infections were excluded.

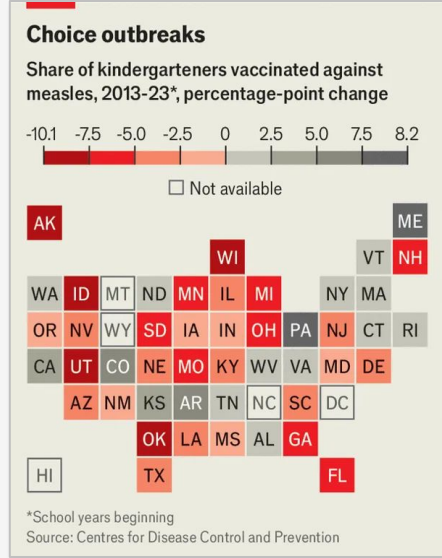
Interpretation This study was generally associated in time with the MMR vaccine.

Conclusions This study was generally associated in time with the MMR vaccine.

Conclusions This study was generally associated in time with the MMR vaccine.



Decrease in MMR vaccinations, increase in measles cases

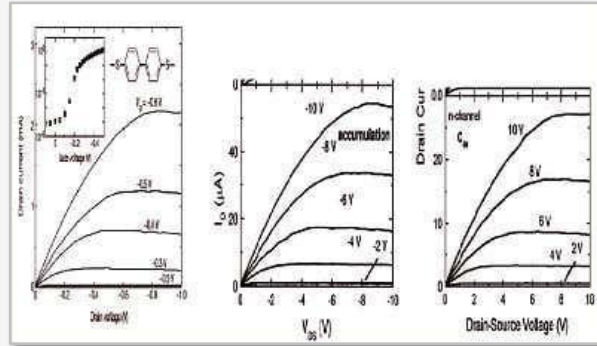


Anti-vaccine sentiment on the rise today

90s

A link between MMR vaccination and autism was quickly refuted

Jan Hendrik Schön



Breakthroughs in:

- organic electronics
- superconductivity
- nanotechnology

“The data were too perfect, different experiments had identical noise”

Kept no lab notebooks, deleted raw data files, and destroyed original samples



Retractions

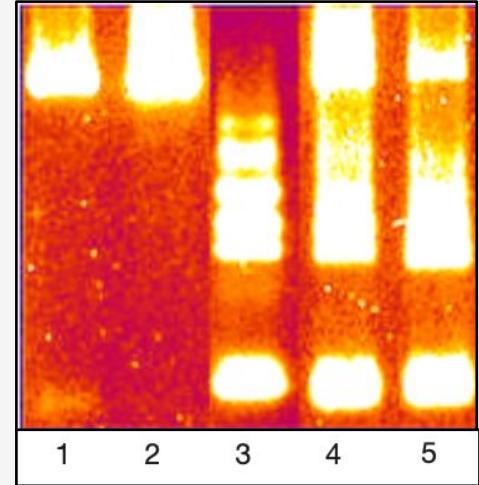
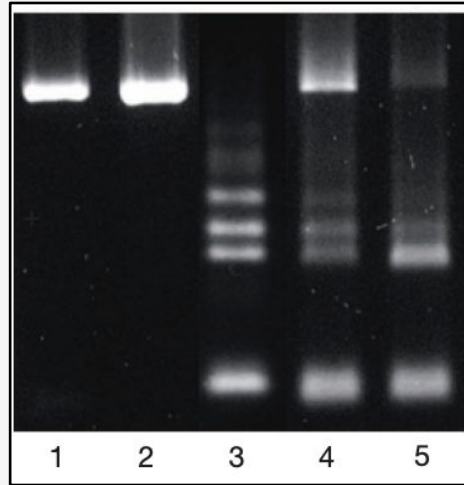
- Nature: 7
- Science: 8

Haruko Obokata



Reported STAP in Nature

A simple method to create pluripotent stem cells



Allegations of misconduct within two days

Research fraud isn't new

Publish or
perish



Desire for
recognition



Competition
for grants



Career
advancement



Financial
incentives



Pressure on researchers is increasing



“most large hospitals in China have considered articles listed in the Science Citation Index (SCI) as a must or priority for candidates ... **As young doctors, we feel under great pressure to publish.**”

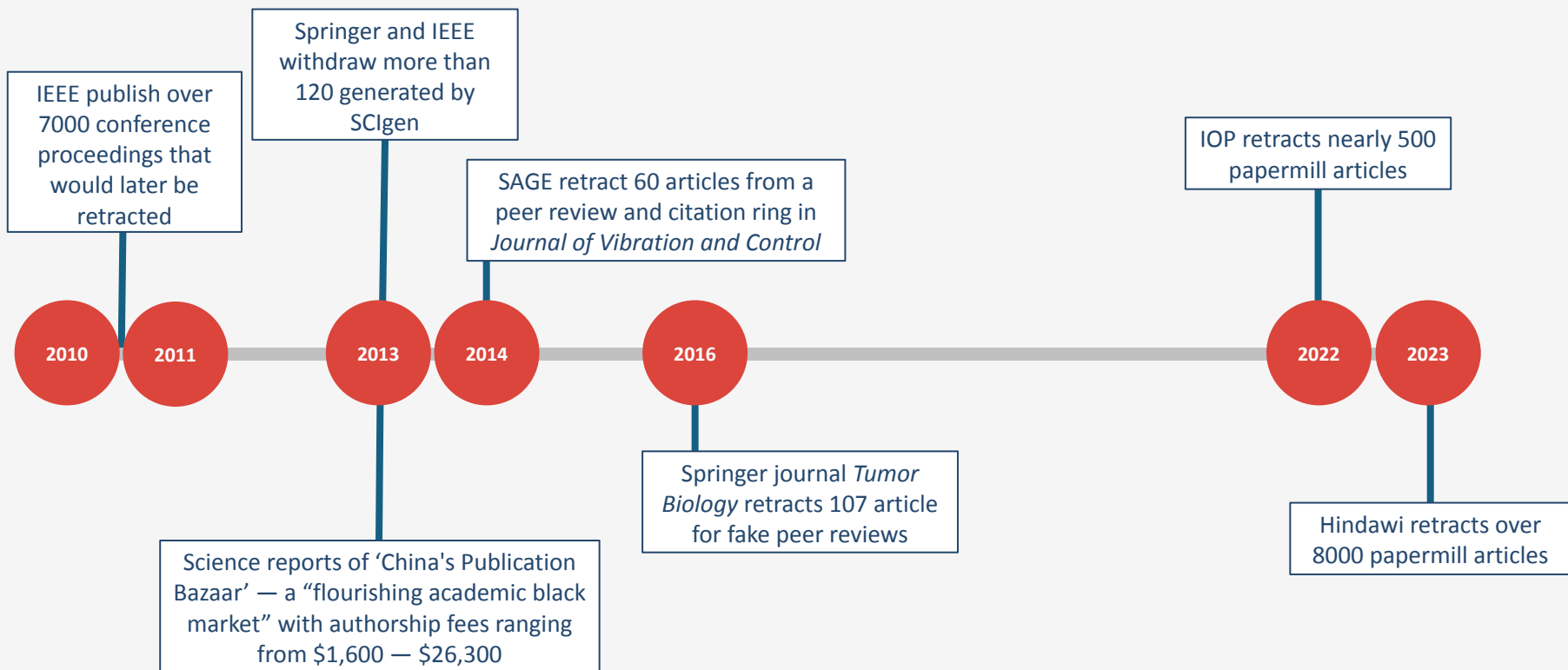


Since the introduction of Academic Performance Indicator system: "**Publication has become the mantra and motto for academics**, resulting in the rise of predatory publishing."



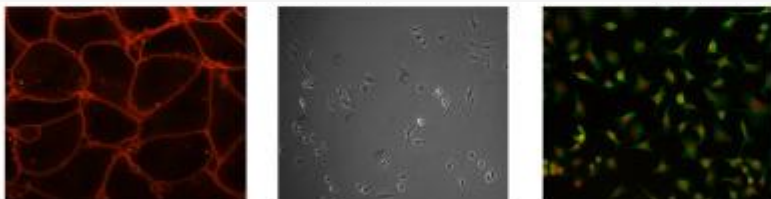
A national survey in the Netherlands found that "**Publication pressure** was associated with more often engaging in one or more **questionable research practices** frequently”

The scale of research integrity issues is increasing

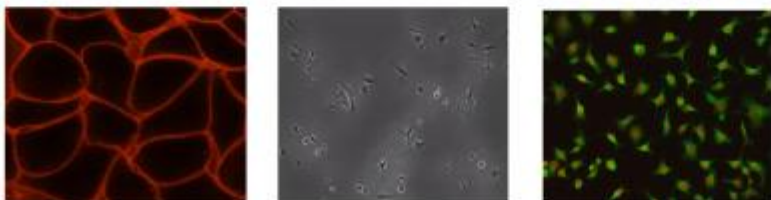


Generative AI makes it easier for papermills

Real



AI generated



Research Integrity in the Era of Fake Articles: Challenges and Solutions

Authors: Elliott Lumb, Nicko Goncharoff

Affiliation: Research Signals

Abstract

The proliferation of fake and fraudulent research articles presents a growing challenge to research integrity. These articles threaten the reliability of the scholarly record, mislead the scientific community, and undermine public trust in science. This paper explores the scope of the problem, the mechanisms enabling the spread of fake articles, and the critical role of research evaluation tools in addressing these challenges. Drawing on insights from Research Signals, we present strategies to detect, prevent, and mitigate the impact of fake articles while fostering a culture of integrity in scholarly publishing.

1. Introduction

The scientific enterprise relies on the credibility of its scholarly outputs. Research articles serve as the foundation of scientific progress, guiding decisions in policy, industry, and healthcare. However, the rise of fraudulent and fabricated research articles—often propagated through predatory journals, paper mills, and unethical publishing practices—poses a serious threat to research integrity. This paper investigates the challenges posed by fake articles and offers solutions grounded in the latest advancements in research evaluation and monitoring.

2. The Growing Threat of Fake Articles

Fake articles are characterized by fabricated data, plagiarism, or authorship misrepresentation.

These articles are often created with the intent to:

- Inflate academic credentials or satisfy institutional publication requirements.
- Support pseudoscientific claims or unethical agendas.

A fake article about fake articles by ChatGPT

Research integrity today

The Observer

'The situation has become appalling': fake scientific papers push research credibility to crisis point

Last year, 10,000 sham papers had to be retracted by academic journals, but experts think this is just the tip of the iceberg

Former student was running a paper mill, says University of Manchester

Sage journal retracts another 400 papers

Sage has retracted 416 articles from the *Journal of Intelligent and Fuzzy Systems (JIFS)*, which had a mass retraction of over 450 papers last August.



How easy is it to fudge your scientific rank? Meet Larry, the world's most cited cat

"Exercise in absurdity" reveals flaws in Google Scholar's productivity metrics

31 JUL 2024 · 4:50 PM ET · BY CHRISTIE WILCOX



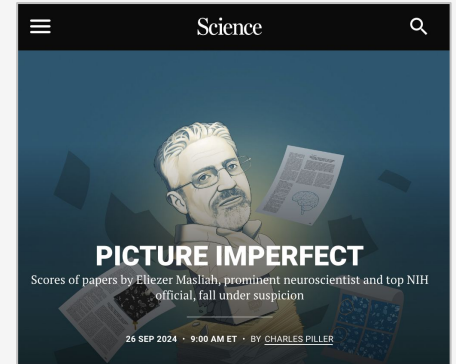
Exclusive: These universities have the most retracted scientific articles

A first-of-its-kind analysis by *Nature* reveals which institutions are retraction hotspots.

The citation black market: schemes selling fake references alarm scientists

The ways in which researchers can artificially inflate their reference counts are growing.

Springer Nature retracted 2,923 papers last year



nature

Explore content ▾ About the journal ▾ Publish with us ▾ Subscribe

nature > news > article

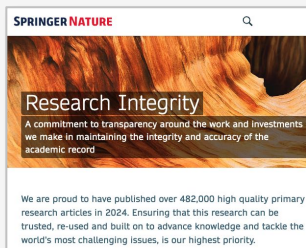
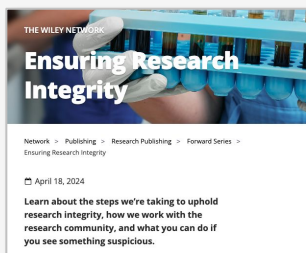
NEWS | 04 March 2025

China's supreme court calls for crack down on paper mills

China's top court says businesses that write bogus manuscripts for payment should be punished.

Publishers are investing more in research integrity to prevent problematic publications

Hiring and expanding RI teams



Industry collaboration



Working with startups



A community of researchers are pioneering the detection of problematic publications

Researchers building tools:

- SCIdgen detector (2012)
- Seekn Blastn (2019)
- Tortured phrase detection (2021)



**Cyril
Labbé**



**Jennifer
Byrne**



**Guillaume
Cabanac**

A community of 'sleuths' comb the literature for issues:



Elisabeth Bik
Flagged >7000 article



Sholto David
Flagged >3000 articles



Nick Wise
1000 retractions



René Aquarius
Identifies an issue every day

The research integrity sleuth community is small

Not enough experts identifying issues in the literature

Only **31%** of NSF fellows would report misconduct if they suspected it

55% of fellows felt that ethics trainings did not prepare them for dealing with ethical issues

A study found that a primary reason for not reporting misconduct was the “**fear of negative consequences**”



Correcting the scholarly record can take years

Retraction Watch

'We badly need to change processes': How 'slow, opaque and inconsistent' journals' responses to misconduct can be

HighWire
Powered by MPS

Solutions v Se

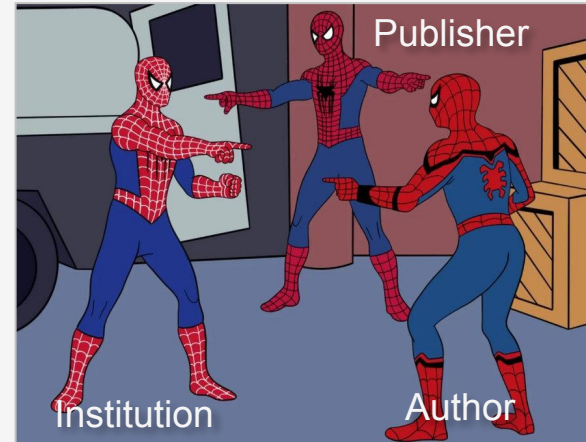
Research Integrity and the Challenges of Mass Retractions

enago academy 15 YEARS OF TRUST
Learn. Share. Grow. Publish.

Why Are Journals So Slow to Retract Papers?

Retraction Watch

A two-year drama: The anatomy of a retraction request



What do you think about research integrity?

In the next 3 years do you think research integrity issues will

1. Get worse
2. Improve
3. Stay the same

Have you ever skipped a paper because you didn't know if you could trust it

1. Yes
2. No

What worries you most about research integrity in the next 3 years?

Our thoughts on research integrity

Technology

Organisations

People

Technology is a risk to research integrity

Easier and cheaper to:

- create fake papers
- fabricate data
- write peer reviews
- automate the manipulation of the publishing process



Gemini

AI

 perplexity

Organisational efforts are not coordinated

Publishers



Institutions



Funders



Lack streamlined, standardized processes for handling integrity issues

People's research and reputations are at risk

Research **incentive structures** lead to misconduct



Biases against specific regions due to small number of bad actors



Researchers don't know which research is **credible**



The research integrity problem

Research fraud and underlying incentive structures have existed for decades

Large-scale fraud and new technologies present emerging threats and uncertainties

Research can't progress or make an impact if it can't be trusted

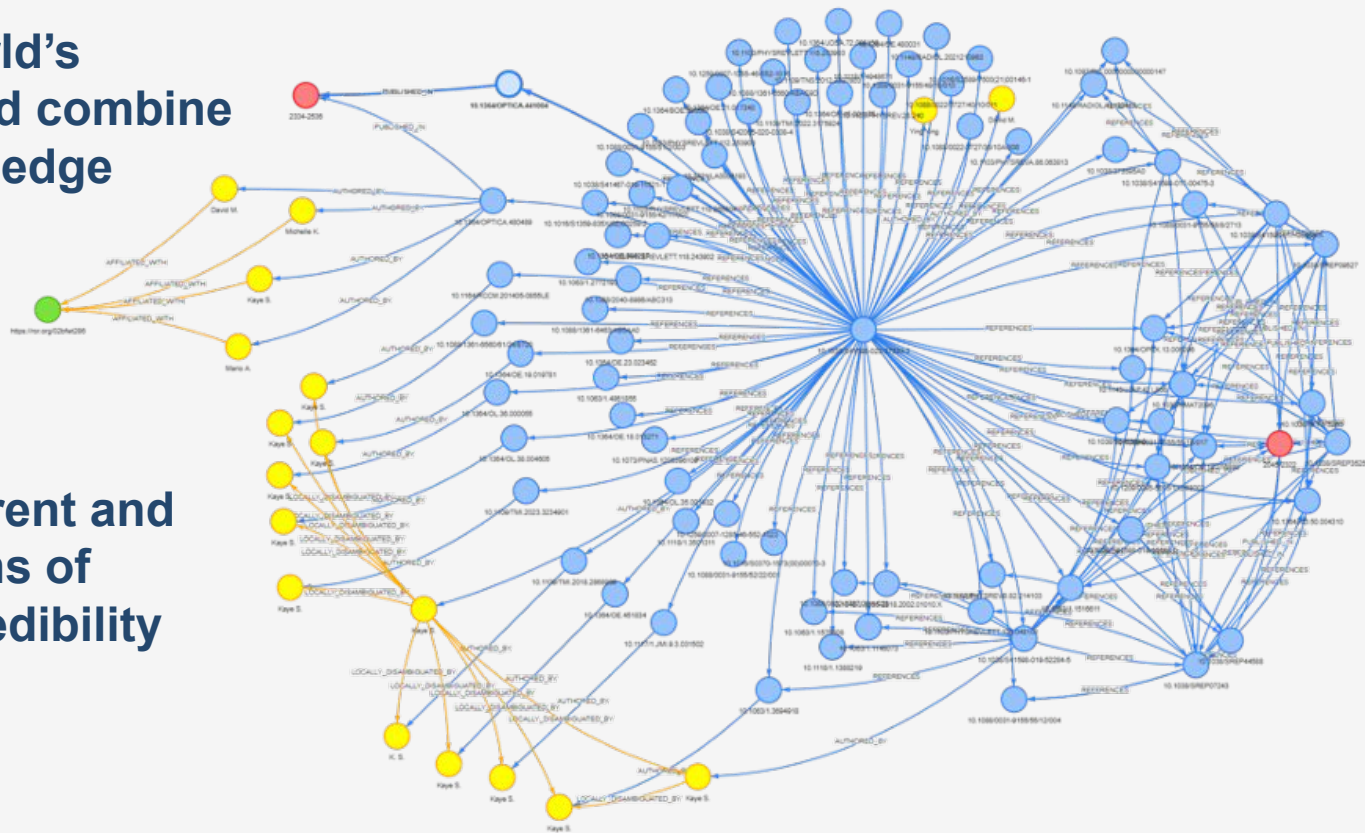
Signals.

Our mission is to restore trust in research

Signals.

We analyse the world's publication data and combine it with expert knowledge

We deliver transparent and dynamic evaluations of research output credibility



The **Signals.** Data graph

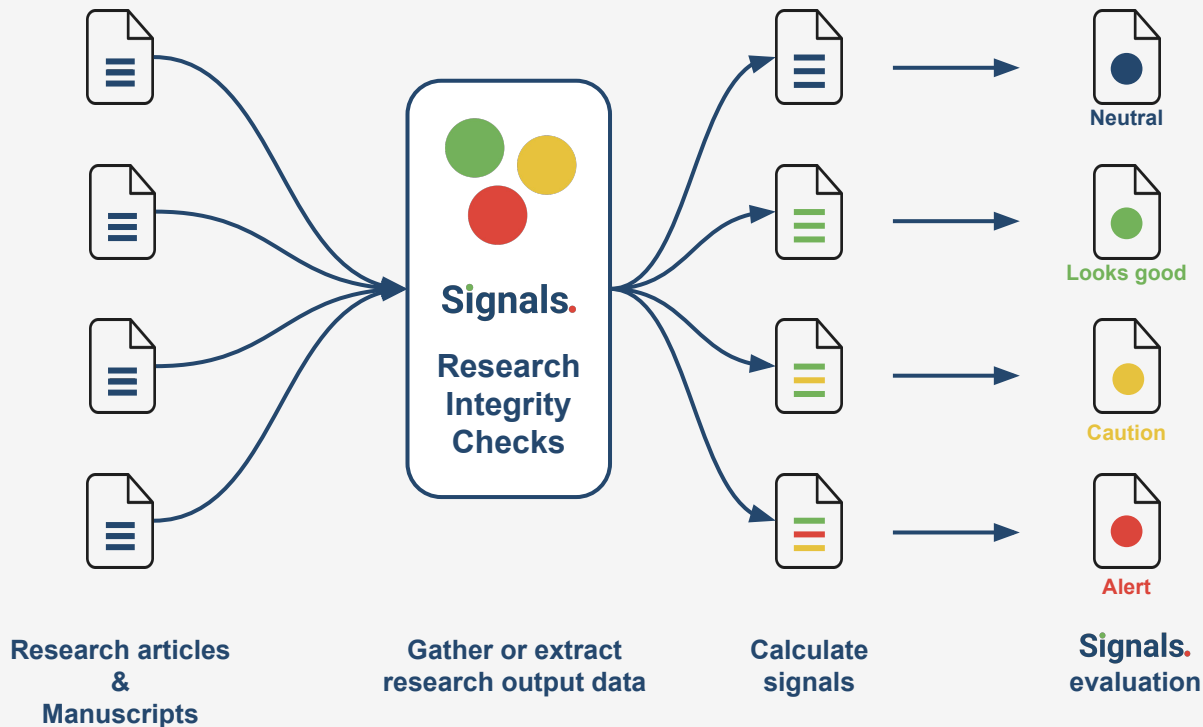
Publication data

- ✓ Article / Manuscript
- ✓ Authors
- ✓ Institutions
- ✓ Citation networks
- ✓ Proprietary publisher data

Expert knowledge

- ✓ Expert contributions from researchers
- ✓ Insights from RI teams
- ✓ Best practices of publishers

Signals. evaluates the **credibility** of research outputs



Transparent evaluations of research credibility

Signals overall evaluation

Article signals at a glance

Expert Contributions

Self-cited articles, including self-citations of retracted articles

Summary of the article analysis

Citation and reference signals

Flagged authors

Noteworthy cited articles, including citations of retracted articles

The screenshot shows the 'Signals' interface for a research article. At the top, there is a search bar for DOI or ISSN and a user profile for Tiago Barros. The main content area is titled 'Signals Evaluation: Alert' and includes an overview section with three bullet points: 'The authors have only referenced one previous publication...', 'This article has been retracted.', and 'The authors have self-cited articles that have been retracted...'. Below this, there are two summary boxes: 'This paper:' showing '16 citations' and 'Retracted', and 'Self-citations and references:' showing '1 (2.7%) self-citations', '25.0 citations per self-cited article', '1 retracted self-citation', and '2 expert contributions of references'. An 'Expert contributions' section is also present. The article title is 'RETRACTED: Mechanism of bio molecule stabilized selenium nanoparticles against oxidation process and Clostridium Botulinum'. The authors listed are Foyzal Kabir Tareq, Mst. Fayzunnesa, Md. Shaharior Kabir, and Musrat Nuzat. The article has 37 citations and is cited by 16. Two cited articles are highlighted: 'RETRACTED: Antimicrobial activity of plant-mediated synthesized silver nanoparticles against food and agricultural pathogens' (25 citations, 8 years ago) and 'Evaluation of antioxidant, antibacterial and cytotoxic effects of green synthesized silver nanoparticles by Piper longum fruit' (345 citations, 11 years ago).

Contribute your insight with Expert Contributions

Expert concern: Image manipulation

Expert contributions:

Elisabeth Bik on 2024-03-28

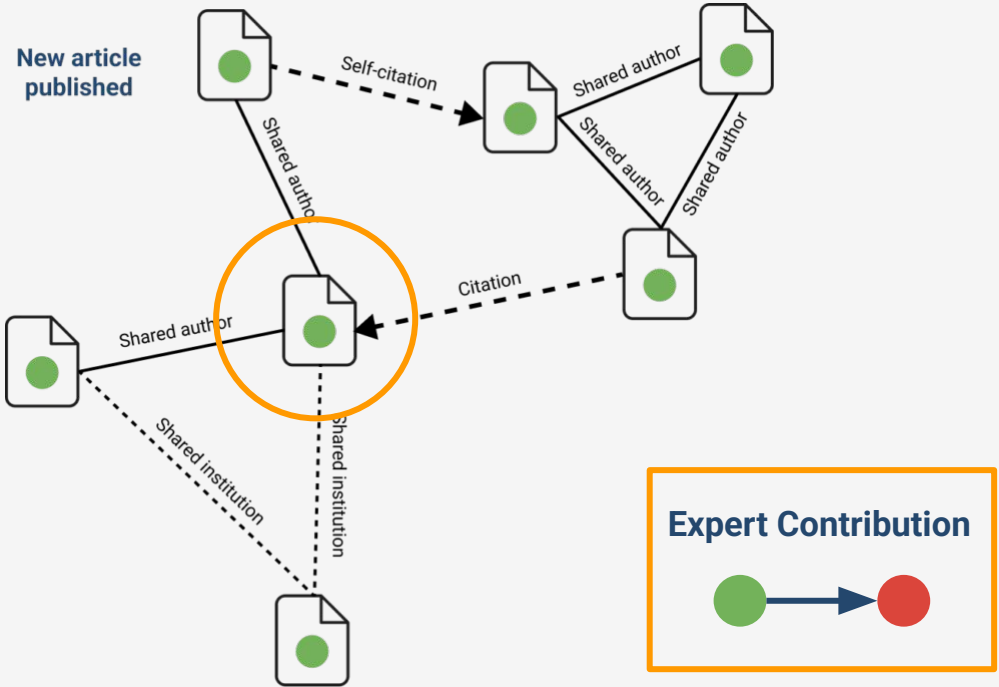
- This article contains manipulated images.

2 Expert concerns

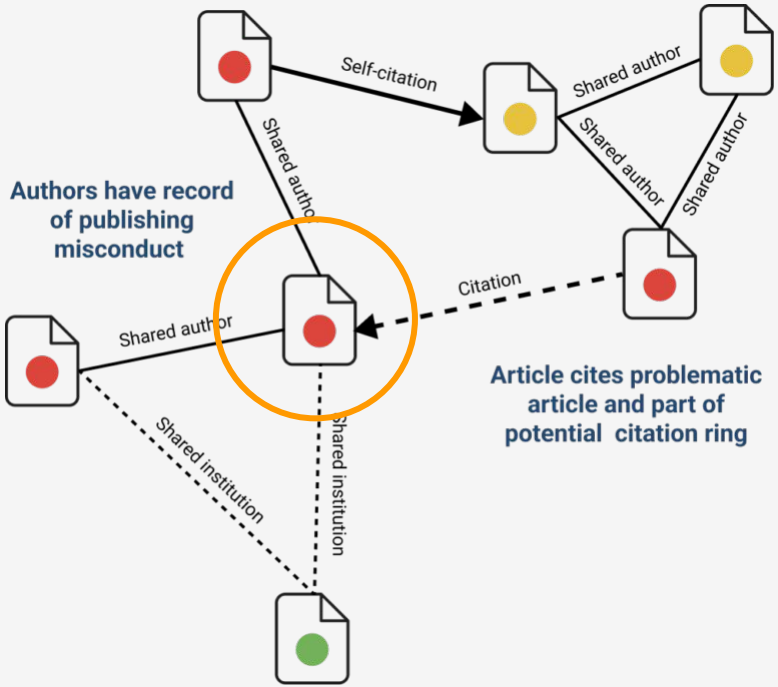
The screenshot displays the 'Signals' interface with a 'Signals Evaluation: Alert' section. The alert text reads: 'Overview: One expert has shared a concern that this article is potentially linked to a paper mill. This could indicate a serious research integrity breach. The authors are affiliated with 1 institution that has a very high retraction rate. The legitimacy of the institution should be investigated and caution should be taken when evaluating this article. The authors have only referenced one previous publication. This could indicate a lack of publication history in the research area. The authors have self-cited 1 article that has been retracted and 2 articles flagged by experts concerns. Caution should be taken when evaluating this article.' Below this, the paper's title is 'Start-Up" in E-Learning Mode as a Basic Project of the Final Year of Entrepreneurship Education'. The authors listed are Zhi-Jiang Liu, Marina A. Galichkina, Anastasia Kurlova, and Svetlana Vlasova. The interface also shows a list of expert contributions, including one by Elisabeth Bik on 2024-03-28 regarding image manipulation. The interface includes search bars, a 'Follow' button, and a footer with contact information.

Dynamic evaluations of research credibility

Before



After



Signals. Demo

Signals. supports the whole research community

Publishers



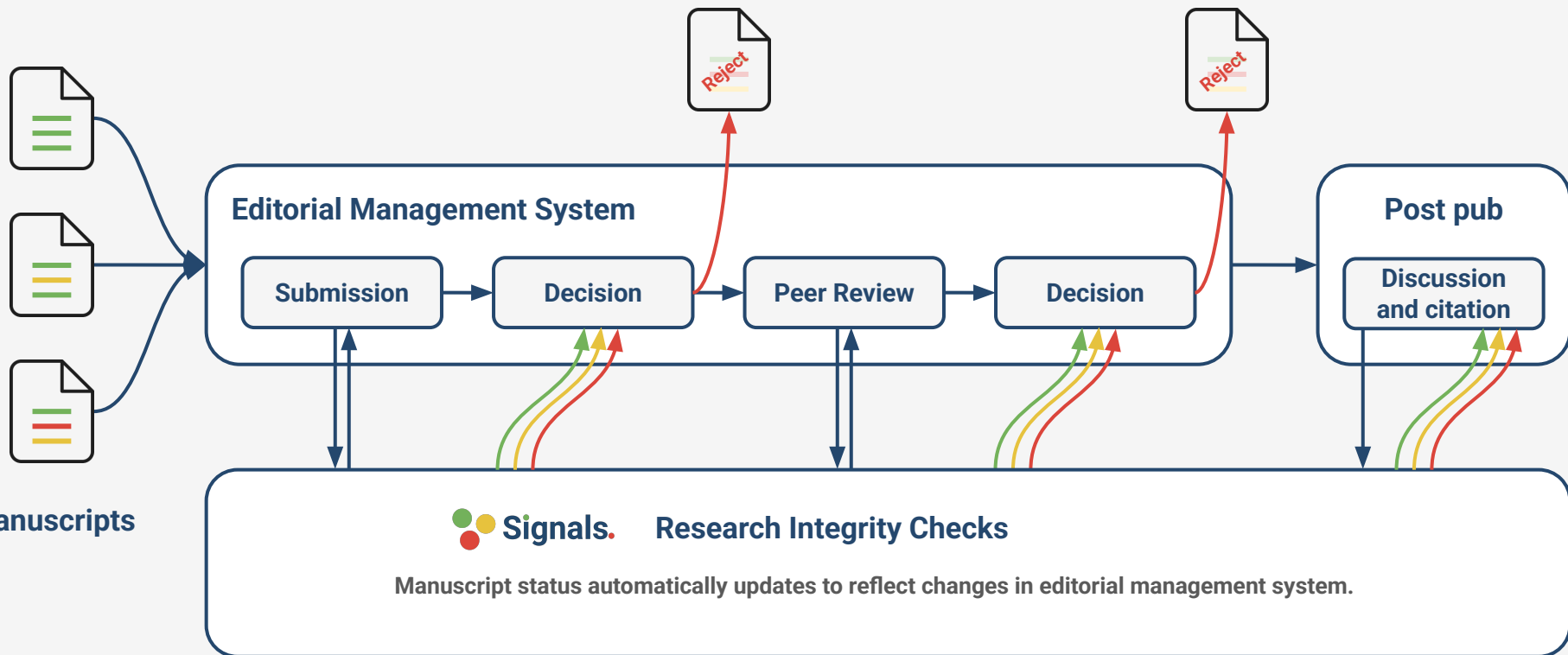
Institutions



Researchers



Manuscript checks help publishers protect their reputation, and grow their journals with confidence



Author checks support institution integrity investigations and promotion decisions

Good researcher profile

Signals

Signals Summary: ■■■■■■■■■

Publications	Zero self-citations	Author self-citation rate	Journal self-citation rate
9	4	16%	3%

Tiago Barros <https://orcid.org/0000-0002-9807-7625>

Publications (9) Editorships

Relationship between journal impact factor and the thoroughness and helpfulness of peer reviews

Signals Evaluation: Looks Good

Analysis of the Role of the C-Terminal Tail in the Regulation of the Epidermal Growth Factor Receptor

 + 3 more
Signals Evaluation: Looks Good

Predatory journals: no definition, no defence

 + 25 more
Signals Evaluation: Looks Good

Unlock ways to share data on peer review

 + 18 more
Signals Evaluation: Looks Good

(Fake) Problematic researcher profile

Signals

Signals Summary: ■■■■■■■

Publications	Retractions	Zero self-citations	Author self-citation rate	Journal self-citation rate	Expert contributions
11	1	4	24%	20%	2

Andrew Preston <https://orcid.org/0000-0003-3284-119X>

Publications (11) Editorships

First-principles calculation of resonant x-ray emission spectra applied to ZnO

Signals Evaluation: Alert

Band structure of ZnO from resonant x-ray emission spectroscopy

Signals Evaluation: Alert

Electronic band structure information of GdN extracted from x-ray absorption and emission spectroscopy

Signals Evaluation: Alert

Ferromagnetic redshift of the optical gap in GdN

Signals Evaluation: Alert

Article collections enable researchers create robust systematic reviews based on credible research

The screenshot displays the 'Signals' interface for a collection titled 'Article evaluations for evidence synthesis'. The interface includes a search bar, navigation tabs for Overview, Manuscripts, Publications, and Settings, and a summary section with statistics: 189 Publications, 71 Zero self-citations, 7% Author self-citation rate, and 4% Journal self-citation rate. A table lists individual articles with columns for Title, Published date, Self-citing, Citations, and Evaluation status (Alert or Cancel).

Title	Published	Self-citing	Citations	Evaluation
The effect of foot reflexology and back mass...	2016-06-21	0 / 28		Alert
Effect of Foot Reflexology on Pain, Fatigue, a...	2020-01-01	0 / 56		Alert
The effect of evening primrose oil on fatigue...	2018-06-01	0 / 24		Alert
Aromatherapy and foot massage on happine...	2022-07-11	0 / 46		Alert
Comparison the effects of inhalation and ma...	2020-05-28	0 / 43		Alert
Effect of foot reflexology and slow stroke ba...	2018-09-28	0 / 28		Alert
Effects of Technology Assisted Stepped Coll...	2023-06-20	14 / 51		Alert
Effects of the health belief model following a...	2019-08-01	0 / 21		Alert
The Effect of Orem's Self-Care Model on Fat...	2016-05-24	0 / 38		Cancel
The Effect of an Educational Plan Based on L...	2020-07-01	0 / 29		Cancel

“We want some objective measures on how to filter these articles, so we can reduce the risk of including problematic research in our evidence synthesis”

Researcher using Signals

Signals.Team



Andrew Preston, PhD
Co-founder

- Co-founder of Cassyni & Publons (acquired by Clarivate)
- Product Director at Web of Science
- Physics PhD and postdoc



Elliott Lumb, PhD
Co-founder

- Founder of PeerRef
- Open Access strategy consultant
- Strategy and planning at Frontiers
- Medicinal Chemistry PhD



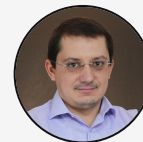
Tiago Barros, PhD
Co-founder

- VP of H1 Connect at H1
- Managing Director of Faculty Opinions and Sciwheel (acquired by H1)
- Product Lead at Publons
- Biochemistry PhD and postdoc



Nicko Goncharoff
Co-founder &
Commercial Lead

- MD, Osmanthus Consulting Ltd
- MD, Business Development Greater China, Clarivate
- Chief Business Development Officer, Digital Science
- Co-founder of Reel Two and SureChem (acquired by Digital Science)



Florin Asăvoaie
Lead Engineer

- Solutions Architect of Hindawi's Phenom publishing platform (acquired by Wiley)
- Technical & product development advisor for sustainable software products



Join us on our mission to restore trust in research

Publishers and Institutions: Get in touch to learn more about how we can work together

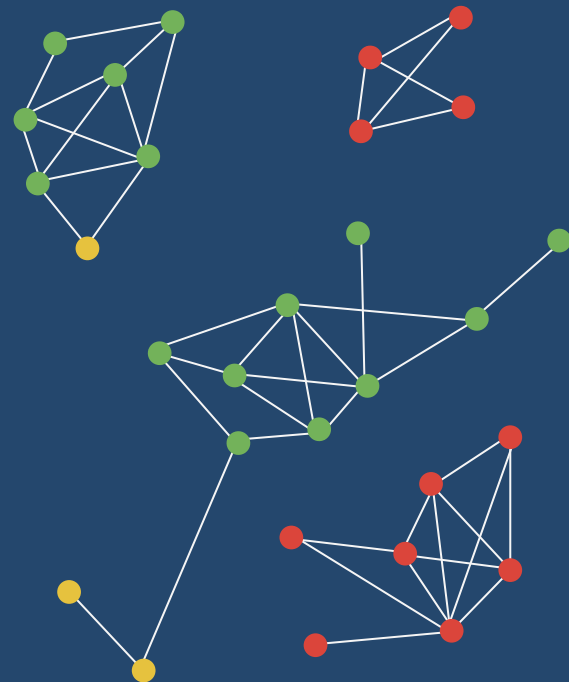
- hello@research-signals.com

Researchers: Sign up for free to evaluate any publication and add your insight

- www.research-signals.com

Signals.

Thank you.



<https://research-signals.com>

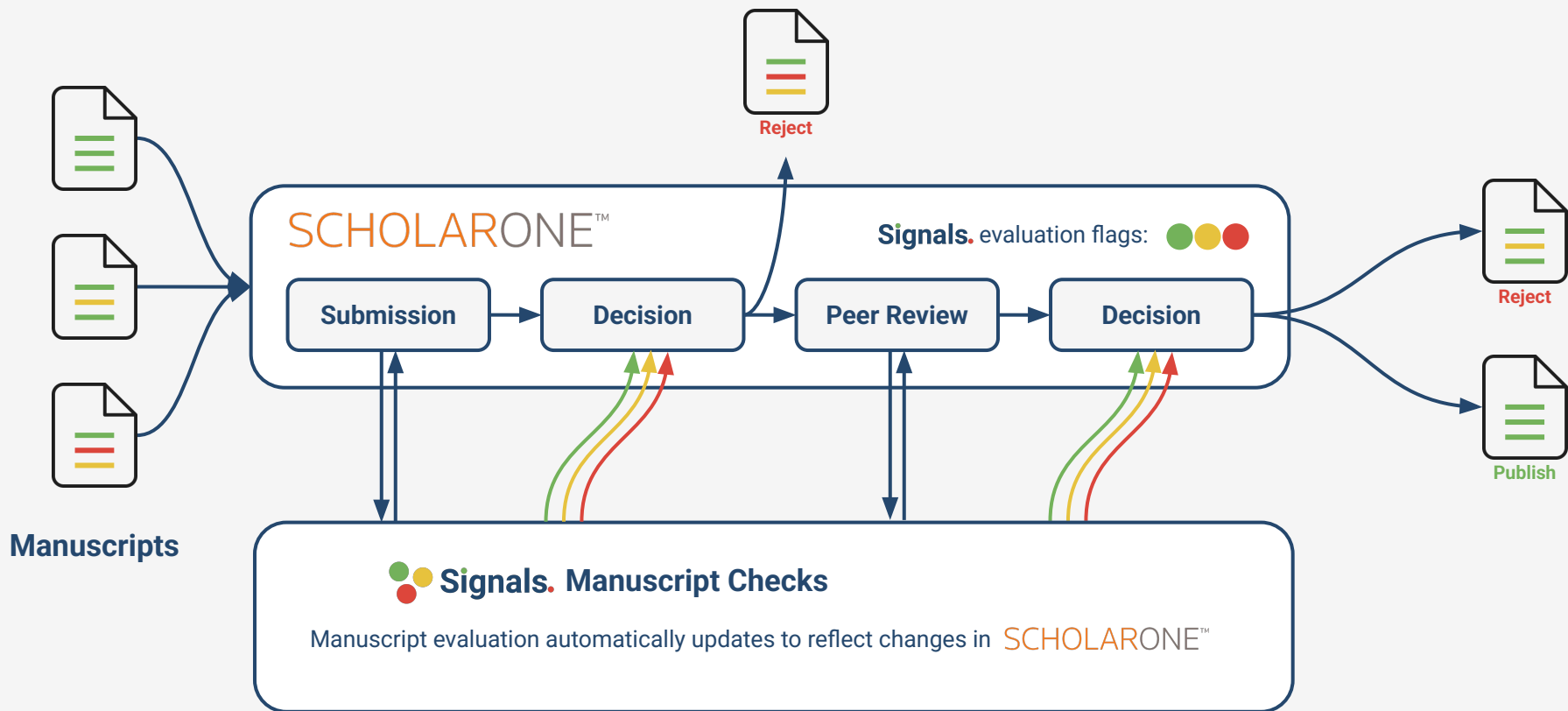


hello@research-signals.com



[linkedin.com/company/research-signals](https://www.linkedin.com/company/research-signals)

Signals. integrates seamlessly with SCHOLARONE™



Signals. ScholarOne integration example

Signals Evaluation: **Alert**

- When an author submits a manuscript, Signals will automatically run a full Research Integrity evaluation
- Overall evaluation shown directly in ScholarOne
- One-click link to Signals Journal Dashboard with detailed information for the editorial and integrity teams to review
- Notifies can be sent to nominated staff when serious issues are identified

The screenshot displays a ScholarOne manuscript submission interface for manuscript ID WRK42024110004. The manuscript title is "Density-based optimization for unbiased, reproducible clustering applied to single molecule localization microscopy". The submission date is 26-Nov-2024. A red circle highlights the manuscript ID in the "Version History" table. A red box at the top right of the page contains the text "Signals Evaluation: Alert".

Manuscript Information

Submitted: 26-Nov-2024; Last Updated: 27-Nov-2024; In Review: 41d 14h 54min 50sec

- Density-based optimization for unbiased, reproducible clustering applied to single molecule localization microscopy
- Signals, Test (proxy) (contact)
- Original Article
- The knights who say Ni:
- Complete Checklist (Due 26-Dec-2024) 12 days overdue

Peer Review Milestones

Date Submitted:	26-Nov-2024
Admin:	Admin
Date to Admin:	26-Nov-2024

Version History

Manuscript ID	Manuscript Title	Date Submitted	Decision Letter & Response	Switch Details
WRK42024110004	Density-based optimization for unbiased, reproducible clustering applied to single molecule localization microscopy	26-Nov-2024		

Author-Supplied Data

Manuscript Type:	Original Article
Title:	Density-based optimization for unbiased, reproducible clustering applied to single molecule localization microscopy
Manuscript ID:	WRK42024110004
Custom Questions:	Show

Signals. Click [here](#) to check the Research Signals report.

Edit This Information Save