Review History - Dr. Alexander Shakeel Bates

This document comprehensively documents instances where Dr. Alexander Bates has been called upon to stand in judgment of the work of others, owing to his recognized expertise in connectomics, computational neuroscience, and neuroanatomical analysis. This includes manuscript peer reviews, conference abstract evaluations, research funding assessments, published review and commentary articles, expert commentary for trade journals, and editorial board invitations.

All impact factors and rankings are from SCImago Journal & Country Rank (2024) and Journal Citation Reports (2024).

Journal Manuscript Peer Reviews

1. Accepted and Completed Reviews

These represent manuscripts where Dr. Alexander Bates accepted the invitation and completed the peer review process, providing detailed critical evaluation and judgment on the quality, methodology, and significance of the submitted work.

Q1 High-Impact Journals • **Reviewer for Nature Communications 2 manuscripts** - Impact Factor: 14.63 // SJR: 4.761 // Rank: Q1 (Top quartile, multidisciplinary) - Publisher: Nature Portfolio - Scope: Multidisciplinary research across natural sciences

• **Reviewer for eLife 2 manuscripts** - Impact Factor: 7.7 // SJR: 3.379 // Rank: Q1 (Top quartile, life sciences) - Publisher: eLife Sciences Publications - Scope: Leading open-access journal in life and biomedical sciences

• **Reviewer for PLOS Computational Biology 1 manuscript** - Impact Factor: 3.6 // SJR: 1.503 // Rank: Q1 (Top quartile, computational biology) - Publisher: Public Library of Science - Scope: Computational and quantitative approaches to biological problems

Total Accepted and Completed: 5 manuscript reviews

All completed reviews were for Q1 (top quartile) journals, with an average Impact Factor of 8.64 and average SJR of 3.88, demonstrating consistent selection for evaluating high-impact research.

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2. Review Invitations Received but Declined

These represent additional invitations from prestigious journals, demonstrating broad recognition of expertise, though the invitations were not accepted due to time constraints or conflicts of interest.

• **Invitation from Cellular & Molecular Biology Letters 1 manuscript** - Impact Factor: 9.81 // SJR: 2.458 // Rank: Q1 (Top quartile, cell biology) - Status: Invitation declined

- **Invitation from Cognitive Computation 1 manuscript** - Impact Factor: 4.97 // SJR: 0.841 // Rank: Q1 (Top quartile, cognitive science) - Status: Invitation declined

- **Invitation from Neuroscience Research 1 manuscript** - Impact Factor: 2.8 // SJR: 0.881 // Rank: Q1 (Top quartile, neuroscience) - Status: Invitation declined

- **Additional invitation from eLife 1 manuscript** - Impact Factor: 7.7 // SJR: 3.379 // Rank: Q1 (Top quartile, life sciences) - Status: Invitation declined

Total Invitations Declined: 4 manuscripts

The pattern of invitations from diverse Q1 journals across multiple disciplines (cell biology, cognitive science, neuroscience, life sciences) demonstrates recognition as an expert capable of evaluating research across computational, systems, and molecular neuroscience.

Conference Abstract Reviews

1. International Scientific Conferences

- **COSYNE 2026 Conference Reviewer 9 abstracts reviewed** - Organization: Computational and Systems Neuroscience Conference - Scope: Computational neuroscience, systems neuroscience, machine learning - Role: Abstract evaluation for oral and poster presentations - Location: International conference (annual rotation)

COSYNE represents the premier conference in computational and systems neuroscience. Abstract reviewers are selected based on demonstrated expertise in quantitative approaches to understanding neural systems. Reviews require critical evaluation of proposed work's novelty, technical soundness, and significance to the field.

Research Funding Reviews

1. Government Research Councils

- **UKRI Grant Application Reviewer 2 applications reviewed** - Organization: UK Research and Innovation (Biotechnology and Biological Sciences Research Council - BBSRC) - Schemes: BBSRC Responsive Mode research grants - Typical Grant Values: £300,000 - £1,000,000+ per application - Total Funding Evaluated: Approximately £600,000 - £2,000,000 - Focus: Neuroscience and computational biology research proposals - Role: Independent expert assessor

UKRI BBSRC Responsive Mode grants support fundamental biological research in the UK. Reviewers are selected based on demonstrated expertise and publication record. The review process requires detailed assessment of: - Scientific quality and innovation - Research methodology and feasibility - Track record of investigators - Value for money and resource justification - Potential impact and significance

Serving as a grant reviewer for a major national funding agency represents recognition as an established expert capable of judging the scientific merit and potential impact of proposed research programs involving substantial public investment.

Published Review and Commentary Articles

These commissioned publications represent formal critical evaluations of research in the peer-reviewed literature, demonstrating expertise in synthesizing and judging the quality and significance of scientific work.

1. Current Biology: Systems Neuroscience Commentary (2022)

AS Bates, G Jefferis, "Systems neuroscience: Auditory processing at synaptic resolution," **Current Biology**, 32(6), R237-R239 (2022). *Citations: 1*

Journal Impact: SJR 2.707 // Q1 (Top 10% in Neuroscience) // Rank: 42/408

This commissioned Dispatch article critically evaluates Baker et al.'s landmark connectomics study of the Drosophila auditory system. The commentary assesses the methodological approaches used to reconstruct and analyze neural circuits at synaptic resolution, judging the validity of their conclusions about hierarchical versus heterarchical processing in sensory systems. It places the work in the broader context of systems neuroscience, evaluating how connectomics can reveal computational principles underlying neural circuit function. The review demonstrates expertise in judging the quality and significance of large-scale circuit reconstruction studies and their interpretation.

Key Judgments Made: - Evaluation of electron microscopy reconstruction methodology - Assessment of synaptic connectivity analysis approaches - Critical analysis of structure-function relationship claims - Placement of findings within broader neuroscience context - Identification of future research directions

2. Current Opinion in Neurobiology: Neuronal Cell Typing Review (2019)

AS Bates, J Janssens, GS Jefferis, S Aerts, "Neuronal cell types in the fly: single-cell anatomy meets single-cell genomics," **Current Opinion in Neurobiology**, 56, 125-134 (2019). *Citations: 72*

Journal Impact: SJR 2.892 // Q1 (Top 10% in Neuroscience) // Rank: 39/408

This invited review article critically evaluates the state of neuronal cell type classification, surveying and judging multiple research approaches that combine anatomical reconstruction with single-cell transcriptomics. The article assesses the methodological strengths and limitations of various techniques for defining cell types, from classical morphological criteria to modern multi-omic approaches. It synthesizes findings from over 100 studies across the field, evaluating which methods provide the most robust and biologically meaningful classifications.

Key Judgments Made: - Comparative evaluation of cell type definition methodologies - Assessment of integration strategies for multi-modal data - Critical analysis of transcriptomic vs. anatomical classification

schemes - Synthesis and evaluation of findings from >100 research studies - Identification of methodological gaps and future research priorities

The high citation count (72) demonstrates that this critical evaluation has been influential in guiding subsequent research in the field.

Expert Commentary in Trade Journals

1. The Transmitter: Neuroscience News and Perspectives

Article: "Cross-species connectome comparison shows uneven olfactory circuit evolution in flies" | **Publication:** The Transmitter (Simons Foundation) | **Date:** 1 August 2025 | **Role:** Independent expert commentator

Dr. Alexander Bates was quoted as an independent expert providing critical commentary on a preprint by Roberts et al. (2025) comparing Drosophila connectomes across species. Though Dr. Bates has worked with the authors previously, he was not significantly involved in this project. The Transmitter approached him to provide professional judgment on the methodology and conclusions. His commentary highlighted critical limitations in sample size and statistical power, noting that conclusions based on just two connectomes cannot distinguish species-level from individual-level variation, and emphasized the need for rigorous experimental comparisons with better statistical power in future work.

Being approached by The Transmitter (a highly respected neuroscience publication supported by the Simons Foundation) for independent expert commentary demonstrates recognition as an authority in connectomics methodology and represents standing in judgment of others' work through professional expert commentary to the neuroscience community.

Scientific Journalism and Public Communication

1. New Scientist: Synthesizing Research for Public Audiences

Articles: "Why are so many Labradors fat?" (https://www.newscientist.com/article/2086840-why-are-so-many-labradors-fat/) and "Twins' close bond makes them more likely to live to retirement" (https://www.newscientist.com/article/2088928-twins-close-bond-makes-them-more-likely-to-live-to-retirement/)

Dr. Alexander Bates contributed science journalism to New Scientist, one of the world's most respected and widely-read popular science magazines (weekly circulation ~125,000; digital reach in millions). Founded in 1956, New Scientist has established itself as the leading international science publication for general audiences, bridging cutting-edge research and public understanding. In these articles, Dr. Bates judged, synthesized, and communicated the work of other researchers for public audiences, evaluating research findings on canine genetics and twin longevity studies, and translating complex scientific concepts into accessible narratives. This work demonstrates his ability to critically assess scientific literature across

diverse fields, distill key findings, and communicate them effectively to non-specialist audiences—skills directly relevant to standing in judgment of scientific quality and significance for broader communication and education purposes.

Editorial Board Invitations

1. Genes (MDPI) - Special Issue Guest Editor Invitation

Journal: Genes (ISSN 2073-4425) **Publisher:** MDPI (Multidisciplinary Digital Publishing Institute) **Impact Factor:** 2.8 **Indexing:** Scopus, SCIE, PubMed, Embase, Medline, PMC, NLM **Date:** 17 November 2025 **Proposed Special Issue:** "Genetic Insights into Insect Brain" **Role Invited:** Guest Editor **Status:** Invitation received but declined

Guest Editor Responsibilities (as outlined in invitation): - Setting the scope and direction of the Special Issue - Inviting contributions from leading researchers in the field - Overseeing the peer review process for submitted manuscripts - Making editorial decisions (accept/revise/reject) based on peer reviews - Ensuring scientific quality and coherence of the published collection - Writing editorial introduction to the Special Issue

Significance: Guest Editors are selected based on demonstrated expertise and standing in their field. The role requires standing in judgment of multiple manuscripts, coordinating peer review, and making final editorial decisions on publication. Though this invitation was declined due to time constraints, it demonstrates recognition as a leader in insect neurobiology with the expertise required to judge and curate a collection of scientific work in the field.

Editorial responsibilities would have involved evaluating submissions from international research groups, selecting appropriate peer reviewers, synthesizing reviewer comments, and making final judgments on scientific quality and suitability for publication. This represents a higher level of editorial judgment than standard peer review, as Guest Editors are responsible for the overall quality and coherence of an entire Special Issue.

Review Activity Summary

1. Manuscript Review Statistics

- **Completed Reviews:** 5 manuscripts across 3 Q1 journals
- **Review Invitations Declined:** 4 manuscripts across 4 additional Q1 journals
- **Total Review Recognition:** 9 invitation from high-impact journals
- **Acceptance Rate:** 56% (5 of 9 invitations accepted)
- **Average Impact Factor (Completed):** 8.64
- **Average SJR Score (Completed):** 3.88

2. Manuscript Reviews by Journal Impact (Completed Reviews)

- **Very High Impact (IF >10):** 2 manuscripts (Nature Communications)
- **High Impact (IF 5-10):** 2 manuscripts (eLife)
- **Moderate-High Impact (IF 3-5):** 1 manuscript (PLOS Computational Biology)

3. Review Distribution by Field (Completed Reviews)

- **Multidisciplinary Science:** 2 manuscripts (Nature Communications)
- **Life Sciences / Systems Neuroscience:** 2 manuscripts (eLife)
- **Computational Biology:** 1 manuscript (PLOS Computational Biology)

4. Broader Recognition Pattern (All Invitations)

The full set of invitations spans: - **Multidisciplinary Science:** Nature Communications - **Life Sciences:** eLife - **Computational Biology:** PLOS Computational Biology - **Cell Biology:** Cellular & Molecular Biology Letters - **Cognitive Science:** Cognitive Computation - **Neuroscience:** Neuroscience Research

This diversity demonstrates recognition across computational, systems, molecular, and cognitive neuroscience domains.

5. Geographic Distribution

- **International Journals:** 6 different publishers across multiple countries
- **UK Research Funding:** National research council (UKRI BBSRC)
- **International Conferences:** Global computational neuroscience community (COSYNE)
- **International Trade Press:** The Transmitter (US-based, global readership)

6. Funding Review Impact

- **Applications Reviewed:** 2 UKRI BBSRC grant applications
- **Total Funding Evaluated:** Approximately £600,000 - £2,000,000
- **Average per Application:** £300,000 - £1,000,000

7. Quality Indicators

- **100% Q1 Journals:** All completed manuscript reviews for top-quartile journals
- **High Selectivity:** Only top-tier journals and funding agencies
- **International Standing:** Review activities span 3 continents
- **Cross-Disciplinary Recognition:** Invitations across computational, systems, and molecular neuroscience

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Review Expertise Areas

1. Primary Specializations

- **Connectomics & Network Analysis**
  - Synaptic-resolution circuit reconstruction
  - Large-scale network analysis and visualization
  - Cross-species connectome comparison
- **Computational Neuroscience & Modeling**
  - Neural circuit computational principles
  - Machine learning applications to neuroscience
  - Quantitative analysis of neural systems
- **Systems Neuroscience & Circuit Function**
  - Sensorimotor integration
  - Circuit-level analysis of behavior
  - Structure-function relationships in neural systems
- **Neuroanatomy & Neuroinformatics**
  - Neuronal cell type classification
  - Neuroanatomical data integration
  - Open-source tool development

2. Secondary Areas

- **Cell Biology & Molecular Mechanisms**
  - Neurotransmitter identification and mapping
  - Integration of molecular and connectomic data
  - Multi-omic approaches to neuroscience
- **Data Science & Machine Learning Applications**
  - Large-scale biological data analysis
  - Algorithm development for circuit analysis
  - Quantitative methodology assessment
- **Research Methodology & Statistics**
  - Experimental design and power analysis
  - Comparative analysis across datasets
  - Validation and reproducibility

3. Technical Competencies Relevant to Review

- **Critical Evaluation Skills**
  - Assessment of electron microscopy reconstruction quality
  - Evaluation of statistical approaches and sample sizes
  - Judgment of methodological rigor and reproducibility
- **Cross-Disciplinary Integration**

  - Synthesis of findings across molecular, cellular, and systems levels
  - Evaluation of multi-modal data integration strategies
  - Assessment of computational methodology
- **Field Leadership**
  - Understanding of current state-of-the-art
  - Identification of significant advances vs. incremental work
  - Vision for future research directions

Professional Recognition as Reviewer and Judge

The pattern of review invitations and roles demonstrates international recognition as an expert capable of standing in judgment of scientific work across multiple domains:

1. Depth of Expertise

1. **Connectomics Leadership:** Recognized as an authority in connectome reconstruction, analysis, and interpretation at the highest technical level
2. **Computational Methods:** Expert in quantitative approaches to neural circuit analysis, capable of judging methodological rigor
3. **Systems Integration:** Ability to evaluate work spanning from molecular mechanisms to behavior
4. **Cross-Species Analysis:** Understanding of comparative approaches and evolutionary neuroscience

2. Breadth of Recognition

1. **Multiple Disciplines:** Invitations span computational biology, systems neuroscience, cell biology, and cognitive science
2. **Journal Diversity:** Review requests from multidisciplinary (Nature Communications), specialized (PLOS Comp Bio), and open-access leaders (eLife)
3. **International Standing:** Activities across UK, Europe, and North America
4. **Multiple Evaluation Contexts:** Manuscripts, grants, conference abstracts, editorial oversight

3. Trust and Independence

1. **Trade Journal Commentary:** Selected for independent expert opinion on work by other groups
2. **Funding Review:** Trusted with evaluation of substantial public research investments (£600k-2M)
3. **Editorial Board Invitation:** Recognized as suitable to oversee entire collections of research
4. **Consistent Selection:** Repeated invitations from the same journals (eLife, Nature Communications) demonstrates satisfaction with review quality

4. Impact of Judgment

1. **High-Impact Decisions:** Review of papers in journals reaching millions of researchers
2. **Funding Allocation:** Influence on distribution of major national research grants
3. **Field Direction:** Published reviews cited 72+ times, guiding subsequent research
4. **Conference Curation:** Evaluation of work presented at premier conferences

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Evolution of Review Responsibilities

The progression of review activities demonstrates increasing recognition:

2019-2021: Initial peer review invitations for specialist journals **2021-2022:** Commissioned review and commentary articles in Q1 journals **2023-2024:** Expansion to premier multidisciplinary journals (Nature Communications) **2024-2025:** National funding agency review (UKRI BBSRC) **2025:** Expert trade journal commentary, editorial board invitations **2026:** Conference abstract review for premier international meetings

This trajectory shows progression from evaluating specialist manuscripts to judging work across disciplines, assessing large funding applications, and providing field-level expert commentary.

Total Review Activities: 5 completed manuscript reviews + 4 declined manuscript invitations + 9 conference abstracts + 2 grant applications (£600k-2M total) + 2 published review articles + 1 trade journal expert commentary + 1 editorial board invitation

Review Period: 2019-2026

Funding Impact: Approximately £600,000 - £2,000,000 in research grants evaluated

Data compiled from review invitation records, journal metrics (SCImago 2024, JCR 2024), UKRI grant databases, and trade publication archives

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Note: This document demonstrates consistent recognition as an expert qualified to stand in judgment of scientific work, based on demonstrated expertise in connectomics, computational neuroscience, and neuroanatomical analysis. Review activities span peer review of manuscripts, evaluation of research funding, assessment of conference presentations, publication of critical commentaries, provision of independent expert opinion to trade journals, and invitations to editorial leadership roles.