

**MISSION:** To provide a unique venue for research that allows expansion of our knowledge of biology by gaining new insights into important biological and biophysical questions through the application of (novel) enabling quantitative tools and/or technologies (from the nanoscale to the macroscale)

*Integrative Biology* publishes novel biological research, based on innovative experimental and theoretical methodologies, that enhances our capability to gain new insight into important biological questions. In particular, the journal welcomes submissions that contribute to quantitative understanding of how component properties at one level in the dimensional scale (nano to macro) determine biosystem behaviour at a higher level of complexity. Such research is typically multi- or inter-disciplinary, calling upon expertise and technologies from the physical sciences, engineering, computation and mathematics. It can also extend to synthetic systems, whether used to elucidate fundamental principles of biological function or in applications

*Integrative Biology* aims to drive forward discovery and analysis within biology through the elucidation of basic biological phenomena and processes which can allow us to: view, interrogate and investigate molecules as well as cells or their contents; model accurately how these processes/systems work; investigate and model complexity; and engineer new solutions to biological problems.

*Integrative Biology* is an inter- and multidisciplinary journal, utilising enabling quantitative technologies, both experimental and computational to characterise biological systems at the molecular and cellular levels through the exploitation of the convergence of biology with physics, chemistry, engineering, imaging and informatics. The journal welcomes Critical, Tutorial and Frontier reviews; Primary Research papers (including fundamental and theoretical papers); and Perspectives. Manuscripts should be written such that they are accessible to scientists in all disciplines associated with the journal and highlight the significance of their work in relation to Insight, Innovation and Integration (as described under Assessment) and the likely impact on the relevant scientific communities

Therefore, *Integrative Biology* will include, e.g., the following types of studies:

- Studying rare or disease-specific cells using new or improved methods, technologies or devices
- Analysis and imaging of mechanical signal transduction
- Innovative applications of imaging across scales
- Biochemical gradients to study migration and chemotaxis
- Devices/systems that recapitulate in-vivo structure/function
- Engineered/synthetic micro and nanoenvironments to understand cell-matrix signalling
- Micro and nanofluidics to study mammalian cells
- Nanofluidics to study polymer properties (protein structure/function, DNA replication repair)
- Integrative modelling of molecular, cellular or tissue processes
- Devices and technologies for screening, diagnosing, and monitoring disease
- Cell sub-type identification/measurement
- Nanotechnologies, devices and systems for exploring and elucidating biological systems
- Synthetic biology
- Design and re-engineering of biological systems
- Prediction of dynamic behaviour and effectiveness of drugs
- Systems to monitor and optimise therapeutics in vivo
- High-throughput approaches for systems biology
- New miniaturised platforms for elucidating biological events and processes
- Biomimetic systems
- Quantitative models of cell/cell communication
- Quantification of extracellular analytes related to cellular processes
- Biological phenomena and processes at the nanoscale
- Validation of novel technologies against current "standards/tradition"
- Single cells – metabolic systems and mechanisms
- Metabolism of cells, proteins, amines, tissues, antibodies etc.

### ASSESSMENT CRITERIA

Full papers will be assessed by reviewers on the following three categories:

**INSIGHT:** What contribution does the paper make to our insight on the biological mechanism/process/phenomena explored?

**INNOVATION:** To what extent does the technology used enable the biological insight?

**INTEGRATION:** To what extent does the paper demonstrate integration of technology and biology?

Therefore, all authors should provide a **INSIGHT** statement of fewer than 120 words. The primary goal of this statement is to explain the relevance of the work to *Integrative Biology* in terms of **Biological Insight, Innovation in technology and Integration of the biology with the technology**. The statement should be written to be understood by a wide range of scientists working in the broad and diverse multidisciplinary areas the journal addresses. References should not be cited. **Submitted papers cannot be reviewed without this statement.**

### ORGANISATION OF MANUSCRIPTS

#### Full Papers/Critical, Tutorial and Frontier Reviews

- Title and author information
- Illustrated contents entry (see below) & Insight Statement
- Summary/abstract(50–250 words)—setting out the main objectives and results in a clear and interesting way
- Introduction – an overview of the context of the work and its relevance to the journal, ending with a description of the novel features and significance of the work
- Main body of article (aim of investigation; experimental; results and discussion), with appropriate section headings
- Acknowledgements
- References
- Tables and table captions
- Figure captions and scheme captions
- Figures and schemes (see separate guidelines for illustrations [www.rsc.org/illustrations](http://www.rsc.org/illustrations))

Please supply the following to the appropriate Editor—

- Artwork in single or double column format
- An Insight statement
- An illustrated contents entry. This should include a **colour** image (8cm wide by 4 high) and up to 30 words highlighting the novel aspects of your work. The image should be related to the work presented in your paper but may be conceptual rather than scientifically accurate.
- Fax and e-mail details for correspondence
- Copies of any relevant "in press" references
- Suggested referees

#### Electronic submission

Authors should submit new or revised manuscripts by using the RSC file upload system, for full details see:

<http://www.rsc.org/ReSource>

#### Electronic Supplementary Information (ESI) service

This free service enables authors to enhance and increase the impact of their articles, allowing the use of full colour diagrams, 3D molecular models, movies, spectra and programs. All information in the ESI service is fully reviewed and archived. Acceptable formats are:

- PDF; Word; JPEG/GIF (max 640x480 pixels); MOL (or PDB); AVI; MOV; MPEG; Further details: <http://www.rsc.org/esi>

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