Announcement

What topics are we interested in publishing in *Experimental Biology and Medicine*?

Experimental Biology and Medicine 2012; **237**: viii–xi. DOI: 10.1258/ebm.2011.011a09

The *Experimental Biology and Medicine (EBM)* Guidelines for Authors that can be found on our website says '*Experimental Biology and Medicine* is particularly appropriate for publication of papers that are multidisciplinary in nature, are of potential interest to a wide audience and represent experimental medicine in the broadest sense of the term. However, manuscripts reporting novel findings on any topic in the realm of experimental biology and medicine are most welcome. We particularly encourage submission of manuscripts that describe results of studies that require an interdisciplinary approach to biomedical issues.'

Yet, we often get the very reasonable question from potential authors concerning whether we are interested in publishing an article in their particular area of research in *EBM*. This question is usually accompanied by an abstract or early draft of an article which we look at and then respond as quickly as we can. To try to bring some advanced clarity to what we are looking for, the Editor-in-Chief, International Editors and Associate Editors agreed to put together this document to answer the question of what topics we are interested in publishing in *EBM*.

Multidisciplinary categories

The Anatomy/Pathology section of *EBM* invites reports of original research that provide novel insights integrating structure and function with regard to biology and medicine. A primary goal is to attract hypothesis-driven or discovery-based investigations that focus on – and test – mechanistic or fundamental questions addressed by morphological techniques. For example, studies that correlate cellular and molecular biology with basic or pathological anatomy could include the use of electron microscopy (e.g. immuno- or cryoelectron microscopy), confocal laser scanning microscopy or epifluorescent microscopy with molecular and cellular engineered probes. Accompanying biochemical, molecular, pharmacological and/or behavioral analyses (e.g. Western blotting, laser capture microdissection, BrdU, apoptosis and nociception) will provide support for functional significance. Reports on single cells or multicellular organisms will be considered, and there is no restriction on subject matter. Purely descriptive studies or case reports are discouraged. All studies require appropriate control groups. Quantitative rather than just qualitative evidence is preferred, and data need to be evaluated by rigorous statistical analysis. Authors should keep in mind that scientific merit and clear communication will be primary factors evaluated by the referees. Of particular interest to this section of the journal are papers that relate research findings to the normal and abnormal human condition. This would include translational research using human cells and tissues, as well as parallels with models of human disease states (e.g. multiple sclerosis, Crohn's disease and carcinogenesis).

The Biochemistry and Molecular Biology section publishes original research that is judged to make novel and substantive contributions to elucidating the molecular and cellular basis and/or mechanism of cell function or disease. Successful manuscripts will provide unambiguous conclusions supported by empirical, quantitative data. Manuscripts that merely report initial observations of a phenomenon without substantial insight into the underlying molecular basis of the process, report observations of already established processes in different organisms, or report population studies that lack additional empirical confirmation would not be suitable for Biochemistry and Molecular Biology.

The Cell and Developmental Biology section welcomes manuscript submissions that encompass mechanisms that regulate cellular structure and activity, particularly as they relate to developmental processes. Examples of developmental processes include control of early embryogenesis and mechanisms that determine cellular lineage and fate. The use of model lower organisms such as yeast, Drosophila and *Caenorhabditis elegans* are most welcome, as are vertebrate models of differentiation and development. At the cellular level, the Cell and Development section will entertain manuscripts that examine basic mechanisms of cellular activity such as regulation of cell division, cell cycle, cellular responses to DNA damage, cell polarity, adhesion and migration. The section also includes manuscripts that describe mechanisms of transformation, cell senescence and autophagy and pathways that lead to malignancy. The above examples represent the types of research areas that will be considered by this section, but the list should not be considered as all inclusive.

ISSN: 1535-3702

The Endocrinology and Nutrition section welcomes the receipt of manuscripts on each of these areas of experimental biology and medicine. Of particular interest are original research articles and timely reviews on these subjects that would be of wide interest. In the field of endocrinology, we welcome novel findings related to the actions of hormones on their target tissues and new findings related to clinical endocrine disorders. These include, but are not limited to, findings regarding hormone receptors and their signaling pathways, developmental changes in endocrine function, identification or clarification of hormone functions, targeted deletions of genes important to endocrine function, and nutritional factors impacting endocrine function and diseases of the endocrine system. There will be less interest in studies of single-nucleotide polymorphisms unless a functional link to hormone-related metabolic status is demonstrated. In the area of nutrition, original manuscripts on metabolism, nutrigenomics, nutritional biochemistry, food safety, clinical nutrition, cancer nutrition and nutrition/aging/health are particularly welcomed. However, there will be reduced interest in articles addressing eating disorders, food policy and sports nutrition.

The Immunology/Microbiology/Virology section has a broad remit and welcomes the receipt of manuscripts on each of these aspects of experimental biology and medicine, in particular, original research and reviews in the most topical aspects of these subjects. By the way of examples, manuscripts in autoimmunity, immune mimicry, transplantation medicine, cancer immunology, immune therapy of malignant disease, resistance to bacterial/viral infections, development of new antimicrobial agents and vaccination strategies and the use of microorganisms as vehicles for applications ranging from gene therapy to oncolysis are particularly welcomed. However, there will be reduced interest in articles, for example, addressing microbial taxonomy, unless modern research tools and concepts (e.g. deep sequencing and bioinformatics) are employed to address previously intractable questions, or to innovate the opening up of a new area of research activity in immunology, microbiology or virology. While emphasizing the importance of scientific content (quality and novelty), our editorial policy recognizes the importance of clear and lucid presentations as reflected in the eloquence of the scientific language and the clarity and quality of the figures used for data or conceptual presentations.

The Neuroscience section of *EBM* welcomes reports on original high-quality research in neuroscience that provides fundamental new insights into the workings of the nervous system in health and disease. A primary area of interest of the Neuroscience section of the journal is hypothesis-driven research that seeks to identify important and fundamental questions about how the nervous system develops, maintains homeostasis, contributes to sensory and motor information processing and control, performs higher cognitive functions and the processes that underlie these functions. Examples of the underlying processes include regulation of gene expression by cells of the nervous system, neurovascular coupling, synaptic and membrane function, properties of networks of neurons and glia, learning and memory, intra- and intercellular signaling, and the interaction of these processes in the nervous system with other systems such as the cardiovascular, endocrine and immune systems as well as in metabolic control and homeostasis. Studies on the effects of aging and a wide variety of neurological and psychiatric diseases on these processes including the identification of new potentially therapeutic targets and processes as well as the delineation of mechanisms for novel diagnostic approaches are of interest. In addition to such hypothesis-driven research, original studies that are discovery-based, including screens and identification of molecular components of these processes and diseases, if framed within the context of fundamental questions about nervous system development, function and dysfunction, are also welcome. Studies of the effects of incompletely characterized compounds or mixtures of substances on nervous system development or function, whether natural or synthetic, are not appropriate for the neuroscience section of *EBM*. Likewise, studies that are primarily targeted at additional uses of clinical procedures.

The category of Pharmacology and Toxicology covers a wide range of topics and this section strives to reflect that diversity. The section will emphasize original work and reviews that elucidate drug mechanisms or unusual drug responses which contribute significant knowledge to pharmacology or toxicology. Submissions are expected to meet the standards of pharmacological investigation. For example, manuscripts should include dose–response analysis, rather than using a single dose, and seek to demonstrate cause and effect relationships, rather than only presenting correlational findings. Appropriate control groups, such as drug vehicle-treated and drug-exposed normal groups, should be included. While manuscripts in all areas of pharmacology are welcomed, studies on herbal medicines or plant extracts with unknown components or mixtures of active ingredients are generally not appropriate unless exceptional new activity has been discovered. Manuscripts reporting a known drug action on previously unstudied cells or tissue are generally also not appropriate without strong justification of the importance of the study.

The Physiology section welcomes high-quality manuscripts that address the function of whole organisms, organ systems, organs, cells, organelles, membranes and biomolecules in health and disease. Examples of manuscripts that fall within this scope are those reporting studies of membrane ion transport and electrophysiology, autonomic control of the cardiovascular system, hormonal activation of intracellular signaling cascades, mechanisms of ischemic injury of the heart and strategies to prevent cardiac injury, mitochondrial support of cellular function and mediation of programmed cell death, physiological regulation of glomerular filtration and renal tubular electrolyte transport, neuroendocrine mechanisms of hypertension, mechanisms of excitotoxicity in brain neurons, integrated regulation of cardiovascular and pulmonary function during exercise or hypoxia, and the impact of diabetes, inflammation and other disease processes on internal organs and their constituent cells. The criteria for evaluating manuscripts are the novelty and potential impact of the work, the clarity, quality and accuracy of the text, figures and tables, and

how effectively the methods, experimental design and statistics address the hypotheses.

Interdisciplinary categories

The Bioimaging section invites original manuscripts and review papers in the field of the molecular, metabolic, ultrastructural and functional imaging of human and non-human animals. Papers that focus on the investigation of the morphological and functional architecture of single organs and tissues and that provide novel and interesting results on the relation between structure and function either in physiological or pathological conditions will be considered for publication. Studies in the field of novel non-invasive methodologies for the investigation of single-organ function with potential applications in the diagnostic or therapeutic domain are welcome. Research that combines multiple investigative approaches, such as genetics and imaging, or imaging with pharmacological probes, is welcome. Areas of interest comprise the whole organism, particularly including research in the field of the morphological and functional mapping of the human brain with magnetic resonance imaging (MRI), positron emission tomography (PET), transcranial magnetic stimulation (TMS), magnetoencephalography (MEG), electroencephalogram mapping and others. Studies on the *in vivo* imaging of the molecular mechanisms that underlie cognition and mental activity in healthy conditions as well as in the presence of neurological and psychiatric disorders and of the effects of pharmacological and non-pharmacological treatments are also are encouraged. Manuscripts will be reviewed on the basis of their scientific merit and respect of internationally accepted ethical standards for animal and human research. Original reports and critical reviews on specific topics will be considered. Submission of purely clinical studies is discouraged. Single case reports will be considered only if they may represent a significant advancement in the comprehension of (patho-) physiological mechanisms.

The Biomedical Engineering section aims to publish original research articles and minireviews that integrate novel engineering methods with biology and medicine. Such examples include novel nanotechnology platforms for biosensing, imaging disease-specific biomarkers and therapeutic delivery; advanced imaging technology (e.g. MRI, PET) for quantitative analysis of pathophysiology; novel biomaterial scaffold and controlled release technology for tissue engineering applications; and integrated imaging and therapeutic systems (Theranostics) for image-guided therapy. The Biomedical Engineering section will strongly endorse interdisciplinary approaches bridging engineering sciences with biology and medicine, and will have reduced interests in traditional, well-defined areas of research (e.g. biomedical transducers) unless unique designs that will lead to unprecedented biological discoveries are evident. For the minireviews, we strongly encourage thought leaders in the biomedical engineering field to discuss future opportunities in the emerging key technologies, and how they may benefit biology and medicine. For original research articles, we emphasize the scientific merit as well as the artistic presentation for effective communication of the scientific data.

The Bionanoscience section is a forum for original research and reviews on topics at the interface between nanotechnology and the biological or medical sciences: Nanotechnology is broadly defined as research and technology development at the atomic, molecular or macromolecular levels in the length scale of approximately 1–100 nanometer range. Of particular interest are manuscripts describing synthetic or natural nanostructures that have innovative applications in the treatment or diagnosis of disease or in the advancement of basic biological research. This encompasses topics in the field of nanomedicine. While no less important, the development and application of medical devices and instrumentation involving nanotechnology are not emphasized in the Bionanosciences section and manuscripts in this area might be suited for the Biomedical Engineering section.

Genomics, Proteomics and Bioinformatics section: *EBM* is a journal dedicated to the publication of multidisciplinary and interdisciplinary research in the biomedical sciences. Given the wide-ranging impact of evolving comprehensive and high-throughput methods including genomics and proteomics, and the increasingly important role of bioinformatics in data-intensive biomedical research, original research and review articles, meeting symposia and brief communications that discuss or employ these approaches in the advancement of biochemical or biomedical research are of great interest. This is especially so if the submission employs these tools in an innovative manner to advance some significant biochemical/biomedical problem. Submissions that are focused exclusively on the tools, without discussion on their application to a biochemical or biomedical problem(s), are better suited to other publications.

The Stem Cell Biology section seeks original articles and reviews that describe fundamental investigations in the rapidly expanding field of stem and progenitor cell biology. All aspects of stem cell biology are welcomed, including mechanistic studies of embryonic stem cells; the reprogramming of cell fates by the misexpression of transcription factors, RNAs, chemicals or other such biological manipulations; studies of mechanisms involved in regulating the differentiation stem cells toward specific or alternate cell fates; the developmental biology of tissue-specific stem and/or progenitor cells; the epigenetics, genomics and proteomics of stem cells; and the biology of cancer stem cells. Articles are also welcomed that establish novel paradigms for clinical translation of cell-based therapies involving the use of stem cells. Only those manuscripts that are well designed and written, provide significant new insights and explore a topic in more than a superficial manner will be published.

The Systems Biology section recognizes both the breadth and complexity of the field, the need to strengthen the ties between biology, medicine, engineering and the physical sciences, and the challenges of spanning both basic research and clinical medicine. This section seeks manuscripts describing original research and reviews that span multiple disciplines, provide new interdisciplinary perspectives to challenging problems or involve the application of new

tools and techniques to biology and medicine. The desired focus of articles is that they are informative to all audiences within *EBM* and are not directed solely toward narrow topics either in biology, medicine or physiology. This section should serve as a venue where biologists and physicians can learn about the application of new technologies to biological or clinical problems, with a biology content that is more than just proof-of-concept of a new tool, as might be expected by a device- or instrument-oriented specialty journal. Similarly, engineers and physical scientists should view this section as a source of information on practical, even clinical, needs of systems biology. We seek reviews of the breadth of approaches to either a practical problem, such as the many means to measure cellular mechanical forces developed by living cells *in vitro*, or an in-depth discussion on a systems-physiology problem that is yet to be explored by physical scientists and engineers, for example, the complexity of cardiac amino acid metabolism. Ideally, this section will serve as a meeting place for biologists, physicians, engineers and physical scientists to join together to explore the intersections of their core disciplines – an intersection best described as systems biology.

Translational Research is the research that connects or moves the study in one discipline to another. Particularly for biomedicine, translational research is the research that relates basic and clinical research to medical or industrial application. As such, it includes a wide range of biological, medical, chemical, pharmacological, engineering and computational studies that aim at elucidating the mechanism of a biological or disease-related pathological function or process, or applying such mechanistic understanding to the generation of new knowledge and strategies with clinical or industrial implication. We are interested in publishing original and high-quality research that meets the goal and definition of translational research as described above. This may include (but is not be limited to) studies in the following example areas: (1) identification or characterization of a biological target or signaling pathway involved in a disease pathology or therapeutic invention; (2) discovery and development of novel therapeutic or diagnostic methods or agents with implications for clinical or industrial application; (3) study of the mechanism of action of currently used drugs or new experimental agents at the molecular, cellular or systems level; (4) clinical research for novel experimental therapeutics or new applications of existing drugs or that reveals mechanistic insight into a disease process or new targets or approaches for clinical intervention or prevention; (5) development of new tools or methods by chemical, engineering, nanotechnology or computational techniques that can be applied to study biology or human diseases; and (6) genetic, proteomic or systems biological study to reveal new markers, pathways or targets for clinical application. Reports of pure clinical methods, tools, procedures or observations without molecular, cellular or systems investigation of mechanism or insight into new mechanism or target for clinical treatment or detection are not acceptable. Studies on alternative medicine without mechanistic investigations as described above are also not accepted. For chemical, computational or engineering studies of molecular systems, some biological or clinical results must be presented or, in the absence of such data, such molecular systems should have clear potential for biological or medical application.