

## EDITORIAL

# The rolling evolution of biomedical science as an essential tool in modern clinical practice

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### ABSTRACT

The British Journal of Biomedical Science is committed to publishing high-quality original research that represents a clear advance in the practice of biomedical science, and reviews that summarise recent advances in the field of biomedical science. The overall aim of the Journal is to provide a platform for the dissemination of new and innovative information on the diagnosis and management of disease that is valuable to the practicing laboratory scientist. The Editorial that follows describes the Journal and provides a perspective of its aims and objectives.

## Greetings colleagues!

The Institute of Biomedical Science (IBMS) has the pleasure to offer to you a new and refreshed British Journal of Biomedical Science. Not only do we have a new Editor, but also a new publisher (Taylor and Francis, based in Abingdon, UK). An additional change is to the Journal pages on the IBMS website ([www.ibms.org](http://www.ibms.org)). However, these changes will not merely be window-dressing as it is our firm intention that there will be other initiatives that will make the Journal not only more attractive to those seeking to publish their research data and literature reviews, but also that will make it more relevant to its readers and subscribers – you, the laboratory scientists of the Institute and around the world. Indeed, as regards the latter, the Journal is truly international in that during 2015 more than half (around 54%) of the published articles was from outside the UK, with India, Iran, Ireland and Saudi Arabia being those providing most non-UK material. We also recognise that biomedical science is not restricted to what may be described as ‘human’ health care: it also encompasses veterinary medicine and is important in industry.[1,2] The Journal will continue its aim of publishing high-quality original research (both full papers and short communications) and reviews in biomedical science, as stated in the first two sentences of the Abstract, those being the Journal’s mission statement.

Although research has many objectives, the most practical can be distilled to one of the two forms, these being research into the fundamental basis of the pathophysiology of human disease and research that improves patient outcomes (such as in diagnosis and management

of their disease). The latter cannot exist without the former: yes, the laboratory provides crucial tools for diagnosis, but before it is treated, we must understand its pathophysiology, possibly at the level of the cell and molecule. An excellent example of this is in the prevention and treatment of cardiovascular disease. Without the work of biochemists and other scientists on the biosynthetic pathways of cholesterol metabolism, and the development of animal models of atherosclerosis,[3–5] the work of Brown, Goldstein and Endo (and, of course, many others) would not have led to the development of clinically useful drugs to inhibit the synthesis of cholesterol (that is, the statins).[6,7] These drugs are now known to markedly reduce the development and progression of atherosclerosis [8,9] and are a standard treatment in coronary artery disease and allied conditions. [10] Accordingly, the astute laboratory scientist will be aware of the importance of the results of the lipid assays, and indices of glycation, that he or she will deliver to those in clinical practice.

Although most biomedical and clinical scientists are less likely to be working in areas unravelling fundamental processes in human pathophysiology, they are very likely to be able to contribute to improved patient outcomes. However, a fascinating recent example of core research conducted by biomedical scientists is the report of an anti-microbial agent found in the mucus of the brown garden snail.[11] It may be that this discovery could lead to a badly-needed new class of antibiotics, clearly important in the light of increasing antibiotic resistance.

[12,13] Notably, in 2015, microbiology articles were most frequently published (47% of communications), followed by biochemistry (21%), haematology (10%), virology (6%) and immunology (5%). The strength of biomedical science, and the Institute itself, lies in its breadth and reach. We hope our colleagues in transfusion science, cytology and histology (together comprising about 5% of published reports) will share their research thoughts with us and would welcome their input to our collective learning and understanding of biomedical science.

Key paradigms in clinical practice are early, quick and accurate diagnosis, followed by effective management. Laboratory scientists are crucial to both of these processes, and to do so they must be aware of advances in their craft both in theory and at the bench. In the latter respect, the Journal publishes research by laboratory scientists for laboratory scientists, such as the report by Heath and colleagues on state of the art methods for assessing a commonly used drug for breast cancer, and that by O'Doherty and colleagues on methods that may improve the diagnosis and management of certain types of gastroenteritis.[14,15]

The Journal will also promote research in a direct manner by promoting undergraduate and postgraduate researchers in the biomedical sciences. In the UK, the leading institutes of higher education in this area form a group called 'Heads of University Centres of Biomedical Science' or HUCBMS. The Journal intends not only to become essential reading for these students and researchers, but will also offer annual prizes for the best undergraduate and postgraduate manuscripts that are submitted for publication. Furthermore, the Journal will seek a closer association with the HUCBMS course leaders, from whom we hope to feature one review article in each issue. We see the Journal as a key publication to support those of our members who are undertaking Institute examinations, in particular the Higher Specialist Diploma through the combination of research papers and reviews.

The third new aspect focusses on the practicing laboratory scientist who, in order to remain on the regulators' list of approved practitioners, is required to remain up to date in their particular field. The spring issue of the Journal each year (from 2017) will publish an update coordinated by each of the Chairs of our Special Advisory Committees that will include major advances in their particular field in the previous year. This will provide all readers with a summary of key advances in those fields that are outside their immediate expertise. In addition, the questions set by IBMS examiners as part of the 'Journal Based Learning' (JBL) aspect of Continuing Professional Development (CPD), wherever possible, will refer to publications in the Journal (e.g. perhaps the reviews written by our HUCBMS colleagues and/or the annual updates in each field). Indeed, a recent CPD/JBL took as its subject a publication in the Journal that reinforced the contribution of laboratory scientists to our knowledge of the changes that the body goes through during and

after surgery, the objective being to improve minimise poor outcomes and improve patient care.[16] Vitamin D is currently enjoying a high level of interest. With several publications on this micronutrient in the last few years, laboratory scientists cannot claim ignorance of methods to assess this important micronutrient, and the consequences of its deficiency.[17–21]

An extension of this deliberate policy of updates and education will be technical reviews, for which will be working with our colleagues in industry. These will provide information regarding advances in methodological and/or instrument aspects of their particular discipline (such as mass spectrometry [14]). Naturally, the Editorial Board will be delighted to hear from its authors, readers and subscribers with their thoughts and suggestions on how the Journal can be further improved upon. We on the Editorial Board are very much looking forward to leading the Journal in to a new phase and to working with all our biomedical and clinical scientist authors and researchers.

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