

From information to knowledge

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We live in the era of information technology, and science has been moulded by technological progress that allows to process gigantic quantities of data. Whereas just two decades ago, the results from a typical experiment were stored and analysed on floppy discs (with one disc holding maximally 1 Mb), these days especially the data from a cell biological experiment easily range with many gigabytes. Generating information is fairly easy. But are we using this information really efficiently? It seems, rather not, we are actually overwhelmed by the sheer quantity of apparently irrelevant data. To transform information into knowledge, we need something very old-fashioned: questions and concepts. Even the most sophisticated -omics approach will not lead us anywhere, if we do not invest considerable effort to ask questions before we start the experiment, and, a second time, when we are structuring the data by linking them to our initial question and the concepts developed in the respective field. Thus, information per se does not lead to knowledge, we need to do something with this information to render it fruitful. It is a question of structuring, questioning, comparing, and, more important than anything else, filtering, filtering, filtering. Fortunately, there are fellow scientists that are helping us in this digestion process, by critical reviews. A critical review is quite different from a mere compilation of the literature published on a given topic. A critical review can be seen as a kind of distillation process, where the central concepts and their alternatives are presented in a manner that is clear and crisp enough to be used as a criterion to subsequently judge and sort the often ambiguous

or even seemingly contradictive original reports. To write a critical review, it therefore requires clarity of thought, experience, and, more than anything else, courage.

Having recognised the importance of critical reviews, *Protoplasma* could convince David Robinson, Heidelberg, to join the editorial board as review editor. He has shaped plant cell biology for many years by important contributions to intracellular trafficking in plants. Brought up in the Anglosaxon tradition of critical scientific debate with academic stations in Leeds and Stanford, his major scientific life took place in Germany, where he first worked for quite some time in Göttingen and moved on 2000 to Heidelberg. During this time, he contributed not only stimulating, sometimes controversial viewpoints on the numerous open issues of vesicle flow in plants, but also was always active in connecting plant and animal communities. As a review editor, he had been extremely prolific, soliciting reviews from numerous fields of cell biology and always pursuing the tradition of critical reviews, which significantly contributed to the rise in impact factor seen over the past years. After a long and fruitful academic activity, he now decided to hand over this mission to the next generation.

Returning to the interdisciplinary roots of cell biology, which was initiated as a discipline through the cell theory developed in discussions between the animal physiologist Theodor Schwann and the botanist Matthias Jakob Schleiden (Nick and Stick 2014), the journal not only reactivated the original tradition of two editors (plant and fungal versus animal and medical cell biology) but also decided to duplicate the line of critical reviews by nominating two review editors that will continue David Robinson's mission:

Jaideep Mathur has been a scientific voyager, with respect to both research and geography. Starting his academic life in India, he used the prospects of the just reunited Europe and moved to Szeged, Hungary, and soon after to the Max-Planck

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Institute in Cologne, where he contributed a cell biological viewpoint on plant molecular biology. During additional stations at the Rockefeller University, New York, and the Universities of Cologne and Tübingen, he became one of the leading figures bringing green fluorescent proteins into plant cell biology. Since 2006, he has been working at the University of Guelph, Canada, and has since then contributed exciting insights into organelle dynamics and interaction (Schattat et al. 2015). However, he is also active as a dedicated academic teacher following the guideline “Fascination before Education.” His entire scientific work has been motivated by his fascination for ‘shape.’ More than any other biological discipline, cell biology strives to understand, how ‘shape’ comes into matter, and this mission is still ongoing, even in times where molecules have shifted into the centre.

Klaudia Brix started her scientific career in Bonn and moved, in 2002, to the International University Bremen/Jacobs University. Her interest in cell biology is clearly motivated by medical application—in addition to research on physiology, cellular aspects of inflammation, and wound healing, she has made important contributions to the field of cysteine peptidases. Medical application is of course always highly relevant, and it is possible to develop applications without understanding the underlying biological principles.

However, as shown exemplarily for cathepsins and legumain (Brix et al. 2015), a deeper mechanistic understanding of the cellular aspects can contribute to design applications more efficiently. To bridge the gap between animal cell biology and medical application, clear concepts are highly relevant, which was one of the motivations to nominate a review editor for the field of animal and medical cell biology.

Compliance with ethical standards

Conflict of interest The author declares that he has no competing interests.

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