

Interview with Dr Michael G. Weller

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This author interview is by Dr Michael G. Weller, Head of Division 1.5 Protein Analysis at Federal Institute for Materials Research and Testing (BAM). BAM (www.bam.de/en) is a senior scientific and technical institute with responsibility to the German Federal Ministry for Economic Affairs and Energy. Dr Weller's review paper, [Quality issues of research antibodies](#) is available for download in [Analytical Chemistry Insights](#).

Please summarize for readers the content of your article.

In this review, a major aspect of the reproducibility crisis of bioscience is discussed. In several studies it was shown that many results of groundbreaking papers could not be repeated by independent laboratories. Often antibodies play a disreputable role in this context. In this review the Status Quo of antibody production and quality control is elucidated. One of the most disturbing facts is the lack of identification of antibodies: Even in so called "high-impact journals", less than 50% of all papers using antibodies give sufficient information to identify the reagent unequivocally. Several proposals are collected and discussed critically, how to improve this deplorable situation. It was concluded that first of all funding agencies should establish rigorous regulations for the development and use of antibodies, and in addition, journal publishers need to release clear and non-negotiable rules for the documentation of antibody work.

How did you come to be involved in your area of study?

Antibodies were the main focus of my work over nearly my entire scientific career. Already in 1996, we discussed "quality problems of antibodies" on a conference poster. Since then, several attempts have been made to improve the situation without much success. All researchers working with antibodies sooner or later are confronted with the quality issue of bioreagents. I assume that many scientists would be extremely grateful if this problem would be resolved as soon as possible.

What was previously known about the topic of your article?

In this review, I tried to mention most of the articles, which discussed this quality issue before. However, I have to apologize for all the missed ones - any comments are highly appreciated. Articles dealing with specific analytical methods to characterize antibodies and their quality could not be explicated in more detail. This by no means should imply that these aspects are less important. The opposite is the case: When a basic regulatory framework will be established, the discussion needs to go on, which characterization methods are optimal for specific purposes. More innovative techniques would also be highly beneficial. Most techniques are still too expensive or complicated.

How has your work in this area advanced understanding of the topic?

I hope that this review helps to unite the fragmented discussion in this field. In our scientific work, we often encountered antibody problems of all kinds, finally showing that many setbacks are not simple "bad luck", but caused by a systematic deficiency of documentation and quality control. Some of the suppliers and producers make intense efforts to improve the situation; this should be highly appreciated. However, since all companies claim to have products of highest quality, it is not easy for the customer to separate the black sheep from the good guys.

What do you regard as being the most important aspect of the results reported in the article?

During the writing of the article and the collection of materials, I was increasingly shocked by the dimension and persistence of this issue. But to say it in a positive way: When we resolve this issue, we could get a much higher amount of more valuable and reliable research results with the same budget.

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<http://www.researcherid.com/rid/B-5015-2008>

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