Editorial

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Significant differences exist between the type strain of a newly described bacterial species and a non-type strain included in the original or other scientific publications. While the former is the nomenclatural type and circumscribed with respect to the most up-to-date taxonomic approaches, research on the latter is generally more focused, adding additional knowledge to the species which it represents. With respect to their availability to the scientific public, however, the difference is even larger: deposition of the type strain in at least two or more public culture collections located in two or more countries is mandatory; the nomenclatural type is considered the reference of that species; hence, its availability is crucial for research on members of this and other species. The same high importance should be acknowledged with respect to public access to all strains published in journals as these resources are required for subsequent verification of published data in accordance with scientific principles and for consideration as reference materials in subsequent research. However, the journals' encouragement to authors to make microbial biological resources (strains, mutants, viruses and so on) available is too weak an argument to convince most authors to share their strains with colleagues, not to mention deposition in culture collections. Authors' reasons not to deposit even a fraction of strains range from specific interests on keeping resources under their own control, over complex organizational effort and cost for shipping and deposition, to the lack of advice in

deciding which strain to deposit from studies involving a high number of strains.

To blame authors in general would be an injustice to those who actually deposit selected strains, there are also several other stakeholders involved in a complex network of interactions. At least five partners can be identified, i.e., authors, public collections, funding agencies for research and for collections, as well as editors; in addition, the emerging Global Biological Resource Centre Network (GBRCN; <http://www.gbrcn.org/>), offering an electronic platform for communication between authors and collections, may be involved. Partners' responsibilities must be identified and their strength pooled to harmonize actions for enhanced research credibility. Even if public collections signal their willingness to accept deposition of a higher number of strains, at present this commitment appears an impossible task considering the lack of secure funding for the majority of collections. Respective funding agencies will have to acknowledge the needs of public collections to improve the infrastructure but also to allow scientists to characterize strains to a minimal level that would facilitate their authentication and subsequent deposition. The immediate question is should deposit be optional or mandatory.

Apparently, modest pressure from editors without mechanisms for monitoring and verification has proven insufficient, but the other extreme, mandatory deposition without selection criteria is obviously not an option, either. What would be the incentive for authors to deposit? Besides the moral obligation to share published strains with colleagues, the citation frequency of a publication is increased if the biological resources are deposited, which is of benefit to both authors and publisher/editor. However, the immense number of strains covered in the scientific literature must be reduced to a manageable figure. Curators

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of collections, having an overview on specific gaps of already secured biodiversity, are the qualified experts to advise authors on key strains to deposit.

The rationale for me to tackle this problem originates from wearing three hats, those of an author, an editor and a former director of a public collection. I am aware that the dimension of the task requires more than an editorial or a few publications on this topic (Stackebrandt 2010a, b, 2011); it requires a concerted action, an intense dialogue collecting a broad spectrum of opinions from all stakeholders involved. A discussion forum needs to be identified, comments screened, filtered and catalogued. The optimal, though improbable solution would result in a voluntary increased deposition of strains, hoping that peer pressure would do its job. In this case, even funding agencies could be convinced to increase their respective support. Some research funding agencies currently require biological material resulting from their funded research to be conserved and made available for future researchers. There is a scientific and economic benefit derived from this approach which would also require some countries to meet

their national responsibilities in the global system. It is more likely, however, that a long, painstaking establishment of a working strategy involving all the above-mentioned stakeholders will be needed for the benefit of scientific research.

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