

Citation diversity statement



We encourage our authors to increase citation diversification and include a citation diversity statement in their Review articles.

A good Review should always teach you something new. Not only in terms of scientific insight, but also with regards to the scientific literature. Our Reviews typically contain about 200 references, which should cover the most recent advances in the field, key seminal papers and, importantly, reflect the breadth, controversies, breakthroughs and voices in a specific research area. Therefore, identifying a balanced reference list at an early stage of manuscript development is key to writing an excellent Review article. These references should account for the diversity – in every sense – of our field, providing the basis for a balanced and forward-looking discussion.

However, papers authored by scholars from historically excluded groups have long been systematically under-cited¹ in both Reviews and primary research articles^{2,3}. Such biases in scholarly publishing⁴ can result in unbalanced articles that do not adequately reflect the state of a field, and that may not give credit where credit is due. Importantly, intentional or unintentional citation bias introduced by a few authors can propagate, because more citations result in increased visibility⁵. Therefore, citation bias also hinders progress in diversifying academia, thereby preventing innovation and progress⁴.

To make a first step towards addressing disparities in citation practices, we encourage our authors to reference relevant papers in a manner that is equitable in terms of racial, ethnic, gender and geographical representation. We believe that by including a citation diversity statement, our authors will thoughtfully pick their references, taking the time to survey the entire field, rather than citing the same authors or institutions repeatedly. This way, our authors can improve their citation balance and make others aware of citation imbalances. Importantly, this will improve our Review articles as the discussion will truly outline the current state, challenges and innovations of a field.

Checking for author demographics in the scientific literature currently mainly relies on assumptions based on author names (unless scholars self-identify their race, ethnicity and preferred pronouns), which makes literature analysis challenging. However, tools have been developed to probabilistically predict demographic characteristics from an author's first and last names. Albeit not yet perfect,

authors can either use such tools and/or try to identify an author's pronouns, self-attested race or ethnicity on professional websites.

As a starting point, that is, before starting the writing process, we suggest identifying key research groups and performing an in-depth literature survey, ensuring that the field is adequately represented, that diverse voices are included and that the reference list is not imbalanced, favouring specific institutions, regions or research groups. Importantly, authors should educate themselves further about the relevant work of underrepresented scholars. This analysis should then provide the basis for writing the Review article, and the discussion should be continuously checked against the reference list.

As a journal, we can diversify our commissioning, editorial teams and reviewer pools, to ensure that diverse voices are included and cited. Moving forwards, more resources and guidelines will be needed to enable us and our authors to search the literature in an equitable manner, and self-identification of authors and referees on platforms such as ORCID and Google Scholar will aid in analysing the scientific literature.

Bioengineering by its very nature is interdisciplinary and requires contributions of sometimes disparate fields and regions. This should be reflected in reference lists, which should be continuously evaluated to help us see our own tendencies and correct course if needed⁶. Indeed, this is exactly what a good Review is about: an open and balanced view of a field, critically discussing, filtering and synergizing the various contributions, including the author's own contributions and biases. Thus, including a citation diversity statement is not only a first step towards addressing citation bias but, importantly, improves Review articles scientifically, doing the innovative nature of bioengineering justice.

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