

Letter to the Editor

Deceiving the Research Community Through Manipulation of the Impact Factor

Dear Sir,

Every year, the *Journal Citation Reports (JCR)* publishes a ranking of all Thomson Reuters-indexed journals based on their citation data. Depending on the scope of each journal, they are included either as part of the *Science Citation Index (SCI)* or the *Social Sciences Citation Index (SSCI)*. These rankings are often used by research scientists because they provide valuable insight into prospecting journals. As I was studying the recently issued 2011 impact factors (IF) from the (SCI), I noticed that among the 20 top-ranking journals, a new publication was present that displaced prestigious journals such as the *Journal of the American Medical Association (JAMA)*, *Science*, and *Nature Reviews Neuroscience*. The new journal corresponded to “Energy Education Science & Technology,” with an IF of 31.667, placing it above prestigious journals such as *Science* (IF = 31.201), *Nature Reviews Neuroscience* (IF = 30.445), and *JAMA* (IF = 30.026). While *Nature Reviews Neuroscience* moved up the ranking from position 21 (2010) to position 19 (2011), *Science* and *JAMA* dropped within the same time frame three and two positions, respectively (Table 1).

Curious about the newcomer’s performance over time, I checked its IF trend, and noticed that it rose from 0 (2009) to 9.333 (2010) and then to 31.667 (2011), an amazing accomplishment in such a short period of time. A detailed analysis of its citations revealed that 89.4% were self-citations, a strategy that began in 2009 according to *JCR* data. For example, its highest cited article published in 2010 currently has 184 citations, of which 180 were made by articles in the same journal.

Note that this is not the case for the other journals listed in Table 1, *Acta Crystallographica Series A*, which dropped from second place in 2010 to 2,601 in 2011. This was caused by the 27,816 citations received by a single paper that was published in 2008 (Sheldrick, 2008) that was not considered in the estimation of the 2011 IF.

IF manipulation is not a new topic; however, this questionable practice has allowed this journal to be first in three different *JCR* categories: “Energy & Fuels,” “Engineering, Environmental,” and “Engineering, Chemical.” What is even more concerning is that in the “Engineering, Chemical”

TABLE 1. Position of the 20 top journals ranked by JCR 2010 and their new position in 2011.

| | 2010 | 2011 | |
|---|------|-------|---|
| <i>CA-a cancer journal for clinicians</i> | 1 | 1 | = |
| <i>Acta crystallographica section a</i> | 2 | 2,601 | ↓ |
| <i>New england journal of medicine</i> | 3 | 2 | ↑ |
| <i>Reviews of modern physics</i> | 4 | 4 | = |
| <i>Annual review of immunology</i> | 5 | 3 | ↑ |
| <i>Nature reviews molecular cell biology</i> | 6 | 6 | = |
| <i>Nature reviews cancer</i> | 7 | 9 | ↓ |
| <i>Nature genetics</i> | 8 | 12 | ↓ |
| <i>Nature</i> | 9 | 11 | ↓ |
| <i>Nature reviews immunology</i> | 10 | 14 | ↓ |
| <i>Lancet</i> | 11 | 7 | ↑ |
| <i>Chemical reviews</i> | 12 | 5 | ↑ |
| <i>Nature reviews genetics</i> | 13 | 8 | ↑ |
| <i>Cell</i> | 14 | 16 | ↓ |
| <i>Science</i> | 15 | 18 | ↓ |
| <i>Nature biotechnology</i> | 16 | 35 | ↓ |
| <i>Nature nanotechnology</i> | 17 | 24 | ↓ |
| <i>Jama-journal of the american medical association</i> | 18 | 20 | ↓ |
| <i>Nature materials</i> | 19 | 15 | ↑ |
| <i>Annual review of biochemistry</i> | 20 | 13 | ↑ |

category, the second ranked journal has an IF of 5.625. Such a difference should have been detectable by various means. Such anomalous citations patterns are constantly monitored by Thomson Reuters. In fact, the 2011 *JCR* suppressed the metrics of 50 journals due to this problem.

Nevertheless, this journal seemed to have successfully avoided the monitoring process. The purpose of this letter is not to dwell on the flaws that the system might have, but to preserve its integrity. At the end of the day, it takes a lot of effort and resources to publish one’s research in a top-ranked journal.

Reference

Sheldrick G. (2008). A short history of SHELX. *Acta Crystallographica Section A*, 64A, 112–122.

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Published online 6 September 2013 in Wiley Online Library (wileyonlinelibrary.com).
DOI: 10.1002/asi.22905