

The Proliferation and Differentiation of Stem Cell Journals

Paul R. Sanberg · Cesar V. Borlongan

© Springer Science+Business Media, LLC 2010

Abstract As scientists position themselves in translating the therapeutic potential of stem cells from laboratory to clinical applications, publishing companies have taken this rapidly evolving field as a unique opportunity to launch new journals for dissemination of stem cell research. Over the last decade, the significant increase in the number of stem cell-based journals has created a conundrum. At stake is the pressure for these new journals to build their reputation by maintaining publication standards, while at the same time attracting a cadre of stem cell researchers to consider their journals as the publication of choice. We discuss here a prophetic path of survival for these journals which likely will closely mimic the core scientific and translational value of stem cells, namely their capacity to proliferate and differentiate into something meaningful!

Keywords Stem cells · Plasticity · Development · Public policy

Nascent stem cells reside and, under certain pathologic conditions, proliferate and even migrate to the site of injury in the mammal [1]. Moreover, stem cells can be expanded, differentiate into all germ lines, and hold therapeutic

potential for human and veterinary diseases [2], although lab-to-clinic translational challenges remain [3–5]. These unprecedented observations largely led to the birth of stem cell-based regenerative medicine, ending the dogma that the human body becomes stagnant in adulthood. A surge in publications in stem cell biology and therapeutic potential over the last decade has prompted an influx of new journals catering to stem cells.

With the entry of new journals to the field, undoubtedly the quality of science becomes a concern. Most articles find a publishing home, which may dilute quality and continue to stratify high and low impact journals. Most of these new journals have little history because they are so new. How should authors choose the journal in which to publish their work, since the majority of these new journals have not existed long enough to determine their quality? We suggest following Good Publication Practices (GPP) across all journals, particularly since stem cell articles seem preferentially to get the attention of the worldwide media, as well as to influence public policy. So many journals have “stem cell” in their titles that it may be difficult for the public, governments, and scientists outside the field to determine the quality of what they are reading, and the caliber of stem cell science and medicine.

Here, we review these stem cell journals, noting their initial circulation year and impact factor, in an effort to capture the status of this rapidly evolving field. We found 18 journals directly focused on publishing stem cell research and another 16 journals with relevant overlaps to stem cell research, although these lists are not exhaustive (Fig. 1). In both lists, we did not include the more general journals such as *Nature* (and sister journals), *Science*, *Cell*, *Neuron*, *PNAS*, *PLoS journals*, *BMC journals*, *Journal of Neuroscience*, *Annals of Neurology*, *Blood*, *Circulation*, and *American Journal of Transplantation*, among others,

P. R. Sanberg (✉) · C. V. Borlongan (✉)
Office of Research & Innovation, University of South Florida,
3702 Spectrum Boulevard, Suite 175,
Tampa, FL 33612-9444, USA
e-mail: psanberg@health.usf.edu
e-mail: cborlong@health.usf.edu

P. R. Sanberg · C. V. Borlongan
Center of Excellence for Aging and Brain Repair,
College of Medicine,
12901 Bruce B. Downs Boulevard, MDC78,
Tampa, FL 33612-4742, USA

Stem Cell Focused Journals

Cell Stem Cell, 2007, 23.563

Cloning and Stem Cells, 2001, 2.692

Current Stem Cell Research and Therapy, 2006

Hematology/Oncology and Stem Cell Therapy, 2008

International Journal of Stem Cells, 2008

Journal of Stem Cells, 2006

Journal of Stem Cells and Regenerative Medicine, 2007

Nature Reports Stem Cells, 2007

Stem Cell Research, 2007

Stem Cell Research & Therapy, 2009

Stem Cell Review Letters, 2009

Stem Cell Reviews, now Stem Cell Reviews and Reports, 2005, 5.083

Stem Cells, 1993, 7.747

Stem Cells and Development, 2004, 4.146

Stem Cells and Cloning: Advances and Applications, 2008

Stem Cells International, 2010

The Open Stem Cell Journal, 2009

Stem Cell Related Journals

Biology of Blood and Marrow Transplantation, 1995, 3.149

Bone Marrow Transplantation, 1986, 2.998

Cell Medicine, 2010

Cell Transplantation, 1992, 5.126

Cells Tissues Organs, 1999, 3.322

Cytotherapy, 1999, 2.204

Journal of Biomimetics, Biomaterials and Tissue Engineering, 2008

Journal of Cellular and Molecular Medicine, 2000, 5.228

Journal of Clinical Rehabilitative Tissue Engineering Research, 2006

Journal of Oral Tissue Engineering, 2003

Journal of the Japanese Society for Regenerative Medicine, 2001

Journal of Tissue Engineering, 2010

Journal of Tissue Engineering and Regenerative Medicine, 2007, 3.857

Regenerative Medicine, 2006, 2.929

The Open Tissue Engineering and Regenerative Medicine Journal, 2008

Tissue Engineering - P arts A, B and C, 2008, 4.582

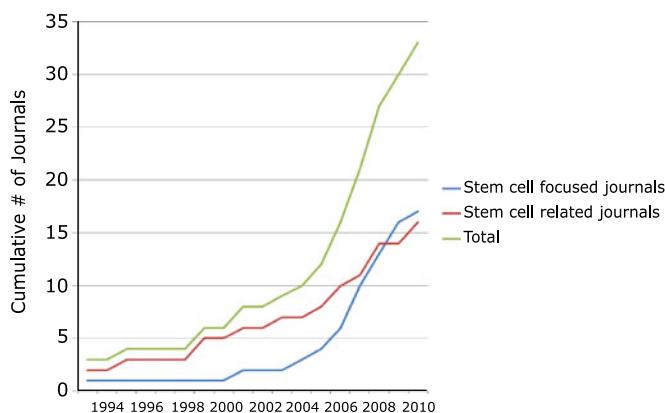


Fig. 1 The rise of stem cell journals. Left table shows stem cell focused journals, while right table captures stem cell related journals. Bottom panel corresponds to a graphical representation of the increase in stem cell journals since the early 1990s

although these journals have been top choices for the publication of stem cell studies.

Interestingly, except for *Stem Cells*, *Cloning and Stem Cells*, and *Stem Cells and Development*, initially released in 1993 and 2001, respectively, the rest of the stem cell-focused journals have only been circulated from 2004. Despite the short publication period, impact factors have

already been achieved by five of these journals, *Cell Stem Cell* (23.563), *Stem Cells* (7.747), *Stem Cell Reviews and Reports* (5.083), *Stem Cells and Development* (4.146), and *Cloning and Stem Cells* (2.692). This may indicate that the journals have produced highly cited articles and overall give testament to the field of stem cells as a hot research area, making landmark scientific discoveries. Traditional,

prestigious journals, such as *Nature* and *Cell*, have also recognized the need for specialized venues to highlight stem cell studies, with *Nature Reports Stem Cells* (final issue in late 2009) initiating a rapid reports platform and *Cell* devoting a subjournal, *Cell Stem Cell*.

A careful examination of the 2009 Journal Citation Reports (JCR), published by Thomson Reuters, reveals six journals bearing the title word “stem”, with both *Stem Cell Reviews* and *Stem Cell Reviews and Reports* cited and ranked 3rd and 6th, respectively. However, under the JCR subject category of Cell & Tissue Engineering, *Stem Cell Reviews and Reports* ranks at the bottom of 11 journals despite garnering such high impact factor, which is likely due to the recent change in the journal name from *Stem Cell Reviews* to *Stem Cell Reviews and Reports*.

The proliferation of stem cell journals may be related to the current trend of publishing open access and online journals. Do we really need so many journals, which potentially dampen publication standards? Some stem cell-based medical enterprises around the world may wish to exploit publications in lower-tier journals to advance their clinical treatments, thus contributing to some of the negativity associated with medical tourism. As the stem cell field sets the pace for a formidable emerging technology with direct clinical application, we suggest that these new journals be continually assessed, particularly in light of the delayed release of journal metrics, which may not be available until a journal has been published for as many as 3 years or more. Other aspects of GPP, such as the publisher, editorial board membership, manuscript review process, and associated organizations, should be given more immediate examination. But as important, every potential author should carefully evaluate the scientific soundness of studies published by relatively young journals.

With new journal proliferation comes competition. It has recently come to light that publishing stem cell studies has been fierce and sometimes hostile, with allegations of

biased reviewers blocking competitors’ novel findings, leading to significant delay in publication or outright rejection (<http://news.bbc.co.uk/2/hi/8490291.stm>). New stem cell journals and traditional journals must amend their policies to allow more transparent review and editorial decision handling of stem cell and similar cutting edge research. Stem cell research is one of the most entrepreneurial areas of medical science. It is therefore not surprising that entrepreneurial publishers have developed numerous publication outlets for this rapidly expanding field. Ultimately, whether this stem cell journal proliferation continues, and aids the field of stem cells to “differentiate” into a more mature research arena, will depend on the quality of peer review and science of stem cells.

Acknowledgements The authors thank Ms. Cate Bae for excellent technical assistance in manuscript preparation. CVB is funded by James and Esther King Biomedical Research Program.

Disclosures PRS and CVB serve as Editor and Associate Editor of Cell Transplantation, respectively. PRS is also an Associate Editor of Stem Cells and Development, while CVB is an Editorial Board Member of Stem Cells.

References

1. Sanberg, P. R., Park, D. H., & Borlongan, C. V. (2010). Stem cell transplants at childbirth. *Stem Cell Reviews and Reports*, 6, 27–30.
2. Vieira, N. M., Brandalise, V., Zucconi, E., Secco, M., Strauss, B. E., & Zatz, M. (2010). Isolation, characterization, and differentiation potential of canine adipose-derived stem cells. *Cell Transplant*, 19, 279–89.
3. Leeb, C., Jurga, M., McGuckin, C., Moriggl, R., & Kenner, L. (2010). Promising new sources for pluripotent stem cells. *Stem Cell Reviews and Reports*, 6, 15–26.
4. Mandai, M., Ikeda, H., Jin, Z. B., Iseki, K., Ishigami, C., & Takahashi, M. (2010). Use of lectins to enrich mouse ES-derived retinal progenitor cells for the purpose of transplantation therapy. *Cell Transplant*, 19, 9–19.
5. Telugu, B. P., Ezashi, T., & Roberts, R. M. (2010). The promise of stem cell research in pigs and other ungulate species. *Stem Cell Reviews and Reports*, 6, 31–41.