

## Insight on stem cells and stem cell research in fake news

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Fake News Portrayals of Stem Cells and Stem Cell Research

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Misinformation and exaggerated claims found in online fake news stories can confuse the public, increase polarised views, and potentially impact government policies. The stem cell research community in particular should be aware of public opinions, as there is an abundant amount of misinformation about the benefits and risks of stem cell research. The recent study by Blake Murdoch and colleagues investigates how stem cells and stem cell research is being portrayed in news stories found on Internet domains (websites) known to promote fake and dubious news and identifies current trends in the themes and content of these stories.



### What questions & challenges are raised?

Recently the media and individuals in politics have directed a great deal of attention towards fake news, but misinformation is nothing new and affects many areas of society, including science and medicine. Some fake news may be generated to promote political or ethical ideas, but studies show there are significant financial incentives to promote fake news articles that attract large numbers of readers. Misinformation and misleading claims are also being used by clinics to market unproven stem cell therapies. Inaccurate, misleading and fraudulent scientific reporting can have a negative impact on the public's understanding of health, medicine, and scientific research. For example, the recent growth of vaccine refusals demonstrates the serious and lasting impact that misinformation or problematic coverage in popular as well as social media can have on attitudes and healthcare decisions. The influence and widespread presence of misinformation and fake news creates many challenges for educators, policy advisors, scientists, and others. In their recent publication, Blake Murdoch and his colleagues from the University of Alberta's Health Law Institute collected and analysed news stories from Internet domains known to promote fake news in order to identify current trends in the topics, tone, and kinds of claims made about stem cells and stem cell research.

### What insight & direction does this give for research policies?

Mr Murdoch and colleagues noted that generally the articles examined greatly skewed and distorted their sources of information. The authors also note that there appeared to be alternative motives behind the subject matter of the story, such as generating clicks and perhaps revenue. The author's study gives insight into how fake news stories are currently portraying stem cells and could help researchers, the media and policymakers identify how to effectively counter misinformation and safeguard the public's trust in stem cell research and policies based on evidence. The authors close by pointing out that companies that control the flow of internet activity may not want (or be able) to stop the spread of fake news but will continue to play a pivotal role in which kinds of information the public is able to readily access. As such, companies will need to consider the role they play in the spreading of misinformation and what – if anything – they are willing to do about it. Research institutions and governments also need to make efforts to oppose the spread of misinformation without obstructing free speech. This will certainly be a large and on-going challenge.

### What background and point are discussed?

Mr Murdoch and his associates utilised the "OpenSources" project to identify "fake news" and "junk science" Internet domains that have presented articles related to stem cells and stem cell research. The OpenSources project is a constantly updated database developed by Dr Melissa Zimdars, which identifies news sources with fake, false, biased, conspiratorial and misleading news stories. The authors searched for news articles discussing stem cells published between 2015 and 2016, ultimately finalizing 185 relevant articles on twenty-two websites. The authors' analysis of these 185 articles shows that stem cells and stem cell research are generally presented in relation to: science and research (unrelated to cloning), therapies to treat diseases/ailments, products or substances for health promotion or anti-aging, and ethical, legal and/or social issues. Furthermore, the analysis shows that over 60% of the articles portray stem cells as beneficial in some way, while 26% of articles portray stem cells or stem cell research as harmful. Of the 42 articles with a theme raising 'ethical, legal and social issues', 25 of them emphasise unethical research. There is also a strong emphasis in many of the 'ethical, legal and social issue' articles on harmful actions/policies by the government (16 articles), harmful actions by other groups/corporations (15 articles) and religious references (11 articles). These types of articles might help to create unwarranted fears, mistrust around scientific practices or government initiatives related to stem cells and stem cell research. Another common theme on these websites is the suggestion that natural products are much safer and more effective than conventional medical treatments and that the medical industry doesn't want patients to know about them. Mr Murdoch and colleagues also examine which specific procedures, research, or activity are discussed in relation to stem cells. The primary topic is cancer (53 articles), followed by topics of growing and fixing body parts (41), health related to diet (35), growing new or extinct animals (24) and reversing aging (22). Ninety-one articles (58%) reference a journal, institution or author that reported the initial findings. Again, the coverage given to the science appearing in academic journals often appeared to be problematic. The authors' analysis reveals that many websites promoting fake news retell the same (or very similar) content in multiple articles, sometimes with almost the exact same wording. Another trend in the articles is the prominence of links to articles or websites hosted by other fake news Internet domains. This abundance of links between fake news Internet domains builds the impression that articles are referencing a diversity of sources to support their story. The authors also speculate that these links may serve as a collaborative effort to generate more viewer activity and revenue. Of particular interest is that sometimes a single Internet domain may have articles that promote the benefits of stem cells with exaggerated statements while also hosting articles that promote fear about stem cells or cast doubt on research efforts.