



15 June 2012

Synthetic biology's potential controversy assessed

Major controversy surrounding synthetic biology is possible but unlikely in the near future, according to the results of a new study. The researchers assessed the potential for social and political conflicts by drawing comparisons with the controversy surrounding genetic modification (GM) in the 1990s. They argue that controversy over new technologies is influenced by how they are implemented, and healthy debate surrounding synthetic biology is likely to limit conflict.

The EU STEPE¹ project was set up to investigate public concerns with new technological developments, such as synthetic biology, which is examined by the study (partly funded by STEPE). Synthetic biology aims to combine biology and engineering to design and construct new biological functions not present in nature. The perception that synthetic biology is 'tampering with nature' or attempting to reinvent life itself might lead to objections along the same lines as those raised against GM, and therefore controversy. However, this could be an oversimplified view of the situation, and there are other factors at work.

GM is perhaps the best example of an emerging technology that has been the cause of a major controversy in Europe in recent decades. Public, political and media debate focused on the risks associated with GM products and particularly GM foods. Ultimately, controversy over the risks associated with GM led to rejection of GM products by consumers. While it is important to learn from past experiences when considering how to govern new technologies, it can be difficult to draw comparisons. Reactions to different biotechnologies have been found to differ greatly depending on how they are used and their specific context.

The researchers conclude that controversy will be unlikely, based on a model for conflict that they developed. They carefully describe elements of their model that determine the potential for conflict, including: how regulatory systems select the issues that they pay attention to; how campaigning organisations compete for regulatory influence; screening activities, such as public participatory events, which provide early warnings about conflict; the mass media; and public opinion.

One key component is 'The Gate' – the set of criteria that regulating institutions use to frame the issues in a particular debate. According to the authors, during the GM conflict, the nature of 'The Gate' meant that regulating bodies insisted on arguments being framed only in terms of risk – socio-economic and ethical concerns as well as arguments about potential benefits were rejected. For synthetic biology 'The Gate' is still fairly open, allowing a broader range of arguments related to safety, ethics and the limits of current regulation.

Simple comparisons between GM and synthetic biology are misleading, the researchers conclude. Several differences between the GM and synthetic biology debates lead them to suggest that a major controversy is unlikely for synthetic biology. Importantly, whereas there were obvious applications for GM in the food industry, it is at present more difficult to pinpoint specific products based on synthetic biology. This means that the public do not necessarily have a clear understanding of synthetic biology. In addition, media reports have so far been limited to science sections and few non-governmental organisations (NGOs) in Europe have shown interest in the issue.

1. STEPE (Sensitive Technologies and European Public Ethics) is supported by the European Commission under Seventh Framework Programme. See: <http://stepe.eu/>

Source: Torgersen, H. and Hampel, J. (2012). Calling controversy: assessing synthetic biology's conflict potential. *Public Understanding of Science*. 21(2), 134-148. DOI:10.1177/0963662510389266.

Contact: torg@oeaw.ac.at **Theme(s):** Biotechnology, Risk assessment

The contents and views included in Science for Environment Policy are based on independent, peer-reviewed research and do not necessarily reflect the position of the European Commission.

To cite this article/service: "Science for Environment Policy": European Commission DG Environment News Alert Service, edited by SCU, The University of the West of England, Bristol.