

Enthusiasm and care

This is a publisher-produced PDF of the article [Newson, A. (2009) "Synthetic biology: enthusiasm and care." *People and Science*, September, p24.], available online at [<http://www.britishsociety.org/people-science-magazine/september-2009/enthusiasm-and-care>]; self-archived with permission of the British Science Association, 2014.

A new European research project will soon begin, to provide the first detailed analysis of a key application of synthetic biology. The SYBHEL Project: 'Synthetic Biology for Human Health – Ethical and Legal Issues' will examine the impact and implications of this new discipline for human health. Synthetic biology promises innovations in drug development, delivering drugs to the point of action in the human body, creating synthetic stem cells, new vaccines and live organisms to treat human disease.

This new project, which will involve ethicists and scientists from across Europe, will tackle the ethical and legal implications of these new technologies, as well as debate the best way that bioethical analysis should progress. The promise of these innovations is significant, yet we must bear in mind their implications for how we understand human wellbeing, the concept of 'life' itself and how new health outputs from synthetic biology can be shared in a fair way. We also need to consider whether we need any new laws or policies to govern these developments.

Bioethics can play a rich and important role in debates over synthetic biology, but we need to be sure that we do it right.

Ethics is important

New developments in science are often criticised for advancing too quickly, leaving no space for reflection or debate on ethical, legal and social issues (ELSI). To their credit, scientists working in synthetic biology have taken a different approach. Researchers have been frank in raising potential pitfalls of this exciting area of multi-disciplinary research, and the options for keeping them in check. Scientists have also invited ethicists into the discipline from an early stage. UK research councils have joined together to fund seven networks on synthetic biology, each of which has to demonstrate ELSI activity.¹

However, it may be challenging to 'do' bioethics in synthetic biology given that the field is so broad. SynBio has many differing methodological approaches and potentially limitless possibilities for the design and construction of new biological sequences, parts or even whole organisms.

Limited approach?

Bioethics, the academic discipline in which ELSI is often deliberated, has been criticised as limited and over-institutionalised. Some have argued that it uses an overly-simplistic toolkit of 'principles' that will pigeon-hole issues and constrain the kind of debate we need over synthetic biology. This has led to scepticism over whether bioethics is the right discipline for assessing the issues in synthetic biology² or that synthetic biology even needs its own 'synthetic bioethics' at all.³

So do we need to worry about synthetic biology, or is it just an extension of methods that scientists have always used? If we are going to worry about it, is bioethics a suitable tool for resolving these issues?

Take care

Perhaps unsurprisingly, I contend that synthetic biology does raise issues that require deliberation; and that a bioethical approach is the best for resolving them. But we need to be careful how we do this.

First, we need not characterise bioethics as a limited discipline but utilise it in all its rich, multi-

disciplinary glory. We need to involve philosophers, ethicists, lawyers and social scientists – working together with scientists researching synthetic biology. There should also be engagement with the public about these ethical issues. Second, we need to focus on specific applications of synthetic biology to ensure that we don't try to use a 'one size fits all' approach to the issues that will arise. If this is not done, we'll end up with a fairly uninteresting list of practical issues dressed up as being ethically controversial.

It is the responsibility of everyone in this field to embrace ethical debate and to ensure the field develops responsibly.

¹ E.g.: www.bristol.ac.uk/scn [1]

² S Yeardley. (2009). The ethical landscape: identifying the right way to think about the ethical and societal aspects of synthetic biology research and products. *J. R. Soc. Interface* doi:10.1098/rsif.2009.0055.focus. Available at: <http://rsif.royalsocietypublishing.org/content/early/2009/05/12/rsif.2009.0055.focus.full> [2]

³ E Parens *et al* (2008). Do we need "synthetic bioethics"? *Science*, 321, 1449.



Dr Ainsley J. Newson

Dr Ainsley J. Newson is a Senior Lecturer in Biomedical Ethics at the Centre for Ethics in Medicine, University of Bristol

Section:

[People & Science](#) [3]