

# Synthia: do we need another Asilomar conference?

Richard Kitney and Tom Wakeford disagree

In the mid-1970s, scientists beginning to work with recombinant DNA were worried about the potential dangers of this new field of research. They called colleagues to a conference at the Asilomar conference centre, California, to address their fears and decide how they could continue their work safely. Might a similar pause be wise after Craig Venter's production of the first synthetic life-form, Synthia?

## Dear Richard,

'Upstream engagement' has been touted as the solution to public opposition to new technologies. It was meant to make the public feel they had been part of shaping new areas of science and thus more easily accept them. But the application of this logic in the early development of nanotechnologies was fundamentally weak. With the complicity of governments, big businesses now decide the pathway they wish a technology to take. This technological path is virtually immune to wider debate about society's best interests. The weaknesses of nano-dialogues have now been repeated in the recent research council consultation on synbio.<sup>1</sup>

Most of the world's investment in synbio comes from private corporations, and most innovation happens under the cloak of commercial confidentiality. The future is then imposed as a patented gene or a product in the marketplace. This profoundly undemocratic approach flies in the face of the openness and transparency that underlies good science.

We need 'strong' dialogue that allows the re-examination of state and corporate agendas. In response to Synthia, why not have a short-term moratorium on synbio research, similar to the pause in recombinant DNA research that followed the Asilomar Conference of scientists and other concerned groups in the US 35 years ago?

Yours, Tom

<sup>1</sup> D Battachary, J Pascall Calitz and A Hunter (TNS-BMRB, 2010). Synthetic Biology Dialogue: BBSRC/EPSRC/Sciencewise-ERC. See [www.bbsrc.ac.uk/web/FILES/Reviews/1006-synthetic-biology-dialogue.pdf](http://www.bbsrc.ac.uk/web/FILES/Reviews/1006-synthetic-biology-dialogue.pdf)

## Dear Tom,

Whilst it may have been true that in the past 'upstream engagement' has been used as a way of offsetting public opposition to new technologies, I do not believe that this is the case in relation to a significant number of people working in synthetic biology. An important aim of the academic synthetic biology community is to engage with the public via serious dialogue. The object of this exercise is not to make the public 'feel better' – except in the sense of being properly engaged.

With regard to big business being involved in deciding which way the technology should go, where major commercial investment is involved, companies do dictate a particular direction in terms of the development of the technology. This is true in almost any industrial field.

The international academic synthetic biology community has a strong tradition of openness in relation to their research. For example, one of the conditions of the International Genetically Engineered Machine competition (iGEM)<sup>1</sup> is that the full laboratory record is placed on an open wiki. The academic community is also pushing very hard for 'open source' to try to avoid a large number of patented genes and/or products in the market place.

A moratorium in response to Synthia would be highly counterproductive. There are many important projects in healthcare and so on which could be seriously affected.

Yours, Richard

<sup>1</sup> iGEM is the most prestigious synthetic biology competition for undergraduates. Student teams are given a kit of biological parts. They use these, and new parts of their own design, to build biological systems and operate them in living cells.

## Dear Richard,

I agree that many in the academic community want 'serious dialogue'. However, the recent Synthetic Biology Dialogue, to which we were both advisors, suggested that its research council sponsors do not yet understand what this really means.

The entire process was closer to commercial market research than genuine public dialogue. Contrary to established good practice in this area, the councils decided that the workshops should be held in private, saying it was too soon for any discussions to take place in public.

One of your colleagues, commenting at a workshop to design the process, expressed a desire to avoid being caught unprepared by another MMR. In his mind and those of other researchers, the MMR and GM scares, and even the BSE disaster, get lumped together as examples of the ignorant mob versus scientific truth. The problem is that in the cases of GM and BSE, the mob was partially correct.

In both cases, not only were official scientific predictions flawed, but the key experts were reluctant to be frank about the uncertainties and gaps in knowledge underlying their advice.

Isn't it vital that the lessons learned from this seriously flawed pilot are applied to the fuller dialogue that is to take place later this year?

Yours, Tom

**Dear Tom,**

I agree with much of what you say. There is a need for serious public dialogue.

I believe that public dialogue breaks down into two categories (perhaps more). The first is where social scientists carry out detailed research. The second is where the researchers in synthetic biology really do enter into a dialogue with the public - explaining what they are doing and what they believe are the potential benefits to society. It is important that the public understands that we are not isolated geeks, but normal people with wives, partners, children, mortgages and so on. There is another aspect of this: listening carefully to what the public has to say. It is not too soon for open debate - we had an excellent debate at the London School of Economics earlier this year, which was totally open.

There is a danger with issues such as GM, BSE and MMR that the facts can become distorted in order to sell newspapers. In my view, the way to handle this is to present the facts in a straightforward way, avoiding scientific jargon. Lay people aren't stupid, but they are often not trained in science. Hence it is important that the scientists and engineers involved in the research are clear about the uncertainties and gaps in knowledge - which is the reality of many areas of science.

**Yours, Richard**

**Dear Richard,**

Like you, I am in favour of social and ethical research into synbio. However, there are lessons from the Human Genome Project. Here, five per cent of a multi-billion pound budget supported such work, but the questions addressed were tightly controlled by the scientists. It took the tiny and poorly-funded UK non-governmental organisation (NGO) GeneWatch to expose the history of some of the commercial interests and misleading claims made about the project, as its director, Helen Wallace, explained at a recent Wellcome Trust conference to mark the tenth anniversary of the sequencing of the human genome.<sup>1</sup>

You suggest that public dialogue should be approached by scientists presenting 'the facts in a straightforward way', by 'explaining what they are doing' and describing 'the potential benefits to society'. But this scientific framing excludes wider, long-term social, legal and political issues - not least the responsible and transparent management of undesirable consequences.

In our complex, contemporary world, people are good at finding out what they need to know, and want a say in how technological developments will impinge on their daily lives: their health, employment, environment, security, education, community. A narrow approach to public engagement risks alienating the very people we wish to involve in open dialogue, as it fails to address their concerns.

**Yours, Tom**

<sup>1</sup> H Wallace (2010) History of the Human Genome, Genewatch UK Briefing Series. [www.genewatch.org/uploads/f03c6d66a9b354535738483c1c3d49e4/HGPhistory\\_2.pdf](http://www.genewatch.org/uploads/f03c6d66a9b354535738483c1c3d49e4/HGPhistory_2.pdf)

**Dear Tom,**

Many of the comments that are made about synthetic biology, and the issues raised, are common to many other areas of scientific development. I have no doubt that the work of many NGOs is worthwhile. However, science is based on doubt, on questioning. To quote John Maynard Keynes: 'When the facts change, I change my opinion.' The difficulty which many scientists have with some NGOs is that they are set up to oppose, no matter what.

Public dialogue in areas like synthetic biology is always going to be difficult. The issues are often complex and require many years of study to fully understand. This is why I say that it is the job of scientists to present the facts in a straightforward way. As you say, we live in a complex world - I do not expect to understand other fields in any depth, but I do value experts providing a clear view upon which I can base an opinion. Significant developments frequently take decades. It is all very well saying that people 'want a say in how technological developments will impinge on their lives,' but 20 years ago how many people knew about the world wide web - let alone had any inkling of the profound social impact it has today?

**Yours, Richard**



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