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Syns of Omission:

Civil Society Organizations Respond to Report on Synthetic Biology Governance from the J. Craig Venter Institute and Alfred P. Sloan Foundation

A report released today on policy options for governance of synthetic biology is a disappointing effort that fails to address wider societal concerns about the rapid deployment of a powerful and controversial new technology. Synthetic biology aims to commercialize new biological parts, devices and living organisms that are constructed from synthetic DNA – including dangerous pathogens. Synthetic biologists are attempting to harness cells as tiny factories for industrial production of chemicals, including pharmaceuticals and fuels. ETC Group describes the synthetic biology approach as "extreme genetic engineering."

The report, authored by scientists and employees from the J. Craig Venter Institute, Massachusetts Institute of Technology (MIT) and the Center for Strategic & International Studies (Washington, D.C.) was funded by a half-million dollar grant from the U.S.-based Alfred P. Sloan Foundation and billed as a "project to examine the societal implications of synthetic genomics."[1] The study was more than two years in the making, but the report makes no policy recommendations and failed to properly consult civil society. While the authors do acknowledge possible bio-error (i.e., synbio accidents that cause unintended harm to human health and the environment), the emphasis is on how to impede bioterrorists "in a post-September 11 world."

"This report is a partial consideration of governance by a partisan group of authors," explains Jim Thomas of ETC Group. "Its authors are 'Synthusiasts' – or, unabashed synthetic biology boosters – who are primarily concerned about holding down costs and regulatory burdens that could allegedly stymie the rapid development of the new industry. By focusing narrowly on safety and security in a U.S.-centric context, the report conveniently overlooks important questions related to power, control and the economic impacts of synthetic biology. The authors have ignored the first and most basic questions: Is synthetic biology socially acceptable or desirable? Who should decide? Who will control the technology, and what are its potential impacts?"

The report's authors include representatives from institutions with a vested interest in commercialization of synthetic biology. According to the J. Craig Venter Institute, one

[1] See, for example, MIT news release, June 28, 2005, "Study to explore risks, benefits of synthetic genomics," available on the Internet: http://web.mit.edu/newsoffice/2005/syntheticbio.html

of the three institutions that led the study, scientists are just weeks or months away from announcing the creation of the world's first-ever living bacterium with entirely synthetic DNA and a novel genome. Scientists from the Venter Institute have already applied for patents on the artificial microbe, dubbed "Synthia,"and Craig Venter predicts that it could be the first billion or trillion dollar organism. The report fails to address issues of ownership, monopoly practices or intellectual property claims arising from synthetic biology.

"The sixty-page report has oodles of input from a small circle of scientists and policy 'experts,' but the 20-month long study fails to incorporate views of civil society and social movements," points out Hope Shand, ETC Group's Research Director. "An insular process like the one that produced the Sloan report instills little confidence in the results."

The economic and technical barriers to synthetic genomics are collapsing. Using a laptop computer, published gene sequence information and mail-order synthetic DNA, it is becoming routine to construct genes or entire genomes from scratch – including those of lethal pathogens. The tools for DNA synthesis technologies are advancing at break-neck pace – they're becoming cheaper, faster and widely accessible. The authors acknowledge this reality, and evaluate several options for addressing it.

One proposal aimed at "legitimate users" of the technology – those working in industry labs, for example – is to broaden the responsibilities of Institutional Biosafety Committees, which were established (in the US) to assess the biosafety and environmental risks of proposed recombinant DNA experiments.

Edward Hammond, Director of the Sunshine Project, a biotech and bioweapons watchdog, argues, "Institutional Biosafety Committees are a documented disaster. IBCs aren't up to their existing task of overseeing genetic engineering research, much less ready to absorb new synthetic biology and security mandates. The authors of this report are aware of the abject failure of voluntary compliance by IBCs, including by the Venter Institute's own IBC. So it is very difficult to interpret their suggestion that IBCs oversee synthetic biology as anything but a cynical attempt to avoid effective governance."

Options for governing synthetic biology must not be set by the synthetic biologists themselves – broad societal debate on synbio's wider implications must come first. Synthetic microbes should be treated as dangerous until proven harmless and strong democratic oversight should be mandatory – not optional. Earlier this year the ETC Group recommended a ban on environmental release of *de novo* synthetic organisms until wide societal debate and strong governance are in place.

ETC and other civil society organizations have called repeatedly for an inclusive, wide ranging public dialogue process on societal implications and oversight options for Synthetic Biology.

The full text of "Synthetic Genomics: Options for Governance" is available here: http://www.jcvi.org/

ETC Group's January 2007 report on synthetic biology, Extreme Genetic Engineering, is available here: http://www.etcgroup.org/en/materials/publications.html?pub_id=602

Backgrounder: Open Letter on Synthetic Biology from Civil Society, May 2006: http://www.etcgroup.org/en/materials/publications.html?pub_id=11

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