Accessible Bio Companies Back Up the Importance of “Criminal” DIY Kits for the Future of Science Education

Accessible Bio companies provide a response to the recent warning issued by the German government regarding the use of “criminal” DIY genetic engineering kits in Germany. The response aims to broaden the discussion on the importance of DIY genetic engineering kits and invites further dialogue about the use of these technologies within Europe.


For the German translation, please visit here.

On Friday February 3rd, 2017, Make Magazine (Germany) published "Biohacking: Federal Office warns against Do-It-Yourself kits", pointing to the German federal government's declaration on GM projects. This declaration, published by the German government on January 25th, 2017, as “Genetic engineering with biology kits: simple, but potentially criminal”, outlines the current legislation for the handling of “DIY genetic engineering kits” bought from abroad (North America).

Who can do genetic engineering experiments, and where can they do them? These are the types of questions that very frequently arise in European countries as the accessible science movement gains momentum worldwide. Unfortunately, each European country has slightly different rules, making it difficult to get a straight answer. Since the DIYbio and Maker movements are growing rapidly around the world and Making with Biology outside of universities and corporations is now an exciting and feasible exercise no longer relegated to the realm of science fiction, it is important for governments to clearly delineate the current laws and regulations. In fact, looking at the German DIYbio Google Group, the legal uncertainties surrounding DIYbio in the home are brought evident. The German government along with Make: have done Europe a service in clarifying the rules in Germany.

Initially when reading the Make: article using Google Translate (as many native English speakers would do), it comes across as polarizing, and even suggests that the products are potentially “criminal kits.” After a careful read, one would realize that the intention is not to crackdown on biohacking or limiting access to hands-on biology education but that it is rather a timely reminder of the containment level and environment required in Germany to complete genetic engineering tasks. For this, we see the German government's move to clarify the current rules as a positive undertaking. Furthermore, the Make: article closes on a constructive note with a link to information about how non-scientists in Germany can learn about biotechnology and genetic engineering.

The “Accessible Bio” companies recommend that all European countries follow Germany’s lead and clearly and concisely communicate GM regulations to DIYbio and makers in their countries, as well as recommend appropriate locations where this type of exploration can be done if they are unable to complete the Risk Group 1 experiments at home. For example, in the United Kingdom you can find accredited DIYbio labs such as MadLab and London Biohackspace. In the Netherlands, the Waag Society, La Paillasse in France, and the OpenBiolab in Austria.

Efforts are also being made by EKoli, a European “Maker” initiative that aims to standardize and make learning and hands-on genetic engineering possible for Belgium schools. “We’re pursuing and working with government...
to establish a scalable model for setting up appropriate containment levels in an ad hoc basis in schools, so that this important [genetic engineering] content can be effectively taught.”, says co-founder Deepak Mehta.

“We are North American companies building products for North American customers, under the North American regulatory framework. At the moment, it is more complicated for those in European countries who wish to learn about genetic engineering hands-on as the rules are unclear”, says Justin Pahara, Fellow of the Johns’ Hopkins Emerging Leaders in Biosecurity Initiative (ELBI) and former Biosafety Committee member of the Department of Chemical Engineering and Biotechnology at the University of Cambridge. “Safety is one of our greatest considerations, and we encourage everyone who purchases our product(s) to comply with their local containment laws and follow the safety and disposal instructions.”

In North America, these DIY, Education, and Design kits do not require regulated containment as they are considered non-harmful to humans or the environment. The regulations for containment in North America begin with potentially hazardous agents and pathogens.

“We design our kits and technologies in response to information inequality” says Orkan Telhan, co-founder of Biorealize and faculty of Emerging Design Practices at University of Pennsylvania. "Not everyone has access to the same resources and infrastructure to start learning biology. And anyone who is interested in exploring the world of the living should be able to pursue it, whether it is through DIY Biology, Biohacking, or PhDs in Life Sciences. This diversity is necessary. These educational kits are stepping stones that will turn young curious minds into a growing community of professionals who can design the next generation applications of biology.”

“Through our research, we found that once a person reaches the age of 16, they’ve often already decided on a career path based on the opportunities they have had access to”, says Julie Legault, CEO of Amino Labs. “The world needs innovation that leads to more abundant and cheaper medicine - more nutritious and non-animal-based sustainable food options - more eco-friendly and sustainable manufacturing methods — all of which will lead to economic growth. Genetic engineering is a key tool for achieving these goals, and, as a complex topic, is best explored hands-on. Everyone should have the opportunity to unearth their passion for solving humanity’s grand challenges through biology, regardless of their access to university labs.”

We see this response as an opportunity to jointly express our commitment to make biology accessible to anyone who would be willing to use it responsibly.

We invite the all policy-makers and enforcers of GM laws to consider the following:

The mission of “Accessible Bio” companies is mainly to address information inequality. We intend to support biotech education to make it more accessible to those who do not have the resources.

We invite all stakeholders to be in dialogue with each other to address the regulatory concerns together. There is no need to contemplate, pass and/or enforce regulation due to fear and unverified opinions.

We are always ready to hear new perspectives from everyone who would like to learn genetic engineering with our kits and technologies. We are ready to improve our products to support your interests.
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