

**2010 International Year of Biodiversity –
Call to protect the environment from synthetic organisms**

Synthetic Biology aims to create completely artificial organisms. Possible applications range from medical purposes and the production of biological weapons to agriculture and energy production. There are concerns about new infectious diseases and artificial microbes that might cause the breakdown of ecological systems. In 2010, scientists publicly announced the first self replicating organism to stem from an artificially designed genome. This is a development that needs to be addressed during the “2010 International Year of Biodiversity” as proclaimed by the United Nations.

Protect evolutionary integrity

The impact of synthetic genes or organisms cannot be predicted once they are released into the environment. They could persist and spread quickly because they can escape the control of normal gene regulation and processes of evolutionary adaption. Synthetically derived gene sequences, designed for certain purposes, can cause unintended and adverse effects triggered by interactivity with the environment or with other gene sequences. New international regulations are needed to safeguard the evolutionary integrity of existing biological diversity. The release of synthetically designed organisms into the environment must be prevented.

Signatories are calling for:

1. A comprehensive investigation into the potential risks to human health and the environment posed by synthetic organisms as well as broad discussion on ethical concerns.
2. Strict legal regulations, prohibitions and effective controls to protect the environment from synthetic organisms and their artificial genes.
3. Registration and permanent control of those companies and institutions that are synthesising gene sequences or organisms or using those, to prevent creation of infectious organisms or biological weapons for example
4. A moratorium on public funding of Synthetic Biology

We are calling for a broad public debate on Synthetic Biology before further action is taken and political decisions are made.

Name, Surname	Postal address and e-mail* <small>(*please fill in if you would like further information. This information will be removed before the lists are presented in public)</small>	Signature	Please keep me informed

The appeal will be presented to the European Parliament, German Parliament and United Nations. Please return by 30. June 2011.

Please support the appeal “International Year of Biodiversity 2010 –

Call to protect the environment from synthetic organisms”

Please sign on the back and return to:

Testbiotech e.V.

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Synthetic Biology seeks to create artificial life. Synthetic genes are designed in the lab. New organisms are designed from the scratch. Turning non-living materials into living organisms is a concept that must for many reasons cause concern. In 2010 scientists created and presented to the public the first self replication organism with a completely artificial genome.

Synthetic organisms and their genetic conditions have not evolved naturally or been through a process of mutual adaptation. Therefore, any risk assessment is a complicated task and the impact on biological diversity cannot be predicted. These artificial organisms may be eliminated after a short period of time but it is equally possible that they might replicate within certain ecological systems and destabilise innate biodiversity – a risk that is called a “Green Goo” scenario by some experts.

In the meantime, we know that the regulation of the genome and processes of evolution are much more complex than previously thought. Simply identifying specific risks by taking the complexity of evolution and regulation of the genome into account is not sufficient in itself as a basis for discussions on precautions. The systems of evolution and genome regulation need to be protected to safeguard future development. If artificial life is created, its existence needs to be contained and limited in relation to time and distribution to be reversible at any time and every stage. New regulations need to be put in place to safeguard the evolutionary integrity of existing biodiversity.

In addition, the activities of those institutions performing gene synthesis must be registered and subjected to effective and permanent controls to prevent the production of e.g. infectious organisms and biological weapons. There must be automatic and permanent control of the synthesis of gene sequences. The synthesis of specific gene sequences should be prohibited.

Further development and application of Synthetic Biology should be dependent on the implementation of effective controls and regulations. That is why Testbiotech is not only calling for specific regulations but also a moratorium on public funding to gain sufficient time for broader debates within society. **Synthetic Biology needs strict legal regulation, prevention and a broad public debate!**

In addition to **Testbiotech**, the following organisations support the appeal “2010 International Year of Biodiversity – call to protect the environment from synthetic organisms”:

