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# World Social Science Forum

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Engaging key stakeholders in addressing the biosecurity challenges: Insights from the social sciences

**Introducing modern biotechnological techniques: Is biosecurity a new issue?**

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**iap** SCIENCE  
RESEARCH  
HEALTH  
the interacademy partnership



## Introduction

Poliovirus, H5N1, biosecurity in XXI century

Dual use: Terrorism or Warfare?

Responsible experimentation

Was biological experimentation ever safe?

Hazard to humans and hazard to other species!





Paracelsus (late 1493 – 24 September 1541), : suggested creation of a smaller human copy through science.

Nobel Prize in Chemistry 1980 : Berg “recombinant DNA” + Gilbert and Sanger ”DNA sequencing”

Genome Engineering: CRISPR – “molecular scissors”, Gene Drives, gain-of-function (dominant negative), Gene therapy, and Synthetic Biology – making new organisms

**We can ‘improve’ ourselves and make new creatures?**



## What about intentional dual use?

Arzawans and the Hittites, engaged "in mutual use of contaminated animals" during the 1320-1318 BC Anatolian war. And on and on up to our time...

1993 Japan: オウム真理教 (*Oumu Shinrikyō*) and 2001 USA: Amerithrax – anthrax attack – **Alarm!** International collaboration on biosecurity.

Lesson from atomic bombs disaster – is it learned?  
But we can clone new viruses, bacteria, humans,..

Terrorism...probably the biggest problem



Side effects of industrial and medicinal cloning are always possible and even mostly unavoidable!

Scope of damage is unmeasurable – possibly permanent, spreading, unsolvable consequences

Growing Do-it-Yourself Movement around the world

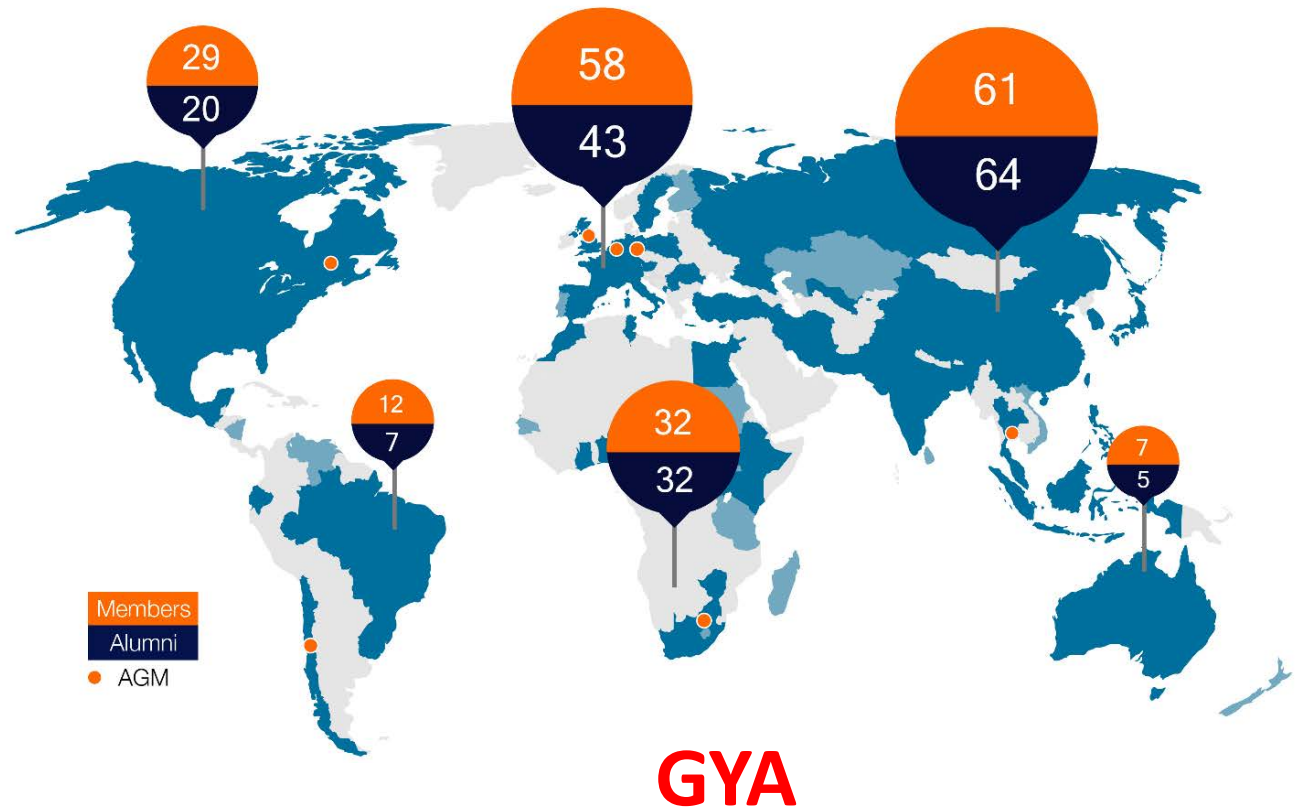
International cooperation and timely advice of scientists to policymakers is essential!



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# We need to nurture youth from the young age

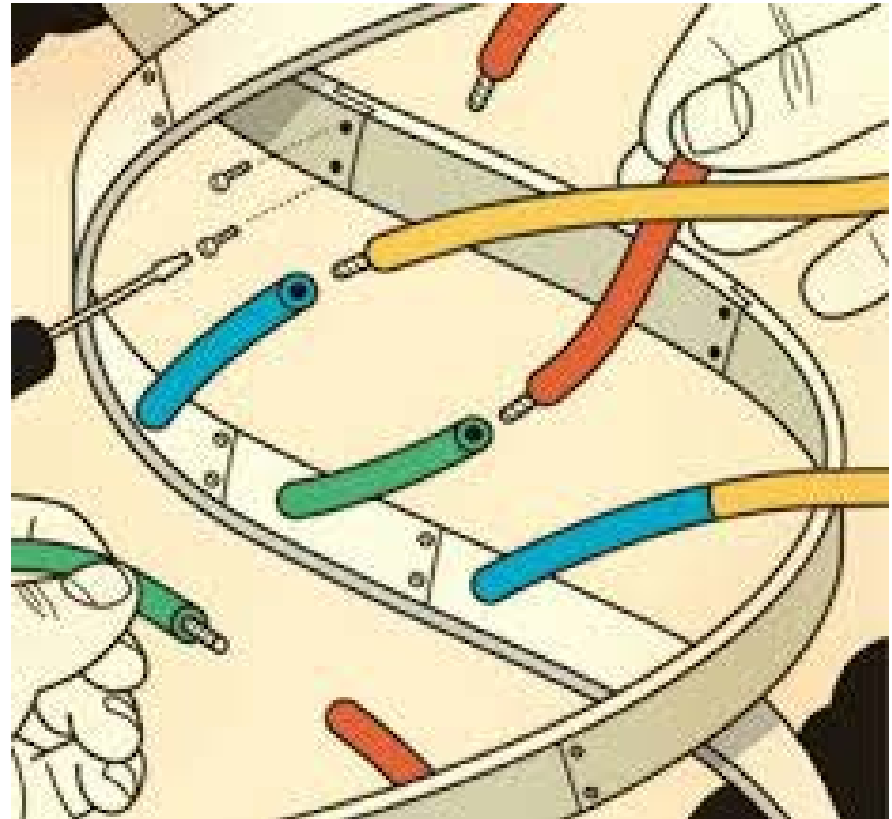
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**SCIENCES  
ENGINEERING  
MEDICINE**

GOVERNANCE OF DUAL USE  
RESEARCH IN THE LIFE SCIENCES:  
AN INTERNATIONAL WORKSHOP



The group aims to report on the prospects, risks, and opportunities around DIY Synthetic Biology. Additionally, the group provides training and policy recommendations to G20 and United Nations