



Can Cutting-edge Biology Strengthen the BWC?

Barriers and Opportunities

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*Global Forum On Scientific Advances Important to the Biological and Toxin Weapons Convention
Geneva, 2nd Dec 2019*

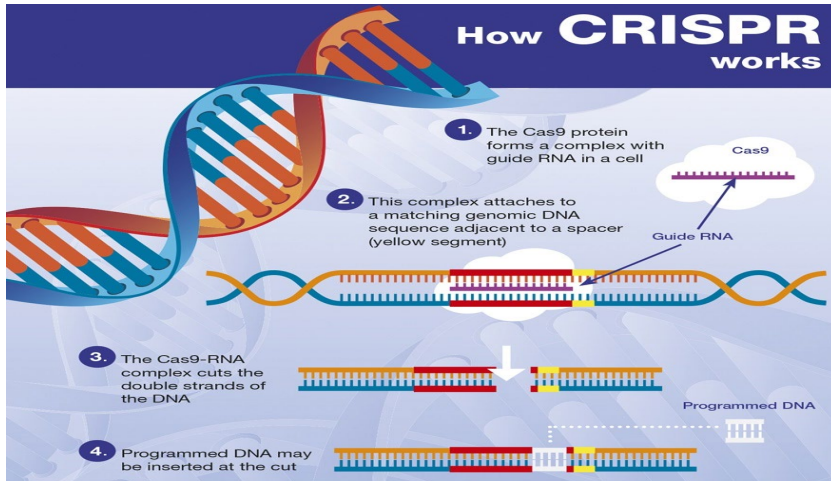
African Women for Biosciences (AWfB)



- Network of women with interest and passion in STI- women discussion the role of Biosciences in Kenya
- Initiated on April 2017
- A new platform – the African Women for Biosciences (AWfB), launched on May 10, 2018 in Nairobi
- Strengthen the capacity of African women to engage and participate in Biosciences and policy dialogue

Emerging Biotech Tools Relevant to BWC

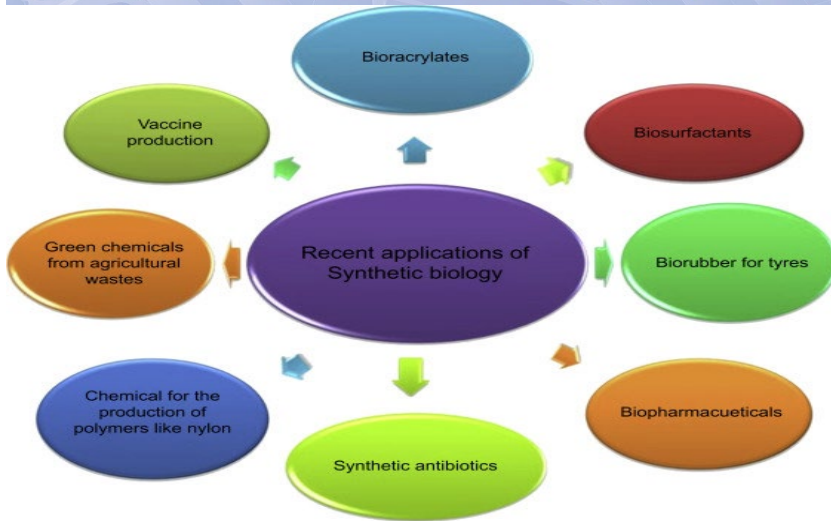
Gene Editing



- Delete, insert or alter DNA gene targets e.g. Disease causing, pesticide control genes; CRISPR-Cas9 system; recent, faster, cheaper, more accurate and more efficient

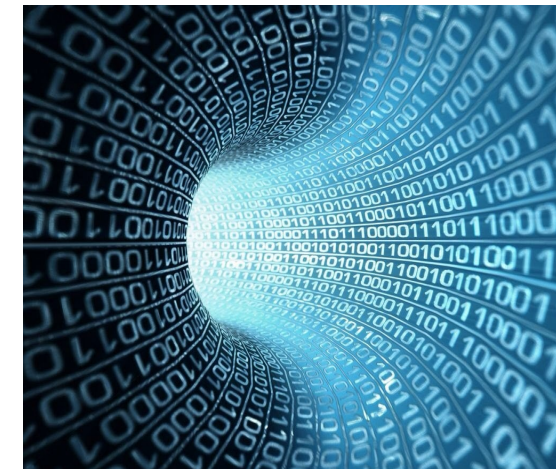
Synthetic Biology

- Design and construction of new biological parts, devices and systems that do not exist in the natural world; designing novel biological systems



Big Data

- Cutting edge technologies have enabled rapid collection of data



What Influences Public Perceptions about New Bioscience Innovations?

Four factors:



- ✓ **Trust**
- ✓ **Benefit**
- ✓ **Control**
- ✓ **Fairness**

*Ref: Risk
Perception
Theory*

Barriers or Opportunities?

Barriers	Opportunities
Genetic editing knowledge is limited to a few people = LOW TRUST	Personnel and biological material inventories PLUS capacity-strengthening
Experienced, Older generation, Brain drain	Mentorship opportunities
Off target or incomplete targeting mutations = CONTROL	Localized medium-to-long-term studies to determine effects
Need of Up-to-date equipment/infrastructure = FAIRNESS	Tech-transfer; license, regulate and monitor those who purchase such equipment
Lack of benefit sharing	Training- on new technology, equipment (border, security and port personnel)

Barriers or Opportunities?

Barriers	Opportunities
Lack of buy-in of new technologies by diverse stakeholders	Stakeholder mapping and for effective engagement
Weak legal and ethical guidelines	Public-private linkages in developing Legal and ethical guidelines
Low (sometimes absence) of Protocol regulations	Establishment of IRBs Development of Protocol regulatory framework using best practices
Funding limitations	Building collaborations
High Disease burden- Biopiracy?	Rich pathogen population- used to advance technology with relevant policies in place A lot of data- Data base accessed through a common query

Kenya's Achievement

- Established National CBRN Committee- Updating National Action Plans
- Developed a National Bio-risk Curriculum
- Biosafety Act Kenya (2009)
- Regulatory Bodies- NBA, IRB, NACOSTI established
- Biosecurity Bill – under development
- Strategic Trade Management Bill- under development
- Various Global Biorisk Trainings

Emerging Technologies: What Can We Do Differently?

Positioning Africa as a leader not a follower



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Regulations

Evaluate new technologies on a case-by-case basis

- Incorporate regulations for tech' into the existing regulatory frameworks

Policies

- Sector-wide-multidisciplinary policies – agriculture environment, health, industry
- Avoid setting up regulatory institutions every time there is a new technology
- Multi-representation in international conventions' negotiations (=Biosafety/BWC)

Communication

- Build a community of Africa-led science communicators

Desist from explaining process to the **“SO WHAT?”**

Grassroots outreach

Culture-sensitive

Summary

- Evidence-based policies supported by practical/facilitative regulatory framework not emotion-centered or based on risk perceptions
- Coordinated approach between relevant regulatory agencies across agriculture, health, environment and security
- Biosafety- key component in policy implementation
- Public sensitization about cutting-edge Biotechnology- Technical experts, Media, & other key stakeholders to enhance **TRUST**





A-S-A-N-T-E
(Thank you!)

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