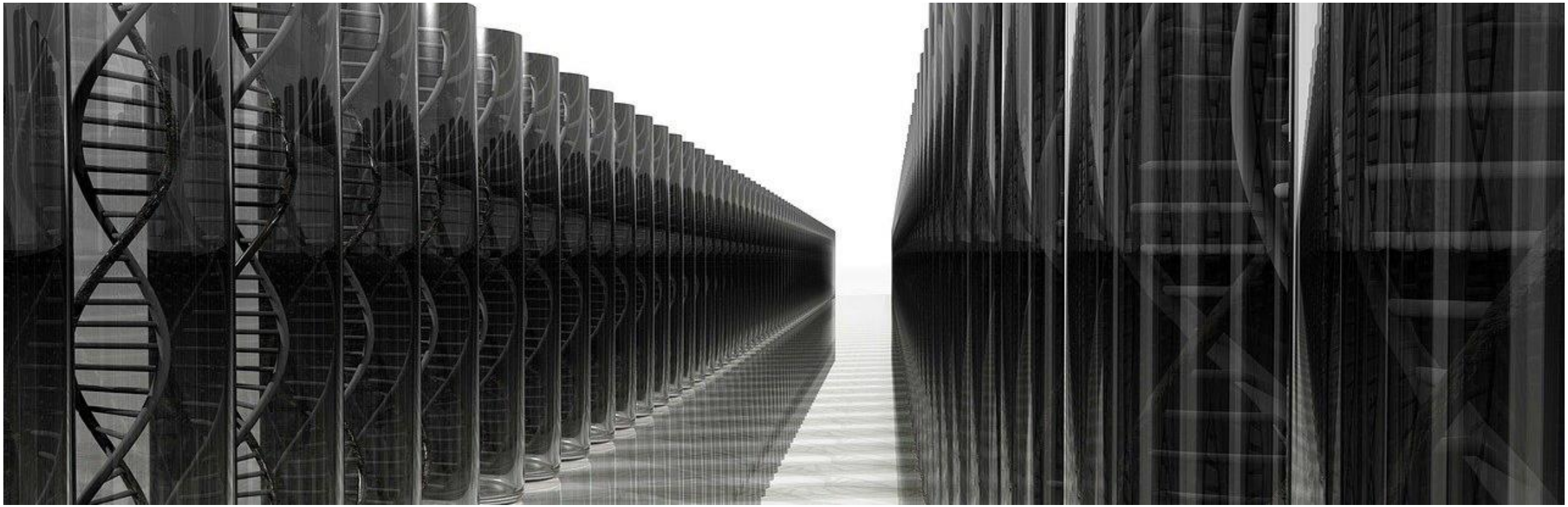
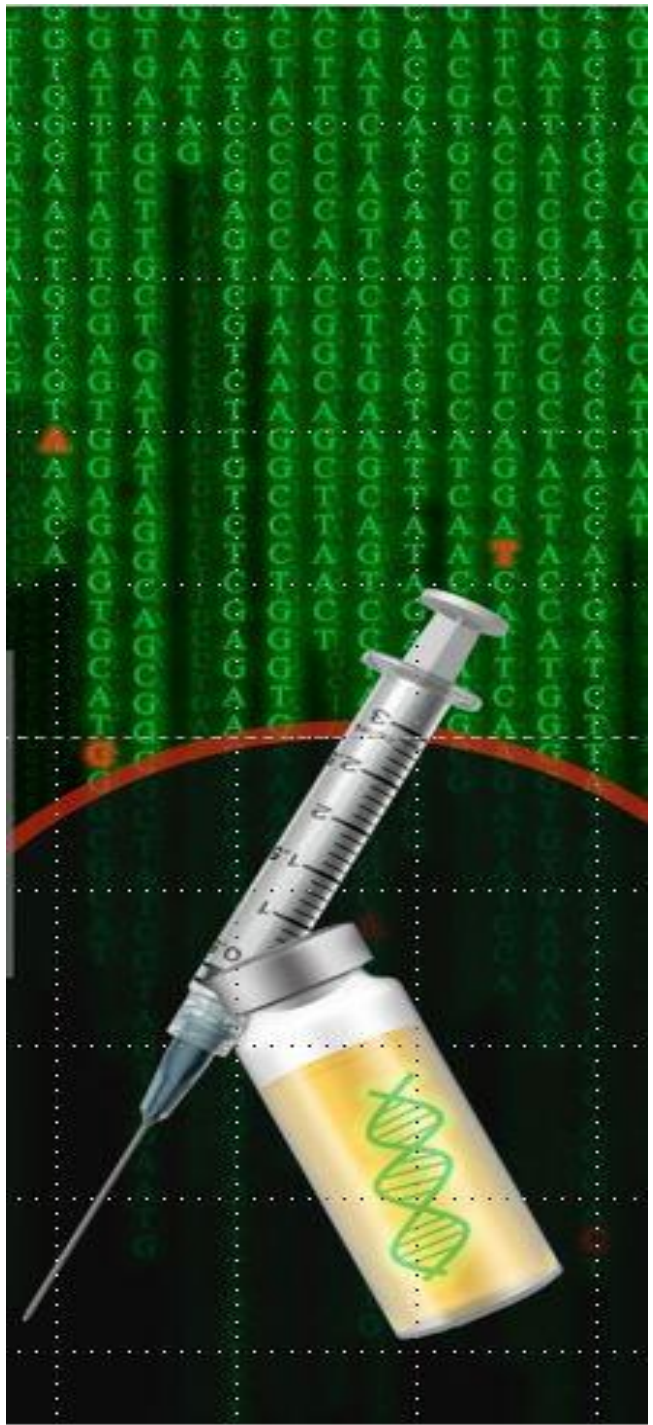


DNA-based vaccines against COVID-19, infectious diseases and Cancer

BIO-USA 2021

Takis Biotech

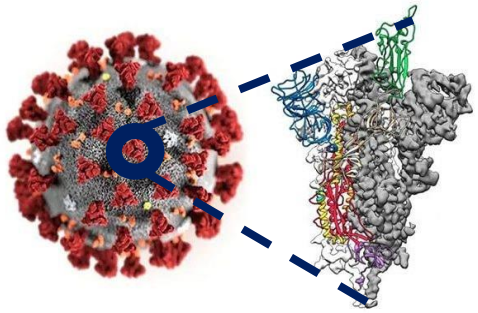
- Founded in 2009 by former MSD scientists with 10-20+ years experience in Pharma Industry
  - 5 products from lab to clinical trials
- Strong Expertise in Oncology and Infectious Diseases R&D, Gene Therapy, Development of Innovative Vaccines, Therapeutic monoclonal Antibodies (mAbs), Identification of Novel Targets and Biomarkers, Immunotherapy for rare diseases
- Track record with >100 scientific publications and 10 patent families
- Wide Scientific collaborations with Industry, Biotech and Academic partners
- As CRO, provides specialized services in Oncology, Immunology, Molecular Biology, Custom Antibodies and Animal Models. “Build to Buy” Model availa

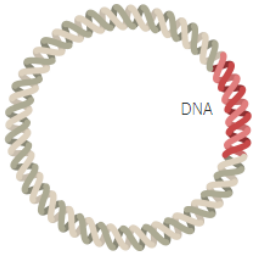


Objective: Next Generation Vaccines

- **X-eVax** proprietary vaccine technology based on **DNA platform**
- POC of the technology **successfully achieved** for Veterinary Vaccines:
  - **Tel-eVax** and **Erb-eVax** (Oncology)
  - **LineaCOVID-19** (cats and minks)
- **Malaria-eVax** is a vaccine approach in collaboration with EU Malaria Fund
- **NeoMatrix** is a personalized Cancer Vaccine Approach
- Takis in partnership with **Rottapharm Biotech** is currently developing **COVID-eVax**

X-eVAX Process





Extensive Study of Antigens and Properties
Antigen Modification and Engineering

- Choice of targets crucial for infecting human cells or for Cancer

Vaccine Construction, Test and Manufacturing
Recombinant DNA Plasmid

- Fast and cheap manufacturing
- Stable at room temperature

Vaccine Administration
DNA Electro Gene Transfer Technology (EGT)

- Low voltage pulses
- Efficient expression and induction of immune response
- Fast and painless procedure

X-eVax Advantages

Long lasting, repeated Boosting

DNA is a more stable genetic information compared to RNA

No induction of antibodies against the vaccine itself (contrary to with viral vector vaccines)

Targeting specific Regions

Minimal region within the target antigens:

- Consensus sequences

Responses

Capable of inducing both humoral (antibodies) and Th-1 cell-mediated responses

Easy Adaptation

The genetic design can be easily adapted in case of resistant variants

Optimized Production Process

Produced in bacteria:

- no need of viral vectors amplified in mammalian cells or complex formulation such as lipoparticles
- Shorter production times, less expensive process, easier transport and storage

Stable at Room Temperature

DNA is relatively stable

Lyophilization possible

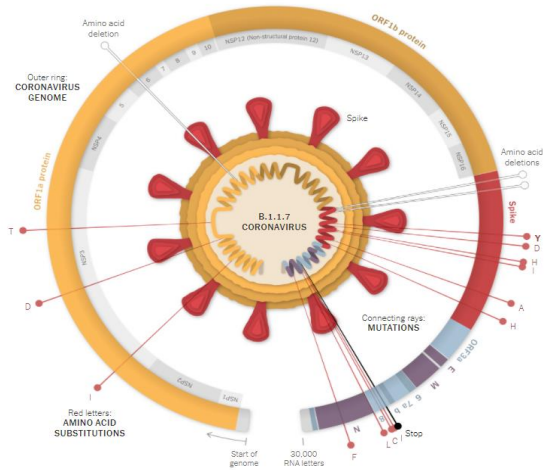
Possibility to ship globally

COVID-*e*Vax

- COVID-*e*Vax is a plasmid DNA vaccine against SARS-CoV-2, under development by the partnership between two Italian Biotech companies
  - **Takis Biotech**, the originator and patent-holder of COVID-*e*Vax
  - **Rottapharm Biotech**, providing
    - the development skills for the entire process
    - the initial financial support (for early manufacturing, non-clinical development and phase I/II clinical development)
- **Currently in Phase I/II Clinical Trial**
- **Phase III planned to start in 4Q21**

COVID-eVax

- Spike-RBD specific: the key to enter human cells
- High antibody titer and neutralization activity (5-10 fold higher than convalescent patients) vs Wuhan and other variants (UK, Brazil, RSA)
- Antibodies in the Lungs
- Induction of T cell immunity
- Works equally in genders and aged animals
- Safe in preclinical models
- Protects hACE-2 mice and ferrets from SARS-CoV2
- Vaccines against current variants already available



Harnessing the Immune System to fight Cancer and Infectious Diseases

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