Bio . Innovation . Stärken

Von der Pflanze zum hochqualitativen, rekombinanten Protein:
magnICON®-Platformtechnologie für pharmazeutische und diagnostische Anwendungen

13. Mai 2025

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Icon Genetics

Icon Genetics

Location

Weinbergweg 22

06120 Halle/Saale

Germany

Focus

Production of recombinant proteins in green plants

Intellectual Properties

Dominant patent portfolio for plant-based expression and its application

(> 40 patent families)

Capabilities

Fully integrated clinical stage biotech company with own GMP-certified facility

Company History

1999 - 2005

Funding and Research Phase

Key achievement:
magnICON® Plant-Based Expression Technology

2006 - 2011

Subsidiary of Bayer

Key achievement:
Development and Clinical Testing of Personalized Cancer Treatments

2012 - 2014

Subsidiary of Nomad Bioscience

Key achievement:
Complex Contract Development for Large Biotechnology Companies

2015 - 2025

Subsidiary of Denka

Key achievements:
Development and Clinical Testing of a Norovirus Vaccine; Contract Manufacturing of Proteins for Diagnostics

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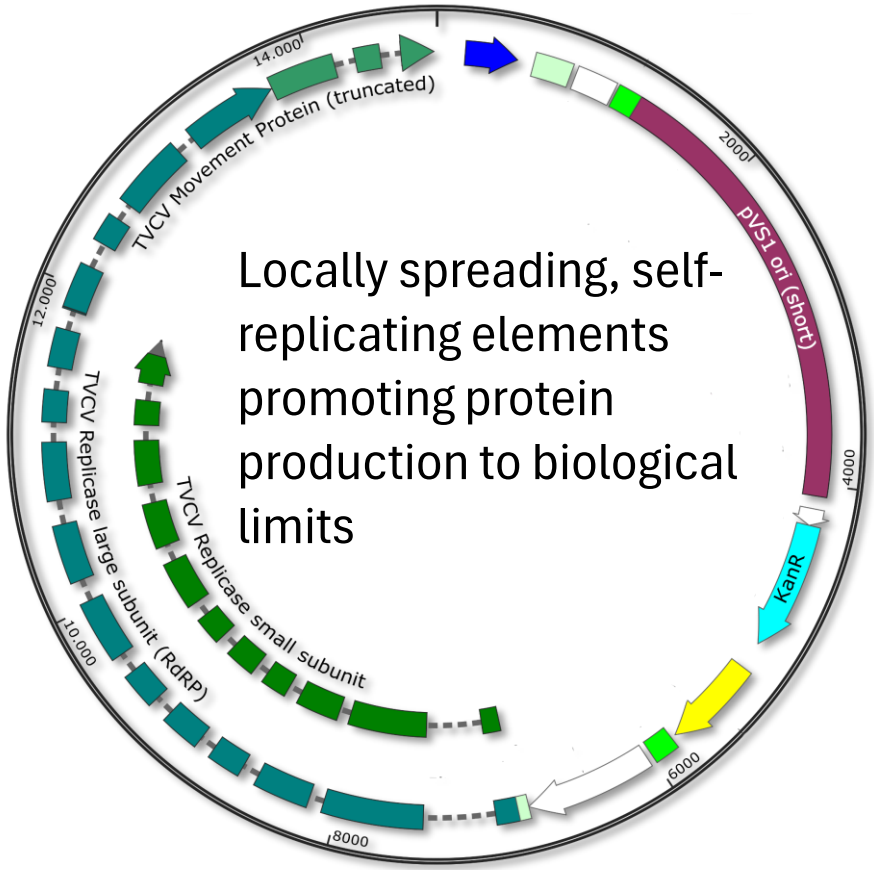
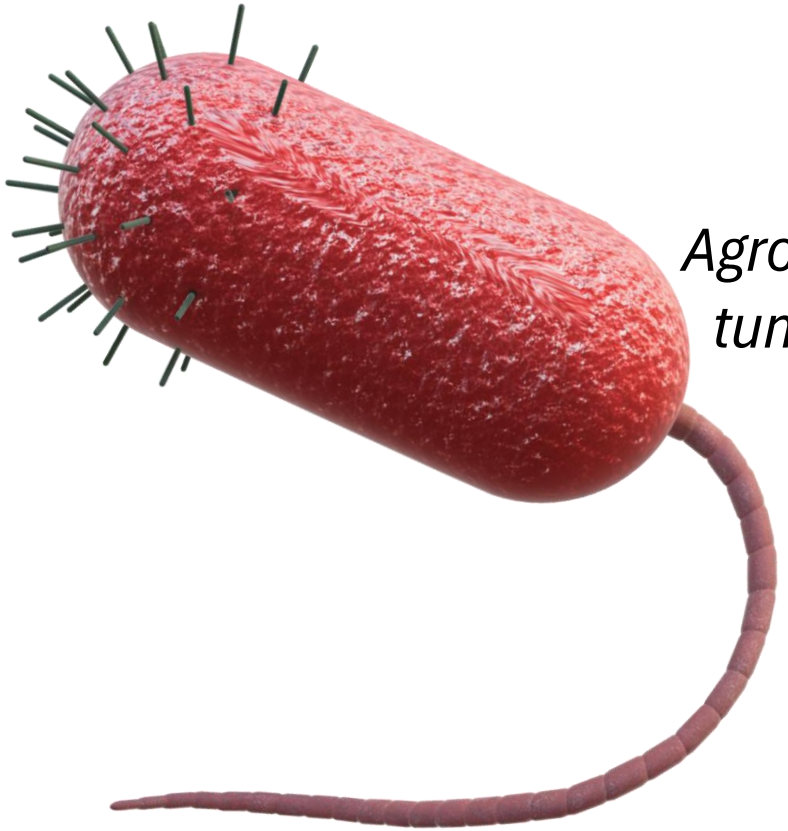
1) Plant virus-based expression vectors



Locally spreading, self-replicating elements promoting protein production to biological limits

2) Bacterial vector



Agrobacterium tumefaciens

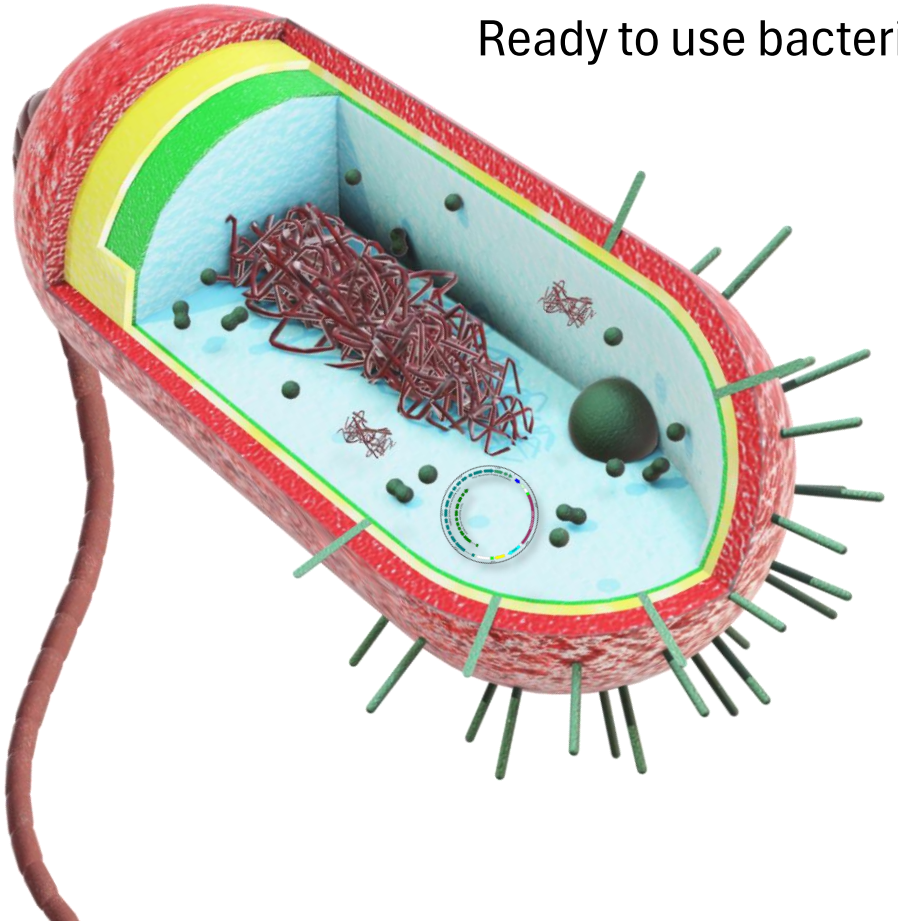
magnICON TRINITY

1) **Plant virus-based expression vectors**

+

2) **Bacterial vector**

Ready to use bacterial vector



Speed and flexibility of microbial systems

3) *Nicotiana benthamiana*
self-contained plant bioreactor

Eukaryotic host system
- Correct protein folding
- Correct post-translational modification (e.g., tailored host plants available → mammalian glycosylation with optimized site occupancy, …)

Plant host system
- No prions present
- No animal virus propagation
- No significant presence of animal pathogens
- Highly susceptible to *Agrobacterium* and plant viruses

3) *Nicotiana benthamiana*

self-contained plant bioreactor

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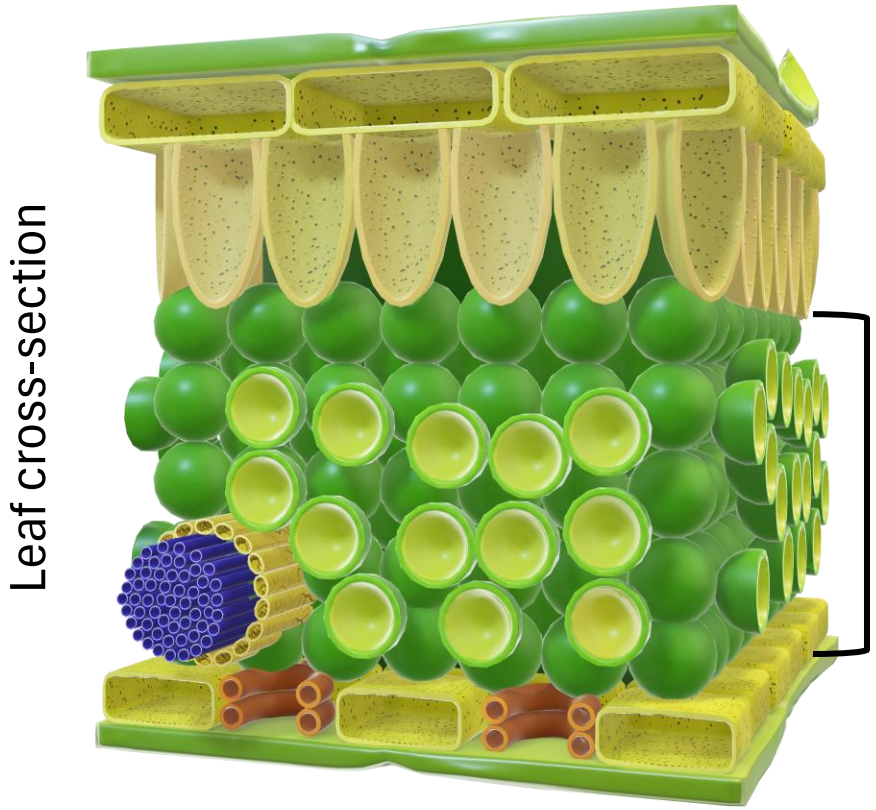
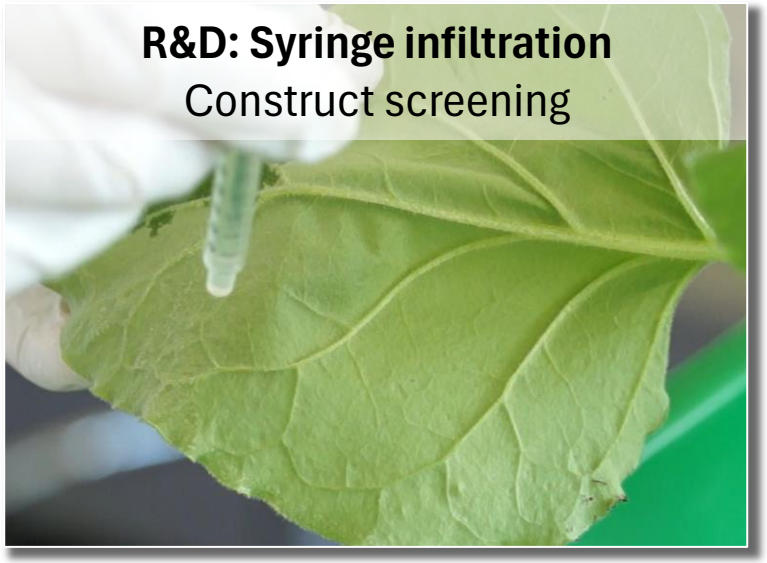
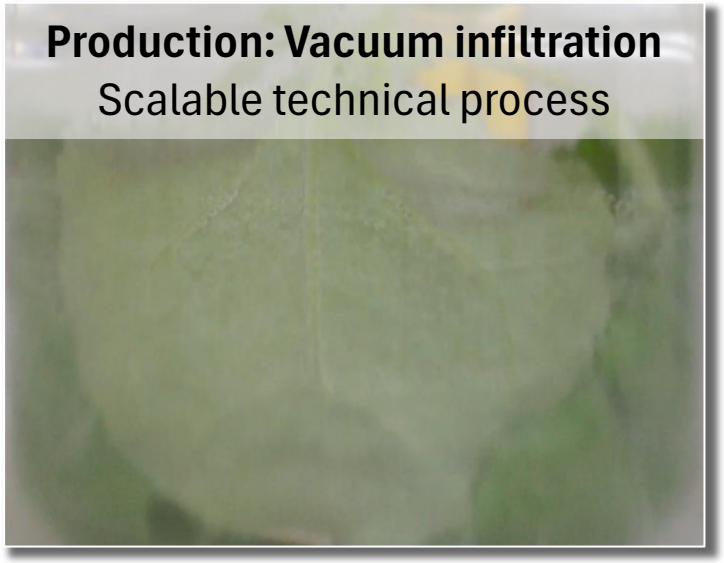


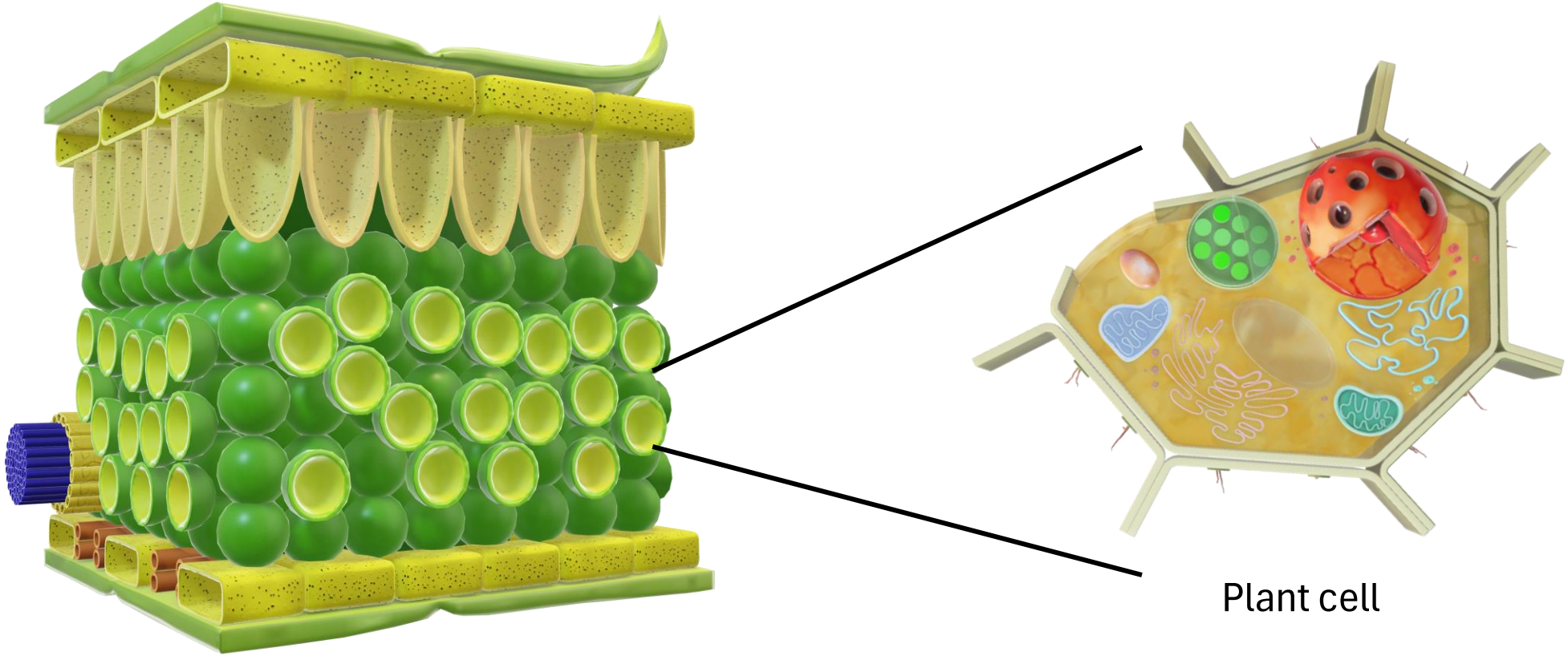
Transient system
On-demand transfer of a **low bacterial inoculum** (OD_{600} < 0.02)





3) *Nicotiana benthamiana*

self-contained plant bioreactor



Plant cell

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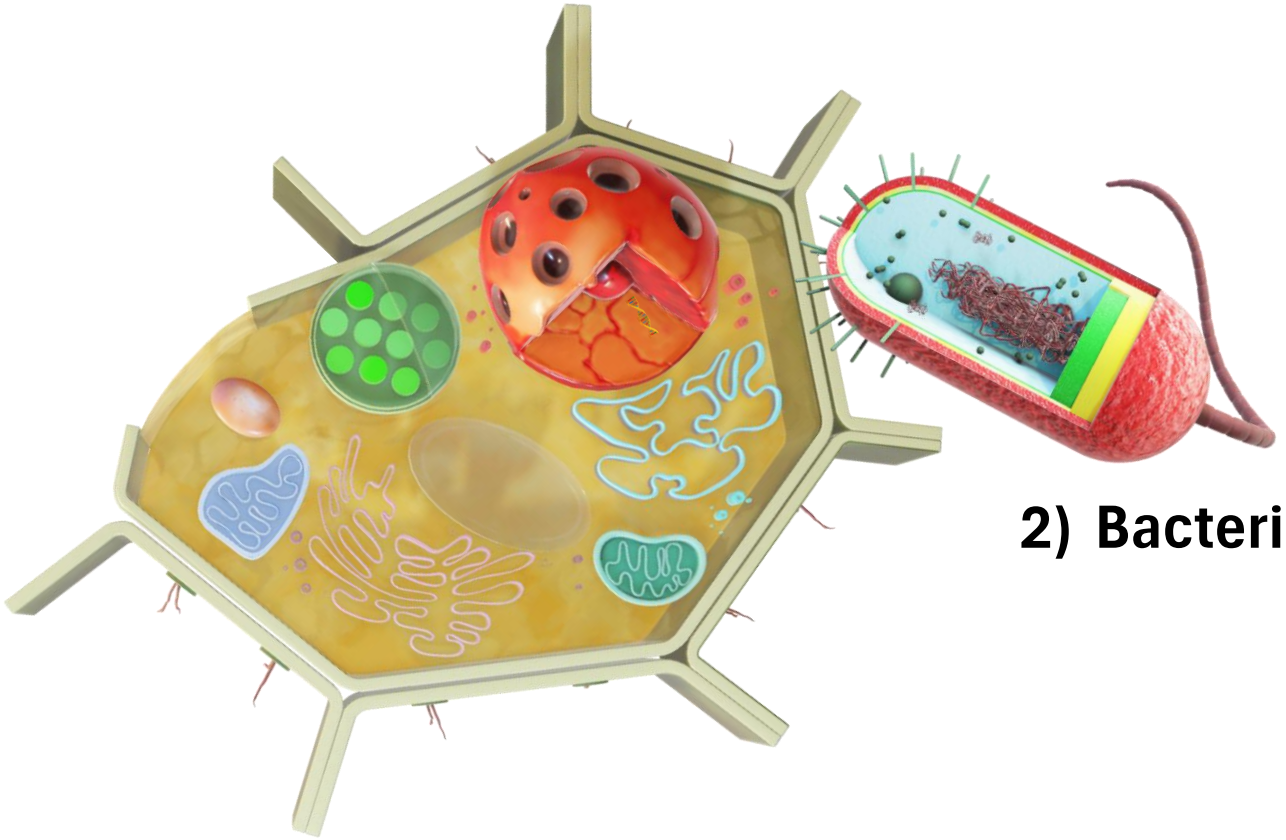
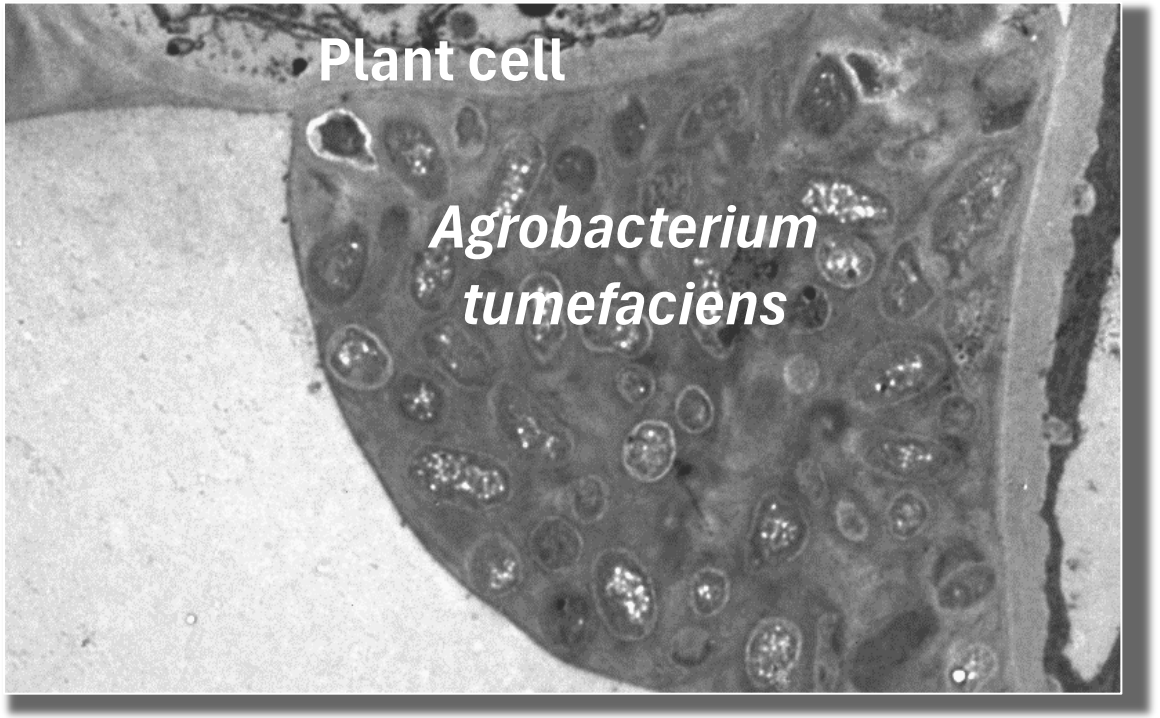
3) ***Nicotiana benthamiana***
self-contained plant bioreactor





Electron micrograph

2) Bacterial vector

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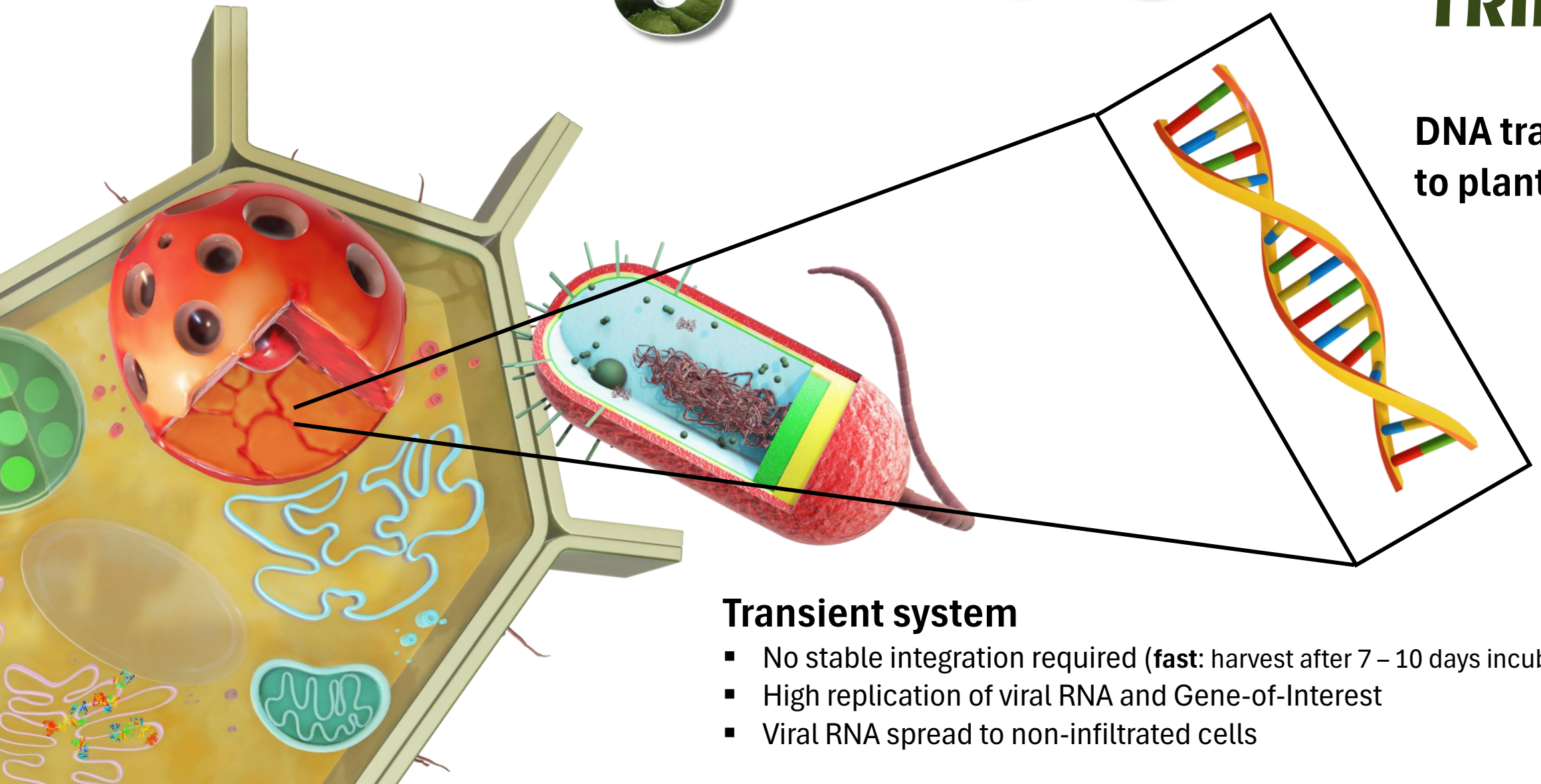

DNA transfer to plant cell

Transient system

- No stable integration required (**fast**: harvest after 7 – 10 days incubation)
- High replication of viral RNA and Gene-of-Interest
- Viral RNA spread to non-infiltrated cells

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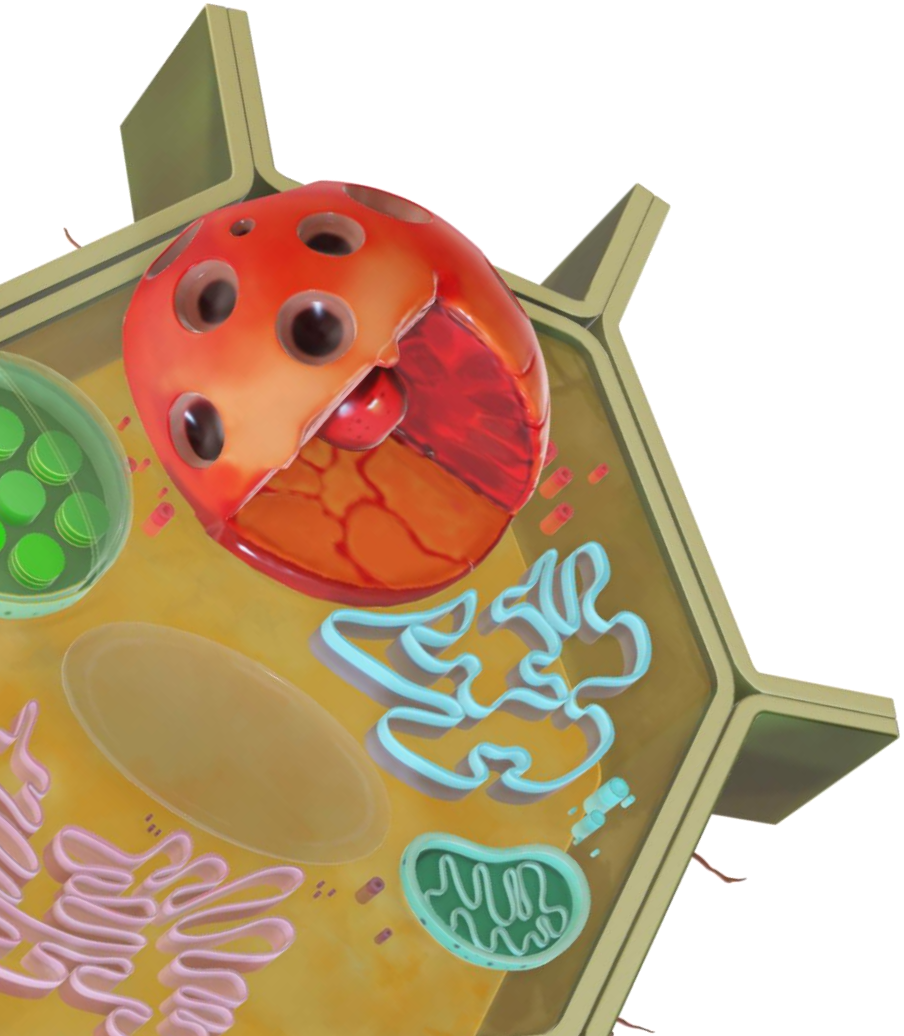

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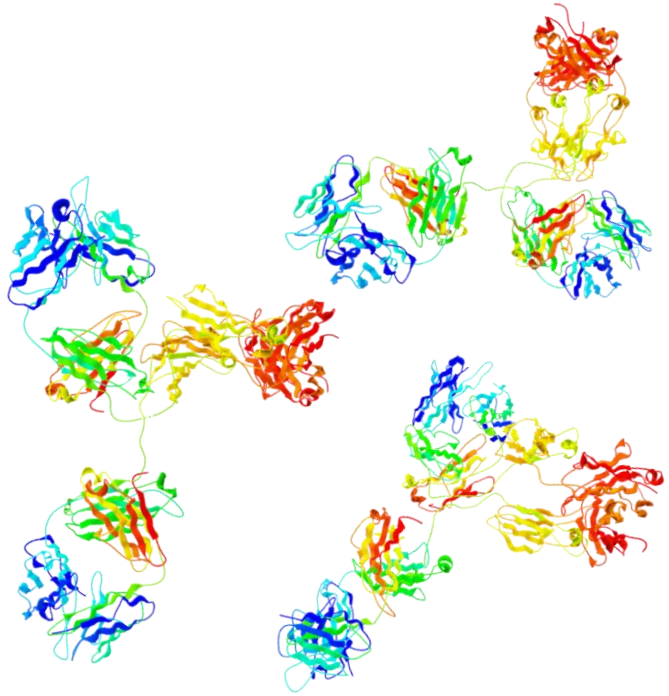
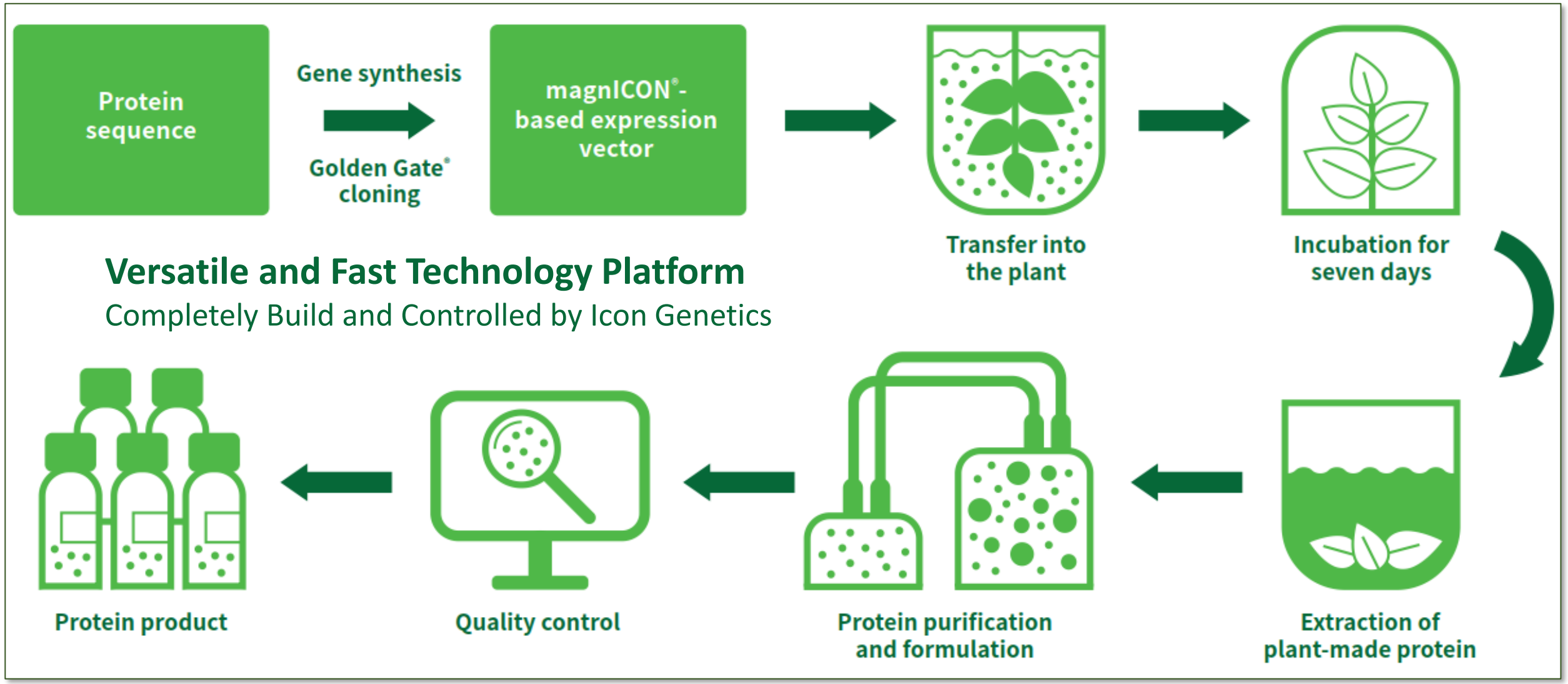


High yield:

Protein production up to the biological limits

Platform Technology



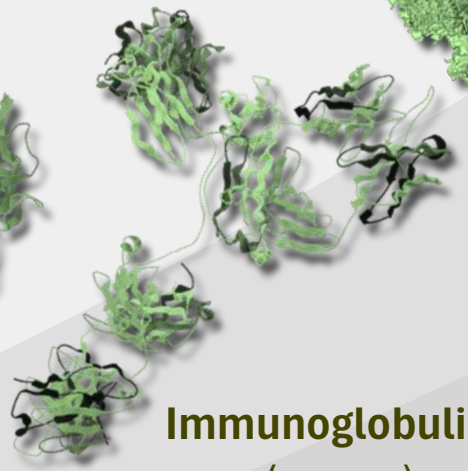
Versatile and Fast Technology Platform

Completely Build and Controlled by Icon Genetics

Experience & Versatility

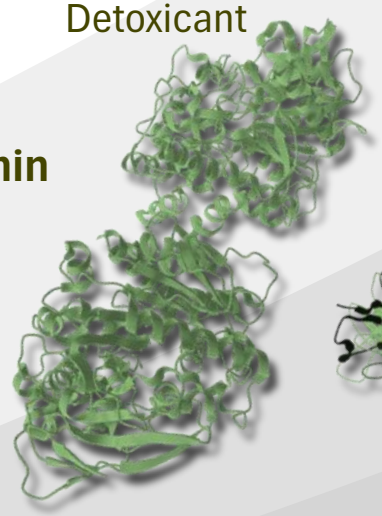
Our team of experts successfully worked on a multitude of recombinant proteins of different sizes, complexities, specifications, and applications.

Virus-like Particles
(180x 60 kDa)
Vaccines

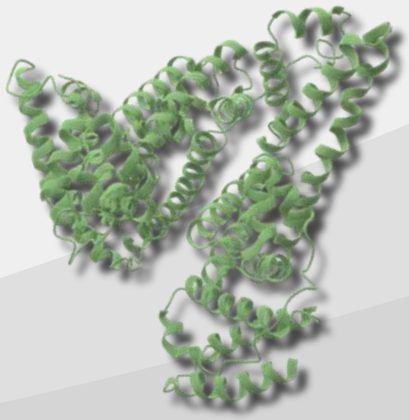


Immunoglobulins
(145 kDa)
Diagnostics, Therapeutics,
Individualized Cancer Treatments

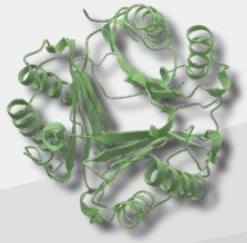
Butyrylcholinesterase
(85 kDa)
Broad-Spectrum
Detoxicant



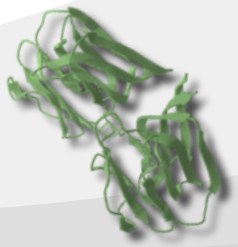
Human Serum Albumin
(67 kDa)
Blood Products



Macrophage migration inhibitory factor
(13 kDa)
Mammalian Growth Factors

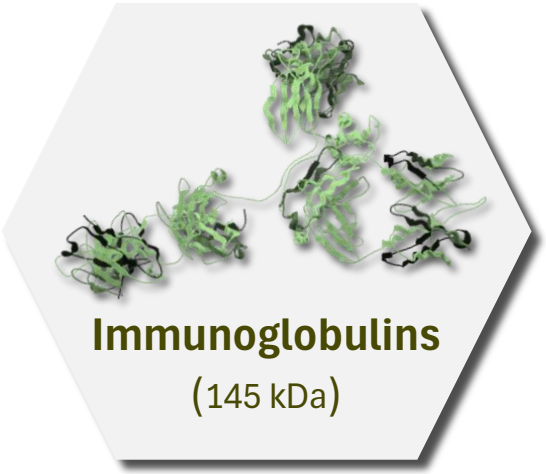


Griffithsin
(13 kDa)
Antiviral



Phase I Clinical Studies

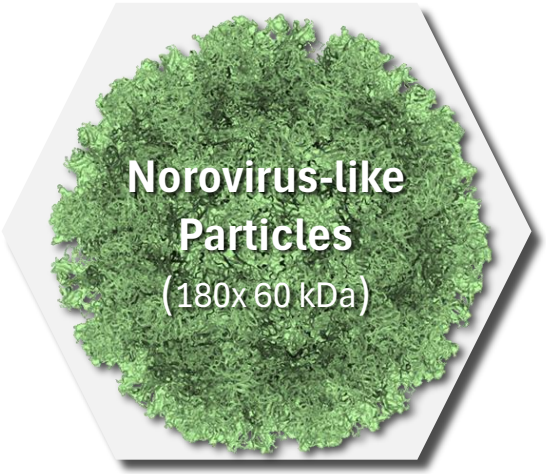
Safety Immunogenicity



Individualized Follicular Lymphoma Treatments

2010 - 2012

From Biopsy to Released Product in 2 Months:
Speed and Flexibility Comparable to Modern RNA Platforms



Bivalent Norovirus Vaccine

2020 - 2021

Adjuvant-free Vaccine Suitable for Pediatric Application:
Excellent safety and long-lasting immune response

Icon Genetics

We thank all clinical study participants.

We are grateful for all the support and collaborations, e.g.:

CEVAC

IQVIA™

Vaccine Research Center

UNIVERSITY OF TAMPERE
Finland

BAYER

DAVAOncology℠

Denka

Thank you for your attention

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