



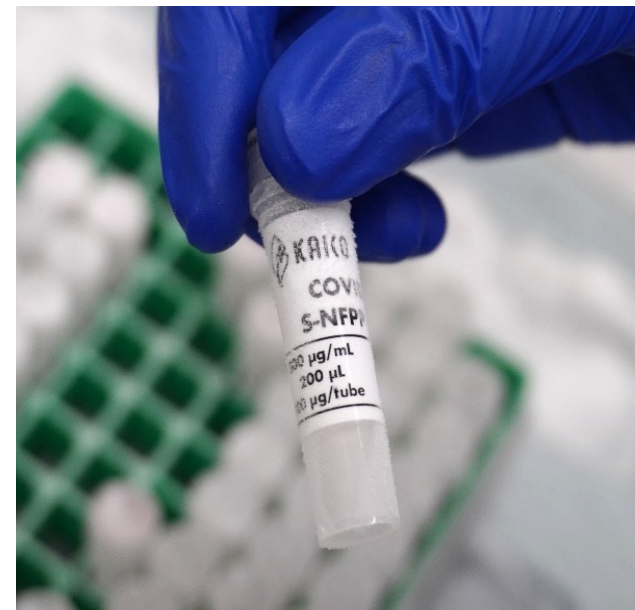
Changing the World with Silkworms

KAICO

Company Bio

June 2025





Recombinant Protein Production Platform

Who We Are



- **Began the journey at Kyushu University in 2018.**
 - ✓ A Japanese national university leading in the entomology field.
- **Brought in novel know-how from Kyushu University.**
 - ✓ Expression of recombinant proteins using silkworms
 - ✓ Modifying natural proteins to additional functions
- **Core tech: “Silkworm-baculovirus* protein expression system”**
- **Vaccines using the core tech are under development.**
 - ✓ Not only injectables but also the oral type
 - ✓ The Japanese government grants both development projects**



* baculovirus: a type of virus that infects silkworms but humans.

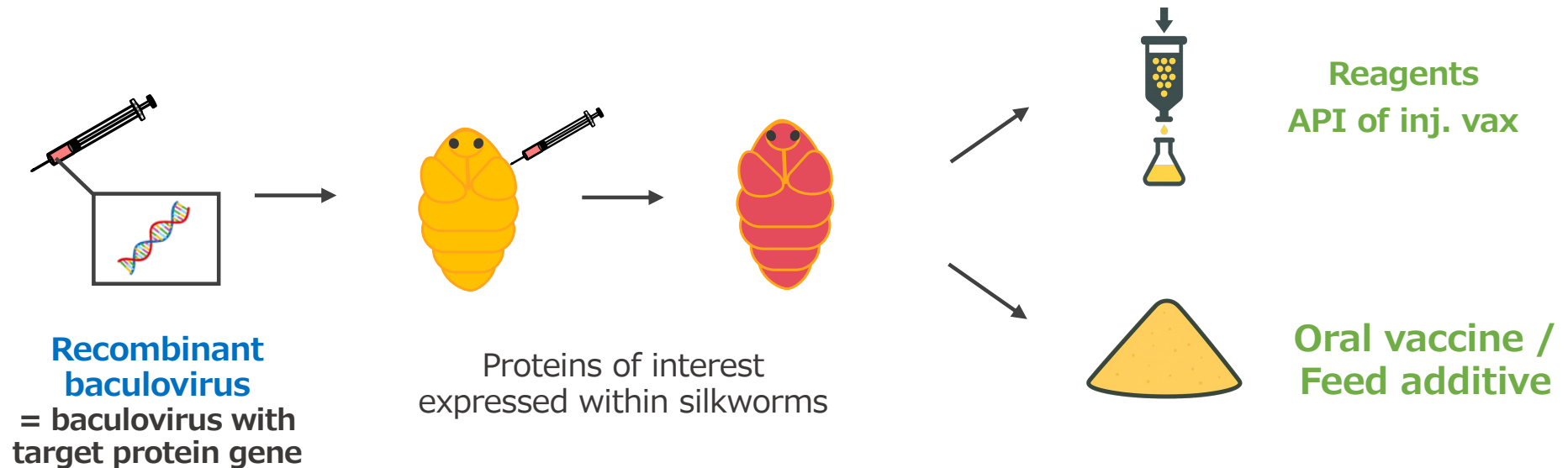
** 1). Japan Agency for Medical Research and Development (AMED), 2). Ministry of Economy, Trade and Industry

Core Technology: Silkworm-Baculovirus Protein Expression System



Silkworms are suitable for producing recombinant proteins that are difficult to express in cells or bacteria

Silkworm-Baculovirus Protein Expression System



Comparison with Other Systems



Protein expression system	Quality*	Expression level	Scalability	Cost
Silkworm-baculovirus	Mid-High (Almost native)	High (With living body)	High (By numbering up)	Low-Mid (≒Silkworm)
Bacteria (<i>E.coli</i>)	Low	High	High	Low
Yeast	Low-Mid	Mid-High	High	Low
Insect cells	Mid-High	Mid	Mid	Mid
Mammalian cells	High	Low	Mid	High
Cell-free	Mid-High	Low	Low	High
Plants	Mid-High	Low	Mid-High	High

* Quality: Post-translational modification

Our Strength

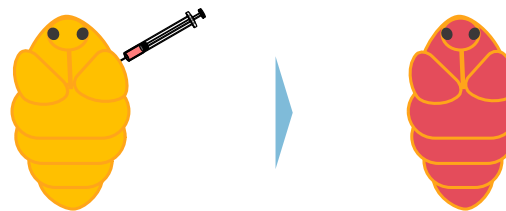


Fully customizable design



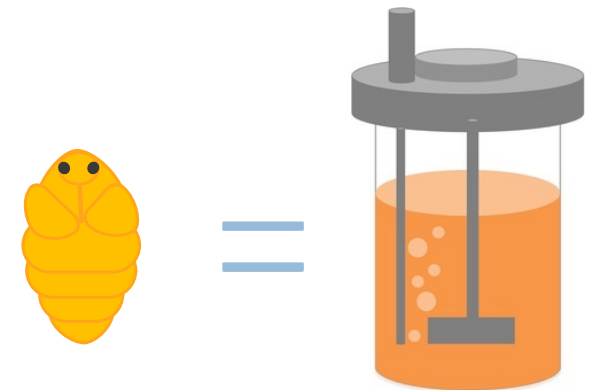
- Codon optimization, tag swapping, secretory signal adjustment.

Difficult Targets Welcome



- Expression rate = 100%
- Complex structures (VLPs), insoluble proteins, membrane, etc.

Flexible scaling

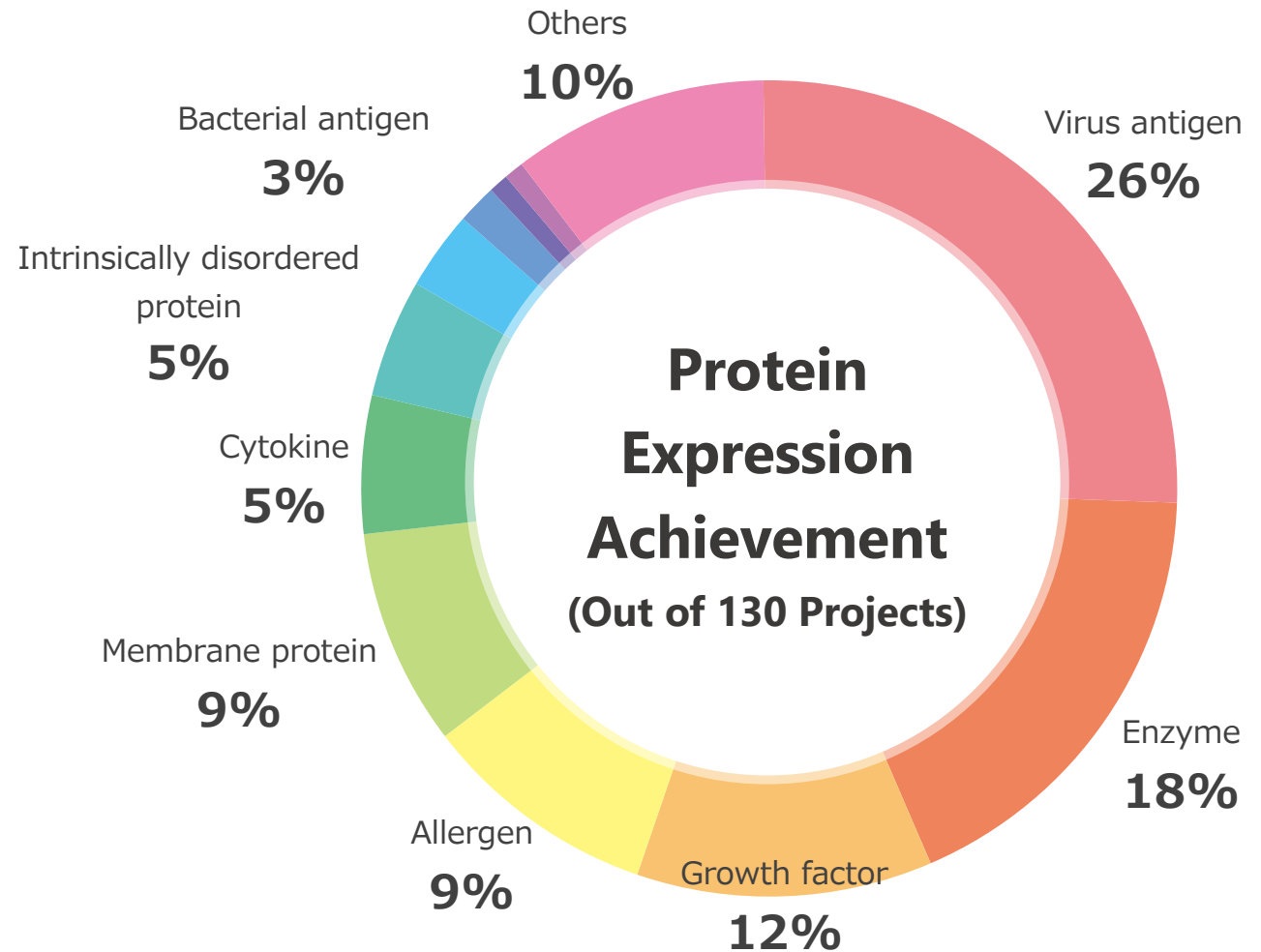


- Scalable production by increasing silkworm pupae.
- Flexible system for low-volume, multi-protein expression.

Feasible for Any Types of Proteins



- **Expression rate: 100%**
- **In-house development of full-length recombinant IgG antibodies**
- **Yield: Several dozen μg to several mg per pupa**



Six Business Portfolio



Core Technology
Recombinant proteins
production platform

① CDMO of recombinant proteins



② Sales of reagent



③ Diagnostics & supplement



④ Inj. vaccines for animals



⑤ Immune-enhancing feeds
for animals



⑥ Vaccines for humans



Powders made from silkworm pupae stimulate the immune system and promote steady growth.



What is an Immune-Enhancing Feed Additive?



Feed that can be mixed with daily crops to boost immunity

Benefits

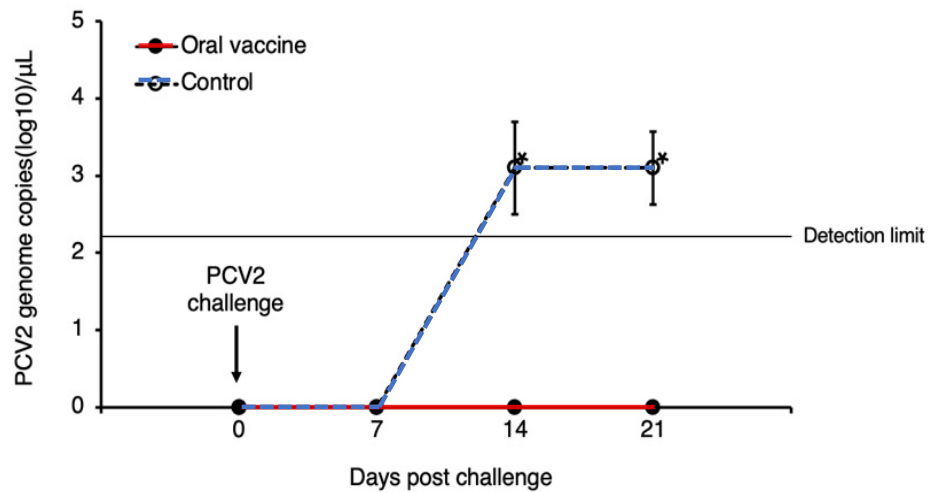
- Nonstress for livestock
- Decreasing the frequency of vaccination
- Reducing the cost and time of the injection process
- Equivalent efficacy to the conventional vaccines

Target: Porcine Circovirus 2 (PCV2)

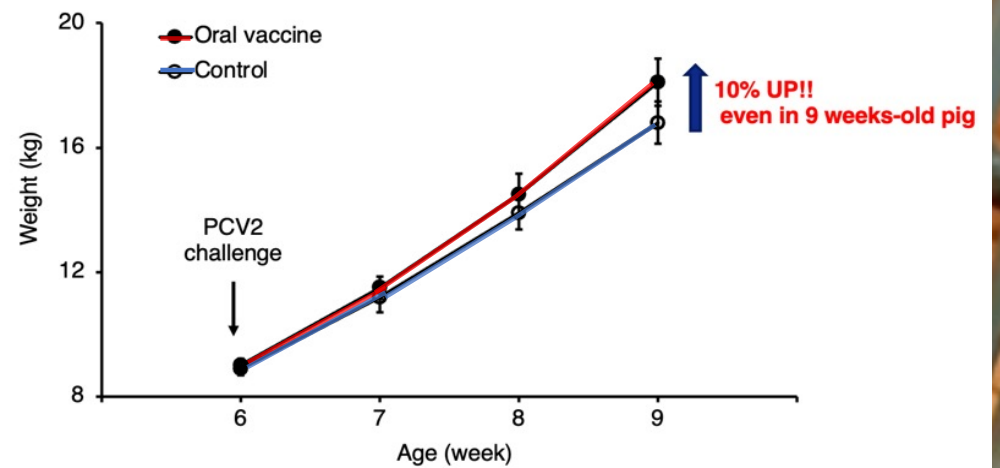


- Growth retardation
- Leading to loss of income for farmers
- Injecting one by one = Burden on farmers

KAICO uses its core technology to develop the orally administrative PCV2 protective feed



Suppression of Viremia



Weight Gain

KAICO Powder is easy, safe, and stress-free



KAICO Powder



Normal feed



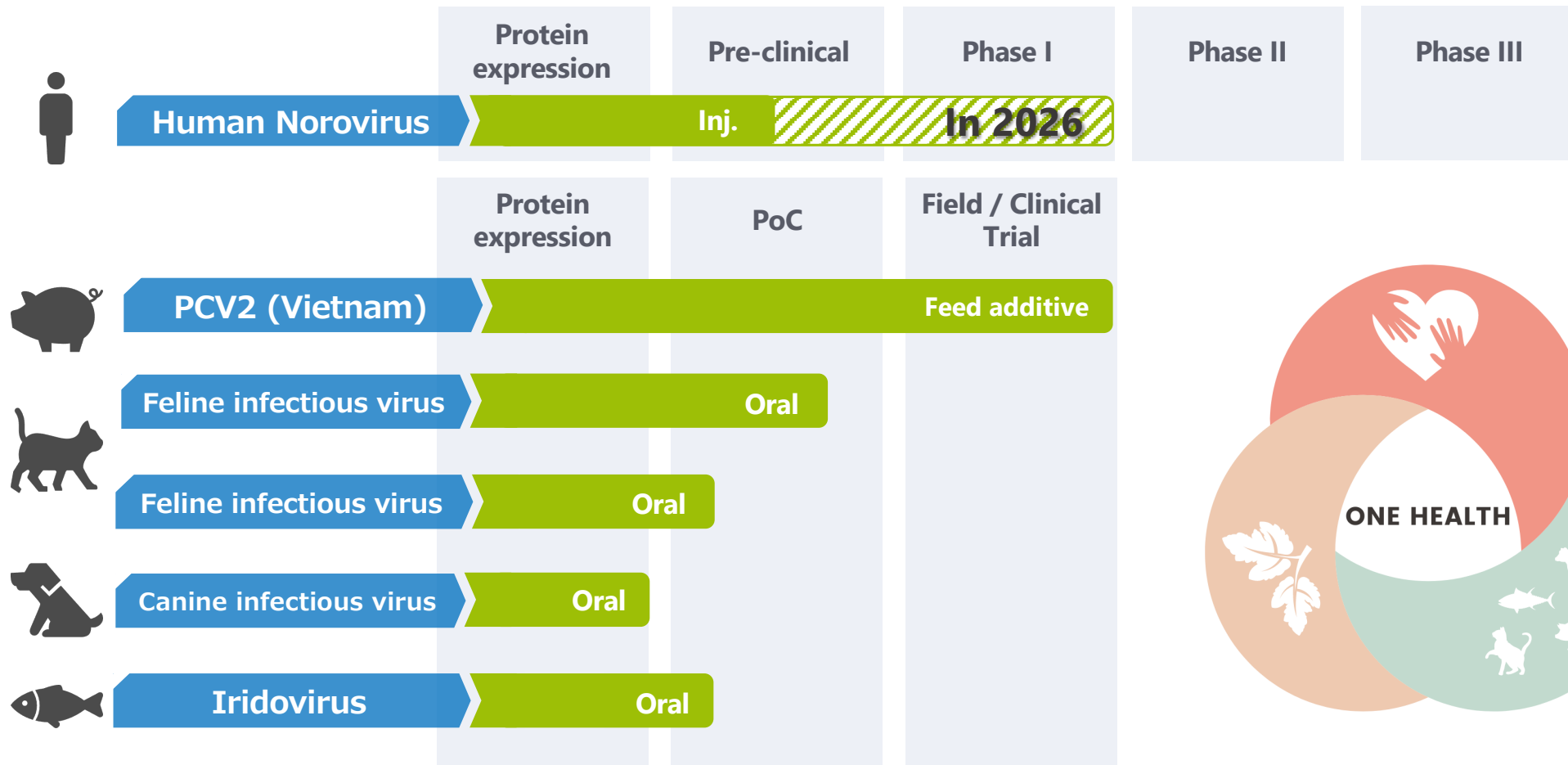
Mixing



Feeding

**What used to require 7 people and an hour
can now be done in 5 minutes by a single person.**

Product Pipeline



How to Reach the Market?



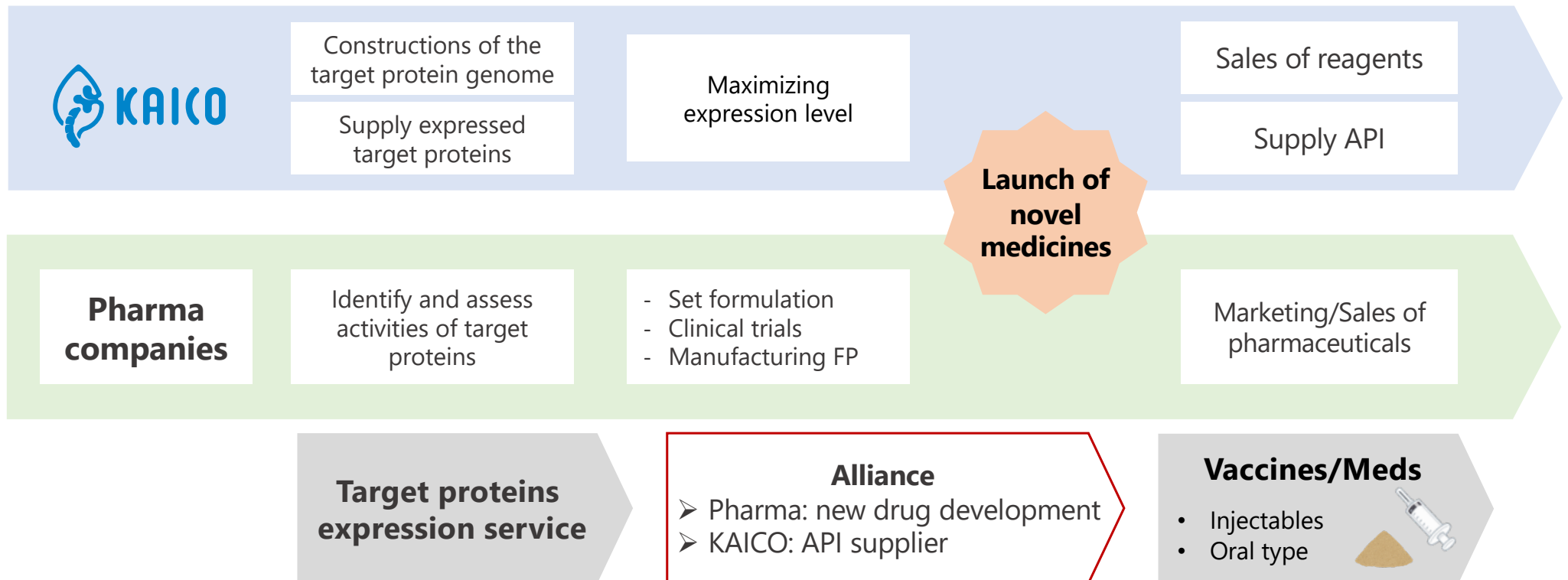
- Research & Development
- Supply raw materials



Partner companies

- Research & Development
- Registration & Launch
- Sales & Marketing

Business scheme



Next Generation Circular Bio-Platform



We reimagine ancient Japanese sericulture, bridging between traditional wisdom and cutting-edge medical innovation in a sustainable ecosystem.

Our venture begins with mulberry cultivation and evolves into a next-generation circular bio-manufacturing platform that leverages local resources, minimizes environmental impact, and pioneers the future of medicine.

About KAICO



Name KAICO Ltd.

Address 4-1, Kyudai-Shinmachi, Nishi-ku, Fukuoka City, Japan

CEO Kenta Yamato

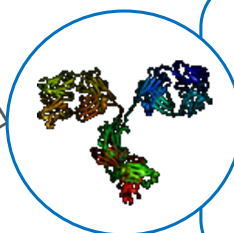
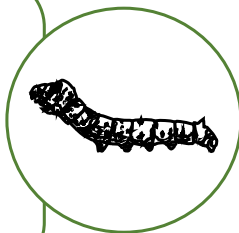
Founding April 2018

Awards

- Ministry of METI Award at the Japan Open Innovation Awards 2023
- JHVS Venture Award (Japan Healthcare Venture Summit)
- Japan Science and Technology Agency Chairman Award at Awards for Academic Startups 2022, etc.



Kyushu Univ.
Dept. Agriculture
Prof. Kusakabe
Insect molecular genetics



Kyushu Univ.
Dept. Engineering
Prof. Kamiya
Enzyme Engineering
Biomolecular Engineering



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