



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.

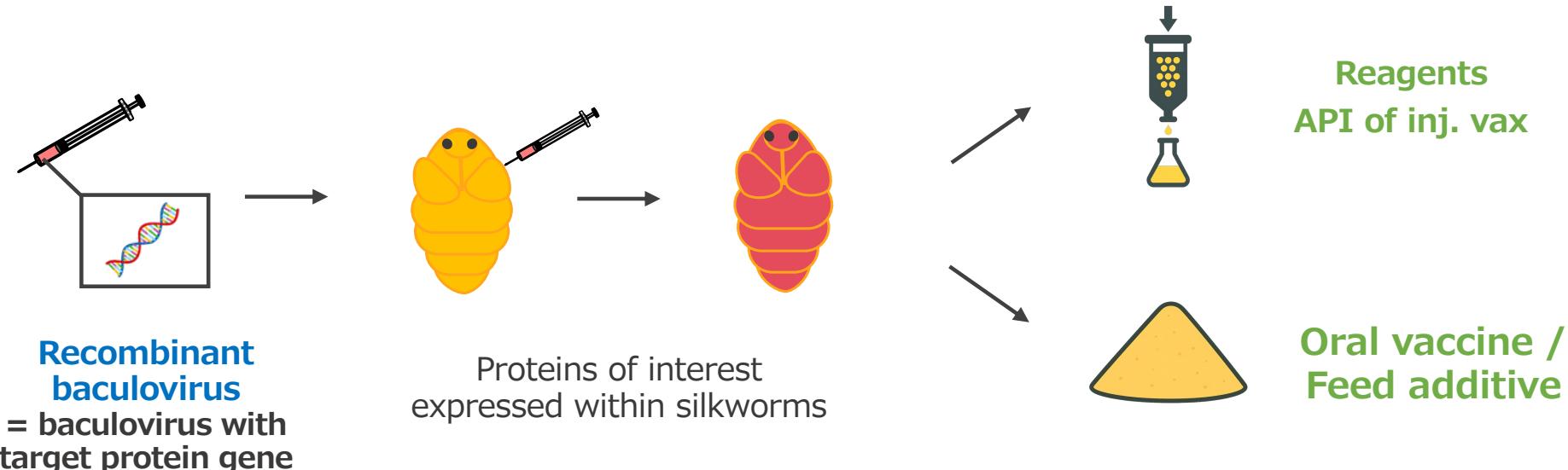
\*\* 1). Japan Agency for Medical Research and Development (AMED), 2). Ministry of Economy, Trade and Industry

# 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



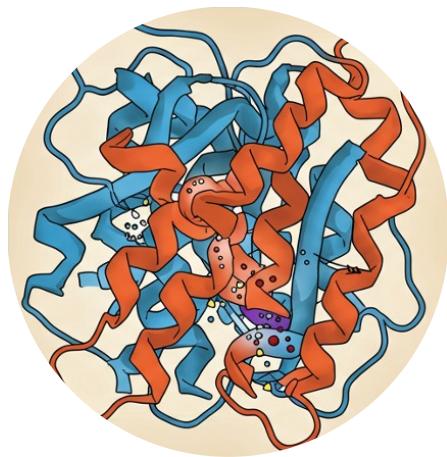
Protein expression system	Quality*	Expression level	Scalability	Cost
<b>Silkworm-baculovirus</b>	<b>Mid-High</b> (Almost native)	<b>High</b> (With living body)	<b>High</b> (By numbering up)	<b>Low-Mid</b> (≒Silkworm)
Bacteria ( <i>E.coli</i> )	Low	High	High	Low
Yeast	Low-Mid	Mid-High	High	Low
Insect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

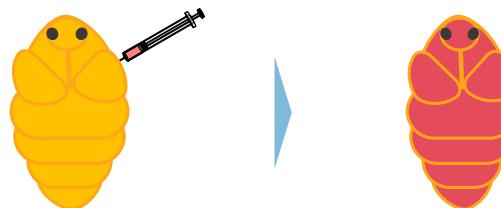


## Fully customizable design



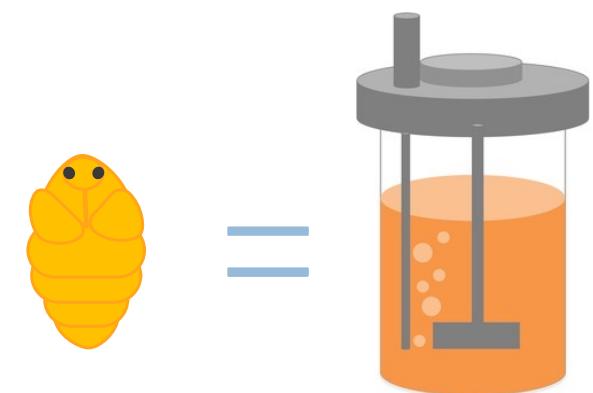
- Codon optimization, tag swapping, secretory signal adjustment.

## Difficult Targets Welcome



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

## Flexible scaling

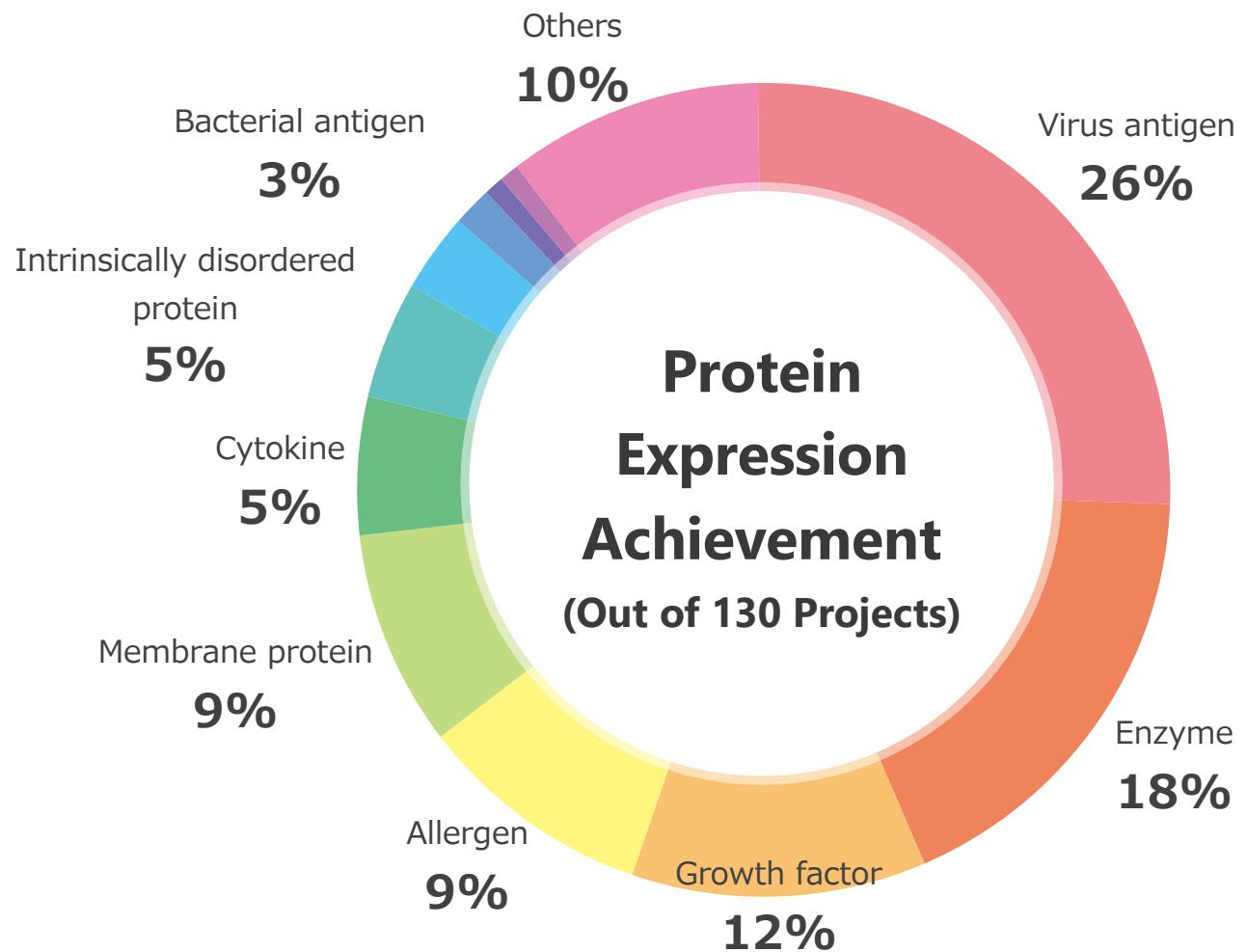


- Scalable production by increasing silkworm pupae.
- Flexible system for low-volume, multi-protein expression.

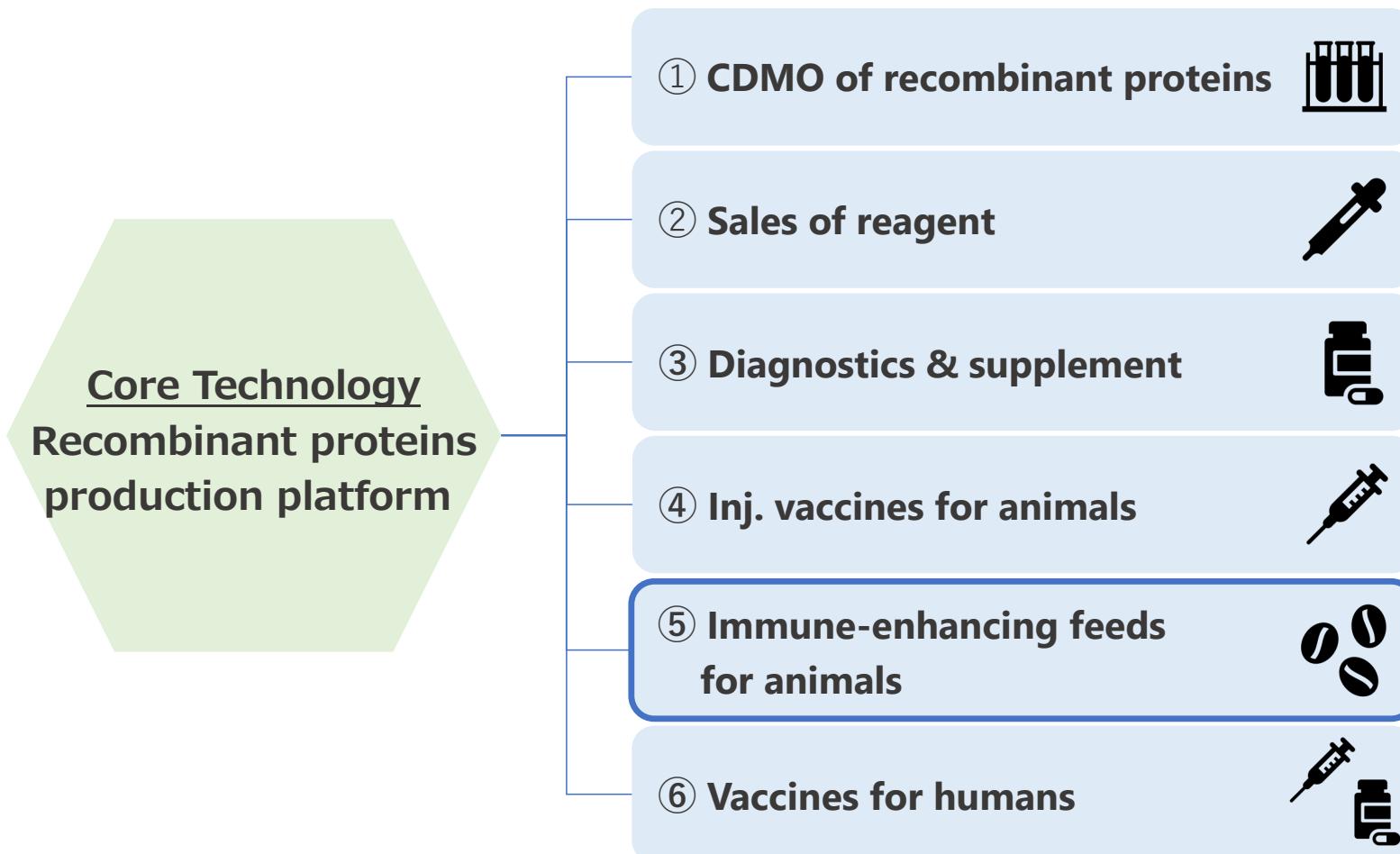
# Feasible for Any Types of Proteins



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



# Six Business Portfolio



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**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

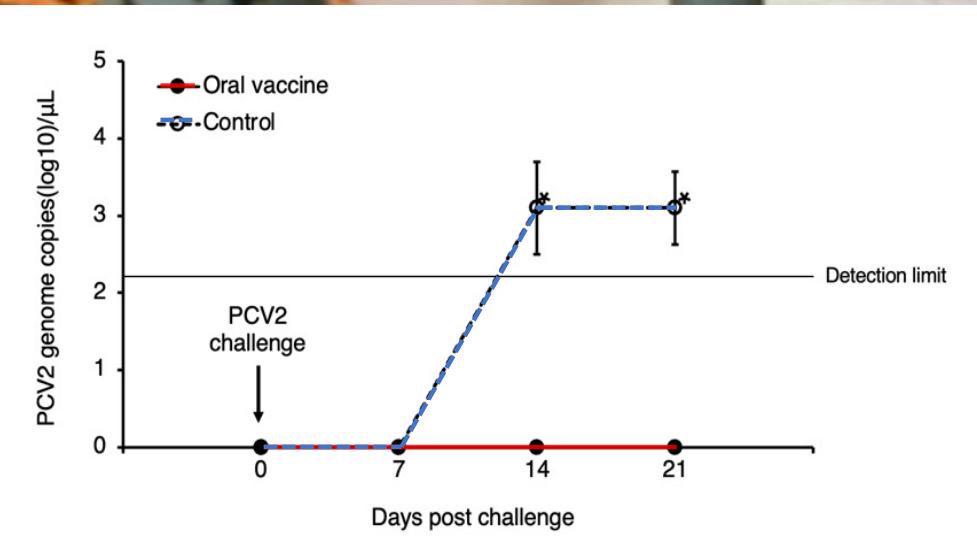
- Nonstress for livestock
- Decreasing the frequency of vaccination
- Reducing the cost and time of the injection process
- Equivalent efficacy to the conventional vaccines

# Target: Porcine Circovirus 2 (PCV2)

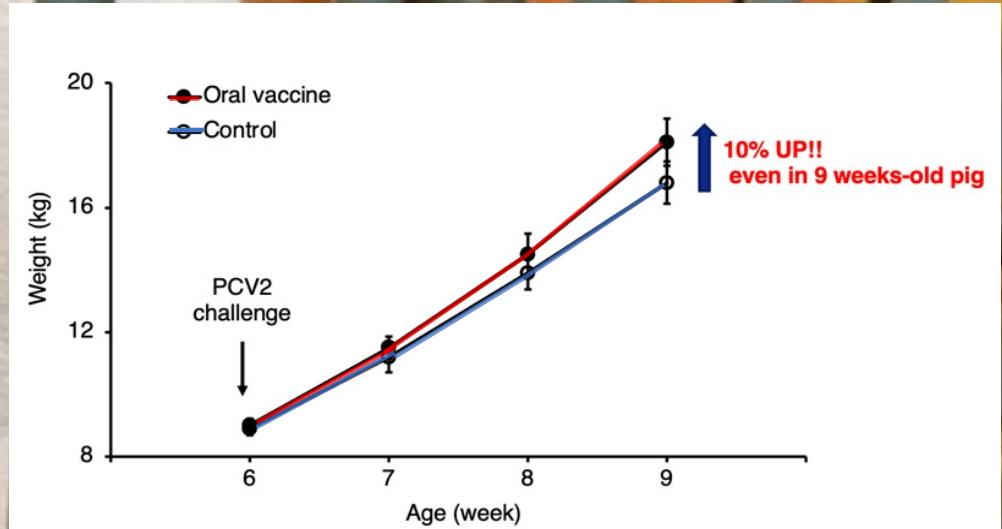


- Growth retardation
- Leading to loss of income for farmers
- Injecting one by one = Burden on farmers

**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



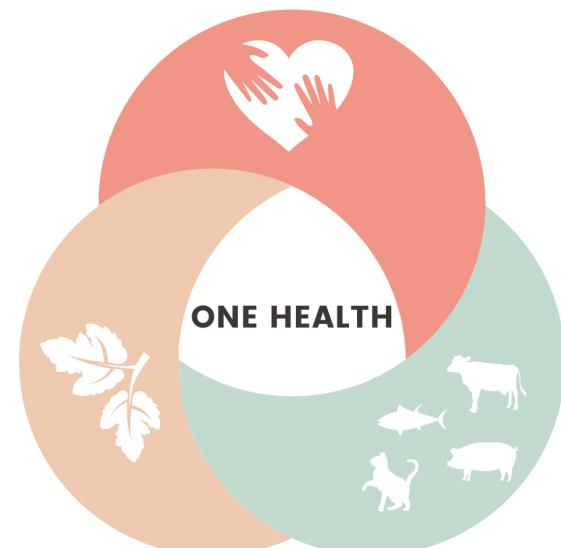
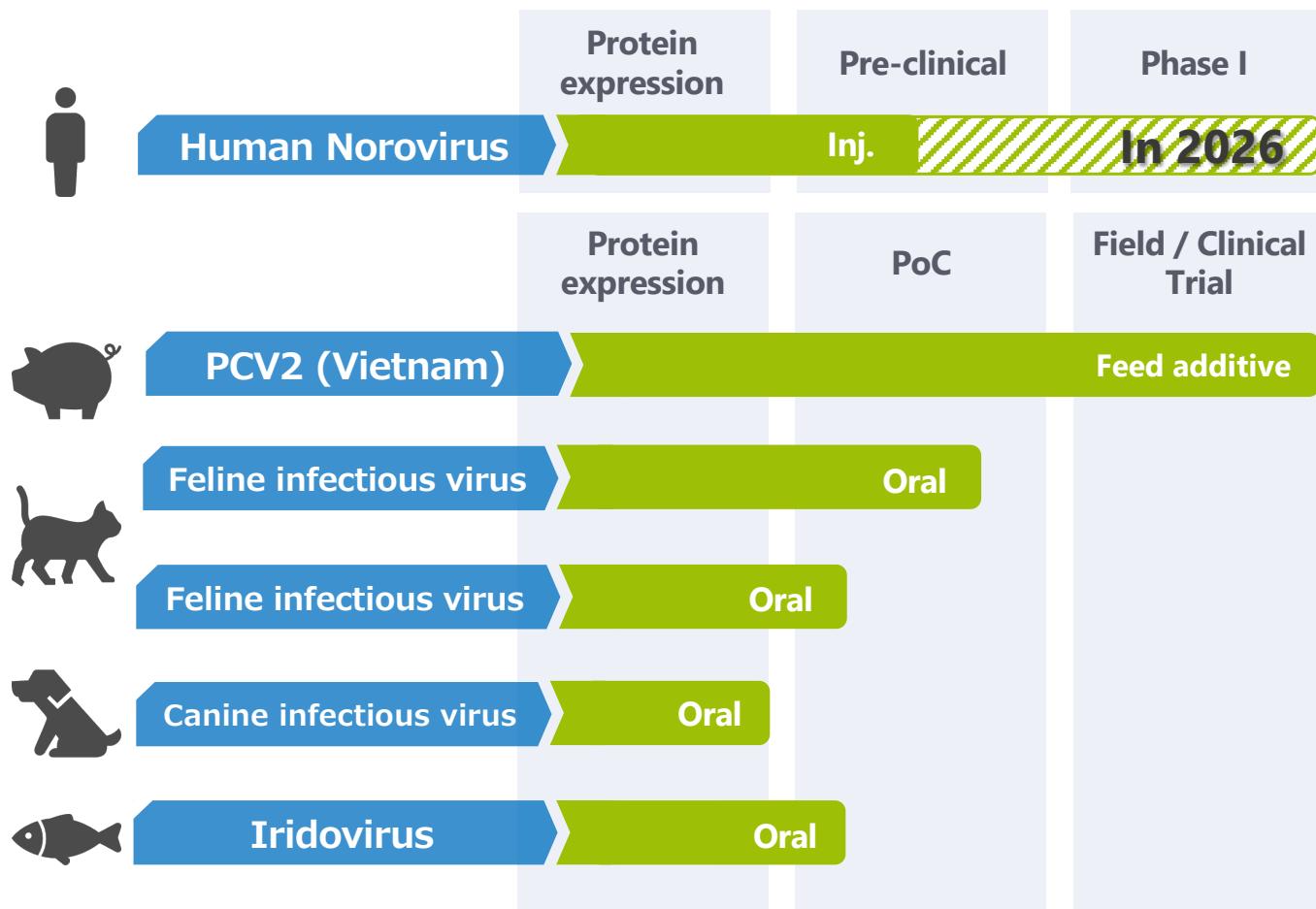
Mixing



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?



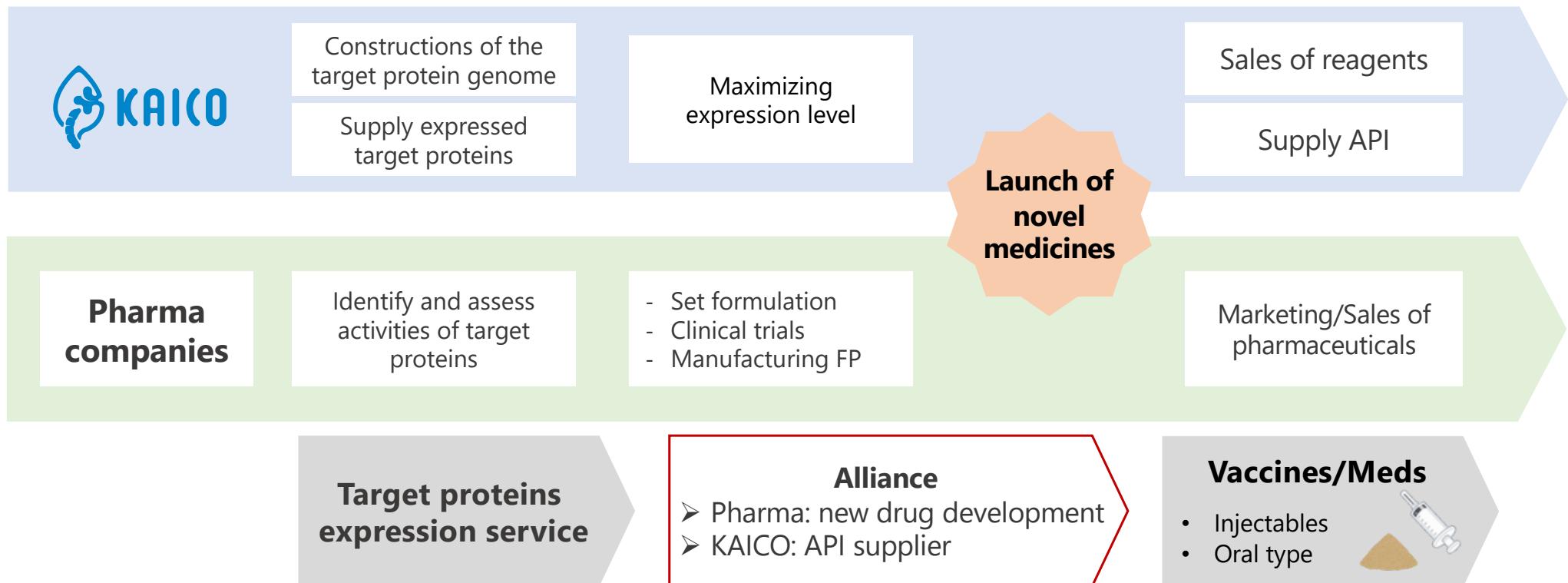
- Research & Development
- Supply raw materials



## 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.

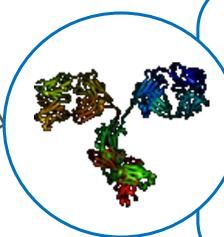
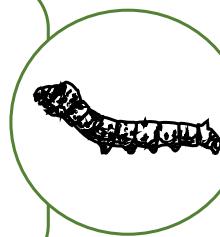
# About KAICO



Name	KAICO Ltd.
Address	4-1, Kyudai-Shinmachi, Nishi-ku, Fukuoka City, Japan
CEO	Kenta Yamato
Founding	April 2018
Awards	<ul style="list-style-type: none"><li>➤ Ministry of METI Award at the Japan Open Innovation Awards 2023</li><li>➤ JHVS Venture Award (Japan Healthcare Venture Summit)</li><li>➤ Japan Science and Technology Agency Chairman Award at Awards for Academic Startups 2022, etc.</li></ul>



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



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



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