

# Silkworm cell-free protein synthesis system



**SILK RENAISSANCE**



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# Company Profile

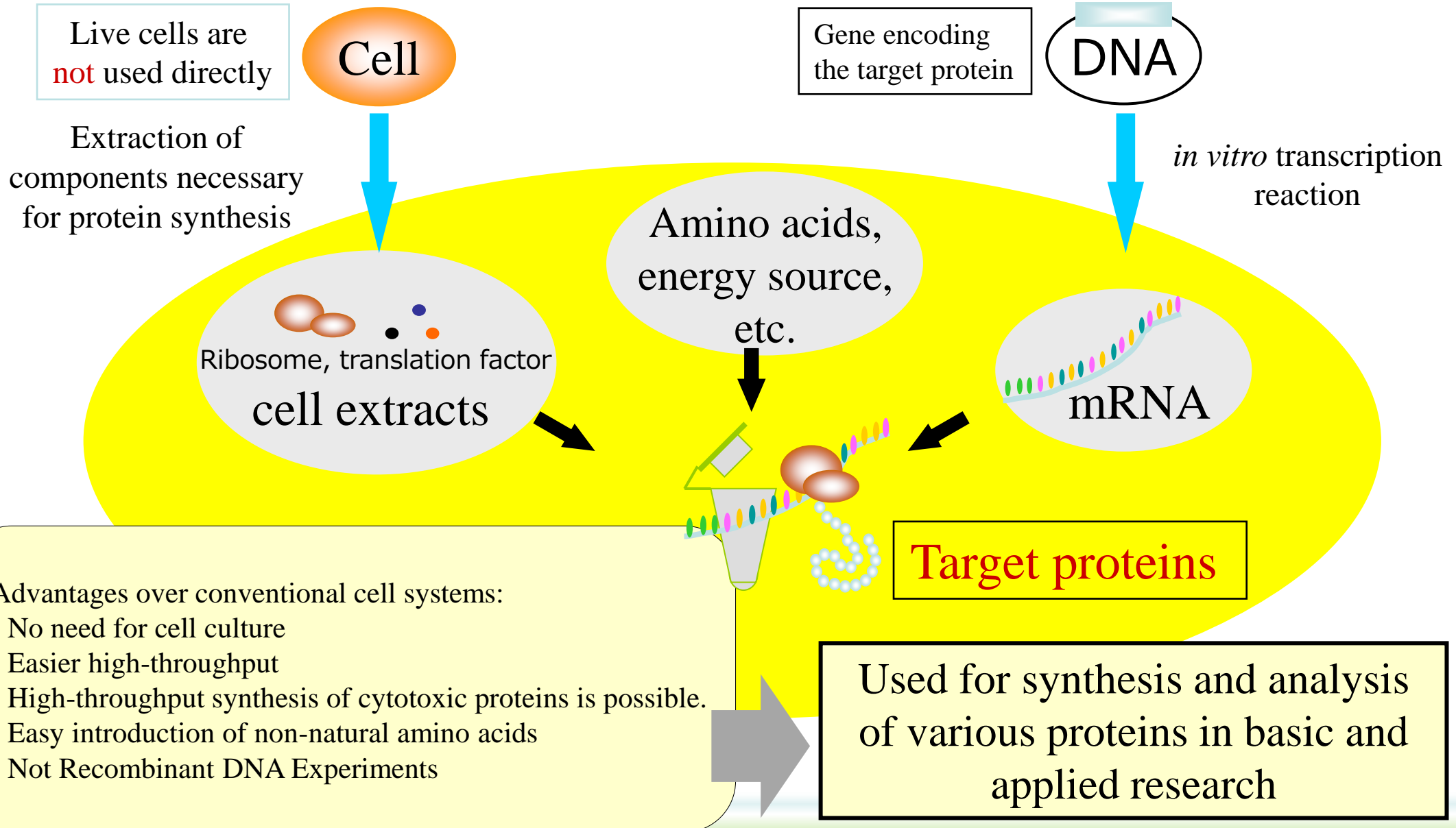
**Our Mission:**

**We change the World with our original  
silkworm cell-free protein synthesis system!**

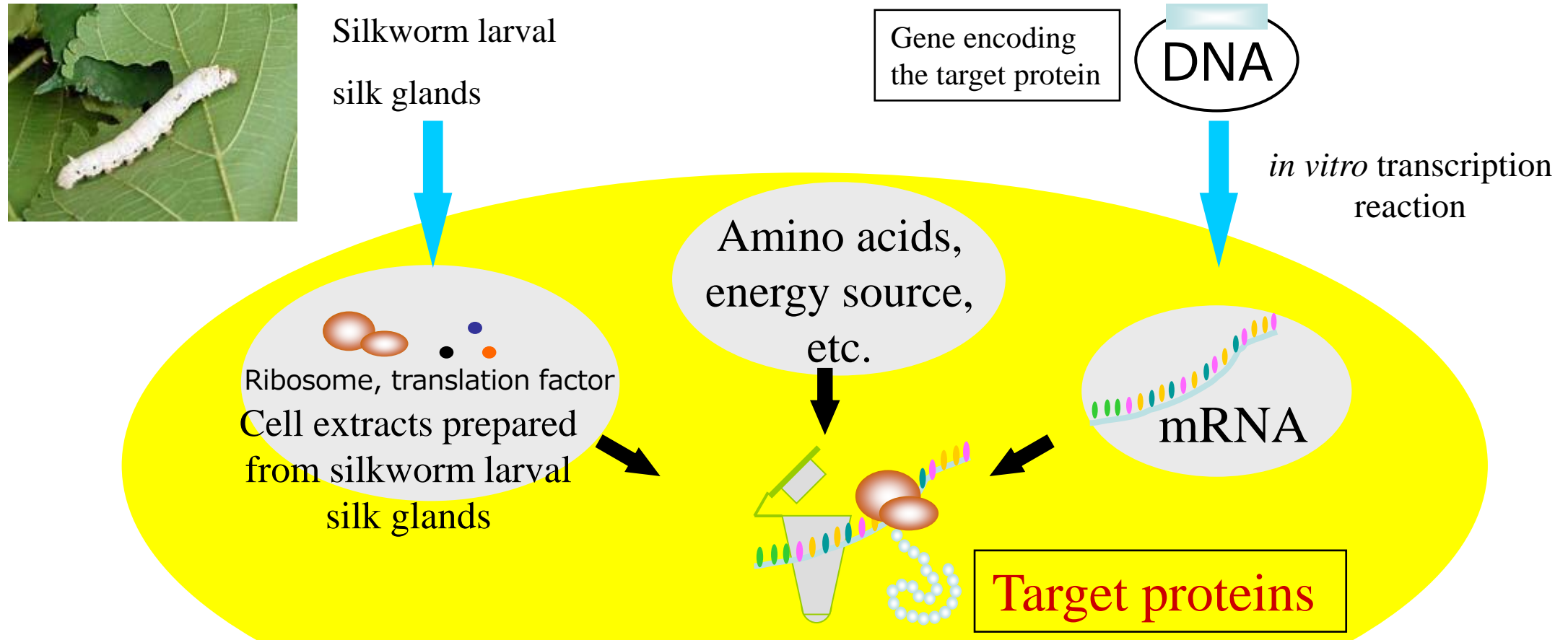
Trade name	Silk Renaissance Co. Ltd. (A venture company from Okinawa National College of Technology)
Founded	January 26, 2018
Representative	Representative Director Dr. Masaaki Ito
Headquarters location	Zip code 904-2234 5-8 Suzaki, Uruma, Okinawa, Japan Okinawa Life Science Research Center 116
Capital stock	24,450,000 JPY (Capital reserve: 21,450,000 JPY)
Accounting period	December
Main businesses	Protein Manufacturing Business Regenerative Medicine Support Business

# About Cell-free protein synthesis system

Technology for synthesizing target proteins *in vitro* using cell extracts



# Silkworm cell-free protein synthesis system



We have developed an original cell-free protein synthesis system using cell extracts of silkworm larval silk glands with high efficiency ( $>70 \mu\text{g/ml}$ )



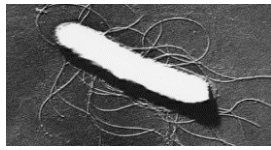
# Feature 1: High protein synthesis among the cell-free protein synthesis systems.

Name of Technology	Synthetic amount (catalog value) ( $\mu\text{g/ml}$ )
<b>Our silkworm cell-free protein synthesis system</b>	<b>Over 70</b>
<b>Cell-free protein synthesis system using cultured insect cells (Transdirect insect cell)</b>	<b>30 - 50</b>
<b>Rabbit reticulocyte cell-free translation system</b>	<b>1 - 4</b>

**Silkworm cell-free protein synthesis system:**

**More than twice as much protein synthesis as the previously developed product (Transdirect insect cell)**

# Comparison with other cell-free protein synthesis systems

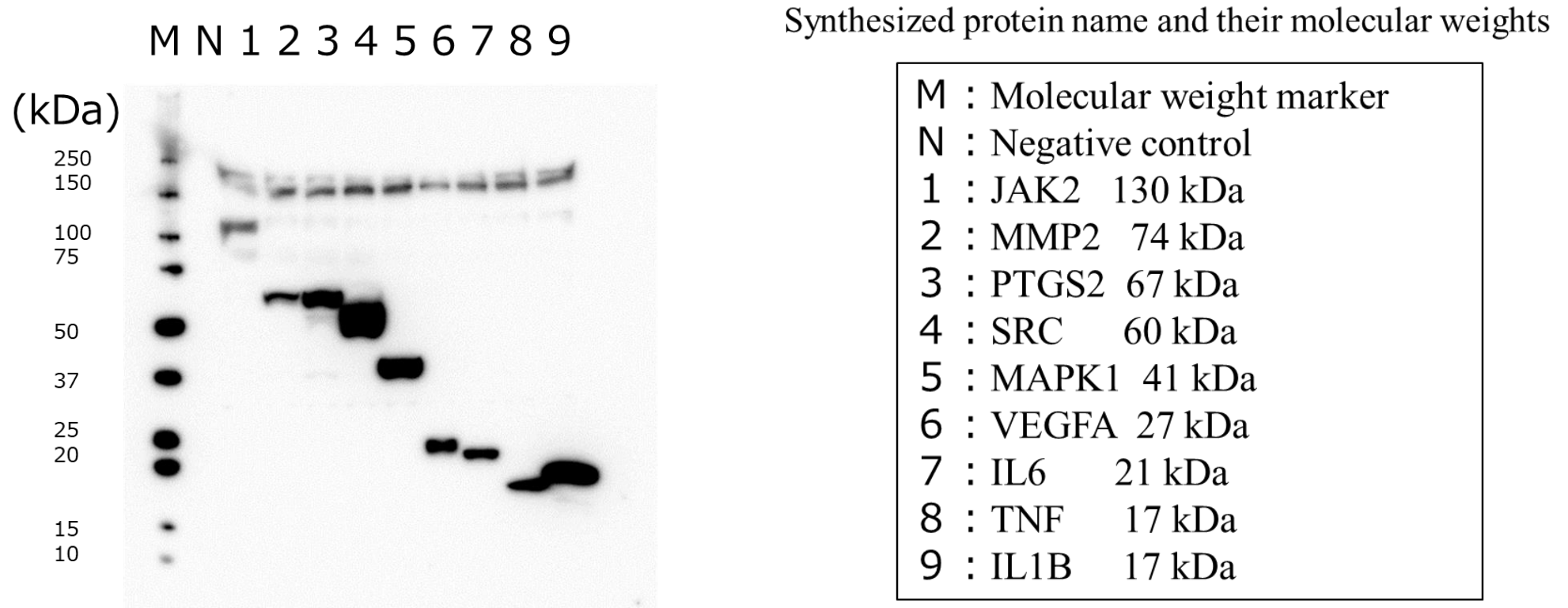
		rabbit reticulum red blood cell	Wheat embryo bud	E. coli (S30 fraction)	E. coli (Reconstituted)	<b>silkworm cell-free system</b>
		Origin of the extract				
synthesized protein	quantity	Low	<b>High</b>	<b>High</b>	Middle	<b>High</b>
	disassembly	Little	Little	Much	<b>No</b>	Little
	activity	<b>High</b>	Middle	Restricted	Restricted	<b>High</b>
	Introduction of nonnatural amino acids	Possible	Possible	Possible	Possible	Possible
	impurity	Much	Little	Little	<b>No</b>	Little

**Silkworm cell-free protein synthesis system  
can produce active protein with little impurity !**



## Feature 2: Solubilized proteins are obtained.

Confirmation of protein synthesis and solubilization by Western blot analysis using supernatant samples



**Silkworm cell-free protein synthesis system:**

**Capable of highly efficient synthesis of disease-related proteins in soluble form.**

## **Advantages of silkworm cell-free protein synthesis system compared to conventional cell-based protein synthesis systems**

- ✓ Synthesis is completed in a short time (5 hours)
- ✓ No cell culture required
- ✓ Multiple samples can be processed.
- ✓ Protein synthesis with cytotoxicity is possible.
- ✓ Easy introduction of non-natural amino acids
- ✓ Not Recombinant DNA Experiments

**Silkworm cell-free protein synthesis system:**

**Extremely useful technology for rapid protein synthesis !**



# **Thank you for your attention !**

Please consider using our technology to promote  
your company's R&D activities.



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Contact us !

<https://www.silk-r.jp/>