

# SuperCELL

**The key to producing human proteins for industrial use**

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## What is “SuperCELL”?

SuperCELL is a coined word for representing selected **human hemocyte cell lines**, by which precious **human proteins** such as conjugated and multi-functional proteins can be artificially synthesized. SuperCELL has another special character of **multiplying themselves limitlessly** out of the human body. Producing SuperCELL can pave the way to **commercial production** of precious proteins to be used in various ways such as **medicines and medical applications**. The cell is, therefore, eligible to be called SuperCELL.

## Advantageous aspects of SuperCELL

1. A cell is minimum essentials for life and we may use a part of their functions we need.
2. SuperCELL leads the way to producing multi-functional human proteins for industrial use.
3. SuperCELL has great potentials to open the door to medical applications without side- or adverse-effects, and help to develop artificial internal organs.

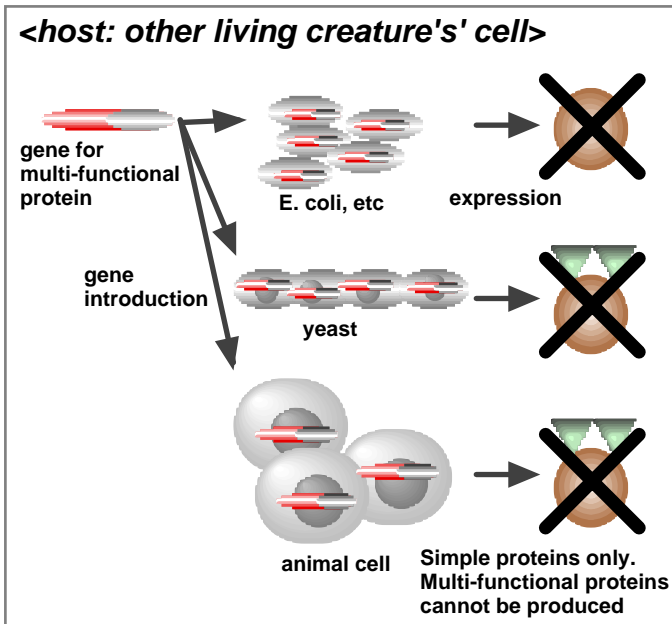
## Our competitive edges

Under the conventional technology, proteins are synthesized with transgenic microorganisms, but precious human proteins such as conjugated proteins with glycosylation cannot be produced by these microorganism. Using yeast or an animal cell as a host, on the contrary, results in specific sugar modified proteins not to be used in the medical application fields.

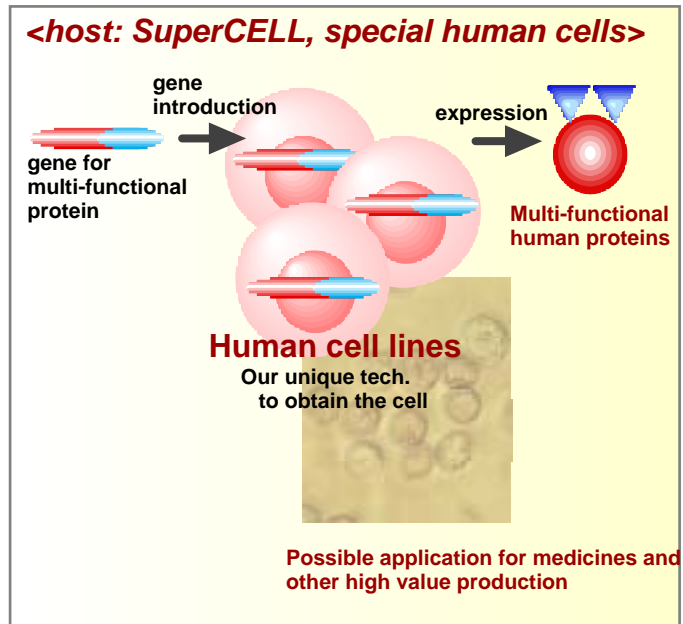
These problems can be solved once **a human cell is used as a host**, but this method has encountered with its relatively short functional longevity.

SuperCELL is the solutions. Our patents for SuperCELL include **the method to create human cell lines** to be used as hosts to produce human proteins at the commercial level and **how to culture them**.

### Conventional methods

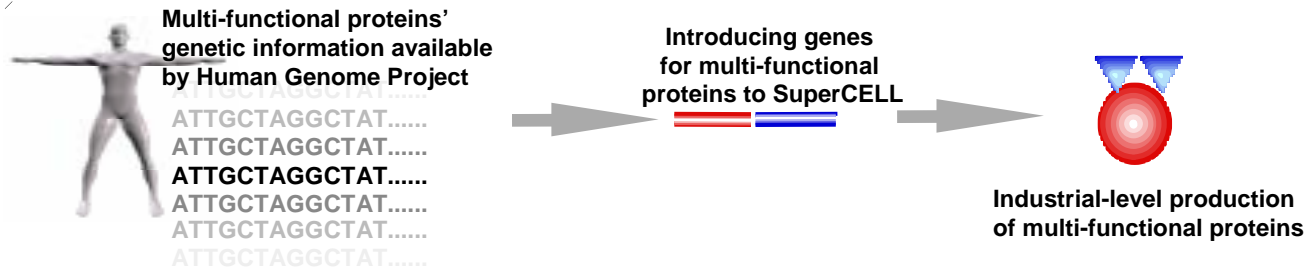


### Our invention



## Patents (PATPEND)

Title of invention: the method of producing human proteins



Scope 1. The method of acquiring human cell lines to produce human proteins

- the method of selecting the appropriate human cell lines with the ability of producing proteins stably and for a long term
- the method of creating human cell lines with a vector introduced to produce target human proteins

Scope 2. SC-01MFP & SC-02MFP human cell lines

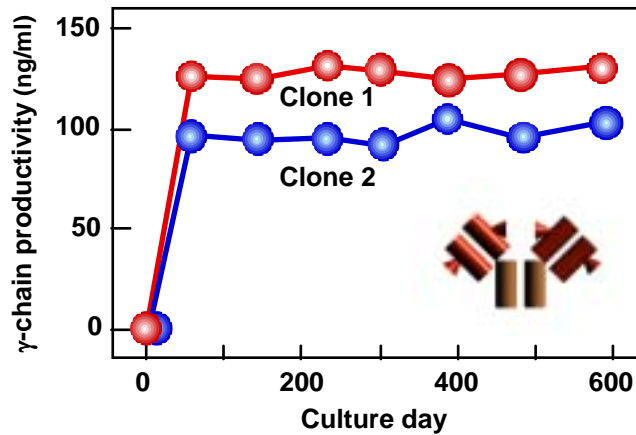
- newly acquired SC-01MFP to produce proteins via the above process
- newly acquired SC-02MFP to produce proteins via the above process

Scope 3. The serum free culture method to produce human cells for target protein production

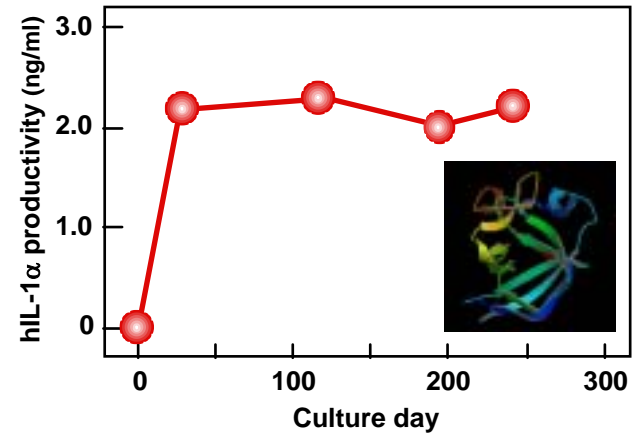
- the serum free culture methods for clone cells with synthesized medium

## Data prove efficiency

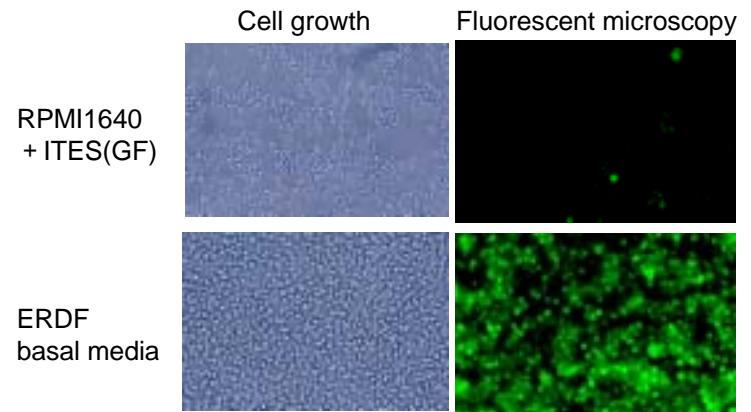
The following data show that the SuperCELL can produce sufficient protein in quantity and also multiply itself with serum free culture.



Stable **antibodies** production with a new human cell, SC-01MFP



Stable **hIL-1 $\alpha$**  production with a new human cell, SC-01MFP



Serum free culture of **GFP** expressed SC-01MFP

## SuperCELL Initiative

SuperCELL Initiative is the generic term for the researches and developments for SuperCELL and its industrial applications. It includes three cellular engineering technologies and a project of developing cell research instruments. These are;

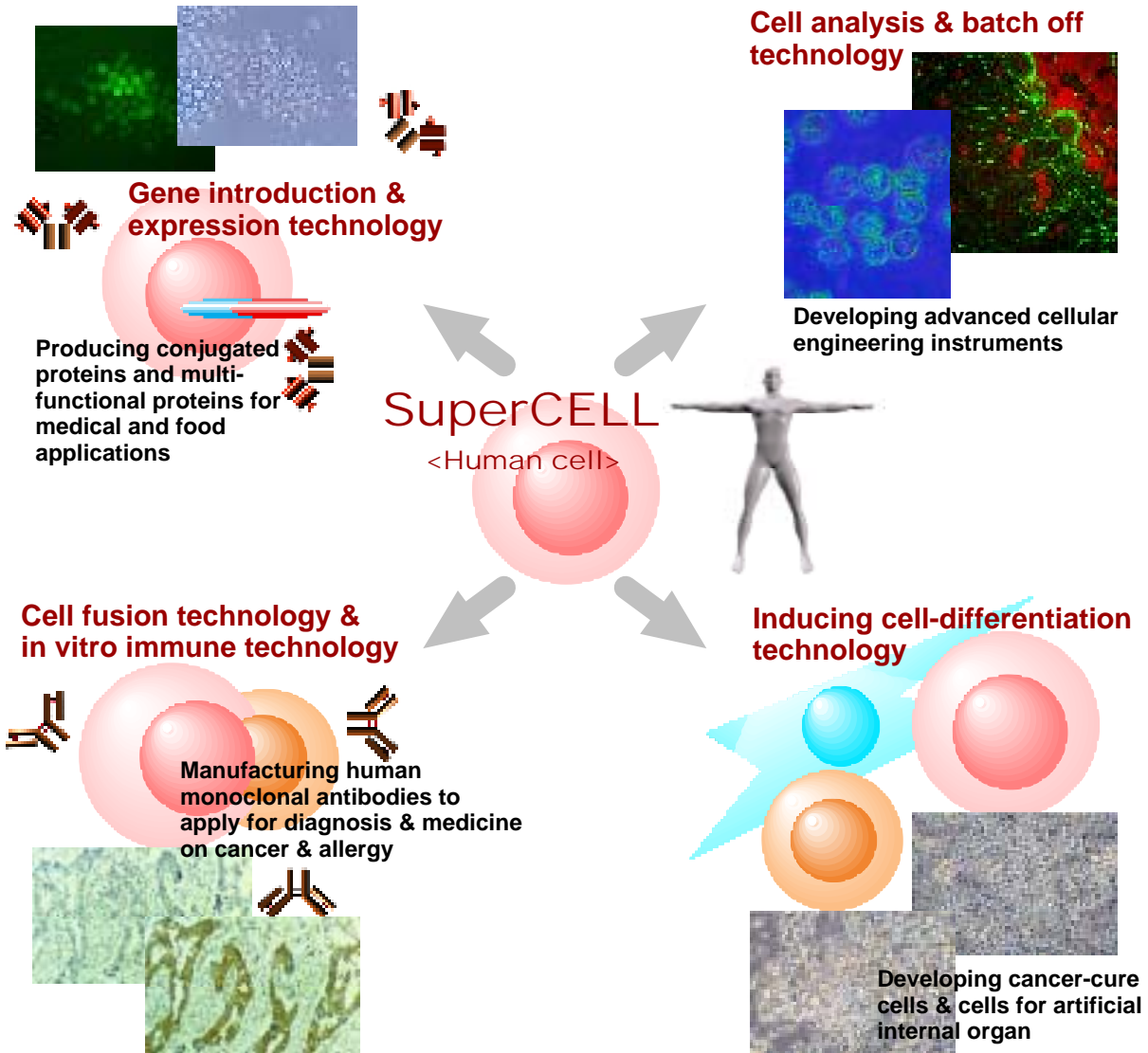
- 1) cell fusion technology & in vitro immune technology
- 2) gene introduction and expression technology
- 3) technologies for inducing cell differentiation
- 4) developing advanced cellular engineering instruments

## Research Task

In order to materialize SuperCELL Initiative, we are day-by-day tackling with the following research tasks.

- 1) developing useful-compound manufacturing technologies
  - human monoclonal antibody
  - manufacturing system for multi-functional proteins with human cell lines
- 2) developing controlling technologies for cell functions
  - human cell differentiation and dedifferentiation
- 3) developing cell manipulation and analysis technologies
  - quantification methods for cell functions by image processing technologies
  - factor finding technologies in food functions
  - measuring technologies for human cell by fluorescence

# Overall SuperCELL Initiative



## Regional collaboration

1. New regional consortium project by **Ministry of Economy, Trade and Industry (METI)**
  - 1) Producing human monoclonal antibodies as reagents for research use.  
(term & budget) National FY 1999 supplementary budget, 1 year.
  - 2) Developing future manufacturing systems for multi-functional proteins by human cell lines  
(term & budget) National FY 2002 budget, 2 year.
2. Industry-government-academia research project by **Kitakyushu Foundation for the Advancement of Industry science and technology (FAIS)**
  - 1) Developing cell function control technologies for future medical applications  
(term & budget) FY 2002 budget, 2 year.

## Regional support

**The City of Kitakyushu** and companies related to the Kitakyushu region have given and will give a strong support to our researches and developments. The Kitakyushu region has accumulated world leading-class engineering and manufacturing technologies, which will, eventually, serve as a locomotive for this cellular engineering research and technology field.

Kitakyushu grew to be one of Japan's "Big Four" industrial zones and today it still serves as a pillar of the nation's production and distribution capabilities. The City of Kitakyushu has established a partnership with local businesses and academic institutions to advance and diversify the area's high-tech industries such as robotics, IC-related products, space-age materials and bio & life science. Through cross-sector meetings, local government, academia and business are working together in Kitakyushu to conduct research and create products for the future.

(The city of Kitakyushu English webpage)

<http://www.city.kitakyushu.jp/~english/>





## Our Partners

Kyurin Medical Laboratories, Yaskawa Information Systems Corporation, Morinaga & Co., Ltd., Morinaga Institute of Biological Science, Toto Ltd., Asahi Techneion Co., Ltd., Crown Foods Co., Ltd., TOSHIBA, World Fusion Co., Ltd., National Institute of Advanced Industrial Science and Technology Kyushu, Kyushu University, and others

## What we are seeking for

### 1. License partners:

Pharmaceutical and bio-related enterprises who would like to obtain our patent licenses

### 2. Research collaborations on the medical and food application fields with academia and industries.

## Our laboratory

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**For further business & license inquiries, please feel free to contact to our agent**

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