

Microbial production of useful compounds by multistep gene introduction system (Fermelanta, Inc.)



| City | Year of Establishment | Founder |
|-----------------|-----------------------|--|
| Ishikawa, Japan | 2022 | Shogo Fukizaki Hiromichi Minami Akira Nakagawa |

| Partner VC | Latest round of Fundraising | Valuation |
|---------------------------|-----------------------------|-----------------|
| Beyond Next Ventures Inc. | Seed | JPY 800 million |

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○ Business Plan

A lot of compounds with complex chemical structures derived from nature have useful bioactivities promoting human health. But there is a lot of issues for mass production based on traditional processes, especially agricultural cultivation and extraction. The total synthesis by chemical reaction is also technologically difficult , inefficient and unreasonable. We develop artificial microorganisms capable of producing target compounds with high productivity, which whould be achieved by introducing more than 20 foreign genes into a microorganism, expressing enzymes functionally and controlling the whole biological sytem as a living cell. By solving the technical problems with constructing a multi-step biosynthetic pathway of continuous enzymatic reactions, we aim to realize social implementation of the innovative process.

○ Research Outline

In this R&D project, we will solve the technical problems for constructing alternative biosynthetic pathways and improving metabolic systems of cells with our original multi-step genes transfer technology. We taking model compounds with commercial demand but limited supply as examples, especially those requiring complex biosynthetic pathways. Through the construction of prototype cells and their optimization, we aim to achieve practical production yields (at the order of grams per liter) in laboratory culture equipments.

| Business Area/Field | Research Period | Research Grant Amount | International collaborative technology demonstration |
|---------------------|--------------------|-----------------------|--|
| Materials | STS 2023～2024FY | JPY 192 million | — |