



PRESS RELEASE

22 August 2022

Chiyoda to Commence a ‘Technology Development for Large-scale Production of Highly Modified Recombinant Proteins in Plants’ R&D Project

~ Chiyoda Selected following NEDO’s Open Call for Proposals on Biomanufacturing ~

Chiyoda Corporation (Chiyoda) is pleased to announce that it has been selected following NEDO’s*1 open call for proposals on the ‘Development of Bio-based Production Technology to Accelerate Carbon Recycling / R&D item [3] - Demonstration of Industrial Material Production System’. Chiyoda will conduct research and development with Nippi Incorporated, AIST*2 and Osaka University (ICBiotech*3) as outlined below.

1. Subsidizer: NEDO
2. Program: Development of Bio-based Production Technology to Accelerate Carbon Recycling / R&D item [3] - Demonstration of Industrial Material Production System
3. Theme: Technology Development for Large-scale Production of Highly Modified Recombinant Proteins in Plants
4. Duration: End of March 2024
5. Organization: The institutions will research as ‘One Team’ as follows:
 - AIST and Osaka University (ICBiotech): Development of Plants Expressing Highly Modified Proteins
 - Chiyoda: Development of Technology for Large-scale Projection
 - Nippi Incorporated: Development of Analytical and Evaluation Methods and Product Evaluation

NEDO has promoted the 'Development of Bio-based Production Technology to Accelerate Carbon Recycling' project since FY2020 and has subsidized its development aimed at creating a foundation for the bio-manufacturing industry and accelerating the creation of bio-based products through the demonstration of bio-based production systems for substances useful to industry and society. Chiyoda's proposal is for technology/system creation that enables us to supply highly modified, insoluble and functional proteins.

As shown in Figure 1 below, the production of materials in plants using gene recombination technology has the advantage of producing proteins with complex structures and large molecular weights that are free from animal products and compatible for human application.

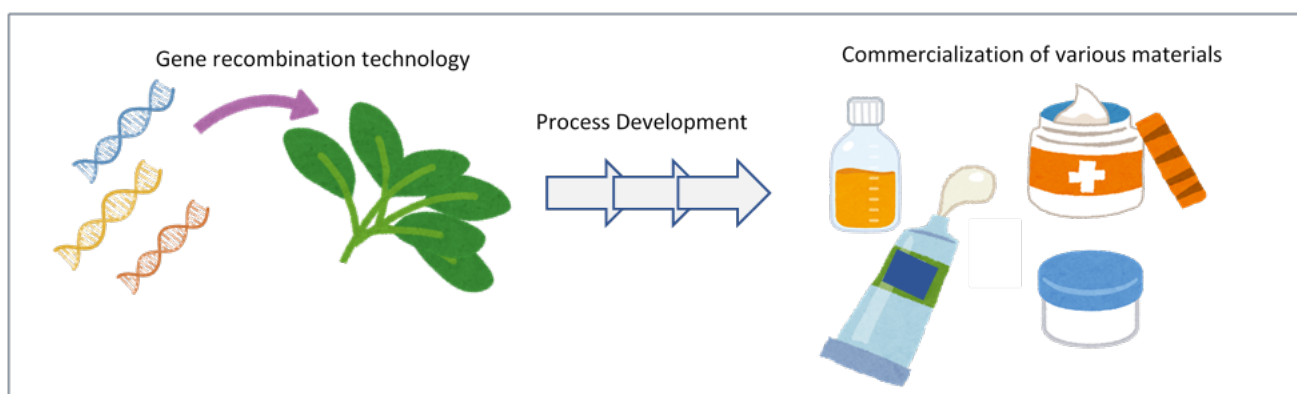


Figure 1

Our challenge is to develop large-scale production technology to expand the scope of practical use to substances that require a high degree of modification, uncommercialized in recombinant plants to date. We recognize that the development of the plant substance production industry in Japan requires integrated production system infrastructure for social implementation of production processes using gene expression technologies developed at the laboratory level, and we believe that this is an area where we can take advantage of our strengths of scaling up and integrating technologies.

This project is to collaborate on the demonstration of large-scale production technology for plant substances, from technological development to social implementation, and is expected to lead to the expansion of plant substance production applications. Although the target protein is intended for application in the quasi-drug area, we intend to use the production process platform to develop other functional substances (eg: bioactive substances, intercellular substances and cell growth factors in the medical and cosmetic fields).

As shown in Figure 2 below, the goal is to establish and demonstrate basic technology for large-scale production of useful substances in plants, **with aim of establishing a plant bio-foundry**, to

realize commercialization of plant substance production technology for social implementation.

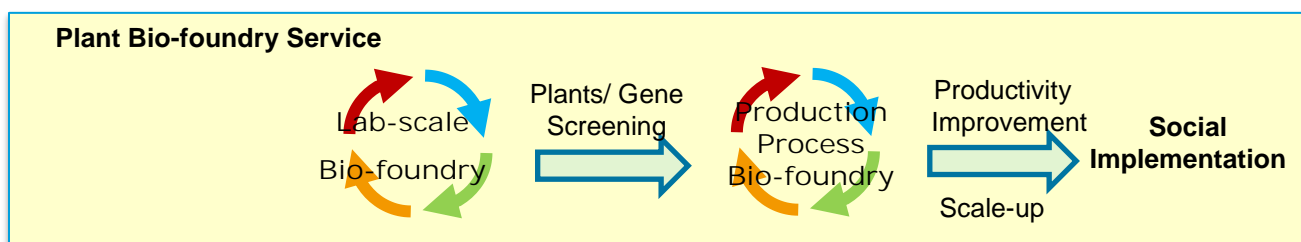


Figure 2

*1 : New Energy and Industrial Technology Development Organization

*2 : National Institute of Advanced Industrial Science and Technology

*3 : International Center for Biotechnology

For further information, please contact:

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