Innovation Strategy

As an Innovative Solution Provider aiming to solve societal issues with innovative technologies, we have designated "advance innovation" as one of the material issues to be addressed as management priorities. Leveraging our technological expertise in diverse areas, we strive to address societal issues by delivering solutions (value) across four areas: food, ICT, healthcare, and the environment.

Research and Development

Through extensive research activities over the years, we have cultivated research and development assets in the three areas of Green, Digital,and Bio. Through our businesses, we will contribute to solving societal issues by implementing an R&D strategy centered on the three areas of transformation—Green Transformation (GX), Bio Transformation (BX), and Digital Transformation (DX)—and providing innovative solutions.

DX

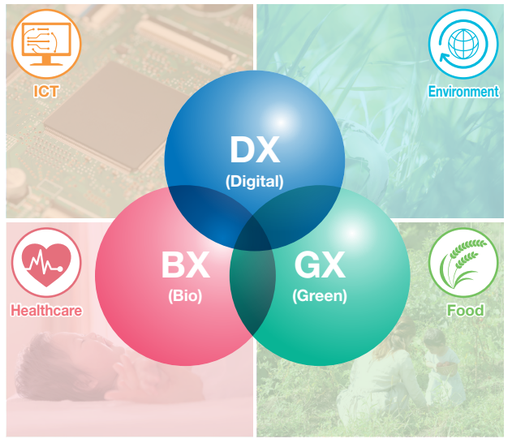
Accumulation: Over 50 years of research achievements. Laid the foundation for computer chemistry and contributed to the advancement of materials informatics (MI).
Technological Expertise: Selected as a Clarivate Top 100 Global Innovator for 5 consecutive years
Human Resource Strength: Approx. 1,700 people of DX core talent

BX

Accumulation: Over 50 years of research achievements in biotechnology.
Technological Expertise: Over 200 BX-related patent families
Open Innovation: Accelerating collaboration with leading startups to develop high-performance chemicals using synthetic biology.

GX

Promoting Carbon Neutrality: First comprehensive chemical manufacturer to receive SBT certification in 2018. Aiming for 50% GHG reductions compared to FY2013 by FY2030.
Technological Expertise: Approx. 70 licenses for catalyst and process technologies
Open Innovation: Using Green Innovation (GI) Fund, promoting chemical recycling business of approx. 50 billion yen in project scale.



Reorganization of R&D functions

To focus R&D resources on winning business themes, we transitioned to a companywide and strategic structure in April 2026.

Overview of new organization (Effective April 2026)



※ Integration of some research labs

Aims of the reorganization

Newly formed **companywide research strategic committee** as a decision-making body

- Unify planning and operation of companywide development strategy reporting directly to the management team
- Monitoring of companywide R&D, including Go/No Go decisions on important projects

Newly formed Research **Planning Division** tasked with **cross-organizational functions**

- Lead R&D restructuring and strategic investments from a companywide perspective

Formulate **technology roadmap** to support growth strategies

- Rigorously select development targets for corporate and business-unit research
- Strengthen ties between business strategy and R&D strategy

Prioritize investment of R&D resources into projects where we can win

Promising development Themes

Agro & Life Solutions

Theme **Research and development of new active ingredients**



Overview/Features: We are developing technologies that contribute to future food production through chemical crop protection and biorationals that we cultivated over many years and position as the core of the growth strategy. The core of R&D of this division is to identify and develop new active ingredients in the crop protection and environmental health areas. We are continuing our research on discovery of active ingredients for the next generation following the six products launched since 2020.
Next steps: Currently, we have more than 10 candidates in the early evaluation phase for chemical crop protection and biorationals. We also have a robust development pipeline. Developing new active ingredients is becoming increasingly challenging due to various factors such as the registration program becoming stricter year by year. We strive to maintain a high success rate in drug discovery by utilizing digital systems and other latest methods.

ICT & Mobility Solutions

Theme **High-purity chemicals for semiconductors**



Overview/Features: The Company's high-purity chemicals for semiconductors (isopropyl alcohol, sulfuric acid, ammonium-hydroxide, hydrogen peroxide solution, etc.) are important chemicals used to remove foreign matter in the cleaning and drying steps in semiconductor manufacturing. Leveraging our high quality and stable supply capability backed by technologies accumulated over many years, we have established a world-class business scale.
Next steps: With advances in semiconductor performance and miniaturization, ultra-high purity technology at a parts-per-trillion level is being required, in addition to further advancement of quality control. While working to improve purification process technologies and high-sensitivity analysis and evaluation methods further, we also strengthen the global supply system to meet demand for advanced semiconductors expected to grow in the future.

Advanced Medical Solutions

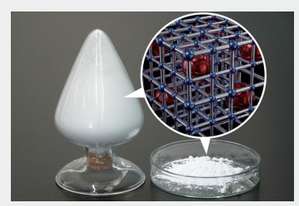
Theme **Development of processes for producing long-chain RNA for genome-editing therapies**



Overview/Features: We develop processes for manufacturing long-chain RNA indispensable for genome-editing therapies. A stable supply system at a practical level was established. With proprietary compound design and synthesis technology, we achieved world-class purity and yield. Demand is growing on the back of the stringent purity requirements of FDA* and our plant utilization rates have also improved significantly.
Next steps: We will strengthen customer touchpoints with a focus on SC-AMSA, the base in the U.S. We accelerate early commercialization and market expansion of customer-developed products through providing samples from the early stages of development, aiming to establish ourselves as a core partner in the implementation of genome-editing therapies.
※ FDA: the U.S. Food and Drug Administration. It is a government agency responsible for ensuring the safety and effectiveness of drugs.

Essential & Green Materials

Theme **Development of metal-organic framework (MOF)**



Overview/Features: Metal-organic framework (MOF) is an advanced material that exhibits selective adsorption and separation capabilities depending on the size and properties of target molecules. Through joint development with Susumu Kitagawa, a Distinguished Professor of Kyoto University who led the MOF research and was awarded the Nobel Prize, we are working toward practical application of MOF that can recover water with high efficiency using minimal energy.
Next steps: Leveraging our strength of organic synthesis technology, we work to quickly establish MOF mass production technology, thereby contributing to securing water resources and the early social implementation of energy-efficient humidity control technology. By expanding into diverse functionalities enabled by molecular-level design, including separation, catalysis, and structural response, we provide solutions to address challenges across a wide range of industries.

Standardization Initiatives

We have established a task force dedicated to standardization strategy. By addressing carbon-neutrality challenges and participating in ISO working groups on chemical recycling, we are promoting a standardization strategy aimed at the early societal implementation and widespread adoption of new technologies.