Presentation for R&D

June 16, 2025

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Head of Biological Research Laboratories
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Head of Chemical Research Laboratories

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1. History and Core Technology
–Our History-

1887 Founded as Tokyo Jinzo Hiryo

1937 Changed name to Nissan Chemical Industries, Ltd.

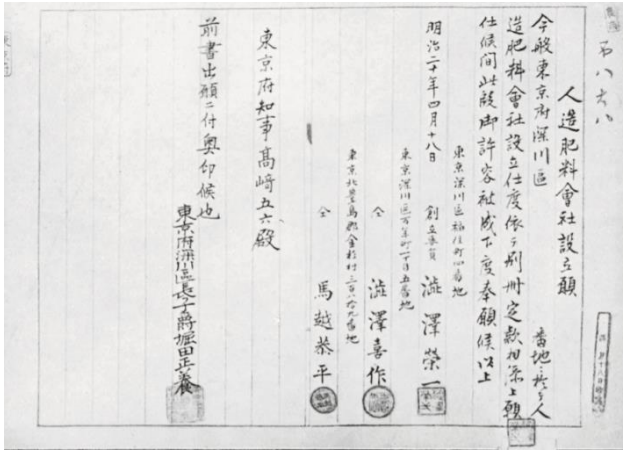
1965 Entered to Petrochemical business

1988 Exited from Petrochemical business

1989 Reform Business Structure

2018 Changed name to Nissan Chemical Corporation

2022 Started Vista2027



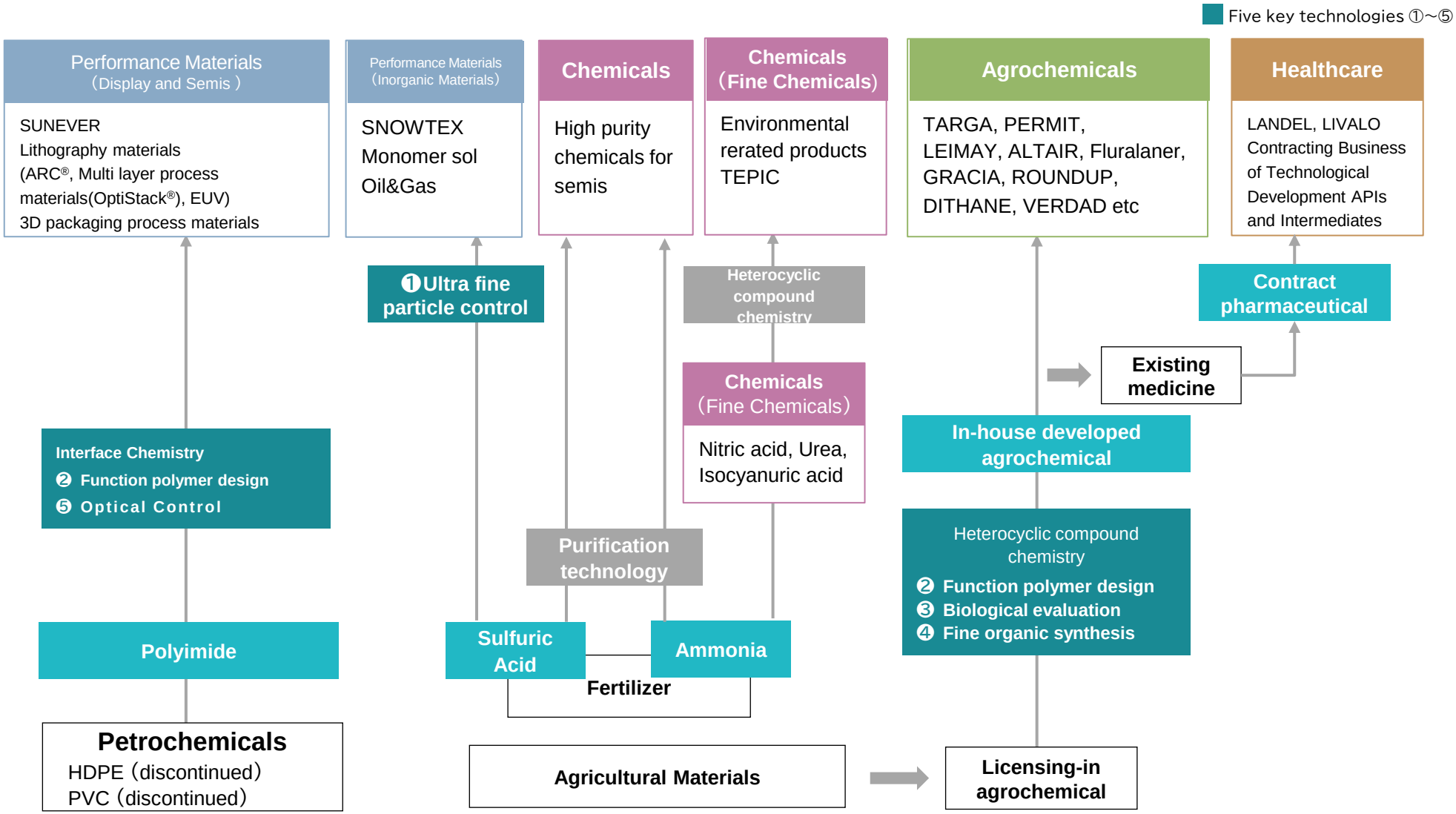
SHIBUSAWA Eiichi

TAKAMINE Jokichi

- Exit from Petrochemical business changed our manufacturing to create high valued products
- Restarted as a “value-creating company” in 1989, oriented with two pillars: “high-tech field such as agro-chemicals and pharmaceuticals” and “technology field such as functional products and chemicals”

1. History and Core Technology –Our Core Technologies-

<Existing Businesses and Core technologies>



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2. R&D Organization - Laboratory location -

Nissan Chemical CORPORATION

NCK Co., Ltd.(Korea)
Manufacture and sales of display and semiconductor materials

Dispatch 2 researchers to Imec (Belgium)

Materials Research Laboratories(Toyama)
Develop semiconductor materials

Chemical Research Laboratories(Chiba)
DD(synthesis) Research
Corporate R&D

Nissan Chemical Materials Research (Suzhou) Co.,Ltd.
R&D, sales support and promotional Services for performance materials

Biological Research Laboratories(Saitama)
R&D of life science

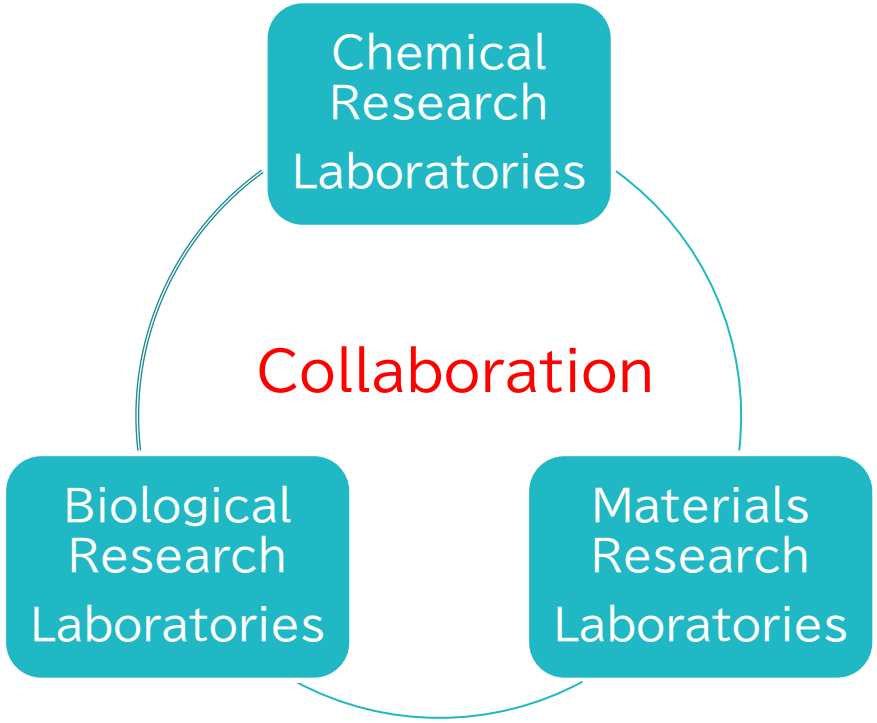
Materials Research Laboratories(Chiba)
R&D of performance and new materials

Nissan Chemical Taiwan Co., Ltd. (Taiwan)
R&D and sales support for display and semiconductor materials

Materials Research Laboratories(Chiba)
Inorganic Colloid Materials Research Dept.

2. R&D Organization - Function and collaboration -

- Drug discovery of Agro and Pharma by fine organic synthetic technology
- Study manufacturing process of candidates of Agro, Pharma and materials
- Latest research of chemical analysis, utilization of data science



- Research of biological evaluation of Agro, Pharma and medical materials
- R&D center of toxicology
- Research center of life science

- Utilize and merger function polymer design and ultra fine particle control
- Develop display and semis materials
- Develop next-generation materials

Contents

3. Policy and Basic Strategies

Nissan Chemical CORPORATION

Slogan for Business Plan

To be an Enterprise that Faces Challenges toward the Future through Value Co-creation

Policy

Basic Strategies

Building Foundation for Continuous Growth and Stable Earnings

Expanding Profits in Existing Businesses

Strengthening businesses in growth sectors

- **Concentrating investments into Semis materials and Agrochemicals**
- Developing the materials and products below
  - ・Semis：3D packaging process and EUV materials, etc.
  - ・Agrochemicals：Biological pesticides, new veterinary drug products, etc.
- **Leveraging strategic investments(M&A)**

Improving profitability of Ammonia-related products

- **Reducing fixed cost** (booked impairment loss in FY2024)
- Reducing cost continuously
- Leveraging outside manufacturing contractors
- Discontinuing unprofitable products

Developing New Products Looking toward 2030

- Accelerating Go/Stop
- Identifying target materials for new products
- **Leveraging strategic investments (M&A)**

Strengthening Business Foundation

- Human resource development
- R&D foundation and functions
- Digital infrastructure
- Utilization of intellectual property

Nissan Chemical CORPORATION

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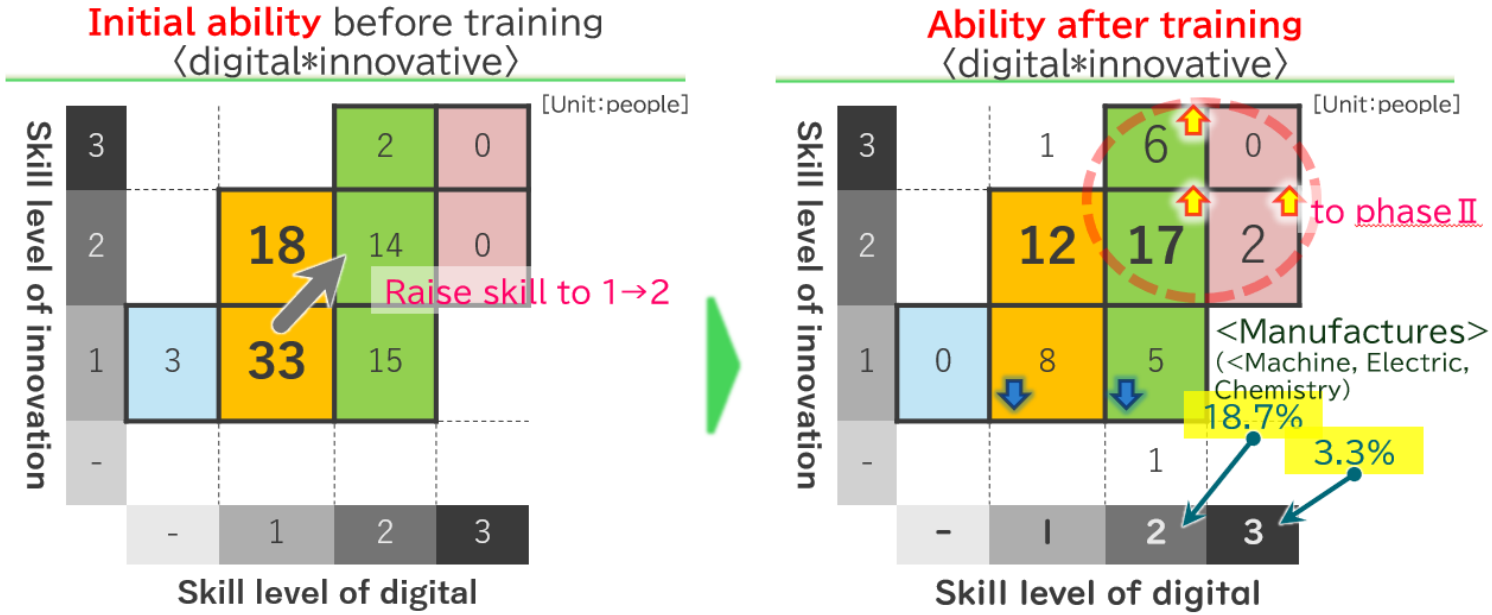
4. Strengthening Business Foundation -Enforcing HR development-

Improving literacy of Information Science

Training and assessment with outside consultant



Develop expert data scientist

Training at university and external agency

東京大学エクステンション
UTokyo EXTENSION

Data scientist developing course

東北大学 DS

Business Data science class

TECH PLAY

Data science training

TORCH

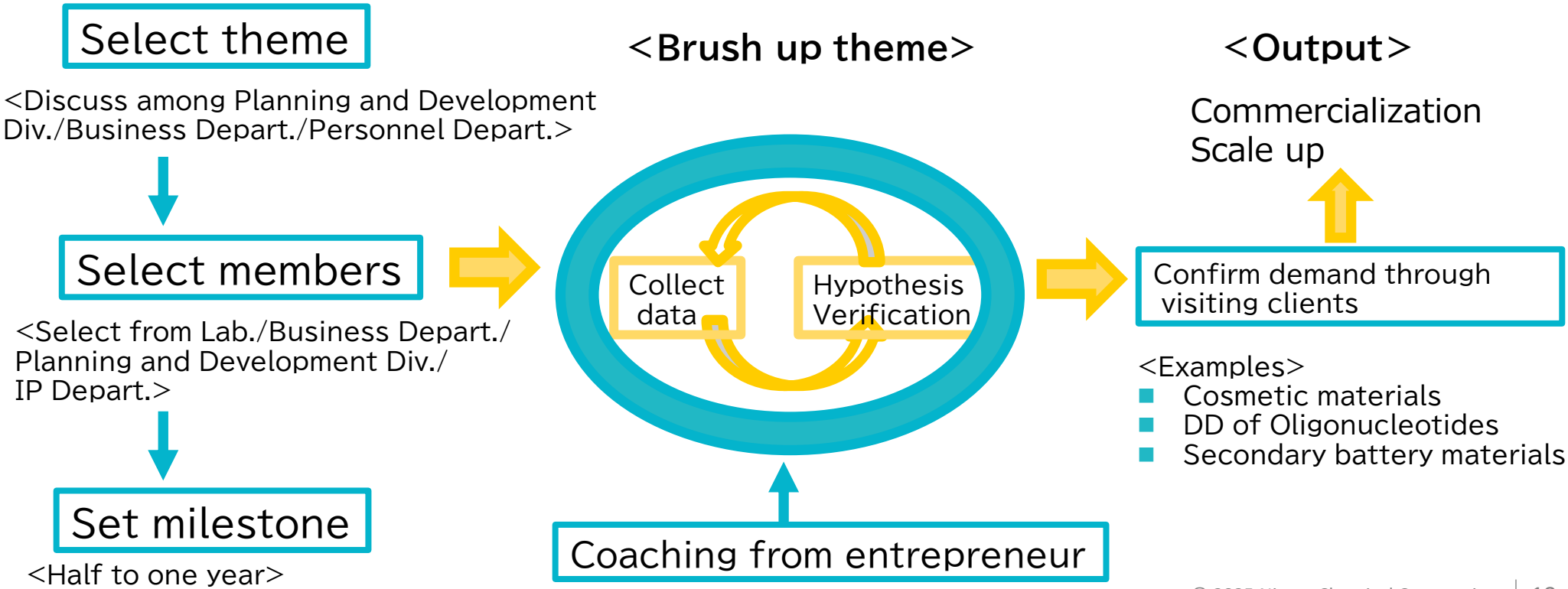
Labo automation training

4. Strengthening Business Foundation
- Enforcing HR development-

Established HR Development Gr. in Materials Research Lab.

- Training capable researchers and support careers and efficiency
- Developing HR capable to material informatics and digital transformation

Developing discerning HR (Intrapreneurship Program)



4. Strengthening Business Foundation
- Expand R&D Business Foundation and Function-

Enforce valuation and analysis function

Efficient and advanced R&D using latest evaluation/analysis equipment

<Two-dimensional X-ray diffraction equipment>

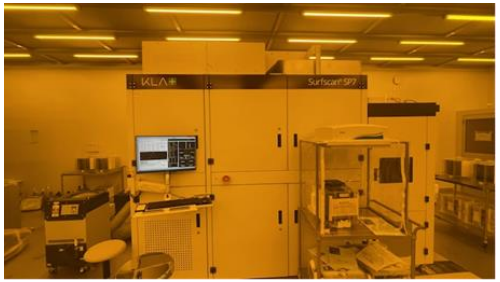
Visualize crystallinity and orientation of the materials

<X-ray Photoelectron Spectroscopy equipment(XPS)>

Analysis surface composition, molecular bond and thin film depth of the materials

<Orbitrap mass spectrometer equipment>

Separate compounds from mixture, identify in high precision



<Defect inspection system>
Inspect and analysis foreign object on the wafer

<Microfluidic droplet generator/selector>

Separate and analysis certain microorganisms to minute droplet

4. Strengthening Business Foundation
- Strengthen utilization of IP-

Nissan Chemical CORPORATION

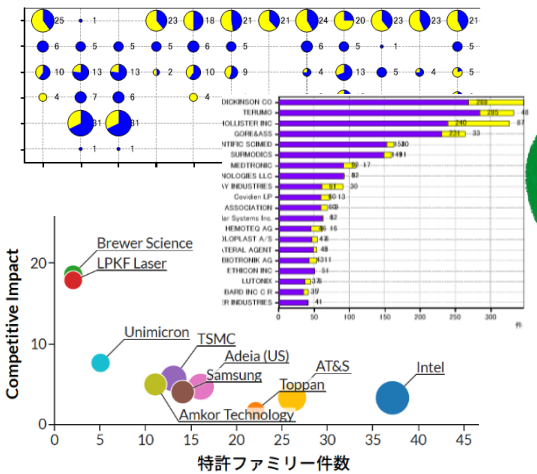
General definition of IP landscape

“Analysis management and business information including IP and share the results (overview of current and future situation) to managements and business officers upon planning management or business strategy.

Quote and translate from Study Report of Industrial Property Rights by Japan Patent Office

Our definition of “IP landscape”

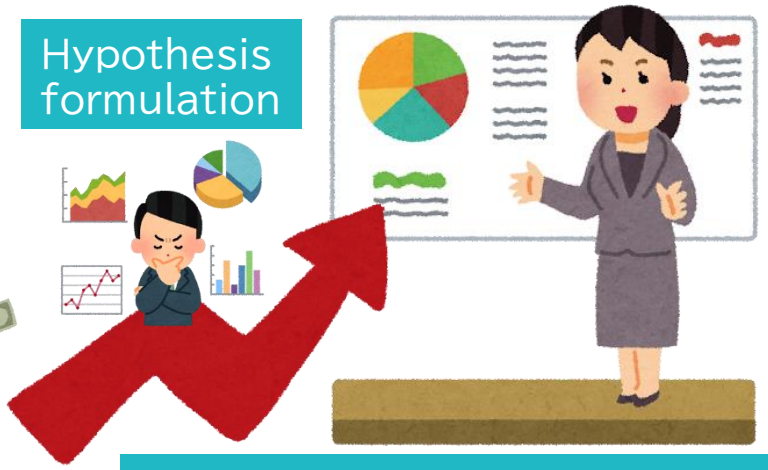
“Suggest strategy that contribute to management/business decision by predicting the future of the field (hypothesis formulation) with IP info extract in target field, “IP information” gained from analysis and technical trend, market info and “Non IP information” such as social situation.



IP information

Non IP information

Hypothesis formulation



Strategy suggestion
“Studying is not the goal ! ”

4. Strengthening Business Foundation
- Strengthen utilization of IP-

What we have achieved through the IP landscape

- ✓ Provide information enable to judge Go/Stop of the ongoing theme
  Propose promising offensive line
- ✓ Grasp the trend of new technology fields
  Extract promising startup companies
- ✓ Search and extract other fields to apply owned technology/materials
- ✓ Study synergy effect with candidate companies
- ✓ IP due diligence of M&A candidate companies

Promotion structure of IP landscape

AIPE(Association of Intellectual Property Education) Certified Specialist of Intellectual Property Management*1

Distribute one in Planning & Development Div. and two in IP Depart. Information Gr.
Promote IP landscape by collaboration

*1: The “Intellectual Property Management” type of job means conducting business in order to create, protect, and utilize intellectual properties such as inventions, utility models, product designs, trademarks, trade secrets, and copyrights. Concretely speaking, this type of job includes diverse type of IP-related jobs such as value evaluation or making patent map in the field of creation, planning strategies of patent application in the protection field, and plotting strategies license strategy or management of trade secrets in the utilization field.

Quote from Website(https://ip-edu.org/english)

Nissan Chemical CORPORATION

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5. Development target of Next-generation Materials/APIs/Drugs

Existing Businesses

FY2027MTP

		< ¥1 billion	≧ ¥1 billion	Total
Chemicals	● Fine Chemicals	FINEOXOCOL (new grade) STARFINE		0.6
Performance Materials	● Display	Hard coating materials Light control film materials Transparent polyimide Photo VA Next-generation EL materials		11.3
	● Semis		3D packaging process materials EUV materials	
	● Inorganic	New Organo Sol High refractive materials		
	● Others	CIS related materials		
Agro-chemicals		NC-520 (insecticide) NC-656 (herbicide)	VERDAD DITHANE QUINTEC	9.6
Health-care	● Custom Chemicals	New APIs Peptides	Eldecalcitol	2.4

Total ¥23.9 billion

FY2030 Image

	< ¥1 billion	≧ ¥1 billion	≧ ¥3 billion
Chemicals	FINEOXOCOL (new grade) STARFINE		
Performance Materials	Hard coating materials Light control film materials Transparent polyimide Photo VA		Next-generation EL materials
			3D packaging process materials EUV materials
	New Organo Sol High refractive materials		
	CIS related materials		
Agro-chemicals		QUINTEC NC-520 (insecticide)	VERDAD NC-656 (herbicide) DITHANE
Health-care	New APIs	Eldecalcitol Peptides	

5. Development target of Next-generation Materials/APIs/Drugs

Planning & Development Div.

Enhancing selection and concentration to develop new products through accelerating Go/Stop & target identification

Accelerating Go/Stop

Identification and strict enforcement of requirement at each stage

Expansion
Achieving a certain sales scale

Development
Customer evaluation, adoption, and commercialization of developed materials

Planning
Developing materials that meet initial customer request

Exploration
Planning for promising business areas

Identification of target materials

Organization change as of April 1, 2025

- LiB Materials Business Development Group
- Optical Interconnect Materials Development Group
- Thermal Management Materials Development Group
- Energy Materials Development Group
  - PSC[1] Materials Development Team
  - Hydrogen Energy Materials Development Team
  - Next Generation Battery Materials Development Team
- Innovative Business Planning Group

Not Changed

- Research Management Dept.
- Healthcare Business Development Dept.
- Animal Care Planning Group

Sales of new products[2]

FY2030 Image

	< ¥1 billion	≧ ¥1 billion	≧ ¥3 billion
Planning & Development Div.	Life Science	Information & Communications	Environment & Energy

1: PSC(Perovskite Solar Cells)
2: Products launched in or after FY2019, including pre-commercial samples

Nissan Chemical CORPORATION

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6. Measures of each laboratories

Chemical Research Lab.

Nissan Chemical CORPORATION

Organization and mission

Chemical Research Lab.

Head MITA Takeshi

- **Agricultural Chemicals Research Depart.**
  - Explore new pesticides(herbicides, insecticides and fungicides) and animal healthcare drug synthesis (external parasites)
  - Develop new agro formulations
- **Pharmaceutical Research Depart.**
  - Explore new pharma (oligonucleotides/low molecular) and animal healthcare drug synthesis
- **Synthesis Research Depart.**
  - Develop synthetic process (contract manufacturing process and cost reduction of existing products)
- **Analysis Research Depart.**
  - Analysis research (precise structural analysis, trace qualitative and quantitative, improve state/dynamic analytic technology
  - CMC research of physics and chemistry of pharma, research of our Custom Chemical business
  - Computational science (data science and simulation)
- General Affairs Gr.

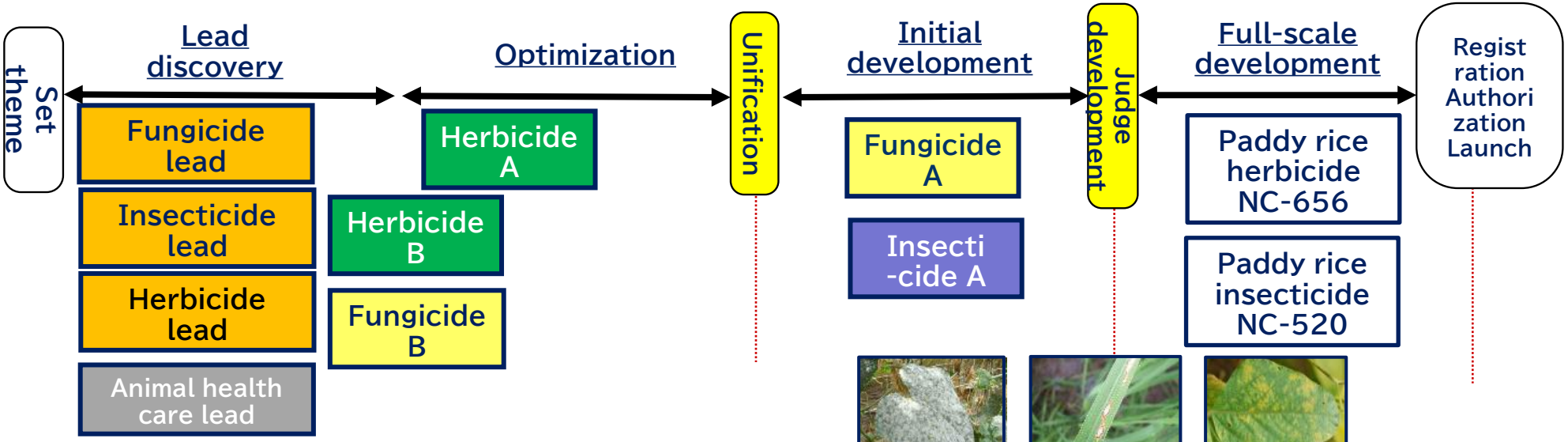
6. Measures of each laboratories

Chemical Research Lab.

Nissan Chemical CORPORATION

Agricultural Chemicals Research Depart.

Existing Businesses



Powdery mildew

Rice blast

Soybean rust

Fungicide(pesticide for diseases caused by fungi)

Insecticide(pesticide to prevent damage of crops caused by insects)


Common cutworm


Aphids

Herbicide (pesticide to prevent weeds)


Barnyard grass

Animal health care drugs (pesticide to prevent bloodsucking by fleas and ticks)


Cat fleas


Ticks

Fulfill lead compounds both quality and quantity
Drug design using CADD etc.
Efficient synthesis by outsourcing
Implement early safety profiling

6. Measures of each laboratories

Chemical Research Lab.

Planning & Development Div.

Nissan Chemical CORPORATION

Pharmaceutical Research Depart.

Explore new pharma (oligonucleotides/low molecular) and animal healthcare drug synthesis

Enforce foundation technology and promote drug discovery in-house or collaborating with pharma company, startup or academia.
Concentrate to raise the existing pipelines to next stage and create animal healthcare products.

	Planning/FS	Hit to lead	Candidate selection	Pre-Clinical	Clinical
【Healthcare】					
Low molecular (Joint development)			A	NIP-322	NTC-801
Oligo nucleotides (Joint development)		E, F	C, D	B	SN-001
Oligo nucleotides (In-house)	●●●●●	G			
【Animal healthcare】					
Low molecular (Joint development)	●●	J	I	H	

NTC-801:antiarrhythmic agent
NIP-322:therapeutic agent for chronic pain
SN-001:DRPLA(dentatorubral-pallidoluysian atrophy) therapeutic age

Foundation technology development

- AI/ML
- ASO/ss-HDO
- DNA encoded Library
- Multi sample synthesis
- siRNA
- Oligonucleotide delivery

6. Measures of each laboratories

Chemical Research Lab.

Planning & Development Div.

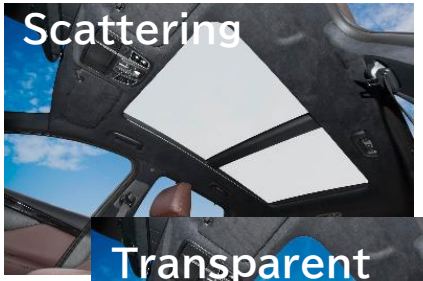
Existing Businesses

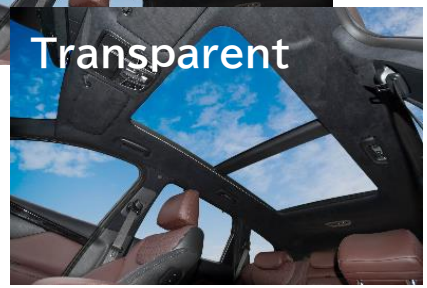
Nissan Chemical CORPORATION

Synthesis Research Depart.

Avoid delay of new product launch developed in each business unit
R&D manufacture method to maximize profit

Material process Gr.





KYUSYU NANOTEC OPTICS
https://kyunano.co.jp/product/

- Performance and important materials
- Develop manufacture method among various developments, which leads to prompt and cost reduction

Ex) New manufacture method of important material in light control film within short process

Agricultural process Gr.

New product

Full scale development

NC-656 Herbicide

NC-520 Insecticide

Initial development

Fungicide A

Insecticide A

- Agro API
- Developing manufacture method of agro API leads to mass production and reducing cost

Ex) Develop new manufacture method using low price materials

Pharma process Gr.

SYNCSOL

- API of middle molecule pharma
- Developing manufacture method of oligonucleotide acid and peptides

Ex) Develop new manufacture method using liquid phase manufacturing method

6. Measures of each laboratories

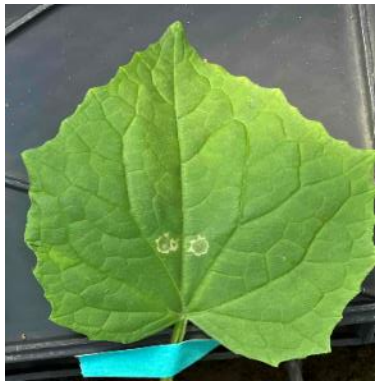
Chemical Research Lab.

Nissan Chemical CORPORATION

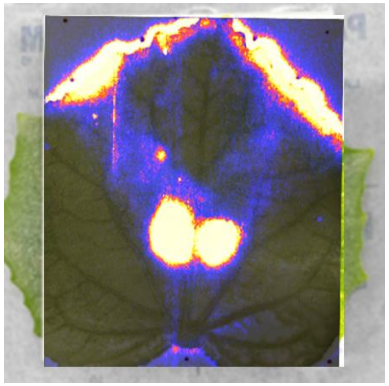
Analysis Research Depart.

Grant competitiveness and superiority to new product development by applying latest analysis technology and internal development

Reveal relationship between pesticide distribution and disease site (MS imaging)
→ Differentiation from competitor's product

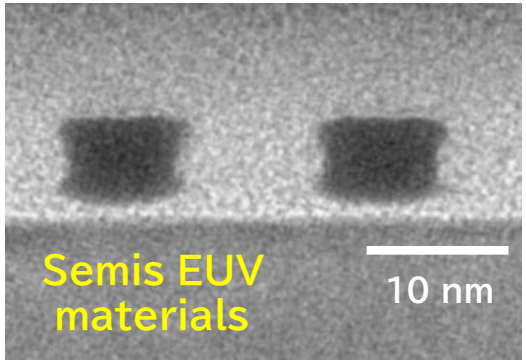


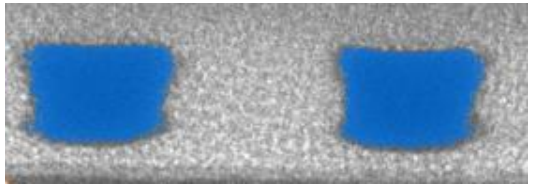
After 10 days
Cucumber powder mildew



Pesticide distribution in the leaf after 10 days

Analysis of microstructure and image → Function digitalization





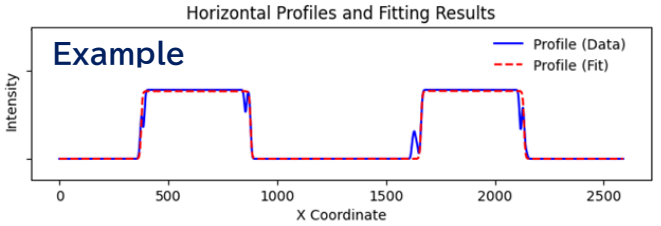


Image analysis of resist shape (digitalization)

To develop new products: Usage imaging, image analysis, materials informatics and outside large facility e.g.: NanoTerasu

6. Measures of each laboratories

Materials Research Lab.

Nissan Chemical CORPORATION

Organization and mission

Materials Research Lab.

Head NIHIRA Takayasu

- **Display Materials Research Dept.**
  - R&D of LCD alignment coating and next-generation display (EL, μ-LED etc) peripheral materials
- **Semiconductor Process Materials Research Dept.**
  - R&D of process and packaging materials for semis centered on BARC and adhesive materials
- **Inorganic Colloid Materials Research Dept.**
  - R&D of water sol materials for polishing
  - R&D of high and low refractive sol
  - R&D of new products of Inorganic Colloid(insulation, Oil&Gas etc)
- **Semiconductor Peripheral Materials Research Dept.** New
  - Develop senser peripheral materials centered CMOS image senser
  - R&D of optical communication relating materials
  - R&D of next-generation packaging materials
- **Energy Materials Research Dept.** New
  - R&D of battery (LiB、FC、PSC etc) peripheral materials
  - Research study of energy related new materials and new technology
- **Human Resources Development Gr.** New
  - Develop capable researchers by accompanying director and support career
  - Organize horizontal axis task force of new theme and sublimate to a project
  - Support developing HR capable for material informatics and DX
- **General Affairs Gr.**

6. Measures of each laboratories

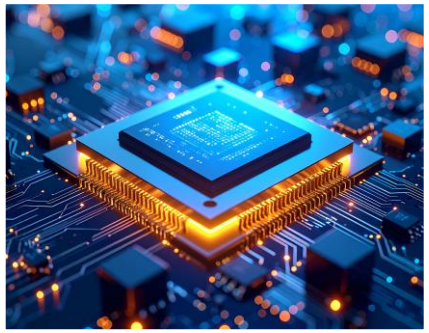
Materials Research Lab.

Nissan Chemical CORPORATION

Vision of Materials Research Lab.

Continuous creation of high valued products -whose priority is consumer satisfaction- as a core base of performance materials development

Overcome change by developing and utilizing HR



Semis

EUV

3D packaging process

Photonic-Electronic Integration

Display

High contrast

High color reproducibility

Low electricity

PFAS free

AR/VR

Energy

LiB

Carbon neutral

All solids･hydrogen fuel･perovskite battery

6. Measures of each laboratories

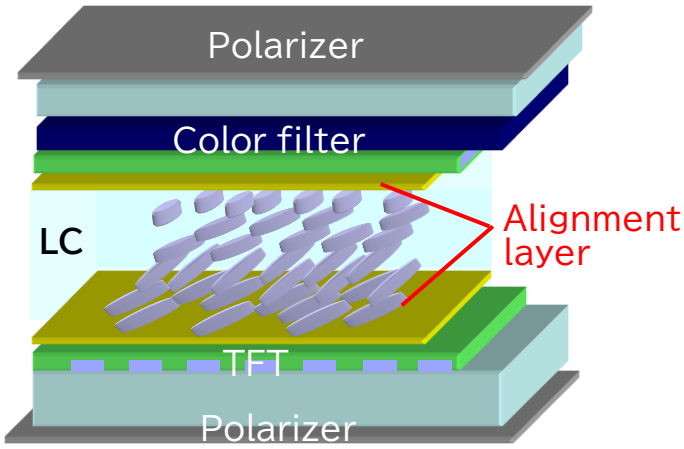
Materials Research Lab.

Nissan Chemical CORPORATION

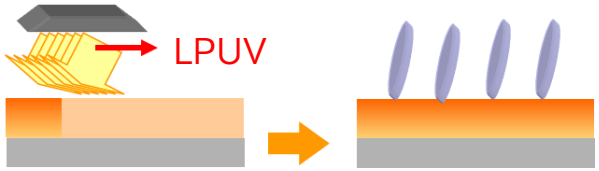
Display Materials Research Dept.

Existing Businesses

Alignment materials



- Photo alignment



- Target

Alignment materials for IT and TV especially for photo alignment VA.

VA: Vertical Alignment
LPUV: Linearly Polarized UV Light

Light control film materials

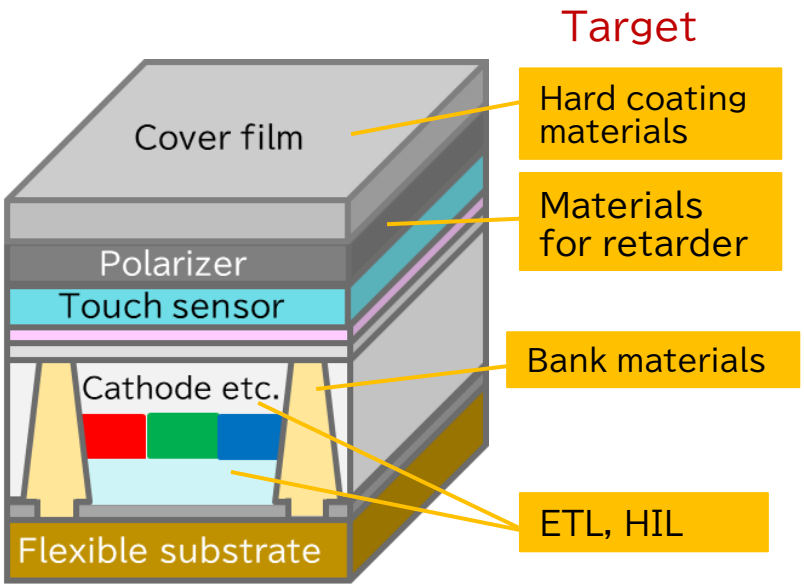
KYUSYU NANOTEC OPTICS
https://kyunano.co.jp/product/

- Target

Alignment materials for light control film for auto motive and architecture.

→ Next generation materials

Next-generation EL materials



ETL: Electron Transport Layer
HIL: Hole Injection Layer

- Target

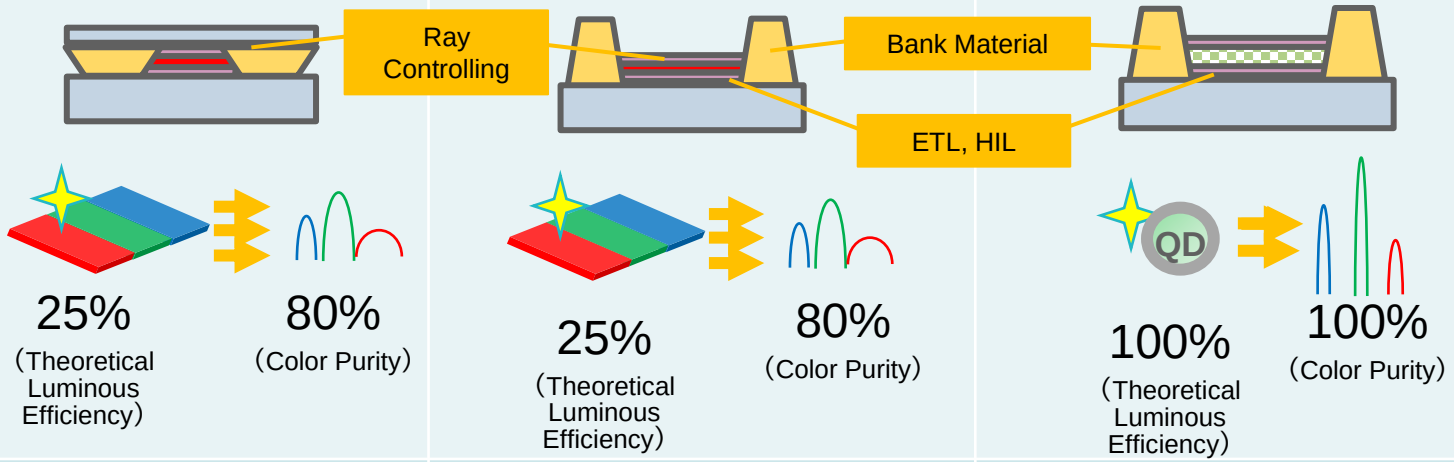
Peripheral materials for OLED and QD-EL to improve function.

OLED: Organic Light-Emitting Diode
QD-EL: Quantum Dot Light Emitting Diode

Nissan Chemical CORPORATION

Display Materials Research Dept.

Existing Businesses

	Mass Production →	Next Generation EL Display	
EL type	Vaper-deposition OLED	IJP-OLED	QD-EL (IJP)
Structure & Requirements for materials			
	■ Improvement of image quality	■ Cost down for lager panel ■ Broader Product Lineup by improvement of resolution	■ Improvement of printability of QD-EL
Our Target	Surface coating material to improve image quality by controlling ray from light emission layers		
		Bank material which has excellent electrical properties and printability with high-resolution	
			Supporting materials to maximize the potential of QD

6. Measures of each laboratories

Materials Research Lab.

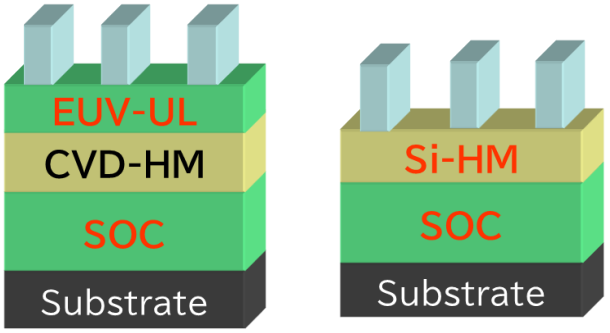
Nissan Chemical CORPORATION

Semiconductor Process Materials Research Dept.

Existing Businesses

Resist underlayer film

	2025	2026	2027	2030
Logic Device	3nm	2nm	1.4nm	<1nm
Tech	Low NA EUV		High NA EUV	



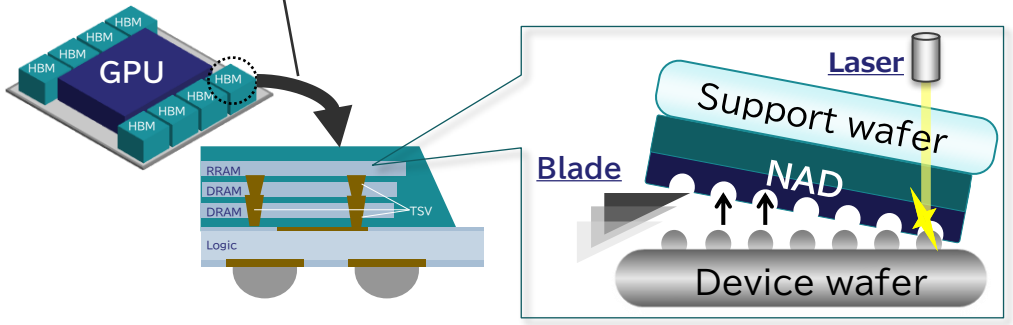
EUV-UL: Resist underlayer film for EUV
Si-HM: Silicon Hard Mask
SOC: Spin on Carbon

Continuous development of underlayer materials for EUV lithography.

TBDBM=Temporary bonding / de-bonding material

	2025	2026	2027	2030
Device	HBM4	HBM4E ~X		HBM X
Customer Process	Bump bonding		Highbred bonding	
TBM	Mechanical De-bonding			
		Laser De-bonding		

HBM(High Bandwidth Memory)



- Material :NAD series
- Application:TBDBM for 3D package on wafer
  - Spin coating type
  - Mechanical & Laser process adapting

6. Measures of each laboratories

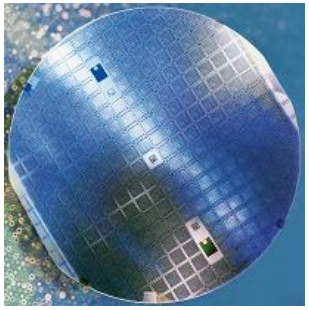
Materials Research Lab.

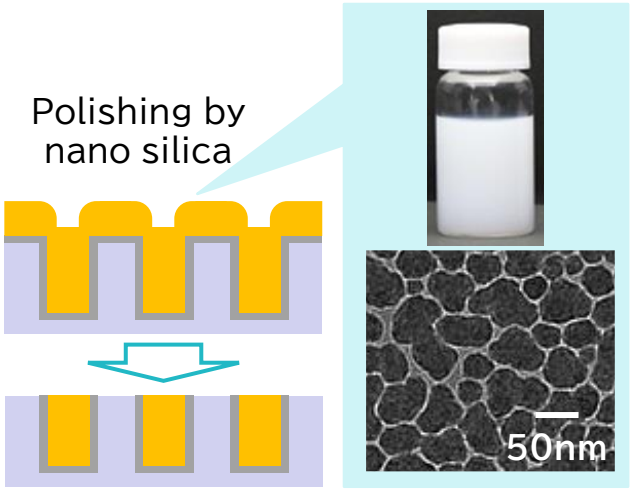
Nissan Chemical CORPORATION

Inorganic Colloid Materials Research Dept.

Existing Businesses

Slurry sol for CMP

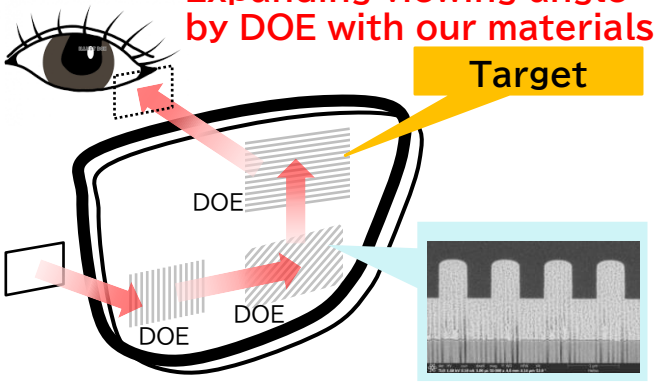




- Materials：Lower Na content
- Target：Polishing and Planarization

CMP：Chemical Mechanical Polishing

High refractive index sol



- Materials：Sol of TiO_2 or ZrO_2
- Target：DOE for AR glasses

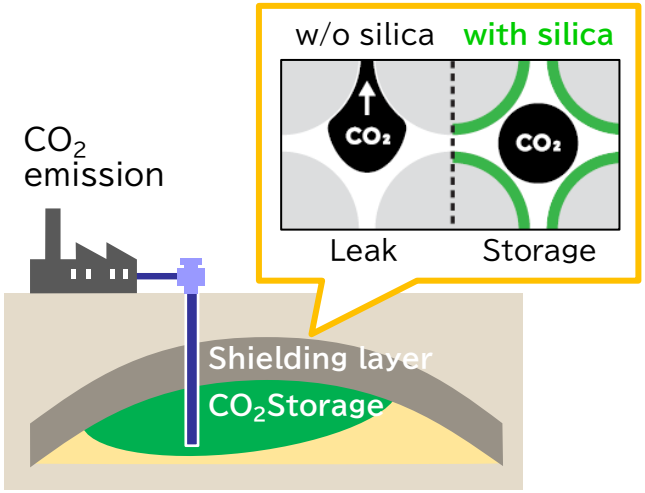
DOE：Diffractive Optical Elements

Slurry sol for CCS

To Tomorrow

Actualizing
a sustainable future for
our planet

Reduce CO_2



- Materials：sol for CCS
- Target：CO_2 Storage

CCS：Carbon dioxide Capture and Storage

→ Next generation materials

6. Measures of each laboratories

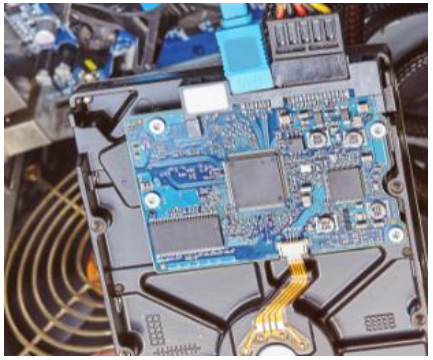
Materials Research Lab.

Nissan Chemical CORPORATION

Semiconductor Peripheral Materials Research Dept.

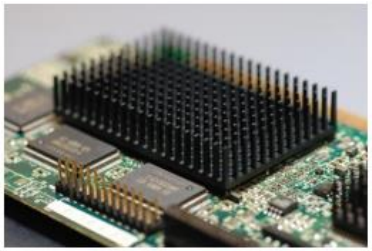
Planning & Development Div.

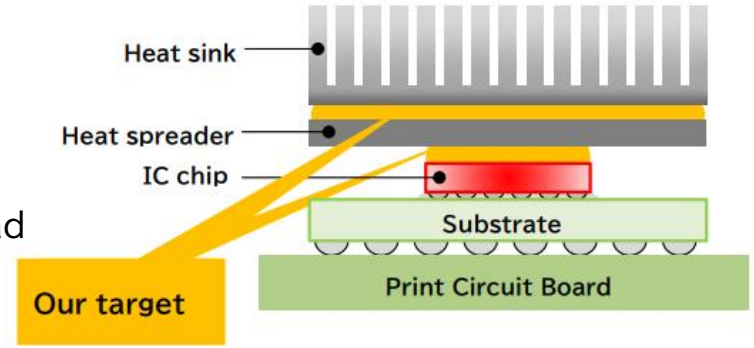
Optical Interconnect Materials



- Our material :Optical waveguide materials
- Application:Reducing insertion loss by optimizing the refractive index of Core-Clad

Thermal Management Materials





- Our material:Thermal interface materials
- Application:Reducing the thermal resistance between IC chip and a heat sink/spreader

Ultra Thin Copper Foil

- Our material :Ultra thin copper foil with plastic carrier
- Application :Seed layer for fine copper wiring

6. Measures of each laboratories

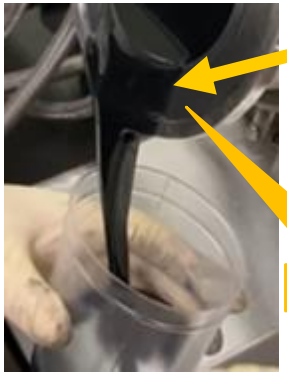
Materials Research Lab.

Nissan Chemical CORPORATION

Energy Materials Research Dept.

Planning & Development Div.

Slurry Additive for LiB

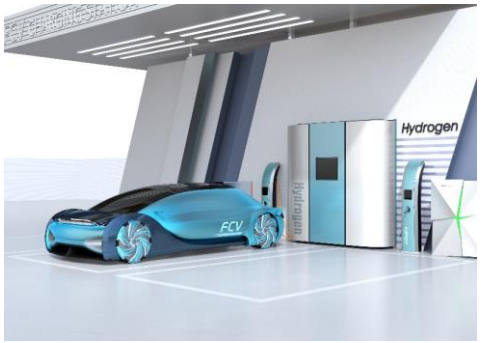


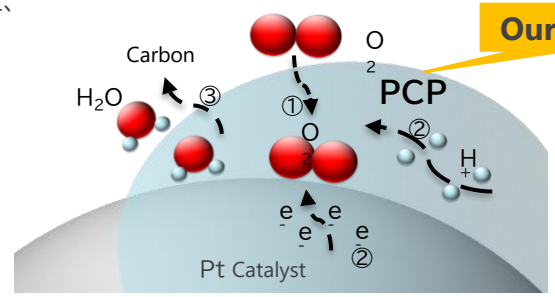
・Active Material、
・Binder
・Conductive Material , etc.

Our Target

- Our Materials:
  Slurry Additives
- Function:
  Improvement of Manufacturing Efficiency

Proton Conductive Polymer(PCP)

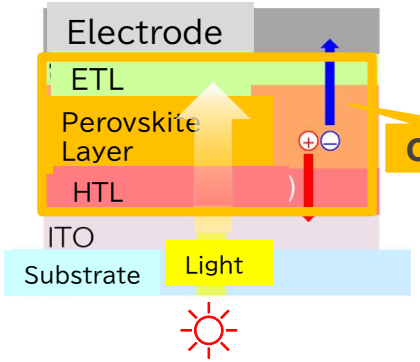




Our Target

- Our Materials:
  Proton Conductive Polymer
- Target:
  Fuel Cells and Water Electrolysis
  PFAS free

Perovskite Solar Cell Materials



Our Target

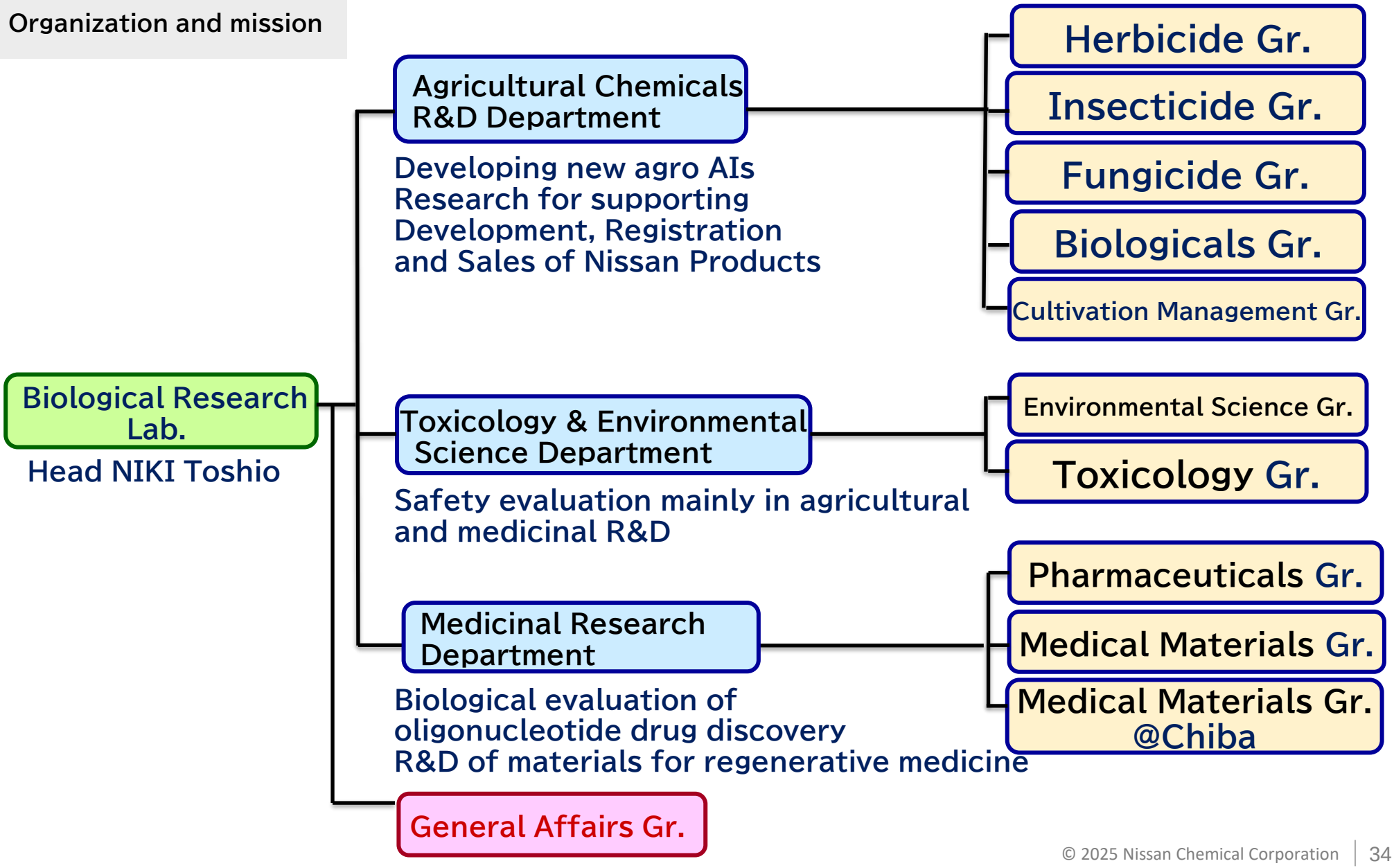
- Our Materials:
  Perovskite Solar Cell Materials
- Function:
  Improvement of Lifetime

6. Measures of each laboratories

Biological Research Lab.

Nissan Chemical CORPORATION

Organization and mission



Nissan Chemical CORPORATION

Agricultural Chemicals R&D Depart.

01

Develop
Support for sales

Over 400 Products

Sales support of herbicides, insecticides and fungicides

+

- Developing new mixtures
- Developing new formulations and recipes
- Applying to new fields
- Evaluation of new AIs from partners
- Management of resistance and crop injury issues

Collaboration with Materials Research Lab., Saitama Fac., Agrochemicals Div.




Animal health care drugs “Fluralaner” applied to various animals

- Different tablet products depending on dog’ s size
- Spot on products for cats
- Developing new mixtures

For poultry

Exzolt®

For livestock

6. Measures of each laboratories

Biological Research Lab.

Nissan Chemical CORPORATION

Agricultural Chemicals R&D Depart.

02

Research for new pesticides discovery

Stage 1

Materials Research Lab.

7,000 of compounds (candidates of New pesticide)

■Organic synthesis

Biological Research Lab.

■Evaluating efficacy
Activity as herbicide, insecticide and fungicide
■Toxicology evaluation
■Environment Science (residues, metabolism)

Exam in Green House and inside of Biological Research Lab.

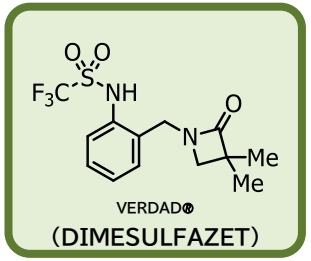
Stage 2

Field Evaluation

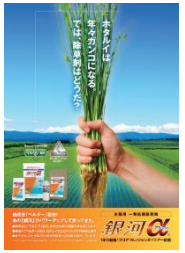
Domestic

Overseas

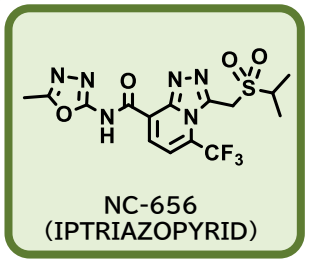
Products to be launched



VERDAD®
(DIMESULFAZET)



✓2024:Registered
✓Expected peak sales:**6.0 billion yen**
Contributing to maintain and increase top share of Nissan's sales in domestic paddy rice market



NC-656
(IPTRIAZOPYRID)

✓2027: Expected to be launched
✓Developing in major rice producing countries
✓Expected peak sales:**10.0 billion yen**
Developing new paddy rice herbicide market globally

6. Measures of each laboratories

Biological Research Lab.

Nissan Chemical CORPORATION

Agricultural Chemicals R&D Depart.

Strategies of Biological Pesticides

Establish R&D structure (infrastructure, discovery, development, formulation and fermentation), manufacturing, registration and sales

Nissan Chemical	Establishing bio research team (Biologicals Gr. in Biological Research Lab.)
Joint research	Research of biological pesticides discovery Microbiome analysis and introducing new technologies
Joint development	Optimizing from Nissan original and partners' library
Product Introduction	Study adopting existing products⇒⇒⇒ Understanding Sales and Registration system (Approaching to group subsidiaries)

Enter M&A into sight

6. Measures of each laboratories

Biological Research Lab.

Nissan Chemical CORPORATION

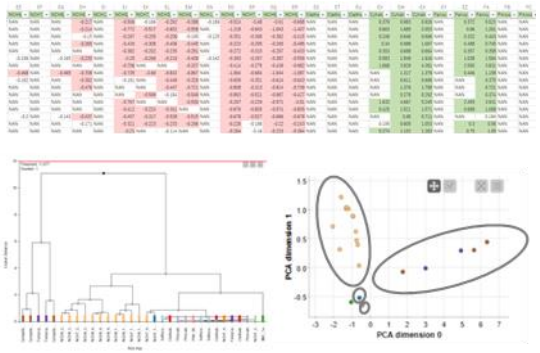
Toxicology & Environmental Science Depart.

Promptly propose solutions to safety issues by utilizing new technologies

- Introduce and refine omics analysis technology

  Omics technology enables…

  Toxicity mechanism elucidation and biomarker search by comprehensive analysis of biomolecule such as mRNA



  Establish mechanism-based screening systems to address toxicity issues

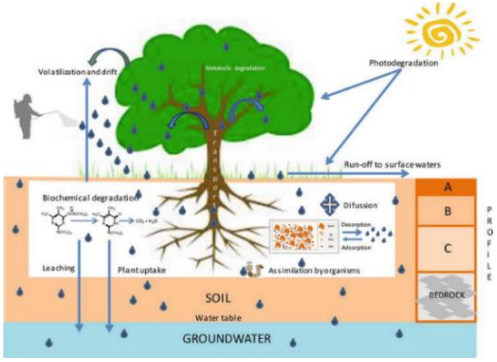
  Contribute to reducing animal experiments

- High throughput e-fate evaluation (Wet evaluation)
- Establish e-fate parameter prediction using machine learning and AI (Dry evaluation)

＊e-fate: environmental fate

  Environmental issues (groundwater pollution, environmental toxicity, *etc.*) significantly impact pesticide registration

  Evaluate e-fate from both wet and dry from the early phase



  Realize environment-friendly pesticide discovery !

6. Measures of each laboratories

Biological Research Lab.

Nissan Chemical CORPORATION

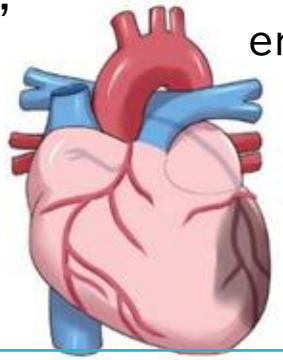
Medicinal Research Depart.

Planning & Development Div.

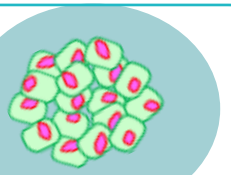
- ✓ Hybrid team of drug discovery/regenerative medicine and bio/materials
- ✓ Prompt development responding market and consumer needs
- ✓ Challenging spirit seeking revolution

"Allogeneic iPSC-derived cardiomyocytes"

Treatment of severe heart failure caused by ischemic heart disease
Domestic clinical trail phase 1 and 2
All 10 administrations completed
(Heartseed Inc.)



High engraftment rate



<CM spheroids>

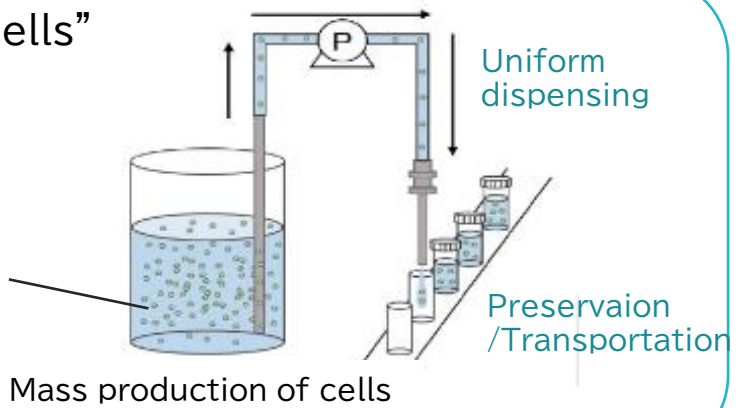
Contribute to create CM spheroids

prevelex®-CC1

"Participate in value chain consortium of stable supply of cells"

Contribute to the mass production process of cells

FCeM® Advance-CR

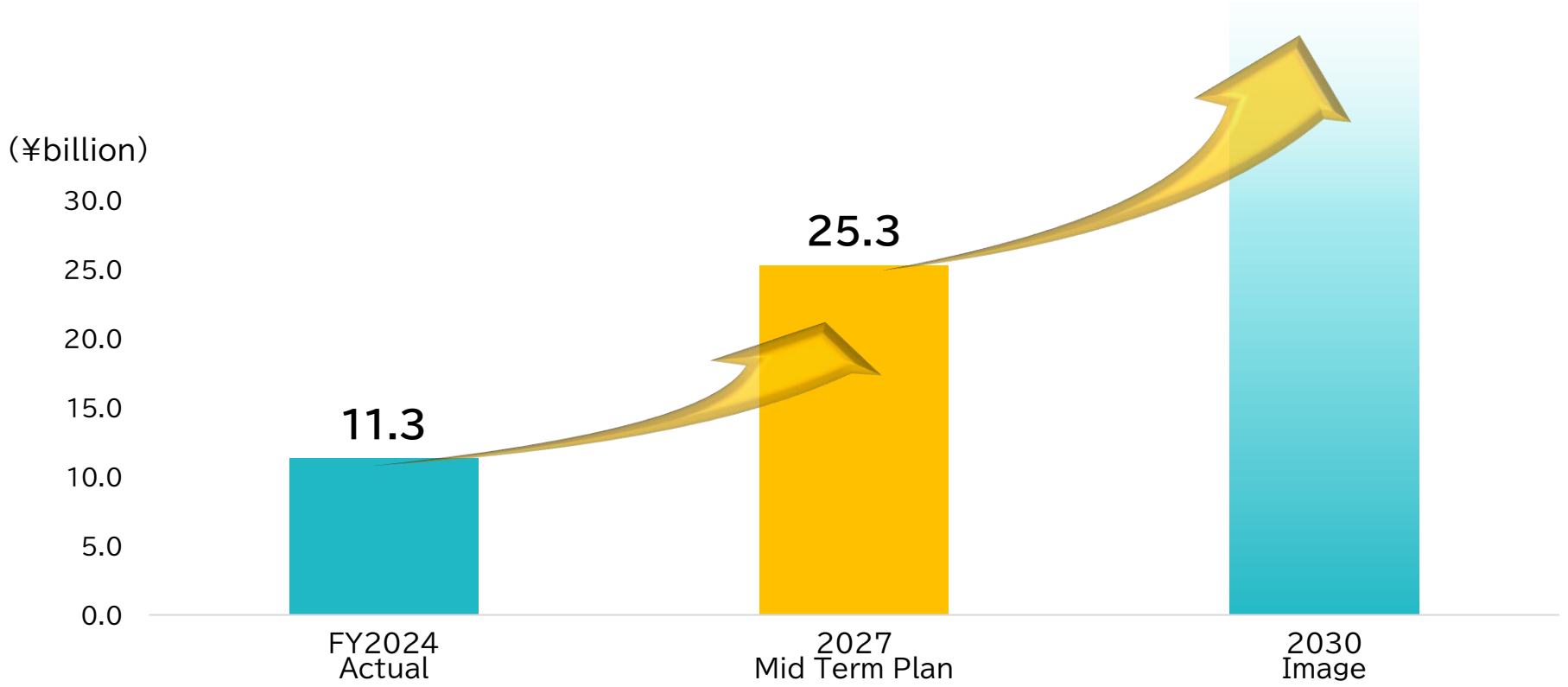


Contents

7. What we aim for

Developing products for the next growth driver

Next-generation Materials/APIs/Drugs, New Products Sales



1: Products launched in or after FY2019, including pre-commercial samples.

7. What we aim for

- Besides existing core technologies, we will acquire new technologies and expand into new areas related to the three growing businesses
- We will accelerate growth in each business area by improving and combining core technologies to contribute to solving social issues

Solving Social Issues

-Protect the global environment　-Mitigate climate changes　-Address health issues

-Solve food issues　-Achieve a smart society　-Improve quality of life

Business

Expansion into new areas

1 Information & Communication

- Semiconductor materials
- Display materials
- Photofunctional materials
- Sensing systems (IoT sensor materials) (Biomimetic sensors)
- Metamaterials

2 Life Science

- Agrochemicals
- Animal health products
- Biomedical materials
- Pharmaceuticals(small molecules, oligonucleotides, peptides)
- Microbiome (Agriculture/healthcare) (Microbial materials)

3 Environment & Energy

- Secondary battery materials and fuel cell materials
- Next-generation solar cell materials
- CCUS materials
- CO_2 reduction system

4 Materials & Services

- Industrial chemicals
- Colloidal silica
- Affiliate companies

Growing businesses　**Core businesses**

Core Technology

Existing technology: Fine organic synthesis; Functional polymer design; Ultrafine particle control; Biological evaluation; Optical control

New technology: Microbial control; Information science

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