



Kawasaki Institute of Industrial Promotion
Innovation Center of NanoMedicine (iCONM)

<http://iconm.kawasaki-net.ne.jp>

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This April, after being adopted as an International Science Center by the Ministry of Education, Culture, Sports, Science and Technology (MEXT), the Kawasaki Institute of Industrial Promotion began operation of the Innovation Center of NanoMedicine (iCONM), which we have been developing in cooperation with Kawasaki city. iCONM has been designated as a National Strategic Special Zone and was developed in King Skyfront in the Toromachi Kawasaki District, located on the opposite shore of Haneda Airport, where new industries are created via world-class R&D in the life science and environment field. Innovation Centers such as the Central Institute for Experimental Animals (CIEA) and Johnson and Johnson Tokyo Science Center gather in this area. iCONM aims to promote an open innovation system by facilitating industry-academic Government collaboration "under one roof," to realize the diagnosis and treatment of diseases such as intractable cancer and Alzheimer's disease. Furthermore, to promote the practical use of research results and innovative R&D that is transmitted from Kawasaki to the world.

Located on the shore opposite Haneda Airport, Tonomachi Kawasaki District is fittingly named "Kings SkyFront." The formation of the "International Strategic Special Zone" is progressing steadily, where new industries are created through R&D at the world's highest level in the field of life science and environment.

The Innovation Center of NanoMedicine (iCONM) started operation in April, 2015 as a core center of this area. Aiming to achieve a "Smart Health Society" where people will be free from the threat of diseases and be able to gain better health in their daily lives, various projects that were previously mere science fiction are now moving forward with the aim to realize "In-Body Hospitals" with smart nanomachines of a virus size (-50nm) that provide necessary diagnostic and therapeutic services, anytime and anywhere.

As an opportunity for various scientists and talents to mingle and mix freely, it is designed with many open spaces to promote active interaction among scientists. The environment is ideal for supporting open innovation and is ripe for creating new businesses and ventures. We will do our utmost to maintain the research environment, including the smooth administration of facilities, to successfully head towards the implementation of our goals.

I would like to thank our related members including hometown Tonomachi for their kind understanding, cooperation, and valuable support.

smart nanomachine and in-body hospitals are the trademarks of Kawasaki Institute of Industrial Promotion.
smart nanomachine; registered in EU
in-body hospitals; registered in Japan, U.S. and EU

Summary of the Building

Site area 7,999.99m²
Total Floor space 9,444.04m²
Number of stories 4 stories above the ground (19.69m H.)
Number of Parking Vehicles 36

Communication Areas

Magnet Areas 2nd Floor – 4th Floor
Entrance Lobby Ground Floor (Upper part built in wellhole style)

Design Company / Construction Company

Chiyoda Corporation / Chiyoda TechnoAce Co., Ltd.



The iCONM was adopted by the Ministry of Education, Culture, Sports, Science and Technology's (MEXT) "Improvement of international science innovation bases using local resources under industry-university collaboration" and was developed.

Conference Rooms

Large Conference Room (seating capacity 18)×2
Medium Conference Room (seating capacity 12)×3
Small Conference Room (seating capacity 6)×1
Japanese Style Conference Room (seating capacity 6)×1
Reception Room (seating capacity 4)×1

Main Facilities and Function

Clean Room: Assembling and evaluation of fine particles
Synthetic Laboratory: Organic Synthesis and Polymer Synthesis Experiment
Biochemical Experiment: Incubation Experiment, General Biochemistry
Human Disease Model Laboratory: Research on Human Disease Model

Research Equipment

<Equipment>
Transmission Electron Microscope
ROBONANO
Confocal Laser Scanning Microscope
Sputtering System
Electron Beam Lithography Equipment
Projection Lithography Equipment
Bio Printer
High-definition 3D Printer
Inductively Coupled Plasma Mass Spectrometer
Matrix-Assisted Laser Desorption/Ionization Time-of-Flight Mass Spectrometer
Liquid Chromatography–Mass Spectrometry System
Small Angle and Wide Angle X-ray Scattering Instrument
Dynamic Light Scattering Photometer
Nuclear Magnetic Resonance
Differential Scanning Calorimetry
Surface Plasmon Resonance System
Real-Time PCR
Cell Imaging System
Flow Cytometer
Cell Sorter
3D Micro X-Ray CT
In Vivo Imaging System
In Vivo Confocal Laser Microscope
Zetasizer
Microplate Reader
3D Milling Machine
All-In-One Fluorescence Microscope
Magnetic Resonance Imaging

<Type>
JEOL JEM-2100
FANUC ROBONANO α-0iB
Carl Zeiss LSM880
CANON ANELVA EB1000
ELIONIX ELS-7500EX-T1
PMT PLS-3000
MICROJET Bioprinter1000
KEYENCE AGILISTA-3100
Agilent ICP-MS 7700x
JEOL JMS-S3000
Agilent Bioinert1260LC/6420QQQ
Rigaku NANOPIX/LS/XPS
Otsuka Electronics DLS-8000
JEOL JNM-ECZ400S
Spectris MicroCal VP-DSC
GE Biacore T200
ABI 7500Fast
GE IN Cell Analyzer 2200
BD LSRFortessa X-20
BD FACSAria II
Rigaku CosmoScan FX
Perkin Elmer SP-BFM-T1
Nikon A1R+
Malvern Nano-ZS
TECAN Infinite M1000Pro
Roland MDX540S
KEYENCE BZ-X810
Bruker BioSpin ICON 1T

●●● iCONM (Innovation Center of NanoMedicine) ●●●

● Summary of Facilities

The Innovation Center of Nano Medicine is at a core of King SkyFront's pioneering integrated research center for life sciences, and was developed by the Kawasaki Institute of Industrial Promotion utilizing state policy for business operation.

With an integrated research system, Industry-Academia-Government all gather under one roof to tackle research, innovative R&D activities and the practical application of research



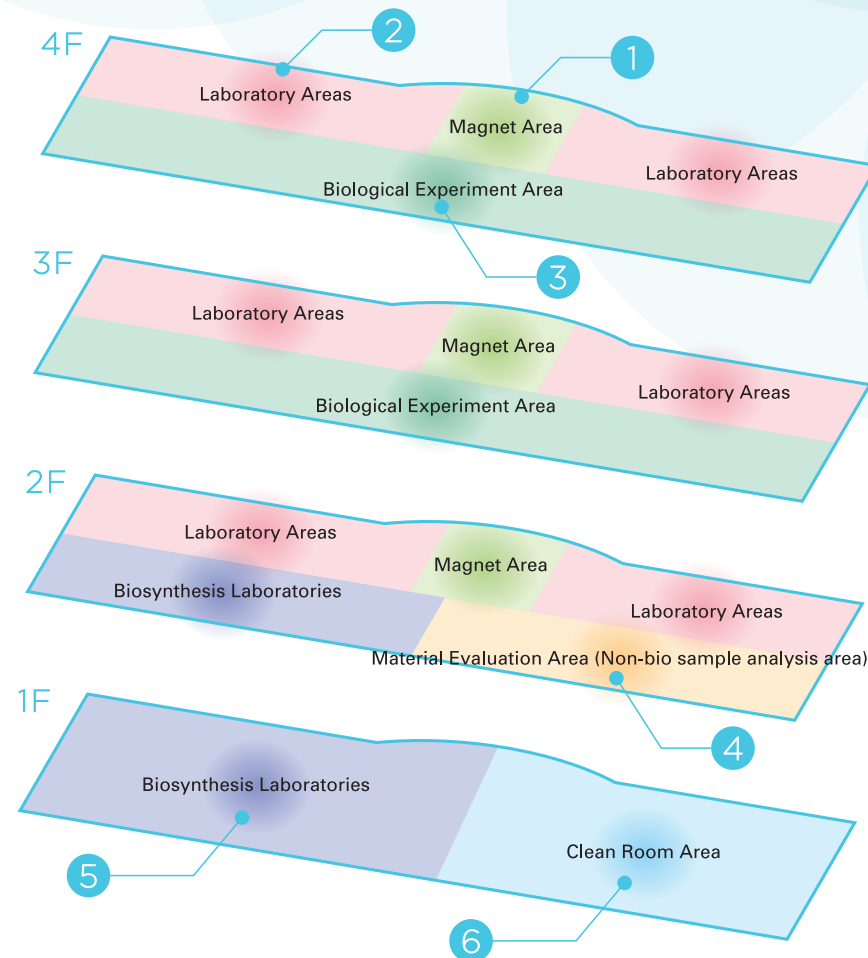
Large conference room



Medium conference room



Japanese style conference room



2F



3F



4F

① Magnet Areas

Located in the center of the laboratories, which stretches east-west, lies the communication area. Communication areas have a different atmosphere on every floor and are connected via open staircases for easy access.

These areas are designed to act as a sort of "magnet" for researchers from various fields to come together and discuss, chat and interact. This "magnetic attraction" increases the opportunities of meeting others to share information and exchange fruitful ideas.



② Laboratory Areas (2nd to 4th floor)

These research facilities are situated on the second to fourth floor of the north side of the building, and allow for a magnificent view of the Tamagawa River and Haneda Airport, which is located on the opposite shore. The relaxed and open environment encourages researchers to exchange and discuss their ideas, and promote regular and effective interaction. Easy access to the laboratories and meeting rooms increases opportunities for communication and exchange between industries and universities across different fields.



③ Biological Experiment Area

In the incubation laboratories, studies are carried out to observe the functions of newly-created nanomachines at a cellular level. Taking advantage of the advanced bio-imaging systems and latest cell analysis systems, cells are studied at the nano level. The performance and characteristics of the nanomachines are confirmed, and internal cellular activities are monitored and studied in real-time. The researchers working in these laboratories come from different fields and backgrounds, so new projects emerge from the daily conversations and discussions held during experiments.



④ Material Evaluation Area (Non-bio sample analysis area)

This laboratory is established to evaluate the physical and chemical properties of new compounds and nano-scale medicines. There is equipment to study and demonstrate the formation of these materials at the atomic and micro-scale, and also to evaluate the functional capabilities of medicinal products. Here, the performance of newly created medicinal products developed in the Biosynthesis System Laboratories are rigorously evaluated.



⑤ Biosynthesis Laboratories

From low to high molecular weight compounds, these laboratories are capable of conducting a wide array of chemical reactions. To allow for the creation of a wide variety of new nanomedicinal products, thanks to the innovation of the researchers, the laboratories in this center take the role of a manufacturing workshop. There is a draft chamber fitted to maintain safety when handling hazardous materials.



⑥ Clean Room Area (Class 1000)

There is a clean room for manufacturing semiconductor type materials with dust exclusion, controlled temperature and humidity. The system allows for microscopic observation equipment to nanometer and micrometer scale. In this way, cutting-edge research developments will be made possible for a range of medical treatments and procedures, as well as diagnostic materials and instruments.

iCONM'S VISION

iCONM aims to:

- Become the hub of Keihin-area Health kombinat ;
- Be the civic pride of Kawasaki;
- Continuously create new medical technology realizing human dream;
- Become the world's most innovative research center.

iCONM'S MISSION

iCONM strives to improve the cure rate for the global threat of refractory diseases, in order to realize a Smart Life Care Society where people from across the globe can autonomously achieve good health.

- To relieve the burden of medical care on patients and society.
- To join hands with universities and businesses, both domestically and internationally, in tackling this task.
- To create a social system that continues to foster innovation.
- To form a community that brings together iCONM, the region and its citizens.
- To boost the earliest social implementation of cutting-edge techniques and technology.

CORE PROJECTS OF iCONM

Center of Open Innovation Network for Smart Health (COINS)

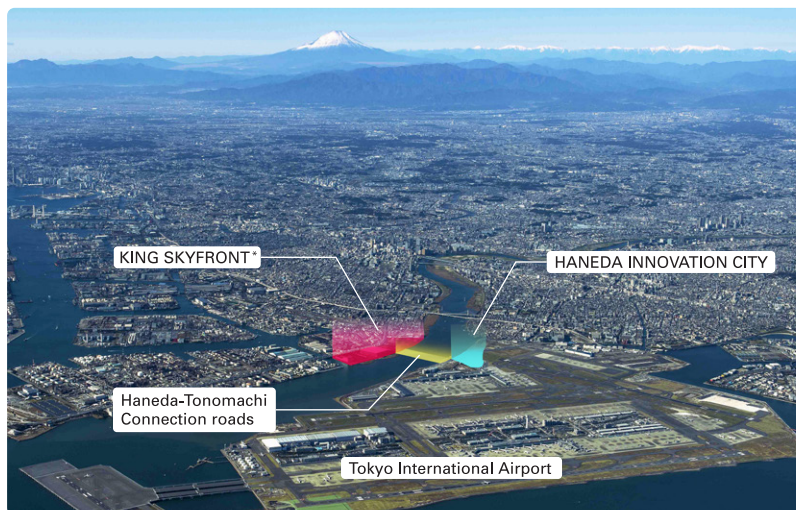
As an integrated research hub of the Center of Innovation (COI Stream) Program launched by MEXT and JST, we promote interdisciplinary research with laboratories of industries, universities and governmental organizations all under one roof, to realize diagnosis and therapy for diseases that impose heavy social burdens using nano-medical technology.

Project leader: Hiromichi Kimura, Professor, The University of Tokyo

Research leader: Kazunori Kataoka, Professor Emeritus, The University of Tokyo

Participating Organization

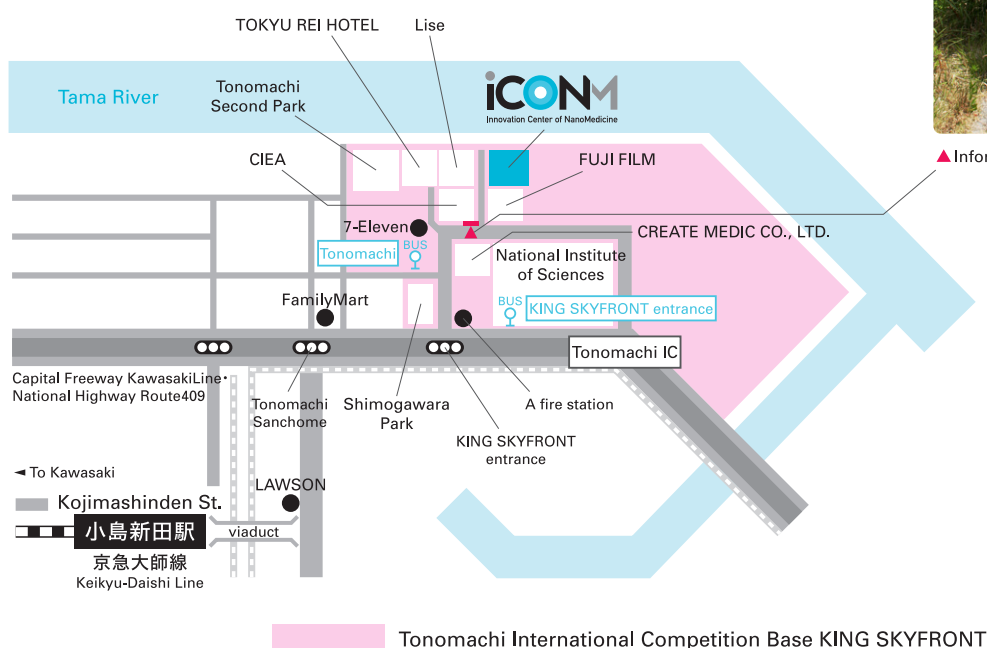
iXstream,inc.	NITTO DENKO Corporation	Tokyo Women's Medical University
iXflow,inc.	Nitto Boseki Co., Ltd.	Tokyo University of Science
SBI Pharmaceuticals Co., Ltd.	Nippon Kayaku Co., Ltd.	Medical Industry Innovation Institute
Kowa Company, Ltd.	Fujifilm Corporation	National Cancer Center
JSR Corporation	Braizon Therapeutics Inc.	Central Institute for Experimental Animals
Shimadzu Corporation	The University of Tokyo	Japan Radioisotope Association
Toray Industries,Inc.	Tokyo Medical University	National Institutes for Quantum and Radiological Science and Technology
NanoCarrier Co., Ltd.	Tokyo Medical and Dental University	Kanagawa Pref.
NOF Corporation	Tokyo Institute of Technology	Kawasaki City



* KING SKYFRONT = Kawasaki INnovation Gateway at SkyFront



▲ Information



Kawasaki Institute of Industrial Promotion
Innovation Center of NanoMedicine (iCONM)

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Concept of iCONM Logo

The "O" in the logo is designed after a nanomicelle, and the colour gradient toward the center represents "infinite possibilities" and a "leap toward the future."

The "water blue" colour highlighted against the "black" of the surrounding letters represents "integrity" and "transparency."

iCONM and iCONM logo are the registered trademarks of Kawasaki Institute of Industrial Promotion in Japan.

iCONM tenant companies / organizations

Company name	Project
AnGes, Inc.	Development of Decoy oligonucleotides aiming for adaptation to inflammatory diseases, and DNA vaccine for "COVID19" and "High-blood pressure".
Gene Therapy Research Institution Co., Ltd,	Develop gene therapy agent for intractable diseases using adeno-associated virus (AAV)
iXflow, inc.	We aim for the social implementation of "mTAS technology" which was created by collaboration research with The University of Tokyo and large companies.
SBI Pharmaceuticals Co., Ltd.	Project of pharmaceutical research, development, manufacture and sales including cancer photodynamic diagnosis agent using 5-ALA
Kao Corporation	Pursue creating a new value through a wide range of scientific research such as oil science and interface science, which are the origin of Kao's business.
NANOEGG® Research Laboratories, Inc.	Drug and cosmetics development using cutaneous drug delivery system, and drug and detection kit development for atopic dermatitis.

iCONM tenant companies / organizations

Company name	Project
NanoCarrier Company Ltd.	Based on the own nanoparticle technology, conduct research and development of anti-cancer agents and nucleic acid drugs in collaboration with domestic and overseas academia and companies.
NOF CORPORATION	Contribute to the progress of advanced pharmaceutical and medical fields by developing, improving, and supplying polymer materials from public to novel.
Nitto Denko Corporation	Research on social implementation of a new business utilizing biosensor technology, research aiming for co-creation with industry, government and academia in the field of life science.
Nitto Boseki Co., Ltd.	By creating unique diagnostic technologies, we aim to develop new medical fields through collaboration with domestic and overseas research institutes.
Braizon Therapeutics Inc.	Develop technology to deliver drug-encapsulating nanomachines which surface is modified by ligands to facilitate delivery over blood-brain barrier into the brain.
Metcela Inc.	Research and development of fibroblast-based therapy for chronic diseases such as heart failure.