

Flagship Center Overview

UTOPIA is dedicated to "protecting people from infectious diseases and pandemics."



Director

It brings together leading researchers not only from infectious disease and immunology but also from fields like protein engineering, AI, and the social sciences. This **multidisciplinary collaboration** fosters integrated research across disciplines.

Yoshihiro KAWAOKA With extensive experience in clinical trials, UTOPIA has established a streamlined system for advancing **innovative, academia-driven vaccine development from foundational research to clinical trials.**

Our goal is to generate groundbreaking results in infectious disease and vaccine research at a world-class level, continuously **producing young talent** in basic, developmental, and clinical research fields. We also aim to bring a wide range of vaccine modalities to practical application and **establish a research hub capable of delivering vaccines to the world within 100 days** of the next pandemic (100 days mission).

Future Outlook (Vision for 10 Years from Now)

Vision: To protect people from infectious diseases and pandemics.

Mission: To establish a cutting-edge research and development hub for vaccines and related fields through the integration of scientific disciplines and organic collaboration among industry, academia, and governments.

Vaccine development

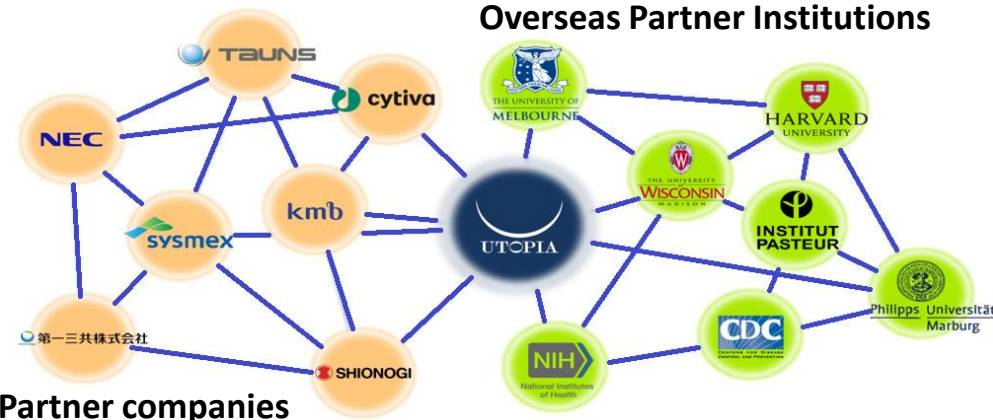
Vaccine

Pathogen / infectious disease	Characteristics
Corona	mRNA, Inactivated
Influenza	mRNA, inactivated
Enterovirus	mRNA
Dengue	mRNA
Zika	mRNA
Nipah	Virus vector
Smallpox, Mpox	Optimization of current vaccines
Ebola	Inactivated

Modality

Modality	Characteristics
Immunology-Based Nucleic Acid Medicines	Nanoparticles composed of nucleic acids that can regulate immunity, potentially eliminating the need for traditional vaccines by enabling host immune control
Medium-Molecule Medicines	Immune regulators with a molecular weight of around 1000, representing a novel class of immune modulators distinct from conventional antibiotics and antivirals.

Organizational structure



Partner companies

Overseas Partner Institutions

R&D Overview

Researchers at UTOPIA, faced with the COVID-19 pandemic, are advancing their research and development with a strong sense of social responsibility, asking themselves, "**How can we, as researchers, contribute to society?**" A diverse range of world-class talent has gathered here, striving to excel in **basic infectious disease research, immunology and vaccine research, interdisciplinary studies, and clinical industry-academia collaboration**. Through these efforts, we aim to create an organization capable of sustainably providing a world-leading environment for infectious disease and vaccine research and clinical trials.

Immunology and Vaccine Basic Research Group

- Elucidation of tissue-specific immune responses
- Understanding the mechanisms of immune memory
- Antigen discovery
- Development of delivery systems
- Screening for adjuvants



Infectious Disease Basic Research Group

- Investigation of pathogen replication and pathogenicity mechanisms
- Understanding mechanisms of transmission and host immune evasion
- Analysis of antigenicity and variant analysis
- Predictive research on variant emergence and spread



Interdisciplinary Research Group

- AI-based analysis
- Creation of synthetic nucleic acids and proteins
- Development of detection methods using digital bio and wearable devices



Clinical Industry-Academia Collaborative Research Group

- Clinical trials for various vaccines
- Consideration of Controlled Human Infectious Model (CHIM)
- Addressing ethical, legal, and social issues
- Establishing infectious disease surveillance systems



Specifically, we will undertake the following initiatives:

1. Early detection of newly emerging viral infections and analysis of their epidemic patterns and characteristics.
2. Big data and AI analysis of the evolutionary lineage of virus variants.
3. Development of new viral vectors for vaccines.
4. Immunological research aimed at preventing severe cases of emerging infectious diseases and supporting vaccine development.
5. Addressing ethical, legal, and social challenges to enable rapid vaccine development.
6. Advancement of clinical trials for new vaccines.