

Inauguration of the Organ and Tissue Neogenesis Consortium

From early on, the Tokyo Medical and Dental University has been engaged in regenerative medicine research in areas such as immune cells, the oral cavity, the knee joint and the intestinal tract. Furthermore, in order to provide high-quality regenerative medicine to our patients, we have also focused our efforts on the research and development of innovative detection technologies for pathogenic microbes and gene mutations in tumorigenesis.

Based on our extensive experience and achievements in regenerative medicine research, in September 2017, we established the Organ and Tissue Neogenesis Consortium. With the underlying concept of “from Regeneration to Neogenesis,” we are creating a new paradigm of “neogenetic medicine” that has advanced from traditional regenerative medicine. We aim to establish an international research center for “neogenetic medicine” with the cooperation of public institutions, leading re-

searchers from both home and abroad, and private companies.

The Consortium is made of nine units that span different departments and laboratories of our university, and has the following three features.

1) Focus on unique target organs
Regenerative medicine research up until now has targeted organs that do not regenerate once they become dysfunctional, such as the heart and nerves. Our university has, however, conducted numerous studies on organs that are inherently highly capable of regeneration, such as the intestines, liver, and hair roots. Through this Consortium, we will focus on research to develop beyond our past achievements with the aim of creating organs for transplantation.

2) Organoid research
Regenerative medicine to date has mostly used disaggregated cells or cell sheets,

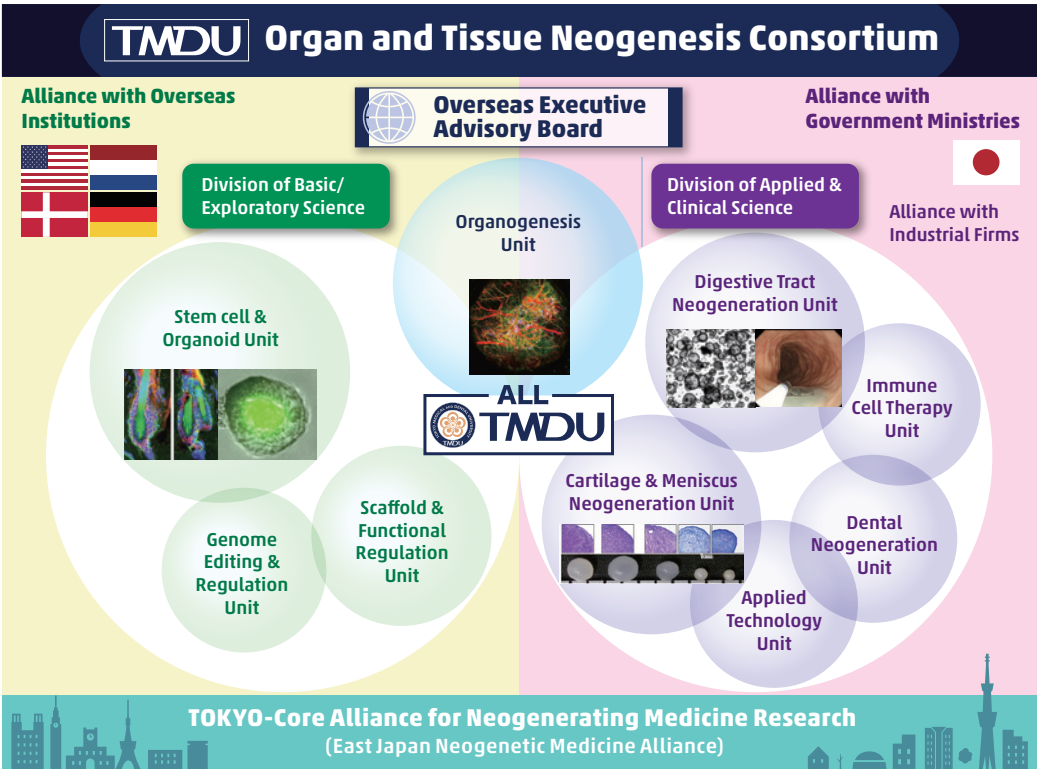
but we will go further by incorporating organ generation. To be more specific, we are trying to realize regenerative medicine that uses three-dimensional mini-organs called “organoids.”

3) Fostering next generation researchers
We believe this is crucial for the establishment of the new academic field of neogenetic medicine. We seek to provide the next generation researchers with suitable environment and research program.

The ultimate goal of this Consortium is to benefit as many patients as possible with the fruits of “neogenetic medicine.” In order to pursue basic research and achieve the practical application of research findings, the cooperation and support of companies and government ministries and agencies is indispensable. With strong dedication, we will do our best to meet your expectations. We sincerely seek your cooperation and support for this cause.



Tomohiro Morio
Director, Organ and Tissue Neogenesis Consortium



The Organ and Tissue Neogenesis Consortium is made up of nine research units. The collaborations within and among the units and their cooperation with research institutes and corporation or companies taking part in the Consortium will not only further this area of research, but is also anticipated to become the place for fostering internationally sought-after human resources.

Introducing the Units

Organogenesis Unit

Takanori Takebe
Professor, Cluster of Advanced Multidisciplinary Research

Create organoids from human stem cells towards transplantation therapy and drug discovery

Stem cell & Organoid Unit

Emi Nishimura
Professor, Department of Stem Cell Biology

Contributing to the realization of health and longevity by controlling stem cells to elucidate the aging and regeneration of organs

Digestive Tract Neogenesis Unit

Ryuichi Okamoto
Professor, Center for Stem Cell & Regenerative Medicine

Preserving the health of the whole body through the creation of digestive organs, such as intestinal epithelial organoids

Genome Editing & Regulation Unit

Fumitoshi Ishino
Professor, Department of Epigenetics

Creating disease models using genome editing technology, and developing mRNA drugs

Cartilage & Meniscus Neogenesis Unit

Ichiro Sekiya
Professor, Center for Stem Cell and Regenerative Medicine

Developing new therapies, such as the regeneration of cartilage and meniscus using stem cells

Scaffold & Functional Regulation Unit

Akio Kishida
Professor, Department of Material-based Medical Engineering

Assisting the field of organ and tissue neogenesis with unprecedented biomaterials

Immune Cell Therapy Unit

Tomohiro Morio
Professor, Department of Pediatrics and Developmental Biology

Developing immune cell therapies and strengthening and creating immune functions, such as the controlling of organ engraftment

Dental Neogenesis Unit

Takanori Iwata
Professor, Department of Periodontology

Hard and soft tissue regeneration with stem cell and cell sheet technology

Applied Technology Unit

Norio Shimizu
Associate Professor, Center for Stem Cell and Regenerative Medicine

Ensuring microbial safety in regenerative medicine, and developing comprehensive and rapid microbial testing systems