TMDU'S COMMITMENT TO PIONEERING MEDICAL AND DENTAL RESEARCH

Tokyo Medical and Dental University aims to enhance its research capabilities through DYNAMIC COMMUNICATION achieved by integrating internal research organizations and collaborating with global institutions.

A small but integrated university located in Tokyo's historic district of Yushima, Tokyo Medical and Dental University (TMDU) is characterized by its flexible and efficient management, which mega-universities simply cannot offer.

TMDU's key strengths include its affiliations with two hospitals — the Medical Hospital and the Dental Hospital — that allows for the effective application of basic research to clinical medicine. For example, the Intractable Disease Treatment Center at TMDU's Medical Hospital actively applies the fruits of basic research to the clinical research of patients manifesting an array of intractable diseases. No other university enjoys the benefits that come from such close collaboration between basic and clinical research.

Another major strength, derived from the university's small but flexibly and efficiently managed scale, is the integration of key research data: genomic data from the Bioresource Research Center, clinical data from the TMDU Medical and Dental Hospitals, and lifestyle and environmental data obtained through biosensors developed at the Institute of Biomaterials and Bioengineering. This has laid the foundation of TMDU's pioneering efforts to provide precision and preventive medicine through IT-based medical science.

TMDU is ranked as one of the most innovative universities in the world. In the QS World Rankings 2017, the university's dentistry ranked 3rd in the world and 1st in Japan. In the Times Higher Education World's Best Small Universities 2017, TMDU ranked 17th.

Supporting collaborative research

The university established the Research Core Center to facilitate research activities both internally and with other universities and organizations. This centre coordinates university-wide sharing of equipment and supports TMDU's basic and clinical research platforms.

Strengthening multidisciplinary research and training

To bolster its priority research fields, TMDU launched in 2017 the Division of Advanced Multidisciplinary Research, which in its first year has focused on the field of regenerative medicine. The division plans to expand its efforts to the fields of genomic medicine and inflammation/immunology. With the help of overseas advisors, TMDU's aim going forward is to communicate research results keenly attuned to international trends.

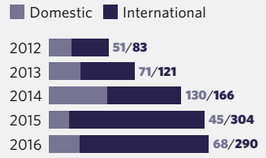
COLLABORATIVE RESEARCH

TOKYO MEDICAL AND DENTAL UNIVERSITY is fostering collaborations through various joint international projects.

SOURCE: NATURE INDEX

Life Sciences	73.8%
Chemistry	23.8%
Physical Sciences	2.4%

NUMBER OF DOMESTIC AND INTERNATIONAL COLLABORATING INSTITUTIONS
(2012–2016)



TOP 5 INTERNATIONAL COLLABORATORS
(2012–2017; FC)

1. Harvard University, USA	7.75
2. National Institutes of Health, USA	2.94
3. National University of Singapore, Singapore	2.75
4. University of Pittsburgh, USA	2.66
5. National Institute for Health and Medical Research, France	2.61

The TMDU main campus is located in the Yushima area of central Tokyo, making it readily accessible by public transport or car (far left). TMDU is committed to nurturing the next generation of researchers (top). One of TMDU's emergency medical teams (bottom left). President Yasuyuki Yoshizawa (bottom right).

Moreover, the university has created a next-generation researcher-training unit with instruction from top overseas academics to nurture the growth of young researchers. Each year approximately 20 young researchers are selected with great care from within the university to carry out investigations into new fields of inquiry, independent of their affiliated departments and under the guidance of this special unit. TMDU's unmatched synthesis of basic research and clinical research makes it possible to provide unique environments for fostering human resources.

Graduate school education and overseas satellite offices

The university's graduate school will offer the new Integrative Sciences for Preemptive Medicine course starting in 2018. In this course, students will learn how to become superior data scientists by building comprehensive databases with genetic and epigenetic information combined with real-time medical chart data, while gathering and managing information on lifestyle and environmental factors, and carrying out data mining. Through educational programmes such as this, TMDU aims to cultivate talented students who can manage and interpret analytical data to carry out 'preemptive' medicine, which predicts the probability of a disease and formulates its prevention at an individual level before it occurs, and to practice precision medicine to deliver optimized therapies to each patient.

TMDU's new Master of Public Health in Global Health course is also set to open in 2018. The course aims to recruit young individuals from around the world to generate global public health-related scientific evidence and become proactive leaders in the promotion of global health.

The Institute of Global Affairs at TMDU has accelerated the implementation of joint degree programmes and joint research projects in overseas satellite offices based in Ghana, Chile, and Thailand.

TMDU also utilizes Japan's national study abroad programmes to support young researchers going to research institutions in the United States and Europe. In the future, the university anticipates setting up TMDU research centres in these countries, thereby creating lasting alliances with those institutions.

Global communication and future prospects

By communicating the research results of TMDU's top researchers, the university aims to publicize their affiliation with TMDU and boost its profile on the global stage. Additionally, in research fields where TMDU has specific strengths — such as regenerative medicine, intractable diseases, and oral/dental diseases — the university aims to further increase research capabilities and dedicate greater efforts to fostering next-generation researchers.

By leveraging its national study abroad programmes, TMDU has seen many of its post-doctoral researchers working in laboratories in Harvard University; the University of California, San Francisco; Washington University; New York University, and North Carolina University, among others. Through various public relations activities, TMDU aims to strengthen alliances with overseas research institutes and promote information about its research achievements and programmes around the world. Using these approaches, TMDU aims to be one of the world's best small universities making the greatest impact in medical and dental research. ■

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