



## UNIVERSITY OF TSUKUBA:

# Transborder collaboration for a brighter future

**As a leading national research university at the heart of Tsukuba Science City, the University of Tsukuba is spearheading transborder collaboration across all organizational, institutional and national barriers in order to promote transdisciplinary research and education to realize breakthrough knowledge and solutions.**

The University of Tsukuba was founded in 1872 as modern Japan's first state higher education institution. It was reborn 42 years ago as the anchor institution of the country's premier Science City with the goal of promoting transdisciplinary education and research and being open to society. Responding to the transformation of today's society, the university is embarking on the next stage of its evolution by adopting all-encompassing reforms to become a transborder university. These reforms are based on the conviction that the complex issues of the twenty-first century require global collaboration.

### Transborder education

Two of the university's most ambitious platforms are its Campus-in-Campus Initiative and Re-inventing Japan Program. The Campus-in-Campus Initiative promotes campus sharing with partners of the university, allowing students and researchers full access to global resources while promoting collaboration across national borders. Joint education programmes will be developed, and preeminent international researchers will be co-appointed.

The Re-inventing Japan Program is a government-funded scheme for developing cooperative programmes targeting specific regions. The university has been awarded funding for programmes focused on Europe, South-East Asia, Russia and Central Asia, and South America.

### World-class research and innovation

The University of Tsukuba strives to create new disciplines through promoting wide-ranging collaboration in both basic science and innovation. Its Center for Computational Science has received worldwide recognition — including two Gordon Bell prizes — for its supercomputer architecture. It is promoting multidisciplinary computational science through powering research that spans particle physics, astrophysics, nuclear physics, nanoscience, life and environmental science, and information science. The Tsukuba Advance Research Alliance is seeking to unravel the mysteries of life. For example, it is exploring the molecular mechanism of lifespan and the control of immune response by regulating cellular activation and deactivation. Through the Campus-in-Campus Initiative, the university has established research units led by international principal investigators in the fields of cancer research and Buddhist philosophy.

Transborder collaboration has led to innovations that are set to spawn new industries. Cybernic technology, which integrates neuroscience, physiology, robotics, computer science, medical science and engineering in cyborg-type medical robots

(HAL), is pioneering nerve regeneration using interactive biofeedback. Algal biomass development research has resulted in the discovery of two algal species with hydrocarbon-producing capabilities 10–100 times greater than higher plants, making them a highly attractive potential alternative to petroleum. The products obtained from these algae are also very promising for use in pharmaceuticals and cosmetics. In addition, the Next-Generation Social System Project seeks to promote collaboration across the academia–industry divide by realizing a sustainable mobile society in conjunction with Toyota Motor Corporation.

### Legacy of global collaboration

As Japan's top sports science university, Tsukuba is supporting the 2020 Tokyo Olympic and Paralympic Games in all areas. This involvement is a legacy of Jigoro Kano, one of its founding principals and the father of modern judo. His motto "Mutual prosperity for self and others" still resonates as the university endeavours to secure a brighter future for all.



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