

## Moonshot Research and Development Program



The Moonshot Research and Development Program sets ambitious goals to attract people, and promotes challenging R&D projects with the aim of resolving difficult societal issues while bringing together the wisdom of researchers from all over the world. In order to achieve the seven Moonshot goals (MS Goals) set by the government, researchers adopted as project managers for each goal are playing a central role in promoting R&D.

<Moonshot Goal>

- MS Goal 1 Realization of a society in which human beings can be free from limitations of body, brain, space, and time by 2050.
- MS Goal 2 Realization of ultra-early disease prediction and intervention by 2050.
- MS Goal 3 Realization of AI robots that autonomously learn, adapt to their environment, evolve in intelligence and act alongside human beings, by 2050.
- MS Goal 4 Realization of sustainable resource circulation to recover the global environment by 2050.
- MS Goal 5 Creation of the industry that enables sustainable global food supply by exploiting unused biological resources by 2050.
- MS Goal 6 Realization of a fault-tolerant universal quantum computer that will revolutionize economy, industry, and security by 2050.
- MS Goal 7 Realization of sustainable care systems to overcome major diseases by 2040, for enjoying one's life with relief and release from health concerns until 100 years old

**Five projects from our university have been selected for this project.**

Moonshot Goal	Project Manager	Research Subject
MS Goal2	Graduate School of Medicine Professor. Hideki Katagiri	Challenge for Eradication of Diabetes and Comorbidities through Understanding and Manipulating Homeostatic Systems
MS Goal3	Graduate School of Engineering Professor. Yasuhisa Hirata	Adaptable AI-enabled Robots to Create a Vibrant Society
MS Goal4	Graduate School of Life Sciences Project Professor. Kiwamu Minamisawa	Mitigation of greenhouse gas emissions from agricultural lands by optimizing nitrogen and carbon cycles
MS Goal4	Graduate School of Engineering Professor. Yasuhiro Fukushima	Development of Combined Carbon Capture and Conversion (quad-C) modules targeting low carbon dioxide concentration gases for balancing the global carbon budget
MS Goal7	Graduate School of Biomedical Engineering / Graduate School of Medicine Professor. Takaaki Abe	Mitochondrial Medicine

In addition, the government is now considering new moonshot goals to clarify the image of society in the post pandemic era and to respond to the rapidly changing economic and social situation. Two teams from our University have been selected to study the goals.

Program	Team Leader	Project Title
MILLENNIA Program	Graduate School of Life Sciences Professor. Michio Kondoh	Research to identify the key scientific and technological innovation for realization of a resilient eco-socio symbiotic system
MILLENNIA Program	Graduate School of Engineering Project Associate Professor. Shinya Yoshida	Research and study of specific target issues for realizing a society where everyone can have and raise children with peace of mind if they wish.