KIST WORLD CLASS

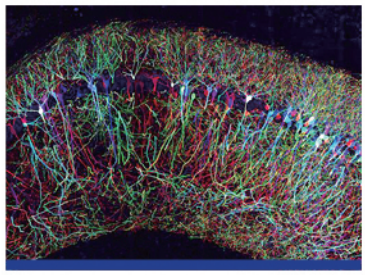
Mission-Oriented
Openness
Social impact

Korea Institute of
Science and Technology
한국과학기술연구원

KIST is a world renowned research institute dedicated to solving the challenges faced by the nation and people with world-class expertise.

Mission-Oriented | Openness | Social impact

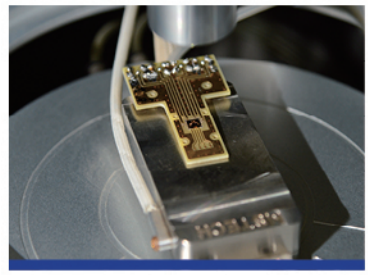
Research Divisions



Brain Science Institute

By utilizing its multi-disciplinary research capabilities, the Brain Science Institute aims to proactively respond to the challenges presented by super-aging societies and position itself at the forefront of global brain convergence research through its efforts to identify the mechanisms for overcoming degenerative neurological diseases and develop treatments for them, as well as analyze the multi-layered brain map and develop brain organoid chips and brain function simulation algorithms from these analyses.

- Center for Brain Disoders
- Center for Brain Technology
- Center for Brain Function



Post-Silicon Semiconductor Institute

The Post-Silicon Semiconductor Institute aims to lead the future development of fundamental semiconductor technologies through its research on high-performance neuromorphic chips, neuroscience-based artificial neural networks, large-scale quantum computing, and cryptographic communication, spintronics, and ultra-high-speed optoelectronic device technologies.

- Center for Semiconductor Technology
- Center for Quantum Technology

Artificial Intelligence and Robotics Institute

The Artificial Intelligence and Robotics Institute seeks to enhance our lives through the implementation of human-friendly AI services, hyperconnectivity, intelligent robots, robot-human-environment interaction technologies, medical robots, and digital medical solutions research.

- Center for Artificial intelligence research
- Center for humanoid research

World Class KIST

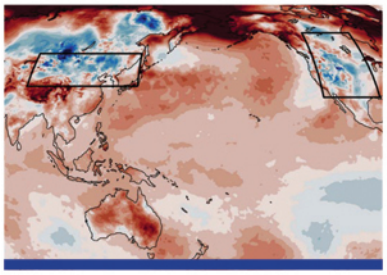
History

한국과학기술연구원

KIST

February 1966 Founded and formally registered | **October 1969** Held building-completion ceremony & completed POSCO technology planning | **February 1971** Developed Korea's first desktop computer and pocket-sized calculators | **November 1971** Filed first U.S. patent (registration # 3,622,914) | **July 1972** Developed Korea's first technicolor TV | **October 1975** Developed Sejong No. 1, the first Korean mini-computer | **February 1976** Developed copper-clad steel wire manufacturing technology | **June 1978** Developed polyester film | **April 1979** Developed pneumonia vaccine

1960s ~ 1970s



Climate and Environmental Research Institute

The Climate and Environmental Research Institute aims to realize a safe and sustainable future by exploring solutions to the dangers posed by climate change and its associated natural and environmental disasters through the active development of innovative technologies from convergence of multi-disciplinary research based on the scientific understanding of atmospheric and aquatic ecosystems.

- Center for Water Cycle Research
- Center for Sustainable Environment Research
- Clean Air Center
- Climate and Air policy Team

Clean Hydrogen Institute

The Clean Hydrogen Institute seeks to contribute to the creation of new industries and achieving carbon neutrality by establishing a safe and economical foundation for supplying hydrogen energy through the development of clean hydrogen production and hydrogen storage and fusion technologies.

- Center for Hydrogen and Fuel Cells
- Center for Hydrogen Energy Materials

Biomedical Research Division

The Biomedical Research Division's mission is to contribute to the advancement of health and medical welfare based on research into fields such as cognitive and motor rehabilitation technologies to enhance quality of life for the elderly and disabled, devices and functional materials technologies to replicate human tissues and organs, and advanced medical technologies which can simultaneously treat and diagnose diseases to implement personalized medicine.

- Bionics Research Center
- Biomaterials Research Center
- Medicinal Materials Research Center
- Center for Advanced Biomolecular Recognition
- Chemical and Biological Integrative Research Center

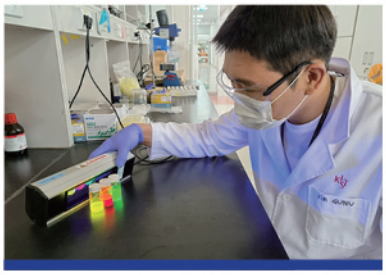
January 1981 Integrated with the newly established Korea Advanced Institute of Science and Technology (KAIST) | **May 1983** Developed synthesized liver fluke treatment | **November 1983** Developed CFC (Chlorofluorocarbon) replacement materials | **March 1984** Developed optical fiber technology | **July 1987** Developed artificial heart-lung medicine | **May 1988** Developed synthetic diamonds | **September 1988** Performed doping tests for the Seoul Olympic Games | **July 1989** Developed prototype for PFC (Perfluorinated Compounds) artificial blood | **June 1989** Diverged from KAIST and re-established as the Korea Institute of Science and Technology (KIST)

March 1993 Developed lyocell (rayon) manufacturing techniques | **November 1993** Developed artificial kidneys | **June 1994** Developed VCR head drums | **November 1994** Developed anaerobic contact aeration-type sewage treatment equipment | **July 1995** Developed platinum anticancer candidate substance | **February 1996** Opened KIST Europe | **December 1996** Developed high-precision linear positioning motor | **July 1999** Invented "Centaur", Korea's first humanoid robot

1980s

1990s

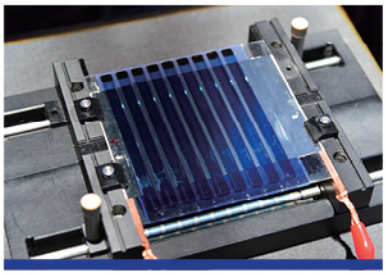
Global First-Class Quality



Advanced Materials Research Division

The Advanced Materials Research Division is developing AI-based materials design technologies, nanomaterial-based extreme environmental materials, disaster response materials, photonics materials, electronic materials, and soft materials, and is leading the drive to create materials technologies which are of significant benefit to our society, such as sensor system technologies using advanced materials.

- Materials Architecturing Research Center
- Nanophotonics Research Center
- Extreme Materials Research Center
- Soft Hybrid Materials Research Center
- Computational Science Research Center
- Electronic Materials Research Center
- Sensor System Research Center



Sustainable Energy Research Division

The Sustainable Energy Research Division is involved with the development of new carbon-neutral technologies in response to concerns over environmental pollution and resource depletion. We aim to achieve carbon neutrality and turn Korea into an energy powerhouse by conducting research on next-generation solar cell, secondary battery.

- Clean Energy Reseach Center
- Advanced Photovoltaics Reseach Center
- Energy Storage Reseach Center

Research Resources Division

The Research Resources Division is setting the stage for the establishment of a next-generation research environment, which utilizes an R&D data platform equipped with artificial intelligence that produces, collects, and utilizes the behavior-based data collected by researchers to provide creative research support and advanced technology support with the backing of a cutting-edge research infrastructure and professionals.

- Doping Control Center
- Advanced Analysis and Data Center
- Technological Convergence Center
- Research Animal Resources Center
- Micro Nano Fab Center

August 2000 Developed hydrogen fuel cell vehicle | **February 2002** Became the first institute to investigate R-type calcium channels, the fear-affecting gene | **February 2003** Developed MiRo (capsule-type endoscope) | **May 2003** Established KIST Gangneung Branch | **January 2005** Developed network-based humanoid | **January 2008** Established KIST Jeonbuk Branch | **July 2008** Developed dye-sensitized solar cell (DSSC) manufacturing technology | **September 2009** Became the world's first institute to develop spin-transistor technology (core of the next-generation semiconductor industry)

November 2010 KIST's English-teaching robot was cited in TIME's 50 Best Inventions of 2010 | **January 2012** Developed mGRASP for mapping mammalian synaptic connectivity | **November 2013** Developed flexible memory cell array | **December 2014** Developed next-generation micro surgical robot | **October 2015** Developed blood test for diagnosis of Alzheimer's | **February 2016** 50th Anniversary of KIST | **February 2017** Ranked as the 6th most innovative public research institution in the world by Reuters for the second year in a row | **January 2018** Developed direct quantum process tomography | **October 2019** Developed an AI-based facial recognition system | **July 2020** Developed a new MXene material which shows extraordinary electromagnetic interference shielding/absorbing ability | **2023** Developing original technologies that will make green hydrogen production economically viable | **2024** Constructing an artificial neural network hardware system by stacking neuromorphic elements like building blocks

2000s

2010s ~ Present

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KIST Gangneung Natural Products Institute

The KIST Gangneung Natural Products Institute studies the biological activity, efficacy, and mechanisms of action of various useful natural products found in Korea. We strive to encourage both regional and national development by actively utilizing our pride and research capabilities as a leading institute to carry out research on natural products in Korea.

- Natural Products Research Center
- Natural Product Informatics Research Center
- Smart Farm Research Center

KIST Jeonbuk Advanced Composite Materials Institute

The KIST Jeonbuk Advanced Composite Materials Institute is a world-class institute specializing in composite materials research and development. We will contribute to the competitiveness of our regional and national industries by creating new technologies, serving as a platform for advanced composite materials R&D for the world.

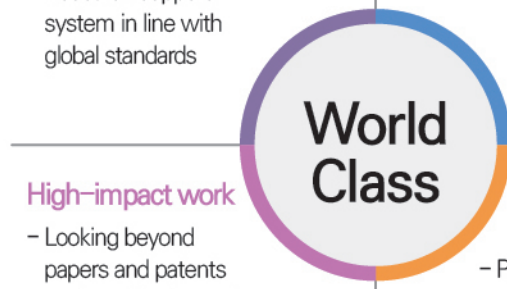
- Functional Composite Materials Research Center
- Carbon Composite Materials Research Center
- Composite Materials Application Research Center

Features of KIST's Mission-Oriented Labs

A world-renowned research institute dedicated to solving the challenges faced by the nation and people with world-class expertise

Exceptional environment
- Unique research infrastructure best suited to fulfilling missions
- Research support system in line with global standards

Culture of innovation
- Culture that values challenges and creativity
- Embracing open innovation and collaboration



High-impact work
- Looking beyond papers and patents and contributing to the bigger picture
- Achieving research outcomes that solve societal issues and inspire the public

Outstanding scientists
- Persistence and passion for addressing challenging problems
- Harnessing world-leading technology and expertise

Mission

To solve national and societal problems (mission statement)
To focus on challenges that only KIST can address

Objectives

To set measurable milestones with clear deadlines
To establish technology choke points essential to commercialization such as standard patents

Research Structure

Full authority delegated to PM, flexible assignments, mission-oriented evaluations
Devoted support organization, prioritization of budget, personnel, and infrastructure

Collaboration Strategy

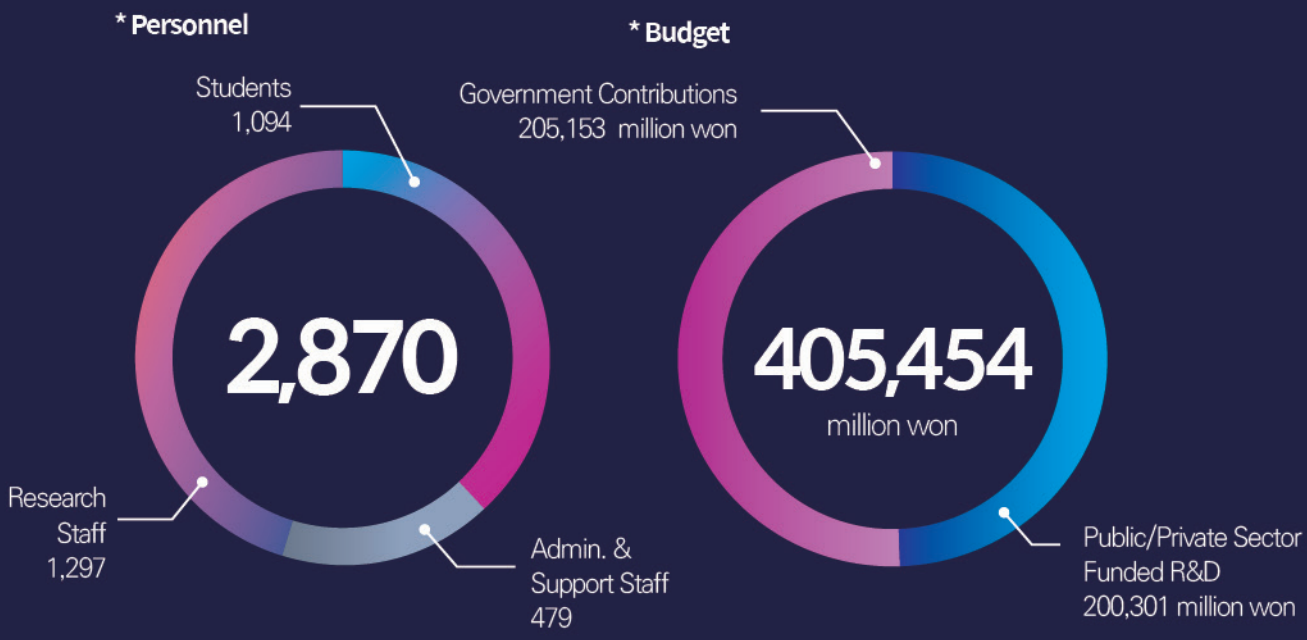
Attract top talent through open research teams, agile organizational structure
Work together with various organizations on matters such establishing legal and institutional foundations

Expected Outcomes

Looking beyond papers and patents and contributing to the bigger picture
Achieving research outcomes that solve societal issues and inspire the public

Personnel and Budget

※ As of July 2024



International Cooperation

KIST approaches research from a global, future-oriented perspective, aiming to break down global barriers, cooperate and conduct exchanges with leading universities and research institutes abroad, and together find a way to secure the future of the planet, and humanity.

KIST is strengthening its global network by establishing overseas hubs for research and cooperation, such as KIST Europe, the Indo-Korea Science and Technology Center, and local labs; exploring international joint research projects; exchanging human resources; and hosting and participating in international science and technology conferences. In addition, KIST is garnering a reputation for global leadership by initiating overseas development assistance programs which serve to transfer KIST's experience in leading the nation's industrial modernization to developing countries such as Vietnam and Mongolia, and engaging in information exchange and science and technology diplomacy through various international forums.

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Global First-Class Quality
World Class KIST

Founded as the first multidisciplinary government-funded research institute in Korea, KIST established a national development strategy based on science and technology and disseminated various essential industrial technologies. Now, half a century later, KIST is elevating Korea's status in the field of science and technology through world-leading fundamental technology R&D. Looking to the future, KIST will continue to strive to be a premier research institute, pursuing a brighter future for Korea and all of humanity.

Mission-Oriented | Openness | Social impact