

Academic internationalisation outlook

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Research Funding in Japan: A Practical Guide for International Researchers

Abstract

As the world's fourth-largest economy¹ and a leading investor in research and development (R&D),² Japan is a central player on the global science, technology, and innovation (STI) scene. The country excels in several research domains, particularly the natural sciences, and ranks highly in numerous global indicators. Japan holds the top spot as the leading filer of patent families,² is among the top 15 global innovation leaders,³ and with 29 Nobel laureates, ranks in the top ten for Nobel Prizes, second only to the USA in the natural sciences.⁴ Japan also hosts the world's largest science and technology (S&T) cluster in Tokyo-Yokohama⁵ and boasts the third-largest research community.²

In 2023, Japan ranked fifth globally for the total number of scientific papers. However, when adjusted for highly cited publications, top 10% and 1%, Japan's rank dropped to 13th and 12th, respectively, marking a record low after two decades of steady decline in its STI sector.^{2,6} This decline persists despite the country's high R&D spending and state-of-the-art facilities, such as synchrotrons, spallation sources, quantum laboratories, and supercomputers.³

Key factors behind this downturn include a weakened yen, a sluggish economy, and the rapid rise of new competitors like the Asian Tigers and India, among others. China, with its bold internationalisation policies, now dominates global rankings,⁷ while South Korea, with quadrupled R&D investments, has gained the edge in robotics.^{8,9} Meanwhile, India's share of scientific papers has surpassed that of Germany and the UK.¹⁰ In such a context, Japan's domestic focus and limited resilience are hindering its adaptability, threatening its position as a global STI leader. Nonetheless, Japan's overall standing remains strong.

The Japanese government has launched several initiatives to revitalise the STI sector, focusing on boosting R&D investments and promoting internationalisation.^{11,12} This report outlines Japan's research funding system, with an emphasis on opportunities for the international scientific community. It highlights key government programmes available to non-Japanese researchers, offering guidance on navigating the research landscape and accessing suitable funding opportunities in Japan.

Glossary

STI: Science, Technology, and Innovation
S&T: Science and Technology
R&D: Research and Development
CAO: Cabinet Office (of Japan)
CSTI: Council for Science, Technology, and Innovation
DNU: Designated National University
FA: Funding Agency
GDP: Gross Domestic Product
MEXT: Ministry of Education, Culture, Sports and Technology
METI: Ministry of Economy, Trade, and Industry
MHLW: Ministry of Health, Labor, and Welfare
MAFF: Ministry of Agriculture, Forestry and Fisheries
NIH: National Institutes of Health (USA)
NISTEP: National Institute of Science and Technology Policy
NRDA: National R&D Agency
OECD: Organisation for Economic Co-operation and Development
PPP: Purchasing Power Parity
SME: Small and Medium-sized Enterprise



STINT

Stiftelsen för Internationalisering av
högre utbildning och forskning

The Swedish Foundation for International
Cooperation in Research and Higher Education

Society 5.0²²

Proposed in the 5th Basic Plan, Society 5.0 envisions a future society that builds upon its predecessors: the Hunting Society (1.0), Agricultural Society (2.0), Industrial Society (3.0), and Information Society (4.0). Initially defined as a “human-centred society balancing economic growth with solutions to social problems by integrating cyberspace and physical space”, its definition evolved in the 6th Plan to focus on sustainability, resilience to global challenges, and individual well-being.

The Society 5.0 initiative also introduced critical changes to Japan’s S&T landscape. It expanded the focus from STEM fields to include humanities and social sciences, promoting a broader concept of “value within knowledge”. Emphasis on “bridge” projects, connecting science with individuals and society, has become central. For further details, visit the CAO webpage on Society 5.0 at: https://www8.cao.go.jp/cstp/english/society5_0/index.html

Integrated Innovation Strategy^{11,21}

Since 2018, the Integrated Innovation Strategy has been an annual policy framework crafted by the Cabinet Office (CAO) under the CSTI. This comprehensive strategy aligns Japan’s socioeconomic needs with STI. In 2023, the Third Annual Strategy under the 6th STI Basic Plan prioritised:

- Strategic promotion of advanced technologies (e.g., generative AI, quantum tech, fusion energy) to address societal challenges.
- Human resource development, focusing on inclusivity and international talent circulation.
- Strengthening Japan’s innovation ecosystem, including support for startups and public – private collaboration.

The upcoming 2024 strategy and 7th Basic Plan will emphasise interdisciplinary and translational research, economic and AI security, and global partnerships.

Brief Overview of the Japanese R&D Landscape

Japan, the world’s fourth-largest economy (USD 4.2 trillion GDP in 2022, equivalent to approximately SEK 44.2 trillion)*, is renowned for its cutting-edge research and development (R&D) industry, particularly in fields such as chemistry, physical sciences, and life sciences which account for the largest share of the country’s scientific output.¹³ According to the Nature Index¹⁴, the Universities of Tokyo, Kyoto, and Osaka rank among the top 100 research leaders globally, closely followed by RIKEN, Tohoku University, and the newly established Institute of Science Tokyo**.

While Japan’s R&D ecosystem is predominantly domestic, it has successfully attracted global talent through next generation technologies like synchrotrons, spallation facilities, quantum laboratories, and supercomputers. Governmental initiatives such as the World Premier International research centres (WPI)¹⁵ and the Okinawa Institute of Technology (OIST) bolster Japan’s international research appeal and aim to enhance its leadership in the global STI panorama.

According to the OECD Economic Survey 2024, Japan’s gross expenditure on S&T was one of the highest in the OECD area (3.3% of GDP in 2021), ranking 6th behind Israel, Korea, the USA, Belgium, and Sweden.¹⁶ However, Japan’s growth in R&D spending has stagnated, with an average annual increase of just 1.2% since the 2000s. Challenges persist in attracting foreign funding, reflecting a reliance on domestic resources and limited integration with global innovation networks.

Japan’s R&D funding is dominated by private businesses, particularly large enterprises, which account for approximately 80% of total spending, the second-highest proportion among OECD countries after South Korea. Conversely, contributions from small and medium-sized enterprises (SMEs) and government tax-based fund-

ing remain below the OECD average (less than 10%) and have further declined in recent years.^{16,17}

Japan allocates a significant share of public funds to key areas like artificial intelligence (AI), biotechnology, and quantum technology.¹⁸ In 2024, Japan ranked 5th globally in the output of scientific papers in the natural sciences and placed 13th and 12th for the top 10% and 1% most-cited publications, respectively.^{2,6} It also leads globally in filed patent families (patents registered in two or more countries or regions), though its overall share has been declining.^{2,17} Furthermore, Japan remains a top 15 global leader in STI and hosts the world’s largest S&T cluster in Tokyo-Yokohama, surpassing China and South Korea.^{3,4}

Despite these achievements, over the past two decades Japan’s R&D growth has stalled. Economic stagnation, an ageing population, restrictive immigration policies, weak incentives to small businesses, and limited access to international funding have hindered scientific progress.^{16,19} While China’s R&D output grows at an unprecedented pace, South Korea has quadrupled R&D investments, and more countries like India, France, Spain, Iran, etc. are advancing more rapidly, Japan’s international standing has been dwindling.⁸ A nearly 10% drop in its Nature Index – Adjusted Share***, over the past 20 years, underscores this decline.¹⁰

Amid pressing domestic issues and a complex geopolitical landscape shaped by emerging technologies, Japan recognises science, technology, and innovation as three fundamental pillars for sustaining growth. To reinvigorate its STI engine, the government, in coordination with national funding agencies, is actively promoting investments in basic research and internationalisation of the R&D sector. Initiatives include in- and outbound mobility programmes and strategic grants for international collaboration. This report aims to highlight key funding mecha-

* As on 21 October 2024

** On the first of October 2024, Tokyo Institute of Technology and Tokyo Medical and Dental University merged into the new Institute of Science Tokyo, not to be confused with Tokyo University of Science, 東京理科大学 (Tokyo Rika Daigaku).

*** The Adjusted Share is a metric used in the Nature Index indicating the percentage difference in the total number of articles in the Index in a given year relative to the number of articles in a base year and adjusting Share values to the based year levels.

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nisms and programmes available to international researchers, particularly those based in Sweden, to explore research opportunities in Japan.

Research Structure in Japan: Public vs. Private

Both the private and public sectors play a crucial role in the Japanese STI system. Business enterprises dominate national R&D funding, focusing on short-term, commercially oriented applied research.¹⁶ Public funds, on the other hand, support universities and public research institutes emphasising basic research, which forms the foundation of new knowledge and technological breakthroughs. Limited interaction between private and public R&D actors, however, hinders Japan's capacity for innovation. Strengthening this connection, especially through increased investment, is a key government priority to revitalise the STI industry.¹⁶

Public R&D: Governance and Administrative Bodies¹⁹

Japan's STI strategy is governed by several ministries, with the Ministry of Education, Culture, Sports and Technology (MEXT) managing the largest share of funding. The Council for Science, Technology, and Innovation (CSTI), housed within the Prime Minister's Cabinet Office, oversees the national STI policy and coordinates basic S&T strategies at three operational levels:

1. Policy Coordination: The CSTI sets overarching policies, budgets, and human resource strategies.
2. Policy Implementation: Individual ministries manage funding distribution and execute policies.
3. Programs Administration: National R&D Agencies operate funding programmes domestically and internationally.

Each ministry promotes S&T according to its specific area of competence and in accordance with the CSTI policies:

- MEXT: Oversees general promotion of S&T, basic research strategies, and university policy.
- Ministry of Economy, Trade, and Indus-

- Ministry of Health, Labor, and Welfare (MHLW): Focuses on medical research and clinical studies.
- Ministry of Agriculture, Forestry and Fisheries (MAFF): Oversees agricultural, forestry, and fishery research, and genetically modified organisms (GMO) regulation.

The STI Basic Law and the 6th Basic Plan²⁰

Introduced in 1995, the *Science and Technology Basic Law* established a framework for Japan's S&T policies. Since then, Japan has implemented a new *Science and Technology Basic Plan* every five years. Initially, these plans focused on expanding the S&T budget, with the first three plans (1996–2011) emphasising funding growth. The 4th plan (2011–2016) shifted focus towards social implementation and innovation. In 2016, the 5th plan introduced the ambitious *Society 5.0* initiative, followed in 2018 by the *Integrated Innovation Strategy*, which became a cornerstone of annual planning. In 2020, the law was amended for the first time in 25 years to encompass innovation, humanities, and social sciences, and renamed to the *Science, Technology, and Innovation Basic Law*.¹²

In 2021, amid pressing national issues and a growingly severe international landscape, Japan released the 6th Basic Plan, targeting the realisation of Society 5.0^{11,12,21} and outlining three key policy objectives:²⁰

1. Innovation Capability—Accelerating the transition to a sustainable, resilient society.
2. Research Capacity—Fostering knowledge creation.
3. Education and Human Resources Development—Equipping society to adapt to the new model envisioned by Society 5.0.

R&D Budget for 2021–2026 (6th Basic Plan)²⁰

Under the 6th Basic Plan, Japan allocated

approximately JPY 150 trillion (equivalent to approximately USD 1 trillion or SEK 10 trillion)* to R&D, with JPY 30 trillion from the government and JPY 120 trillion from the private sector. This marks a substantial increase from the 5th plan's JPY 26 trillion (around USD 169 billion or SEK 1.8 trillion)*.

In 2022, addressing concerns over Japan's declining international competitiveness, the government launched the *Universities for International Research Excellence Fund*, a JPY 10 trillion programme (around USD 65 billion or SEK 700 billion)* inspired by the US Ivy League endowment model. Administered by the Japan Science and Technology Agency (JST), this initiative aims to spur innovation, enhance worldclass research infrastructure and support young researchers. Among the three shortlisted universities, Tokyo, Kyoto, and Tohoku, Tohoku University became the first and only recipient of the endowment in September 2023.²³ The next application round is scheduled for late 2024.²⁴

Japanese Research and Higher Education Institutions

The Japanese research ecosystem comprises a diverse array of institutions, differing in funding sources, administrative management, and overarching mission.²⁵ While these distinctions may seem a largely bureaucratic matter, they can significantly influence research activities and academic life. Therefore, incoming researchers are encouraged to familiarise themselves with the system before beginning their work in Japan.

Key Categories of Research Institutions

1. Universities and Colleges: These include national (funded by the central government), public (funded by prefectural and municipal governments), and private universities (funded by individuals, organisations, or companies). Junior and technical colleges are typically education focused, whereas universities, particularly national, are more research oriented.²⁶

2. National Research and Development Agencies (NRDAs): NRDAs operate under the jurisdiction of MEXT or other ministries and manage the establishment, allocation, and administration of research grants and programmes. Examples include funding agencies and the National Laboratories.²⁷
3. Other institutions: This category encompasses university faculties, graduate schools, national inter-university research institutes, university-affiliated research centres, non-profit organisations, prefectural research institutions, and public corporations.

A tentative list of Japanese research and higher education institutions can be found at <https://www.jsps-sto.com/list/>

1. Universities

In 2023, Japan counted 807 operating universities. National universities are traditionally considered the foundation of Japan's basic research, offering advanced research facilities and fostering collaborations with public or private corporations, thanks to substantial government funding. Public and private universities, on the other hand, tend to be more education oriented.

National universities (国立大学, *kokuritsu daigaku*) represent around 11% of all universities. Currently, 86 are active, including the seven “former imperial universities”, and enrol around 600,000 students. They are primarily funded by the government and traditionally regarded as the most prestigious and research oriented universities in Japan. Among these, the universities of Tokyo, Kyoto, Osaka, and Tohoku consistently rank at the top of national rankings. In 2004, under the *Corporatization of National Universities Act*, all national universities became independent corporations known as National University Corporations, or NUC (国立大学法人, *kokuritsu daigaku hōjin*).²⁶

Public universities, also referred to as local, prefectural, or municipal universities (公立大学, *kouritsu daigaku*), num-

bered 100 in 2024, accounting for approximately 12.5% of all universities in Japan. Primarily financed by local governments, public universities were also partially privatised and incorporated as Public University Corporations (公立大学法人, *kouritsu daigaku hōjin*) following the 2004 reforms.

Private universities represent around 80% of all universities, with 631 institutions in 2024, and enrol approximately 2.18 million students – over 75% of all students in Japan. They are mainly funded by private individuals, organisations, or companies and only partially with government subsidies. The number of private universities grew exponentially during the postwar economic boom in Japan, driven by the rising demand for higher education. While private universities are generally more education oriented, Keio University and Waseda University stand out for their research contributions and rank among Japan's top ten research universities.¹⁴

Selected Universities

To promote competition and excellence, the Japanese government evaluates and selects top universities based on research and education quality. This led to the creation of two initiatives: *RU11* and the *Designated National Universities Corporation System (DNU)*.

RU11 is a consortium of 11 leading universities in Japan established in 2009. It comprises nine national (Hokkaido University, Tohoku University, the University of Tsukuba, the University of Tokyo, Tokyo Institute of Technology*, Nagoya University, Kyoto University, Osaka University, and Kyushu University) and two private universities (Waseda and Keio). *RU11*'s mission is to strengthen research, improve cooperation, and promote data sharing.²⁸

The *Designated National University Corporation System (DNU)* was introduced in 2017 by MEXT to foster worldclass education and innovation. Universities are designated based on their research output,

* On the first of October 2024, Tokyo Institute of Technology and Tokyo Medical and Dental University merged into the new Institute of Science Tokyo, not to be confused with Tokyo University of Science, 東京理科大学 (Tokyo Rika Daigaku). The new Institute of Science Tokyo will also be a *RU11* member, and its *Designated National University* scheme is currently under construction.³⁰

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social cooperation, and degree of internationalisation. Designated universities enjoy larger government subsidies and greater spending autonomy allowing them to offer higher salaries to attract top talent. By 2019, seven national universities had been designated: Tohoku University, the University of Tokyo, Kyoto University, Tokyo Institute of Technology*, Nagoya University, Osaka University, and Hitotsubashi University.²⁹ The University of Tsukuba, Kyushu University, and Tokyo Medical and Dental University* were added in 2020, 2021, and 2022, respectively.

2. National Research and Development Agencies (NRDAs)

NRDAs are public, semi-governmental, and semi-autonomous institutions under ministry jurisdiction, dedicated to conducting high-quality research. Classified as Independent Administrative Institutions (IAIs), they include both research institutes and public funding agencies (JSPS, JST, AMED, and NEDO). NRDAs manage funding programmes and promote both domestic and international research collaborations, contributing to Japan's STI objectives.

As of August 2021, there were at least 17 NRDAs, each directly overseen by at least one ministry. Among these, three have been recognised as Designated NRDAs for their exceptional contributions:

- RIKEN (Institute of Physical and Chemical Research): Japan's largest research institution, globally renowned for high-quality research. It is fully funded by MEXT and counts nine centres across Japan.
- NIMS (National Institute for Materials Science): Focuses on advanced materials research and is directly funded by MEXT.
- AIST (National Institute of Advanced Industrial Science and Technology): Focuses on translational technologies and innovation for commercialisation. It is funded by METI.

Funding Agencies

NRDAs include four major government-

backed funding agencies:

- JSPS (Japan Society for the Promotion of Science), supported by MEXT.
- JST (Japan Science and Technology Agency), supported by MEXT.
- NEDO (New Energy and Industrial Technology Development Organization), supported by METI.
- AMED (Japan Agency for Medical Research and Development), supported by MEXT, METI, and MHLW.

Funding agencies allocate funding from the ministries directly to individuals or teams of researchers via specific programmes. Each agency is directly connected to one (or more) of the ministries and characterised by different funding sources, programmes, goals, and strategies.

3. Other Research Institutes and Initiatives

Inter-University Research Institute Corporations³⁰

Inter-University Research Institute Corporations are independent organisations serving as a bridge between Japanese universities and private or national institutes in Japan and abroad. These organisations provide researchers with access to cutting-edge equipment, academic data, and rare materials that individual universities may struggle to maintain. Their mission is to foster collaboration across institutions, both domestically and internationally. Four such corporations operate under the National University Corporation Act:

- NIHU (National Institute for the Humanities)
- NINS (National Institute of Natural Sciences)
- KEK (High Energy Accelerator Research Organization)
- ROIS (Research Organization of Information and Systems)

World Premier International Research Center Initiative (WPI)¹⁵

Launched by MEXT in 2007, the WPI is a highly successful programme aiming to establish globally renowned, interdiscipli-

nary research centres. WPI centres benefit from ten years of government funding and a high degree of autonomy to set their own *modus operandi*. In return, they serve as “international brain circulation hubs” thanks to powerful research capacity, a high level of internationalisation, and global visibility. The WPI mission is built on four pillars: advancing science, fostering interdisciplinary research, promoting globalisation, and reforming research systems. The WPI Committee includes university presidents, Nobel laureates, industry leaders, and prominent foreign experts, to guarantee the highest quality of research performance. Key features of the WPI centres include English as the official language, more than 30% of international researchers, and a competitive annual budget of JPY 0.5–1.4 billion per centre (USD 3–9 million or SEK 35–99 million)**.³² As of 2024, the WPI initiative counts 18 centres across Japan.

The Okinawa Institute of Science and Technology (OIST)

OIST is a pioneering graduate university located in Okinawa, established in 2011 by the government to advance global research excellence and foster industrial innovation in Japan's southernmost prefecture. Modelled on international best practices, with English as the official language and an innovative, interdisciplinary, research and education strategy, OIST offers a fully funded, five-year PhD programme in science and engineering and a worldclass research hub that attracts talent from all over the world. OIST does not offer undergraduate courses. Unlike other Japanese universities, OIST operates directly under the Japanese government as a Special Private School Corporation, combining the governance of a national university with the flexibility of a private institution.

A key feature of OIST is its unique funding model, which relies on generous government subsidies in the form of ‘high-trust funding’. All faculty members,

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**As on 14 August 2024

High-trust vs. Low-trust Funding

Research subsidies can be provided via different funding schemes:

Low-trust funding: Most diffused, commonly known as competitive grants. Generally short term (2–3 years) and project-based, typically requiring preliminary results. This system discourages high-risk, innovative research and creates instability due to frequent reapplications.

High-trust funding: Long term (5 years), tied to researchers' past achievements rather than specific projects. It encourages bold, interdisciplinary research and ensures flexibility while maintaining rigorous periodic evaluations. High-trust funding gained traction during the COVID-19 pandemic and has been proven to foster groundbreaking, high-stakes research.

regardless of seniority, receive a five-year grant to pursue high-risk, high-reward research.³³ This ensures stability and encourages innovation, in contrast with traditional 'low-trust funding' schemes, which often involve short-term competitive grants.

Thanks to this stable funding, OIST has rapidly gained international recognition. In 2024, it ranked 17th in Japan in the Nature Index, a testament to its growing global impact.¹⁴

In June 2023, Dr Karin Markides, former President and CEO of Chalmers University of Technology in Sweden and the American University of Armenia, assumed the role of OIST President. Dr Markides holds a doctorate in analytical chemistry from the University of Stockholm.

Japanese Funding Programmes for International Researchers

Major Funding Agencies and Programmes

This section highlights major funding programmes offered by Japan's key public funding agencies, specifically those open to international researchers.

1. Japan Society for the Promotion of Science (JSPS)

Founded by the government in 1932, JSPS is Japan's largest research funding agency supporting researchers across all career stages and research fields. It plays a critical role in advancing science through competitive, bottom-up, grants, with a budget for fiscal year 2023 (FY2023) of JPY 237.7 billion (equivalent to approximately USD 1.6 billion or SEK 16.7 billion)*. In FY2022, JSPS financed approximately 83,000 researchers, including ongoing and new projects. Programmes target both Japanese and international researchers, both inbound to and outbound from Japan.

*JSPS International Fellowships for Research in Japan*³⁴

This programme offers three types of fellowships for international researchers:

- Pre-doctoral Fellowship (Summer Program; Short-term Program): For doctoral students outside Japan scheduled to receive their PhD within two years.
- Post-doctoral Fellowship (Short-term/Standard Program): For researchers within six years of earning their PhD from a non-Japanese institution.
- Invitational Fellowship (Short/Long-term): For senior researchers (e.g., professors, associate professors) with at least six years of postdoctoral research experience at a foreign university or research institution.

Further details can be found on the JSPS website at https://www.jsp.go.jp/english/e-inv_researchers/

*Grants-in-Aid for Scientific Research (KAKENHI)*³⁵

KAKENHI is Japan's largest bottom-up, competitive funding programme, covering all scientific fields, from humanities to social and natural sciences, and from basic to applied research. KAKENHI grants support single or multi-year projects at MEXT-approved, Japanese universities and other research institutions. Applicants can be of any nationality; however, they must meet the following criteria:

- a. Be actively engaged in research at a Japanese host institution; and
- b. Be affiliated with the host institution in a paid or unpaid, full-time or part-time, capacity.

Applications are submitted via the host institution and undergo peer review by JSPS' Scientific Research Grant Committee. Funds are administered by the host institution and tailored to match the project's scale and stage.

JSPS Partner Countries

JSPS maintains research liaison centres in ten locations across nine partner countries, including the USA (Washington and San Francisco), Germany (Bonn), the UK (London), Sweden (Stockholm), France (Strasbourg), Thailand (Bangkok), China (Beijing), Egypt (Cairo), Kenya (Nairobi) and a JSPS advisor in São Paulo, Brazil.

* As on 21 October 2024

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2. Japan Science and Technology Agency (JST)

Established in 1957, JST is a network-based national research and development agency connecting universities, research institutions, and industries in Japan and overseas. Sitting directly at the interface between MEXT and the research institutions, JST plays a central role in the implementation of Japan's STI Basic Plan.

JST funding programmes are often carried out in collaboration with other funding agencies, and they include:

- Strategic Basic Research Programs (JST-Mirai; CREST, PRESTO, ACT-X): Open only to Japan-based researchers*.
- International Collaborations: Include several programmes, (i.e., ASPIRE, SICORP, SATREPS, Sakura Science Program, AJ-CORE, e-ASIA JRP, EIG CONCERT-Japan, and Belmont Forum): These are joint calls that require partnerships between Japan-based researchers*, supported by JST, and collaborators overseas (supported by an overseas funding agency).
- Moonshot R&D Program: Launched by the government in 2020, this ambitious programme addresses global challenges through innovative research and international collaborations. It is structured in ten “MS Goals”, seven of which are managed by JST. Details can be found at: <https://www.jst.go.jp/moonshot/en/index.html>

For a full list of JST research funding programmes (including those only open to Japanese researchers), visit: <https://www.jst.go.jp/EN/programs/funding.html>

In addition to funding programmes, JST manages several research-related initiatives such as public engagement, policy planning, information platform and

database services, etc. Further details can be found on the JST website at: <https://www.jst.go.jp/EN/>

3. Japan Agency for Medical Research and Development (AMED)

Established in 2015, AMED coordinates Japan's medical R&D, focusing on advanced drug development, medical devices, and translational research. Operating directly under the administration of the Prime Minister and key ministries (MEXT, MHLW, and METI), it is sometimes described as Japan's NIH**. AMED provides top-down research grants in basic and translational medical research, aiming to sustain Japanese economy and promote strategic medical research domestically and internationally.

AMED funds six Integrated Projects*** across a broad range of research areas, including cancer, lifestyle-related diseases, mental and neurological disorders, rare diseases, child health and development, and infectious diseases. Foreign researchers who are permanent residents or visa holders living in Japan for at least 50% of the award period may apply. Graduate students can participate if they are enrolled in an accredited degree programme at a Japanese institution during the project.

In addition, AMED offers several programmes in collaboration with other funding agencies: Moonshot R&D Program Goal 7, SCARDA, ASPIRE, SICORP, CREST, PRESTO, FORCE. To be eligible, foreign applicants must be affiliated with a research institute in Japan. Only for the PRIME programme, foreign researchers who are not yet affiliated with a research institute in Japan may apply, provided they commit to joining one upon selection.

For more details on programmes and open calls visit AMED's website at <https://www.amed.go.jp/en/news/proposals.html>

4. New Energy and Industrial Technology Development Organization (NEDO)

Established in 1980 and operating under METI, NEDO supports the development and commercialisation of industrial technologies in the energy sector. Its mission includes international collaborations under its International Expansion Support Scheme****, focusing on areas such as low-carbon technology, clean energy, and carbon recycling. NEDO also oversees Goal 4 of the Moonshot R&D Program: “The realisation of sustainable resource circulation to recover the global environment by 2050”.

For more details on international programmes, visit NEDO's website at <https://www.nedo.go.jp/english/activities/international.html>

In summary, JSPS offers a wide range of international programmes, a vast global network, and flexible funding based on a ‘bottom-up’, or curiosity-driven, approach. Unlike JSPS, which allows researchers to define their own project goals, JST, NEDO, and AMED follow a more structured ‘top-down’ approach with pre-set research objectives. Among them, JST plays a coordinating role and offers the most extensive range of programmes in science and technology. While also JST, NEDO, and AMED are open to international researchers, their calls tend to be more rigidly structured than those of JSPS. Researchers should carefully review each programme's guidelines to ensure they meet eligibility and application requirements.

Other Japanese funding agencies (NARO, JAXA)

This section introduces minor Japanese funding agencies contributing to global research, innovation, and development in specific areas of research.

* A Japan-based researcher is a person who is affiliated with a Japanese research organisation, regardless of his/her nationality. Foreign nationals are required to be able to handle administrative tasks in Japanese and take care of any visa and immigration issues independently.

**USA's National Institutes of Health

***Integrated Projects: (1) Advanced Drug Discovery and Development; (2) Medical Device and Healthcare; (3) Regenerative Medicine and Cell and Gene Therapies; (4) Genome and Health-Related Data; (5) Basic Medical Research; (6) Seeds Development and Research Base.

****International Expansion Support Scheme topics: Low Carbon Technology; Decarbonisation and Energy Transition; Thermal Power Generation Technologies; Deep-Tech Start-ups; Clean Energy; Carbon Recycling and Decarbonisation Technologies for Thermal Power Generation.

5. National Agricultural Research Organization (NARO)

NARO was established in 2001 through the merger of several national research institutes and experimental stations focused on agricultural technology research. Its mission includes basic and applied research promoting food security, agricultural productivity, rural revitalisation, and environmental conservation while advancing Japan's Society 5.0 initiative. NARO's Core Technology Research Headquarters (CTRH) oversee four research centres:

1. Research Center for Agricultural Information Technology (RCAIT): Specialises in AI-based research for agriculture and farming data-sharing via the WAGRI1 platform.
2. Research Center for Agricultural Robotics: Focuses on sensing technology, high-precision growth forecasting, and quality-control systems.
3. Research Center of Genetic Resources: Promotes genomic research, managing the GeneBank collections and hosting the world's 6th largest plant collection.
4. Research Center for Advanced Analysis: Specialises in advanced nuclear magnetic resonance (NMR) and magnetic resonance imaging (MRI) technologies for agricultural innovation.

Within NARO, the Bio-Oriented Technology Research Advancement Institution (BRAIN) administers two funding programs, in line with the Basic Plan for Agricultural and Fishery Research:

1. Moonshot R&D Program, Goal 5: Aims to create a sustainable global food supply by utilising unused biological resources by 2050. More details at: https://www.naro.go.jp/laboratory/brain/english/moon_shot/index.html
2. Technologies for Smart Bio-Industry and Agriculture: A sub-program of the Cross-Ministerial Strategic Innovation Promotion Program (SIP). Details are available at: <https://www.naro.go.jp/laboratory/brain/english/sip/sip2/index.html>

6. The Japan Aerospace Exploration Agency (JAXA)

Established in 2003 as an Independent Administrative Agency, JAXA is Japan's

core agency for aerospace development and utilisation. Designated as a national funding agency in 2015, it integrates operations ranging from basic research to applied aerospace projects.

Global Collaborations

JAXA collaborates with numerous international partners, including space agencies in the Asia-Pacific, Europe, and North America. It has offices in Japan and abroad, including in Bangkok, Moscow, Paris, Washington, D.C., and Houston. In Sweden, JAXA operates a mobile tracking station in Kiruna, established in partnership with the Swedish Space Corporation.

R&D Activity

JAXA's activities align with Japan's Basic Plan on Space Policy, focusing on advanced aerospace technologies such as numerical simulation, highly reliable software, mounted equipment, and cutting-edge rocket engines. The agency also fosters collaboration between industry, government, and academia to tackle ambitious space projects and challenges. Its R&D activities are categorised in three sections:

1. Leading Research – Creating “Future”: Six programmes focused on pioneering space research.
2. Connecting “Now” to “Future”: Nine programmes on “Secure Development and Success of Missions”.
3. Toward “Space”: Eight programmes developing operational space technologies.

For more details on JAXA's R&D projects, visit: <https://www.kenkai.jaxa.jp/eng/research/>

For open work opportunities at JAXA institutes in Japan, visit:

For students:

https://global.jaxa.jp/stu_edu.html

For researchers, professors, and associate professors, etc.:

<https://global.jaxa.jp/about/employ/index.html>

Note that EU residents may apply upon signing a GDPR consent form for data handling.

outlook

STINT's Grants Navigator for Japan

For a complete list of funding programmes open to international researchers, including deadlines and eligibility requirements, consult the STINT's Grants Navigator for Japan webpage at: https://www.stint.se/en/grants_navi_jp/



Sweden – Japan collaboration initiatives

This section provides an overview of collaborative initiatives between Sweden and Japan that promote academic exchange, research, and innovation across multiple disciplines.

MIRAI, Swedish – Japanese Strategic University Collaboration

MIRAI, launched in 2017, is a collaboration between Swedish and Japanese universities aiming to strengthen the academic network between the two countries. Its mission includes fostering long-term research collaborations, addressing global challenges, and promoting both nations as leaders in large-scale research infrastructure.

MIRAI's main activities include:

- Lectures, Seminars, and Workshops
- Short PhD Courses
- Annual Research and Innovation Weeks
- Funding Opportunities to Promote Researcher Mobility

MIRAI's budget is co-financed by participating universities and other actors, including STINT, which support joint project coordination. Building on the success of its first two phases, MIRAI has entered its third phase, MIRAI 3.0 (2024–2026) which focuses on tackling global challenges through academia-industry partnerships.

Learn more and explore open calls for funding on the MIRAI website at: <https://www.mirai.nu/>

SJSF, Scandinavia – Japan Sasakawa Foundation

Established in 1985 and based in Stockholm (Sweden), SJSF promotes friendly

relations and exchanges between the Nordic countries and Japan. It supports projects in medicine, humanities, social and natural sciences, and technology. Calls for proposals are open to organisations, institutions, and individuals in both the Nordic countries and Japan. Application guidelines are available at: <https://sjsf.se/guidelines-to-apply-to-the-scandinavia-japan-sasakawa-foundation/>

SJF, Sweden – Japan Foundation

The Sweden – Japan Foundation offers scholarships for Swedish students and young researchers to study, conduct research, or undertake internships at Japanese universities. Supported fields include technology, natural sciences, economics, law, medicine, and commerce. Students and young researchers from any higher education institution in Sweden are eligible to apply. For more information on SJF Scholarships visit: <https://swedenjapan.se/sjf-scholarships/>

Private Funding Opportunities

Japanese private foundations and companies also offer financial support to international researchers. Below are some prominent opportunities. Note that private funding falls outside the scope of this report, hence, this list is tentative and might be incomplete.

Marubun Research Promotion Foundation: Offers three programmes in the field of industrial technology:

1. Exchange Research Grants: Research expenses support for graduate students and postdoctoral researchers under 35 years old, of any nationality. Budget: up to JPY 1.5 million per project (equivalent to approximately USD 10,000 or SEK 106,500)*.
2. International Exchange Grant Project: Support for young researchers to attend international symposiums, conferences, or collaborative research events in Japan or overseas.
3. Industry-Academic-Government Exchange Grant: Research, travel, and transportation expenses (including

study) support for postdoctoral researchers or graduate students under 35 years old, at universities and public research institutes in Japan in collaboration with other institutions (including private companies).

For more details, visit: <https://www.marubun-zaidan.jp/en/oubo.html>

Mitsubishi Foundation: Offers research grants to residents in Japan, regardless of age or nationality, who are affiliated to a Japanese research institution. Eligible fields include science and technology, social science, and human service.

For more details, visit: <https://www.mitsubishi-zaidan.jp/en/>

Canon Foundation: Offers research grants of up to EUR 30,000 (SEK 347,988)** per year, for Europeans with a master's or PhD earned within the last 10 years. Projects may span 3 to 12 months and across all research fields. Applicants are not required to be enrolled in a university degree or employed at the time of application, and may also be affiliated with commercial, industrial, governmental or professional organisations. Learn more at: <https://www.canonfoundation.org/programmes/research-fellowships/>

Suntory Foundation: Offers grants for research in the humanities and social sciences, open to researchers of any nationality, institution, and residence. Note that applications must be submitted in Japanese. For more details, visit: <https://www.suntory.com/sfnd/research/>

Nippon Electric Company Computers and Communications (NEC C&C) Foundation: Offers grants for doctoral students of any nationality, enrolled in a graduate school or equivalent institution in Japan, conducting research in semiconductors, computers, telecommunications, or integrated technologies. For more details, visit: <https://www.candc.or.jp/en/grants.html>

Takeda Science Foundation: Provides fellowships for researchers (MD and PhDs) of any nationality, who are not currently

* As on 14 August 2024

** As on 1 November 2024

residing in Japan, and who are recommended by a mentor doctor in Japan. Fellowships are either for 6 to 24 months (research) or 3 to 12 months (clinical training). For more details, visit: <https://www.takeda-sci.or.jp/en/fellowship/abroad.php/>

Ichiro Kanehara Foundation: Offers scholarships for promoting medical sciences and care. For more details, visit: <https://www.kanehara-zaidan.or.jp/subsidy/ship>

EU Funding Opportunities for Japan

Japan is a key strategic partner in STI for the European Union (EU). Over the past two decades, bilateral relations have steadily developed, marked by milestones such as the *Science and Technology Cooperation Agreement* in 2011, a *Joint Vision* document in 2015, and the 2019 *Strategic Partnership Agreement (SPA)*, the first bilateral framework between the EU and Japan.³⁶ Collaborations in S&T are therefore highly incentivised on both sides and include three prominent programmes:

- **Vulcanus Programme:** Offers industrial placements in Japan for EU students in engineering and scientific fields, running from August to March. For more information, visit: <https://www.eu-japan.eu/events/vulcanus-japan>
- **EURAXESS Japan:** Promotes mobility and cooperation between researchers of all nationalities, disciplines, and career stages, between Japan and Europe, by providing information on research funding, careers, mobility and collaboration opportunities. For more information visit: <https://euraxess.ec.europa.eu/worldwide/japan>
- **Horizon Europe:** At the end of November 2024, news of a potential association of Japan to Horizon Europe, the EU flagship programme for research and innovation, was released.³⁷ The

opening of formal talks marks not only a step forward in the EU-Japan cooperation against global challenges, but also a significant upgrade in this cooperation. If successful, this programme would become the closest form of cooperation in research and innovation between Japan and the EU. Negotiations are planned to proceed over the next months.

Additional Funding Opportunities

International researchers or students affiliated with a university in Japan are encouraged to consult their host university's grant office for information on fellowships and funding opportunities, which may be specific to their university or department.

MEXT and METI offer funding opportunities directly to individual students and researchers:

- **MEXT Scholarships:** For international undergraduate students. Applications are handled through Japanese embassies, consulates generals, or host universities. For more details, visit: <https://www.mext.go.jp/en/policy/education/highered/title02/detail02/sdetail02/1373897.htm>
- **METI Internships:** For undergraduate and graduate students in the fields of economics, trade, and industry. For more details, visit: <https://internshipprogram.go.jp/english/foreign/>

Additional Online Resources

- For information on research and educational policies in Japan, visit MEXT's website at: https://www.mext.go.jp/en/policy/science_technology/policy/title01/detail01/1374036.htm
- J-REC is a career support portal for all researchers and research staff. Explore J-REC at: <https://jrecin.jst.go.jp/seek/?ln=1>

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STINT, The Swedish Foundation for International Cooperation in Research and Higher Education, was set up by the Swedish Government in 1994 with the mission to internationalise Swedish higher education and research.

STINT promotes knowledge and competence development within internationalisation and invests in internationalisation projects proposed by researchers, educators and leaderships at Swedish universities.

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