

Call for applications: 2024 Joint Usage and Joint Research Programs, Institute of Advanced Medical Sciences, Tokushima University

9th January 2024

Tokushima University, also known as University of Tokushima, has a long history of advanced medical sciences. Miyoshi muscular dystrophy and adjuvant disease were discovered here. Immunoproteasomes, hepatocyte growth factor, and cathepsin L as well as many other disease-related human molecules have their home in our campus. In 1961, the medical school of Tokushima University founded three laboratories of enzyme research, which successfully formed Institute for Enzyme Research in 1987. In 1998, Institute for Genome Research was founded to extend medical research to focus on genome functions. In 2010, Diabetes Therapeutics and Research Center was formed to overcome the diabetes by creating platform for the collaborations between clinical and basic researchers. In 2013, Fujii Memorial Institute of Medical Sciences was founded in memory of Professor Setsuro Fujii, one of the founding professors of original enzyme research laboratories. In 2016, the University has decided to merge these four institutes to form the Institute of Advanced Medical Sciences, in order to facilitate multi-disciplinary and trans-omic studies for advanced medical sciences.

Supported by the Joint Usage and Joint Research Programs of the MEXT, Japan, the Institute of Advanced Medical Sciences, Tokushima University, calls for the applications for the joint usage and/or joint research as follows. The proposed expenses should be used within the fiscal year 2024 which begins on 1st April 2024 and ends on 31st March 2025.

(A) Joint Usage

State-of-art research facility of our institute is open for the support of the research in the following 4 aspects. In principle, travel expenses will be supported (but if it is difficult to visit our institute due to the situation of COVID-19, use for cancellation charges for flights, hotels etc. and supplies expenses will be allowed). Up to 150,000 Japanese yens per successful proposal per fiscal year will be supported for the following experiments.

A-1. Next-generation sequencing and microarray analyses (organized by Professor Seiichi Oyadomari and Associate Professor Tetsuro Yoshimaru)

Next-generation sequencing analysis using NextSeq550 (illumina). Representative costs are 873,000 yens per sample for whole human genome sequencing. 216,000 yens (Mid) or

546,000 yens (High) per run (2-12 samples) for whole human exon analysis (PE 75bp), 346,000 yens (Mid) or 873,000 yens (High) per run (3-12 samples) for whole human exon analysis (PE 100-150bp). 216,000 yens (Mid) or 546,000 yens (High) per run (5-16 samples) for total human RNA-seq analysis (PE 75bp), 216,000 yens (Mid) or 289,000 yens (High)) per run (13-40 samples) for RNA-seq expression analysis (SR 50~75bp). 216,000 yens (Mid) or 289,000 yens (High) per run (8-26 samples) for ChIP-seq analysis of transcription factors (SR 50~75bp), 216,000 yens (Mid) or 546,000 yens (High) per run (3-10 samples) for ChIP-seq analysis of histone modifications (PE 50~75bp), and 380,000 yens per slide (8 samples) for Agilent human microarray analysis (Each cost is estimated as present value (2020.11). NextSeq 550 System enables array scanning for Infinium methylation EPIC, HumanKaryomap and CytoSNP Chip. Please contact us for single cell analysis using Chromium Single Cell Controller from 10X Genomics. Analysis of human samples requires approval from each institution committee regarding human genome and gene analysis research ethics. CLC genomics workbench (Qiagen) is available in each analysis.

Please contact Associate Professor Yoshimaru for details (tmaru@genome.tokushima-u.ac.jp). Human sample analyses require the prior approval from appropriate intramural committee of the applicant's affiliated organization.

A-2. Proteome analysis (organized by Professor Hidetaka Kosako and Assistant Professor Harunori Yoshikawa)

Proteome analysis using high resolution mass spectrometers (Orbitrap Fusion and Q Exactive Plus, Thermo Fisher Scientific). Proteome Discoverer, BioPharma Finder, Mascot, and Scaffold can be used for data analysis. Representative costs are 15,000 yen per sample for identification and quantitation of proteins from electrophoresed gel fragments or immunoprecipitates, 20,000 to 30,000 yen per sample for identification and quantitation of PTMs such as phosphorylation and ubiquitination of proteins, 15,000 to 30,000 yen per sample for global identification and quantitation (by TMT labeling, PRM, and LFQ) of proteins and PTM sites in complex samples such as cell lysates. Please contact Professor Kosako for details (kosako@tokushima-u.ac.jp). Human sample analysis requires the prior approval from appropriate intramural committee.

uHPLC analysis using Vanquish Duo uHPLC system (Thermo Fisher Scientific), especially separation of native and large protein complexes (i.e. polysomes and ribosomes) by Size Exclusion Chromatography. Costs are 10,000 yen per 10 samples (depending on the measurement conditions). Please contact Assistant Professor Yoshikawa for details

(yoshikawa.harunori@tokushima-u.ac.jp).

A-3. Genome editing of laboratory mice or cultured cells (organized by Professor Tatsuya Takemoto and Associate Professor Shun Sawatsubashi)

Generation of genetically modified mice by an improved zygote electroporation technology of CRISPR/Cas9-mediated genome editing. Costs are 700,000-800,000 yen for generating a gene-disrupted mouse or a point mutant mouse, 1,000,000-1,200,000 yen for generating a long-DNA knock-in mouse (e.g. an EGFP knock-in reporter mouse). Costs for mouse breeding and shipping are also required. Please contact Professor Takemoto for details (takemoto.tatsuya@tokushima-u.ac.jp)

Generation of genome-edited cultured cells using the CRISPR/Cas9 system, including gene knock-out cells and reporter knock-in cells by the VIKING method (Sci Rep.8,593,2018). Costs are 150,000-400,000 yen for generating genome-edited cultured cells. If necessary, we can also establish cell lines from single cells, sort cells using a fluorescent reporter, and analyze genome sequences. A separate fee is required for these procedures. Please contact Associate Professor Sawatsubashi for details (shun-sawa2@tokushima-u.ac.jp)

A-4. Genome editing of cells (organized by Professor Seiichi Oyadomari)

Generation of genome-wide knockout cells with a pooled lentiviral sgRNA library using CRISPR/Cas9 technology for high-throughput functional genomic screening. Costs are 400,000 yen for generating genome-wide knockout human or mouse cells. Costs for next-generation sequencing and shipping are also required. Please contact Professor Oyadomari for details (oyadomar@tokushima-u.ac.jp)

A-5. Biomolecular size measurement and interaction analysis (organized by Professor Tomohide Saio)

Biomolecular size measurement using the SEC-MALS system (Wyatt DAWN HELEOS II 8+). The size of protein homo/hetero oligomers after gel filtration is measured by multi-angle light scattering. NMR (Bruker Avance III 500 MHz) is used for structural characterization and interaction analysis of biomolecules and peptides. The total number of the projects is limited to 5 per year. Costs for SEC-MALS are 7,000-15,000 yen/sample depending on the number of measurement conditions. Costs for NMR measurements are 12,000-80,000 yen/sample depending on the type of measurement, but the amount varies depending on the sample and measurement. Please contact Professor Saio for details (saio@tokushima-u.ac.jp).

(B)Joint Research

The Institute welcomes the proposal for collaborative joint research with the following laboratories. In principle, up to 300,000 Japanese yens per proposal per fiscal year will be supported to a successful research proposal.

Multiple applications from one laboratory will be accepted if the research themes are different.

B-1. Division of Protein Expression

Professor Yasuo Shinohara, yshinoha@genome.tokushima-u.ac.jp

B-2. Division of Cell Signaling

Professor Hidetaka Kosako, kosako@tokushima-u.ac.jp

B-3. Division of Embryology

Professor Tatsuya Takemoto, takemoto.tatsuya@tokushima-u.ac.jp

B-4. Division of Molecular Biology

Professor Seiichi Oyadomari, oyadomar@genome.tokushima-u.ac.jp

B-5. Division of Molecular Neurobiology

Professor Suehiro Sakaguchi, sakaguchi@tokushima-u.ac.jp

B-6. Division of Molecular Medicine

Professor Yoshiyuki Minegishi, yminegishi@genome.tokushima-u.ac.jp

B-7. Division of Pathology and Metabolome Research for Host Defense

Professor Hiroshi Kido, kido@tokushima-u.ac.jp

B-8. Division of Diabetes Therapeutics and Research

Professor Munehide Matsuhisa, matuhisa@tokushima-u.ac.jp

B-9. Division of Molecular Life Science

Professor Tomohide Saio, saio@tokushima-u.ac.jp

B-10. Division of Experimental Immunology

Professor Izumi Ohigashi, ohigashi@genome.tokushima-u.ac.jp

B-11. Division of Pathogenetic Signaling

Professor Kiyohito Mizutani, kiyohito_mizutani@tokushima-u.ac.jp

B-12. Division of Biomechanics and Signaling

Associate Professor Hajime Fukui, fhajime@tokushima-u.ac.jp

B-13. Division of Molecular CytoMorphology

Associate Professor Yoshiyuki Fukuda, fukuday@tokushima-u.ac.jp

B-14. Division of Gene Regulation

Associate Professor Hotaka Kobayashi, kobayashi.hotaka@tokushima-u.ac.jp

B-15. Department of Immunology and Parasitology

Professor Koji Yasutomo, yasutomo@tokushima-u.ac.jp

B-16. Department of Oral Molecular Pathology

Professor Naozumi Ishimaru, ishimaru.n@tokushima-u.ac.jp

B-17. Department of Pharmaceutical Sciences

Professor Kosuke Namba, namba@tokushima-u.ac.jp

In the case you cannot visit our Institute due to the pandemic of COVID-19, we encourage the joint research and joint usage activities without your visiting. Please consult closely with our Institute's researchers and conduct your projects.

Eligibility

A researcher affiliated with a university or a public research institute, or a researcher approved by the Director of our Institute. The approval from the affiliated organization is required. The Institute of Advanced Medical Sciences does not discriminate on the basis of nationality, race, religion, disability, gender, marital status, sexual orientation, age, or any other illegal or unfair basis.

Application

Please convert the complete application that contains the following items to a single PDF document within two pages, and send as an e-mail attachment to <kyodo@tokushima-u.ac.jp> with the subject line: "Application for Joint Usage Joint Research Programs". Application deadline is 26th February 2024.

-Personal information: Full name, Degree(s), Title, Organization, Mailing address, Phone number, E-mail address, and Country of citizenship

-Three names of your references

-Representative research records, chiefly within the last five years

-Proposed research: Title, Aspect (choose one from Joint Usage A1-A5 and Joint Research B1-B17, Contact researcher at our Institute, Research aims, Methods, Necessities, Outcomes, Budget, and Research duration

Schedule

Deadline of the application is 26th February 2024. Successful applicants will be notified before the end of March 2024. Approved joint usage and/or joint research should be performed between 1st April 2024 and 31st March 2025.

Selection and Notification of Selection

As for joint research, we will select research topics related to "chronic inflammation" as priority research topics.

Applicants will be notified of the decision and the amount of research expenses by the end of March after deliberation by the committee, which includes academic experts outside our university.

If your application is accepted, please report it to your institution.

Obligations

Successfully selected applicants must send us a brief report of their research activities and findings within two pages. The report should include the publication of the papers and the presentations at scientific meetings. A single PDF document that contains the report has to be sent to us via e-mail by 31st March 2025.

When the selected applicant is reporting the findings out of the Joint Usage and Joint Research Programs in an academic paper, she/he must state clearly in that paper that the research was carried out under the support of The Joint Usage and Joint Research Programs, the Institute of Advanced Medical Sciences, Tokushima University. A copy of that paper must be sent to us.

The leader or a member of the project will be requested to make a presentation at the Joint Usage and Joint Research Programs Conference.

Handling of Intellectual Property Rights

In principle, the degree of contribution of each researcher and his/her institution to the invention will be taken into consideration, and the attribution of the invention will be determined through consultation.

Export Security Control

Procedures based on Security Export Control Regulations of Tokushima University may be required when providing research equipment, samples, technical guidance, etc. to overseas countries or conducting joint research with overseas researchers.

Contact

Administration Office

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Tokushima 770-8503, Japan

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E-mail: kyodo@tokushima-u.ac.jp