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Japan Anti-Tuberculosis Association

**Research Institute of Tuberculosis**

## Vision

A world where no one suffers from tuberculosis.

## Mission

Our mission is to eliminate TB suffering through development and implementation of comprehensive TB control strategies.



**Seiya Kato, M.D., MSc. PhD**  
Director

## Director's Remarks

Since its foundation in 1939, the mission of the Research Institute of Tuberculosis, Japan Anti-Tuberculosis Association (RIT/JATA) has been to contribute to domestic and global tuberculosis control by conducting various studies in broad fields, including basic science to clinical/epidemiological studies, providing technical support for national and local governments, public health centres, and medical facilities, as well as performing activities for international cooperation and collaboration.

In the fields of clinical medicine, epidemiology, and operational research, we analyse national surveillance data and conduct studies as follows: effective control measures for high-risk groups, molecular epidemiologic research, research in collaboration with medical institutions, and investigation of patient-centred support, among others. These studies are necessary for effective TB control under low-incidence situations.

In the field of basic science in which the ultimate goal is to develop innovative technology, we conduct morphological measurement studies to determine the ultrastructure of Mycobacterium, development and validation of new laboratory examinations, and molecular and genome analysis of Mycobacterium tuberculosis. We conduct human genomic analysis on host defence mechanisms of infection, development, and reactivation of the disease, analysis of immune-pathology with clinical and epidemiologic factors, and development of innovative anti-tuberculosis agents.

The outcomes of these studies are published in medical journals, presented in academic meetings, and disclosed on our website. Some are utilised as materials for discussion in meetings by the National Health Council, local governments, and health centres. The information is also distributed at training programmes in RIT, regional training programmes, and community trainings to contribute to progress in medical service and control programmes.

We established collaborations with national governments and research institutes in many countries in Asia, Africa, the Middle East, Europe, and the USA through international collaborative research and investigations, technical support, and exchanges of lecturers in meetings. The participants in the international training programme, which began in 1963, included more than 2500 individuals from 98 countries/areas and contributed to tuberculosis control programmes in the respective countries/areas and the world. We conducted international cooperation programmes funded by the Ministry of Health Welfare and Labour, Japan International Cooperation agency and Christmas Seal Campaign. RIT is designated as a WHO collaborating centre and functions as a supranational reference laboratory to provide technical support for surveys and studies worldwide.

As a global institute representing Japan, RIT will promote the health and peace of the people in Japan and worldwide by researching and controlling tuberculosis in collaboration with the Japanese government, local governments, public health centres, medical facilities, relevant organisations, and international organisations, particularly the WHO.

Brief History of the Institute.

April 2021

## Brief History of the Institute

- May.1939 ● Establishment of JATA by special Decree from Her Imperial Majesty the Empress, with Princess Chichibu as Patroness
- Nov.1939 ● Establishment of the Research Institute of Tuberculosis (RIT) in Hoseien
- Nov.1947 ● Establishment of the RIT-Attached Sanatorium (currently called Fukujuji Hospital)
- Feb.1948 ● First Training Course for TB specialists carried out
- 1953 ● First tuberculosis prevalence survey conducted
- Sep.1954 ● First publication of "Statistics of TB"
- Jun.1963 ● First International Training Course in Tuberculosis Control for doctors from developing countries carried out
- Sep.1973 ● Hosting the 22nd World TB Congress in Tokyo
- Aug.1982 ● Designation of RIT as WHO Collaborating Centre for Tuberculosis Research and Training
- Apr.1988 ● Establishment of Department of International Cooperation
- Apr.1992 ● Establishment of International Tuberculosis Information Centre
- Mar.1999 ● Establishment of Department of Program Support
- Apr.2003 ● Establishment of Department of Research, and Mycobacterium Reference Centre
- Sep.2008 ● Establishment of Department of Epidemiology and Clinical Research, and Department of Mycobacterium Reference and Research
- Apr.2013 ● Establishment of Department of Pathophysiology and Host Defense, and Centre for International Cooperation and Global TB Information
- Apr.2020 ● Establishment of Centre for Japan Pre-Entry Tuberculosis Screening Quality Assessment

# Department of Epidemiology and Clinical Research (DECR)

The Department of Epidemiology and Clinical Research conducts a wide range of epidemiological and clinical research work related to tuberculosis (TB) control and national tuberculosis surveillance in Japan.

## Our Strategy

The Department's three areas of activity include research, development of monitoring tools, and international cooperation.

●**Research:** In addition to epidemiological research, we also perform operational research, policy studies, and molecular epidemiology studies. Some of our current research topics include TB and latent TB infection among foreign-born individuals, smoking and TB, TB among the elderly, impact of BCG, and catastrophic costs of TB care.

●**Development of monitoring tools:** We constantly develop and review various indicators to monitor TB control activities at national, prefectural, and local levels.

●**International cooperation:** Some of our staff are also involved in international research projects in countries such as the Philippines, Myanmar, and Malawi.

## Organisational structure

### Division of Epidemiological Surveillance

The Division of Epidemiological Surveillance within the Department supports development, improvement, and operation of the electronic Japan Tuberculosis Surveillance system (JTBS) by closely working with the Ministry of Health, Labour, and Welfare (MOHLW). The Division also conducts a series of analyses of the surveillance data, which are fed back into action through publishing of monthly and annual statistical reports.

### Tuberculosis Surveillance Centre

The Department also runs the Tuberculosis Surveillance Centre, which is responsible for disseminating our works and other related information and for answering enquiries regarding the JTBS and statistics, which are received via telephone or our website (<http://www.jata.or.jp/rit/ekigaku/en>).



The Research Institute of Tuberculosis (RIT) of the Japan Anti-Tuberculosis Association has continuously published an annual Tuberculosis Report since 1954. This report summarises the surveillance data of TB patients entered into the electronic surveillance system by each public health centre in the country. These data are collected by the MOHLW, Japan. The Department of Epidemiology and Clinical Research plays a central role in collating and analysing the epidemiological and clinical information on TB.



The Department of Epidemiology and Clinical Research conducts epidemiological studies for TB and provides technical assistance to TB control activities in and outside Japan. The picture shows our staff having a discussion on contact investigation registry in one of the health centres in Lilongwe, Malawi.

# Department of Mycobacterium Reference and Research (DMRR)

Our department is composed of two divisions, bacteriology and molecular epidemiology, and independent senior researchers.

## Basic bacteriological research and Reference laboratory functions

We focus on bacteriological aspects of mycobacteriosis including development of new diagnostics, analysis of physiological functions and genetic characters, the morphological studies by electron microscope, mechanisms of drug resistant Mycobacterium tuberculosis, and so on. We also work as Supra-National Reference Laboratory of WHO Western Pacific region and supervise the efficient implementation of mycobacteriological examinations and the quality assurance of the techniques based on mycobacterial strain bank and tuberculosis surveillance system. Our laboratory is recognised as the national reference laboratory of any mycobacterial issues (drug susceptibility testing, species identification of rare species, etc.).

## Researches on mycobacterial genomics

Our laboratory develops the genotyping methods of *M. tuberculosis* and its application to practical TB epidemiology. We have already established a *M. tuberculosis* genome database together with neighbouring countries and holds over 5,000 TB genome data. The database is utilised for the advanced molecular epidemiological researches and the analysis of essential genes. In addition, we conduct the molecular epidemiological studies of non-tuberculosis mycobacteria collaborating with other institutions.

The main objective of DMRR is to contribute the control of mycobacterial diseases with the knowledges obtained through various research activities.



# Department of Pathophysiology and Host Defense

The Department of Pathophysiology and Host Defense is composed of the divisions of Pathophysiology, Immunology, Animal Experiment, and Senior Researcher section. In the Divisions of Pathophysiology and Immunology, we aim to analyse the infection, development, and recurrence of tuberculosis (TB) and other mycobacterial diseases at the molecular level. We also try to elucidate their pathophysiological mechanisms. The Division of Animal Experiment supports basic research using experimental animals.

## Collaborative research projects with developing countries

We have been conducting collaborative studies with Vietnamese institutes through the NCGM-BMH Medical Collaboration Centre for more than 15 years. Our research projects include host immunogenetics; host-pathogen interactions and clinical epidemiology of mycobacterial infection, development, and recurrence. Particularly, discoveries of host biomarkers for progression of active disease from latent TB infection and for control of multi-drug resistant TB are important targets.

## Research of human susceptibility genes and molecular pathogenesis of airway infectious/inflammatory diseases

We have been investigating the functional significance of airway defense genes and their polymorphisms. We have identified novel mucin genes on human chromosome 6 and studied genetic polymorphisms associated with functions of ciliated the functional roles of genetic polymorphisms in airway epithelial cells. This will improve the understanding of the pathogenesis of airway infectious/inflammatory diseases.

## Unique strategy of intracellular parasitism of *Mycobacterium tuberculosis*

*Mycobacterium tuberculosis* (Mtb) is an intracellular bacterium that can proliferate within phagocytosed macrophages. Mtb gains this ability by escaping the killing and digesting mechanisms of macrophages. We have examined the unique strategy of its intracellular parasitism by investigating membrane trafficking in infected macrophages.

## Tuberculosis studies in animal models

Mtb can infect not only humans but also animals. Susceptibility to Mtb varies among animals. Histopathology of TB in mice, which are common laboratory animals, has been reported to be different from that in humans. In recent years, mouse models of TB have been developed that may reflect active TB in humans. Using this model mouse, we are studying host and bacterial factors involved in the formation of TB lesions.



Fig.1. Presenting the status of collaborative research on tuberculosis in front of representatives in Hanoi Lung Hospital and District TB centres.

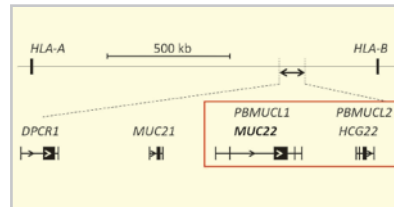


Fig.2. Novel mucin or mucin-like genes, PBMUCL1 (MUC22) and PBMUCL2 located in the candidate region for chronic airway diseases. These genetic polymorphisms might affect human airway defense mechanisms.

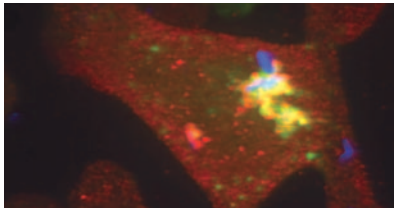


Fig.3. Autophagosome formation around Mtb in macrophages. Coronin-1a is an actin-binding protein in host cells. Knockdown of Coronin-1a leads to autophagosome formation (green and red) around Mtb (blue) in macrophages.



Fig.4. Inside of the ABSL3 laboratory of the animal facility.

# Department of Program Support



## The role

The role of this department is to provide technical assistance to the national tuberculosis programmes (NTPs) at local (city), prefectural, and national levels in implementing TB control programme by providing technical assistance for arising issues such as TB outbreaks; conducting operational research to improve TB control; and training public health officials, health care workers, and administrative officials. The department has three training divisions to fulfill these requirements including one each for medical doctors, public health nurses, and radiological technologists.

## Activities in technical assistance

Our team receives approximately 700 consultations from all over Japan via email and telephone mainly from local NTP staff members and we provide them with technical assistance. The RIT website provides information regarding research, educational materials, and policy documents on TB control including documents on TB in high-risk groups, contact, and outbreak investigations.

## Activities in operational research

We also conduct operational research related to our activities in and outside Japan. The recent research topics include TB outbreak investigations in various settings, the impact of TB emergency declaration on TB epidemiology, positivity of interferon-gamma release assay among Japanese and foreign-born young adults, annual risk of TB infection among young adults in Tokyo, and factors related to participation rates of community volunteers in Lusaka, Zambia.

## Training activities

The RIT has been conducting training for health professionals since its establishment in 1939. Currently, we have two courses for physicians including a public health course and a clinical course. Three types of courses are being held for nurses including one for basic training, one for advanced training, and a two-day refresher-training course. These courses normally include topics such as epidemiology of TB, the current TB control policy in Japan, diagnosis and treatment of TB including TB bacteriology and evaluation of the chest X-ray images, TB contact investigation, and patient support. We also hold regional TB training meetings for the seven national regions and an annual national TB meeting, each for a few days, in which local NTP staff members can participate and update their knowledge.



# Centre for International Cooperation and Global Tuberculosis Information

The Department of International Cooperation was established in 1988 and in 2013 was integrated with the International Tuberculosis Information Centre to establish the Centre for International Cooperation and Global Tuberculosis Information to facilitate comprehensive international cooperation activities. This Centre consists of two divisions (Human Resource Development and Project development). We support international cooperation activities mainly for tuberculosis control in developing countries in cooperation with other departments of the Institute and with the Department of International Programme of Japan Anti-Tuberculosis Association (JATA) headquarters. Our main activities include technical assistance, human resource development, and research for tuberculosis control in developing countries. We also engage in functions of the Tuberculosis information centre and collaboration with other international organizations.

## Technical assistance and research for improving TB control, understanding epidemiology of tuberculosis, and measuring impacts of TB control

The Centre provides technical assistance for improving TB control in developing countries by dispatching TB control experts and providing technical advice. Technical assistance covers a wide range of areas including planning TB control programs and evaluating their impacts. On the country level, we have been providing technical assistance founded by various organizations, such as the Ministry of Health Welfare and Labour, Japan, JICA (Japan International Cooperation Agency), JATA, and USAID supporting projects. Among our various areas of technical assistance and research activities, we currently give priority to technical assistance and research of measuring tuberculosis problems and impacts of TB control programs to contribute to establishing evidence-based TB control programs as well as assessing TB control achievements. As the Global TB Information Centre, we collect and analyze information on TB epidemiology and control programs mainly in Asian countries and publish a newsletter regularly.

## Human Resource Development

Since 1963, we have conducted international training courses for health professionals in developing countries. Currently we conduct two kinds of JICA group-training courses every year; one for TB control program managers and the other for staff of TB laboratories. Other training courses are conducted on request. We also provide training for Japanese who want to engage in international cooperation in the field of tuberculosis control. We celebrated the 50th Anniversary of international training courses in 2012. More than 2500 health professionals from 98 countries have studied at the Institute.

## Collaboration with international organizations

In response to global TB problems, RIT participates in global networks for technical assistance together with other international organizations such as WHO, IUATLD, TBTEAM, and TBCTA. We have participated in development of several international guidelines, technical assistance to other countries, and various research activities with other partners. RIT was designated a WHO Collaborating Centre for Reference, Research, and Training on Tuberculosis in 1982.

# Centre for Japan Pre-Entry Tuberculosis Screening Quality Assessment (cJPQA)

Both the number and proportion of foreign-born persons among total tuberculosis (TB) notifications continue to rise in Japan. Hence, the Ministry of Health, Labour, and Welfare (MOHLW), Japan, has decided to introduce the pre-migration TB screening for individuals arriving from selected countries that contribute to the majority of TB cases among foreign-born persons.

## Our Missions

The cJPQA was established in April 2020 to provide technical assistance to the MOHLW in running the pre-migration TB screening programme. Its main missions are as follows.

- ① To receive and manage the screening results from panel clinics
- ② To audit and monitor the panel clinics and to conduct quality assessment of the screening programme
- ③ To respond to the inquiries regarding the screening programme from both within and outside Japan
- ④ To monitor and evaluate the screening programme, to produce reports and documents, and to share them with related organisations.

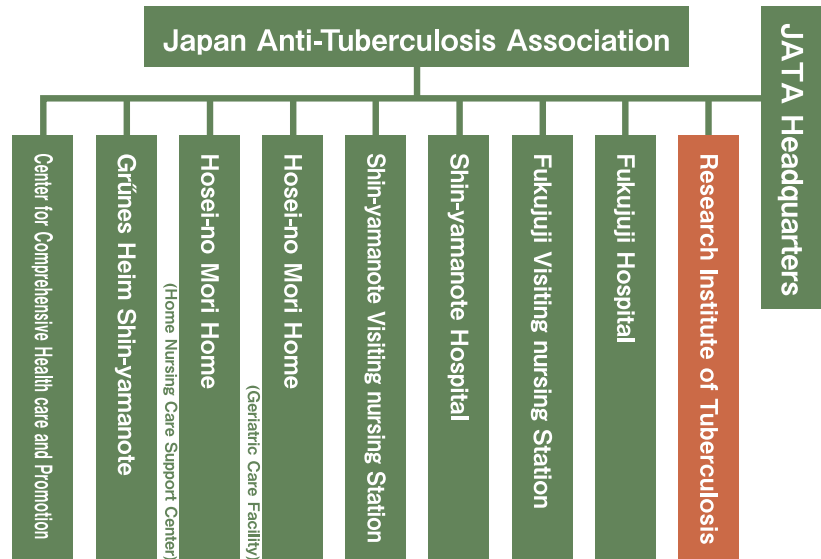


Visiting a potential site for a panel clinic for Japan Pre-Entry TB Screening programme



# Japan Anti-Tuberculosis Association

Japan Anti-Tuberculosis Association (JATA) is a public corporation which was established in May of 1939 by the Cabinet Council, after the then Prime Minister received an official message from Her Imperial Majesty the Empress (currently H.I.M Empress Dowager). JATA had its mission to make every effort to fight against tuberculosis. JATA has been honored with the patronage of H.I.H Princess Kiko Akishino since 1994. Under her honorable guidance and support, JATA has made great efforts to eliminate tuberculosis by conducting activities such as advocacy-communication, fund raising, clinical services, research, surveillance, training, and international cooperation. In recent years, JATA has been expanding its activities by conducting theoretical and clinical research on lung cancer and other respiratory diseases. RIT, as one of the facilities under JATA, conducts research, surveillance, training courses, and international cooperation in tuberculosis control.



## Your donations can make a difference! The Double Barred Cross Seal

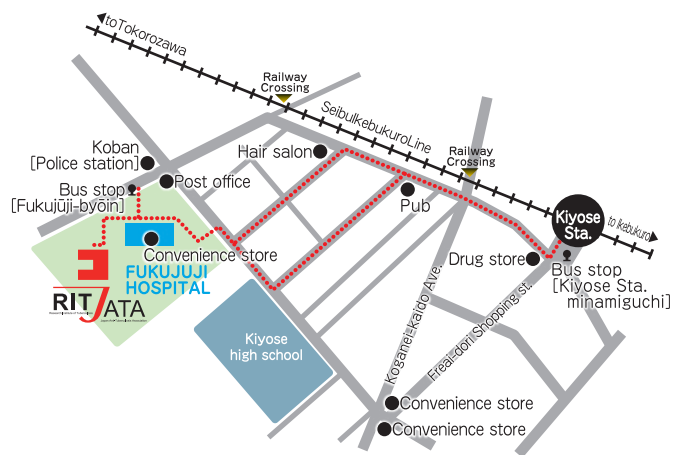
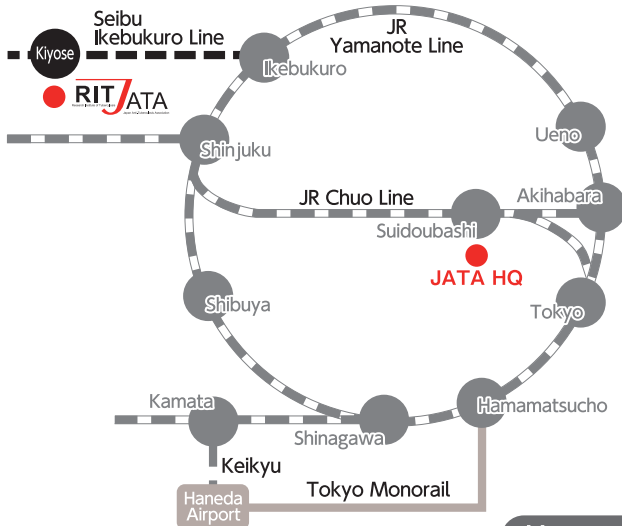


Tuberculosis is not “a disease of the past,” at all. The Double Barred Cross Seal that has helped raise money to control tuberculosis and lung disease is given to those who make a donation to the Japan Anti-TB Association (JATA). JATA is a non-profit organization and has been given tax-exempt status. Those individuals who donate more than 500,000 yen and corporations that donate more than one million yen will be acknowledged by Her Imperial Highness Crown Princess Akishino, Patroness of JATA.

**Contact us**

Fundraising Section  
Japan Anti-TB association  
Telephone: +81-3-3292-9287  
<https://www.jatahq.org/>

## Map of the Research Institute of Tuberculosis (RIT)



### How to get to RIT

● **By Limousine Bus**

Travel from Haneda or Narita Airport to Tokorozawa station. From Tokorozawa station, take the Seibu Ikebukuro line to Kiyose station.

● **By Train**

Take the Seibu Ikebukuro line from Ikebukuro and get off at Kiyose station (about 30 minutes from Ikebukuro). RIT is located at an approximately 15-minute walk from the south exit of Kiyose station. Alternatively, take a number 2 bus from the south exit and get off at the third stop, namely “Fukujuji Byouin”.



the Research Institute of Tuberculosis,  
Japan Anti-Tuberculosis Association

WHO Collaborating Centre

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