

# **AICHI CANCER CENTER**

## **Hospital and Research Institute**



**NAGOYA, JAPAN**  
**2018**



# MISSION

**The mission of Aichi Cancer Center is to provide  
patients suffering from cancer  
with compassionate care and the best treatment based on  
evidence and leading-edge cancer research.**

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# Message from the President

Aichi Cancer Center was established in 1964, as the first comprehensive prefectural cancer center combining a hospital and a research institute. Our Center has devoted long time to promote cancer prevention, diagnosis, treatment and research as one of the leading cancer centers in Japan, with the Cancer Institute and the National Cancer Center. In 2007 our Central Hospital was nominated as a prefectural strategical foothold for cancer treatment. By cooperation with the other 20 local foothold hospitals, any patient at any place in Aichi Prefecture will be able to receive appropriate cancer diagnosis and treatment. In 2012 the Research Institute was evaluated as a highly active, outstanding and international level institute by the external review committee. In 2013 the Chemotherapy Center Building with 60 chairs and beds for outpatient chemotherapy was completed. In 2014 our Central and Aichi Hospitals passed through the newest version of the Hospital Accreditation of Japan Council for Quality Health Care. We also celebrated our 50th anniversary in 2014. In 2015 Aichi Hospital was nominated as a prefectural local strategical foothold.

In the Research Institute, a wide range of cancer research has been conducted, and its activity has contributed significantly to promotion of cancer research in Japan. During the past decade, translational research to apply accomplishments in basic biological research to development of novel techniques for diagnosis, treatment and prevention of cancer have been emphasized, and new molecular diagnosis of hematologic and solid tumors has been applied to patients in this Hospital. Our Center has also provided in-depth training opportunities for new generations of physicians and surgeons specializing in clinical oncology and researchers in this field of cancer research.

Now the baby-boom generation has reached to the range of cancer age, and an aging society will expand the needs for medicine, nursing and hospital beds. In this situation, more efficient use of limited medical resources is essential, and prevention and early detection becomes more and more important since early treatment improves the chance of complete cure. Additionally, promotion of tailor-made treatment and home medical care is required to improve the quality of life of cancer patients. All the staff members of Aichi Cancer Center are always trying to be the best partners for the patients in the fight against cancer with an ultimate goal of the eradication of cancer.



Taira Kinoshita, M.D., Ph.D.  
President, Aichi Cancer Center

## History

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- |               |  |
|---------------|--|
| January 1961  | The Governor of Aichi Prefecture inquired the Aichi Cancer Control Committee as to how prevention and treatment of malignant neoplasms could best be implemented. In June, the Committee answered the Governor's inquiry by stating the necessity of establishing a Comprehensive Cancer Center. |
| December 1964 | Initiation of patient services. The Hospital had 333 beds.   |
| April 1965    | Initiation of research activity at the Research Institute.   |
| March 1968    | Their Imperial Highnesses the Crown Prince and Crown Princess visited the Center.  |
| February 1992 | Completion of the new Hospital building (500 beds).  |
| May 1994      | Completion of the International Conference Center and the new Outpatient Building.   |
| January 2002  | Completion of the new Research Institute Building.   |
| April 2005    | Aichi Prefectural Hospital, Okazaki, joined as a member of this Center, and was named as Aichi Cancer Center Aichi Hospital.   |
| October 2010  | Owari Clinic, Ichinomiya, joined as a member of this Center.   |
| July 2013     | Completion of the Outpatient Chemotherapy Center.  |
| March 2014    | Owari Clinic was closed.   |

## Hospital : Message from the Director

The Aichi Cancer Center Hospital (ACCH) was founded in 1964. Currently we have received over 10,000 patients and have treated 2,600 new patients with malignancies in 8 fields every year. The patients are mainly from Aichi Prefecture (75%), Gifu and Mie Prefectures, and the Chubu (Central Japan) region. From the initial foundation we have focused on giving patients advanced and cutting-edge excellent oncologic treatment related to the Aichi Cancer Institute. We are proud of providing appreciate staging diagnosis, including images, appreciate histological diagnosis, including genetic information, and finally suitable treatment, including chemotherapy, radiologic or endoscopic intervention, surgery, and radiological treatment. All patients are supported by the palliative team and patient safety team from their first visit to hospital.

Recently we have opened additional departments, for example, the Dermatology Section in 2015 and the Department of Neurosurgery in 2016, to adapt to patient demands. To keep in step with the time we have opened some new medical centers. The Outpatient Treatment Center in 2013, the Regional Medical Liaison and Patient Support Center in 2014, the Sarcoma Center for patients with rare malignancies in 2016 and the Precision Medicine Center in 2017 have opened to adapt advanced developments in oncology.

Now we collaborate strongly with the Aichi Research Institute and national medical groups, for example, JCOG (Japanese Clinical Oncology Group) or WJOG (West Japan Oncology Group), et al. Additionally we have performed collaborative research with other international institutes to investigate and develop new treatment and strategy for cancers. We have also started the cancer genomic medicine according to genetic analysis and just prepared the Risk Assessment Center to provide genetic counseling to patients and/or their families in 2018. We are striving to overcome cancer with hospital staff and institute researchers.



Director of the Hospital Yasumasa Niwa

## Research Institute : Message from the Vice Director

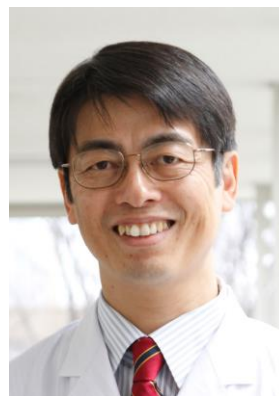
The Aichi Cancer Center Research Institute was established in 1964 and currently consists of eight divisions and one central service unit. For the last decade, we have been intensively engaged in three major fields of oncology: cancer epidemiology and preventive medicine, preclinical research for cancer diagnosis and therapy, and basic research on carcinogenesis, progression/invasion, and metastasis from molecular to in vivo levels.

We are now reorganizing our system to adapt to the rapidly progressing and changing basic and clinical oncology fields in the world. Tightly collaborating with departments in our hospital, we are also changing our institute to be more translational research-oriented. In October 2017, the Cancer Biobank Aichi (CBBA) opened to systematically collect and utilize patients' samples and clinical information from those who visit our center. With strong support from the biobank, we aim to accelerate our research to explore precision cancer medicine, which is based on understanding individual genomic alterations in cancer cells.

Precision cancer prevention is also our long-standing research field, and our achievements, including large cohort studies, have received a high reputation domestically and internationally. In Japan, one in two people are expected to have cancer during their lifetimes, so providing more effective and precise prevention strategies, educational programs, and medical tools is urgently needed.

Beyond the recent break-through of immune checkpoint therapy, cancer immunotherapy is also one of our most focused research fields. With our experience in peptide vaccination to cancer patients, we will further promote this promising approach to prevent and eradicate cancer in a less toxic and more effective manner.

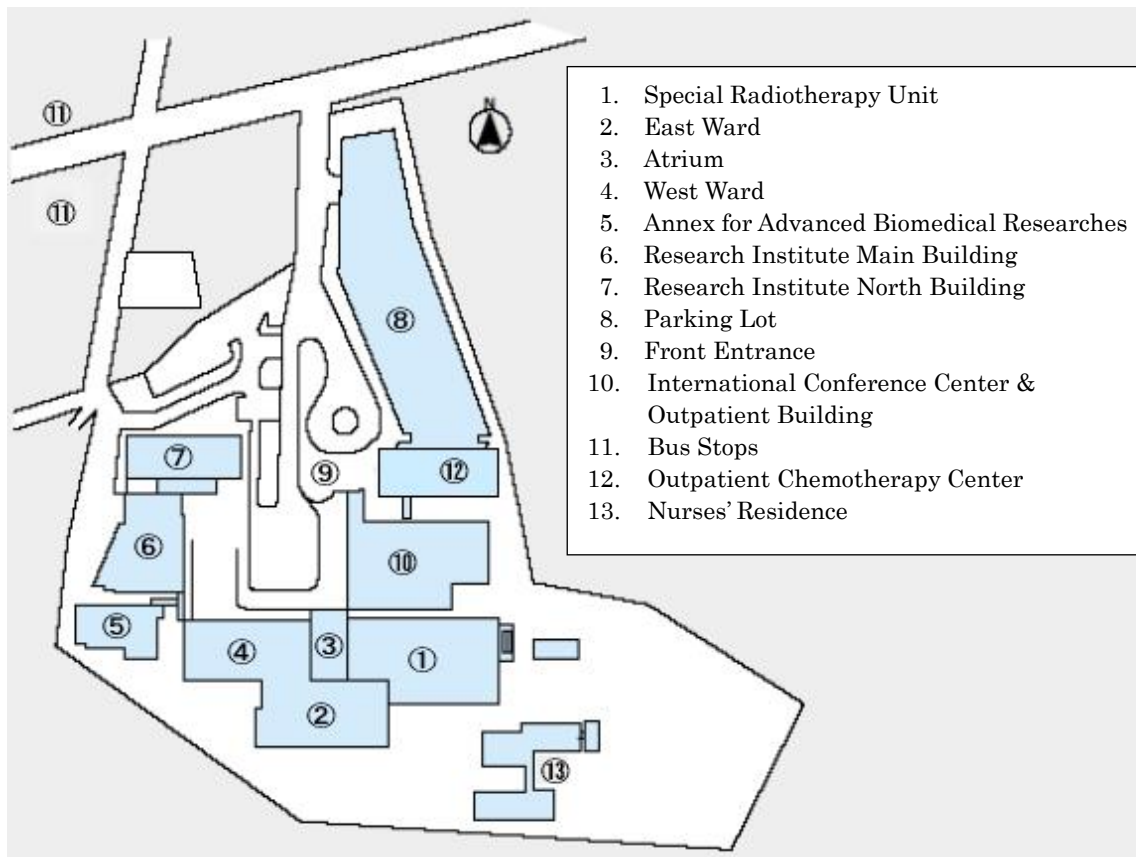
Finally, with interactive efforts with other researchers, physicians, health care professionals, and patient advocacy groups, we hope to provide more innovative and useful knowledge and technologies to prevent, diagnose, and treat cancer, and improve quality of life for cancer patients and their families.



Vice Director of the Research Institute Yoshitaka Sekido

# Facilities

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# Organization

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**President** T. Kinoshita  
**Vice President** T. Takahashi

## Administration Office

Director Division of Management Strategy H. Kawatsu  
T. Goto Division of Administration Y. Kato

## Hospital

Director	Department of Gastroenterology	K. Hara
Y. Niwa	Department of Endoscopy	M. Tajika
	Department of Thoracic Oncology	T. Hida
	Department of Hematology and Cell Therapy	K. Yamamoto
Vice Director	Department of Clinical Oncology	K. Muro
Y. Hasegawa	Department of Clinical Laboratories	Y. Yatabe
	Department of Pathology and Molecular Diagnostics	Y. Yatabe
H. Iwata	Department of Transfusion	K. Yamamoto
	Department of Head and Neck Surgery	Y. Hasegawa
Y. Shimizu	Department of Plastic and Reconstructive Surgery	I. Hyodo
	Department of Thoracic Surgery	Y. Sakao
S. Kameshima	Department of Breast Oncology	H. Iwata
	Department of Gastroenterological Surgery	Y. Shimizu
	Department of Orthopedic Surgery	S. Tsukushi
	Department of Rehabilitation	M. Yoshida
	Department of Urology	N. Soga
	Department of Gynecologic Oncology	M. Mizuno
	Department of Neurosurgery	K. Hattori
	Department of Anesthesiology	J. Nakada
	Department of Intensive Care	K. Hatano
	Department of Diagnostic and Interventional Radiology	Y. Inaba
	Department of Radiation Oncology	T. Kodaira
	Department of Outpatient Service	Y. Horio
	Department of Surgical Center	S. Ito
	Department of Cardiology	K. Hatano
	Department of Palliative Care	S. Shimoyama
	Department of Psycho-Oncology	Y. Komori
	Department of Nursing	S. Kameshima
	Department of Nutritional Management	M. Tajika
	Department of Medical Safety Management	Y. Hasegawa
	Department of Clinical Research	M. Ando
	Department of Medical Record Administration	H. Iwata
	Outpatient Treatment Center	K. Muro
	Precision Medicine Center	Y. Yatabe
	Regional Medical Liaison and Patient Support Center	Y. Horio
	Palliative Care Center	S. Shimoyama
	Sarcoma Center	S. Tsukushi

as of January 1, 2018

## Research Institute

Vice Director      Division of Epidemiology and Prevention  
Y. Sekido            Division of Oncological Pathology  
                          Division of Molecular Oncology  
                          Division of Molecular Medicine  
                          Division of Immunology  
                          Division of Microbiology and Oncology  
                          Division of Molecular Pathology  
                          Division of Biochemistry  
                          Central Service Unit

Y. Sekido  
K. Matsuo  
K. Kuzushima  
C. Oneyama  
M. Aoki  
  
M. Aoki

as of January 1, 2018

# Activities in the Hospital

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## Department of Gastroenterology

The primary concern of our department is to become a professional cancer center. We effort to early detection and precise diagnosis of gastrointestinal and pancreatobiliary malignancies. Also, we implement effective endoscopic treatment for these malignancies with prominent skill. In addition, not only clinical chemotherapeutic treatment for unresectable cancers in digestive organs, but also we are conducting clinical and molecular trial studies for gastrointestinal cancer, especially pancreatobiliary cancer. In the meanwhile, we are distributing the information about knowledge of new treatments and diagnostic techniques of gastrointestinal and pancreatobiliary cancer to our communities and we are also constantly improving the scope and quality of care offered to patients. In 2017, we performed more than 420 ERCPs and 44 duodenal stentings. And we performed more than 1200 EUS including 441 EUS-FNA procedures and 73 EUS-guided therapy. In addition to skillful endoscopic procedures, we also performed chemotherapy and chemoradiation therapy for 200 patients with pancreatobiliary malignancies. We thus play an important role in the process of GI tract and pancreatobiliary cancer diagnosis and treatment strategy. Currently, we have training program for Japanese physicians and international physicians in advanced endoscopy included ERCP and EUS. So, the trainees who accomplished the training program can become competent in advance endoscopic skill, and enhancing their institute' s capability in EUS and ERCP field for both service and research areas. In the future, we expect to expand our capability of care the cancer patient, thus we need to continue make more efforts to improve our practice and research outcome and contribute to our society not only in Japan but also all over the world.

## Department of Endoscopy

Gastrointestinal endoscopy is an essential part of modern clinical gastroenterology, and our department plays an important role in the diagnosis and treatment of patients with diverse gastrointestinal (GI) diseases. Diagnostic endoscopy includes gastro-duodenoscopy, colonoscopy, and endoscopic ultrasonography (EUS). Therapeutic endoscopy includes balloon dilation for the stenosis, polypectomy, endoscopic mucosal resection (EMR), and endoscopic submucosal dissection (ESD). For the precise diagnosis of tumor borders and depth of invasion of superficial GI tract malignancies, we use narrow band imaging (NBI), Blue LASER Imaging (BLI), and magnification endoscopy. In 2017, we performed more than 6,300 EGD, 2,700 colonoscopies, 190 balloon dilations of operated esophagus, 360 polypectomies and EMRs, and 200 ESD procedures, for tumors in the esophagus, stomach, and colo-rectum. Recently, we started the double-balloon enteroscopy for the fine examination of small intestinal disease. Furthermore, double-balloon endoscopy is useful for ERCP in patients with Roux-en-Y anastomosis and Billroth II gastrectomy and for patients after incomplete conventional colonoscopy. In collaboration with the Department of Head and Neck Surgery, we treated 2 patients with the superficial hypo laryngeal cancer using endoscopic laryngo-pharyngeal surgery (ELPS). In addition to endoscopic procedures, we also perform chemotherapy and chemoradiation therapy for the patients with GI tract malignancies such as esophageal cancer, gastric cancer, and colo-rectal cancer. We thus play an important role in the process of disease diagnosis and the patient's treatment strategy.

## Department of Thoracic Oncology

The particular goals of our department are to provide the highest quality of care to our patients and to advance the treatment of lung cancer, mediastinal tumor and mesothelioma through innovative clinical and laboratory research. The most important clinically relevant advances were the discovery of driver oncogenes that are constitutively activated by mutation, translocation or fusion, and the discovery that oral small molecule tyrosine kinase inhibitors (TKIs) of these oncogenes produce high response rates and relatively long duration of these responses. Patients with EGFR activating mutations, ALK fusions or ROSI fusions receive a TKI due to superior progression-free survival whereas chemotherapy is superior if no mutation is present. Additional potential drivers in patients with lung cancer have been found in adenocarcinomas including mutations in KRAS, BRAF, HER2, MET, and fusions involving the RET and NTRK1 rearrangements. Recent studies indicated that monoclonal antibodies to antigens involved in immune checkpoints were useful for lung cancer. Antibodies to the programmed cell death protein 1 (PD-1) or programmed cell death protein ligand 1



(PD-L1) called nivolumab, pembrolizumab, and atezolizumab have been shown to produce responses in lung cancer. We discuss diagnosis and treatment options for patients with thoracic malignancies at chest conferences every Monday evening with thoracic surgeons, pathologists, and radiation oncologists. Clinical trials are based on work with the Japanese Clinical Oncology Group (JCOG) and the West Japan Oncology Group (WJOG), some being carried out under contract with pharmaceutical companies.

### **Department of Hematology and Cell Therapy**

The Department of Hematology and Cell Therapy provides the diagnosis and the treatment of hematological malignancies (leukemia, lymphoma, and myeloma). About 100 new patients per year are treated. For high risk or relapsed patients, high dose chemo (radio) therapy with stem cell transplantation (allogeneic stem cell transplantation from unrelated or related donors and autologous peripheral blood stem cell transplantation) are extensively applied. We focus on clinical trials for the development of more effective treatment and new anti-cancer drugs. Research on diagnosis, clinicopathological feature and treatment of hematological malignancies is also carried out in collaboration with experts in the Department of Pathology and Molecular Diagnostics in the Hospital and the Aichi Cancer Center Research Institute.

### **Department of Clinical Oncology**

The clinical subjects treated in the Department of Clinical Oncology are mainly cases of gastrointestinal cancer such as esophageal, gastric, and colorectal cancer, but we also treat patients with other carcinoma of unknown primary (CUP), germ cell tumor (GCT), head & neck cancer, breast cancer, sarcoma and so on. Although it has been thought efficacy of chemotherapy against gastrointestinal cancers is insufficient, we are trying to investigate and establish new strategies of chemotherapy or chemoradiotherapy. We treat many patients practically (100 patients at out-patient clinic in a day, about 60-70 hospitalized patients, and the average hospital stay is 11 days) and participate in various clinical studies to develop a new or standard treatment prospectively. The most appropriate treatment for all patients is determined in case conferences consisting of medical, surgical, radiation oncologists, and diagnostic radiologists.

### **Department of Clinical Laboratories**

The Department of Clinical Laboratories is committed to provide a wide range of diagnostic laboratory services for hospital inpatients and also to a large number of outpatients. The clinical laboratories are divided into several major sections: biochemistry, hematology, microbiology, molecular diagnostics and cytopathology, as well as functional tests, such as electrocardiography, diagnostic ultrasonography, and respiratory examination. The mission of our department is to provide reliable, timely, and informative services through physicians for the benefit of the patient. To achieve this mission, we also try to develop and improve laboratory technology and services through applied research.

#### **[Major equipment for testing]**

Flow cytometer:

FACScanto II, Becton Dickinson

Hematology analyzer:

XN-3000 + D 160 , Sysmex

Automatic enzyme immunoassay system:

ARCHITECT i2000SR, Abbott Laboratories,

And LUMIPULSE Presto II , Fujirebio

Automatic chemical analysis system:

LABOSPEC T008, Hitachi

DNA sequencer:

Genetic Analyzer 3500, Applied Biosystems

Liquid-based cytology system:

PrepsStain Slide Processor for Sure Path, Becton Dickinson

Next generation sequencer:

Ion S5 Sequencing System, Thermofisher



## Department of Pathology and Molecular Diagnostics

The Department of Pathology and Molecular Diagnostics aims to achieve the highest standards in clinical practice and research. The department provides three major services, including pathologic, cytologic and molecular diagnosis, in a wide variety of areas, with the most modern available technologies and highly trained faculties who are recognized nationally and internationally for their expertise. The department recognizes the critical role of pathology as a discipline that touches all of medicine and research, and our goal is to foster collaborative



study to develop novel therapeutic strategies in cooperation with members of Aichi Cancer Research Institute and throughout the world. In 2017, personalized medicine using next generation sequencing technique, was introduced into clinical practice, and the Precision Medicine Initiative program was started. We provide practical information for patients' treatment of choice, such as *EGFR*, *KRAS*, *ROS1* and *ALK* alterations in lung cancer, *HER2* amplification in breast and gastric cancer, *KRAS* mutation in pancreatic cancer, and many gene alternations of soft tissue sarcoma. We also collaboratively work with domestic clinical study groups, such as JCOG (Japan Clinical Oncology Group) and WJOG (West Japan Oncology Group), as well as international collaborators.

## Department of Transfusion

The mission of our department is quality control and education regarding transfusion of blood cell components and the testing of blood compatibility for transfusion and transplantation. Peripheral blood stem cells for allogeneic or autologous transplantation and cell therapy are extensively harvested and preserved in our Department.

## Department of Head and Neck Surgery

Head and neck cancers include epithelial malignancies of the upper aerodigestive tract and glandular neoplasms of salivary and thyroid origin. Treatment of head and neck cancer involves not only issues of survival, but also concerns about preserving forms and functions such as speaking and swallowing. To meet these diverse needs, our department cooperates with various medical professionals, including specialists in plastic surgical reconstruction, radiation oncology, medical oncology, neurosurgery, maxillofacial surgery, and swallowing and voice therapy. Our research focuses on chemosensitivity and molecular targeting, voice restoration and preservation, and sentinel node navigation surgery, all of which have significant potential to improve control of disease, while maintaining patient quality of life.

## Department of Plastic and Reconstructive Surgery

Plastic surgery concerns the correction or restoration of form and function. Our department specializes in the treatment of reconstructive surgery after cancer ablation. We aim to recover or maintain patient's quality of life. We think the purpose of head and neck reconstruction is optimization of function and low morbidity. In order to accomplish this, we select proper free flap and perform secure microsurgical technique. Breast reconstruction involves the use of implants or autogenous tissue. We actively perform muscle sparing transverse rectus abdominis myocutaneous flap or deep inferior epigastric perforator flap to reduce donor site morbidity.

## Department of Thoracic Surgery

We serve patients with thoracic malignancies including primary lung cancers, metastatic lung tumors, and mediastinal tumors. About 300 patients with primary lung cancer are operated on annually. Recently, Video-Assisted Thoracoscopic Surgery (VATS) is routinely applied for early stage lung cancer as a standard radical surgery. However, patients with lung cancer sometimes recur even after complete resection. To improve treatment outcomes, multi-disciplinary strategies combining surgery with chemo- and/or radiotherapy are sought in collaboration with the Departments of Thoracic Oncology, Radiation Oncology, and Pathology and Molecular Diagnostics. We are also active in clinical trials as a member of collaborative oncology groups such as JCOG (Japan Clinical Oncology Group) and WJOG (West Japan Oncology Group). The research programs in our Department include development of individualized therapy of lung cancer through molecular analysis of the resected tumor specimens to maximize treatment effect while minimizing adverse reaction to the therapy. We have been interested in clinical application of mutational analysis of the driver oncogenes such as

epidermal growth factor receptor (EGFR) gene or ALK gene to individualize treatment in order to obtain maximal benefit with minimal toxicities.

### **Department of Breast Oncology**

Our department is in charge of total breast care from diagnosis to treatment including surgery, systemic therapy, and palliative care in our hospital. Many primary and metastatic breast cancer patients were treated in the outpatient office and inpatients' ward. About 450 patients had a primary operation performed last year.

We make efforts to diagnose early using special technologies such as vacuum-assisted core needle biopsy (Mammotome) and MRI for breast cancer without mass. Sentinel node navigation surgery using combination methods with radioisotope and dye has been the standard treatment for early breast cancer without lymph node metastasis for 15 years. We already experienced more than 4,000 patients treated with sentinel node biopsy (SLNB). Currently, we are challenging the re-SLNB for breast cancer patients with local recurrence at conservative breast and SLNB after neoadjuvant chemotherapy for primary breast cancer patients. Furthermore, immediate reconstruction (Expander or TRAM flap or other methods) has been an option in standard treatment for early breast cancer with wide ductal spread. More than 40% patients who underwent a mastectomy chose immediate reconstruction last year. Patients can choose the surgical procedure according to cancer condition and patient's preference.

We perform systemic therapies such as neoadjuvant and adjuvant treatment for early breast cancer patients based on global guidelines and the consensus of specialists obtained by multidisciplinary conference in our hospital. Current data shows excellent results in our hospital. Disease-free survival rate is 98.6% for early breast cancer patients without lymph node metastasis (median follow-up : 5.6 years).

However, unfortunately some patients experience distant metastases to the liver, lung, bone, or other organs. The aim of treatment for metastatic breast cancer is long survival with good quality of life. We make an effort to choose the best selection among many drugs according to cancer condition, molecular subtype and patient's preference. For that reason, we attend many clinical trials including global registration studies. We can use new drugs without approval by health insurance for some eligible patients. We strive to improve the outcome of primary and metastatic breast cancer patients with seven staff, several residents and all co-medical specialists in our hospital.

### **Department of Gastroenterological Surgery**

Our department consists of four groups, and each group has experts of surgical oncology.

The Esophageal Surgery Group performs approximately 75 operations per year. For the complete cure of locally advanced esophageal cancer, we combine esophagectomy with pre-operative chemotherapy in a safe manner. The Gastric Surgery Group deals with 220 new patients every year and actively participates in national clinical studies to establish and revise standard treatments for gastric malignancies. Also we strive to offer minimally invasive surgery.

Likewise, the Colorectal Surgery Group annually operates on about 350 cases. We perform not only laparoscopic resection for early stage cancer, but also extend resection for advanced or locally recurrent colorectal cancer. More than 180 operations are performed by the Hepatobiliary and Pancreatic Surgery Group every year. We make every effort to improve the outcome of liver, bile duct, and pancreas cancer. Especially, the treatment results of pancreatic cancer and liver metastasis from colorectal cancer are outstanding.

### **Department of Orthopedic Surgery**

We specialize in the diagnosis and treatment of bone and soft tissue sarcomas as well as metastatic bone tumors. Malignant bone and soft tissue tumors are aggressive tumors, and it is important to remove them widely in order to prevent further local recurrences. The recurrence rate is less than 9% in our department. 5-year overall survival rates of soft tissue sarcoma are 100% in stage I, 100% in stage II, 73.3% in stage III, and 0% in stage IV. Those of bone sarcoma are 100% in stage I, 88.2% in stage II, 66.7% in stage III, and 12.5% in stage IV. Moreover, we provide dose intensive treatment for patients with osteosarcomas, Ewing's sarcomas or rhabdomyosarcomas with a good survival rate.

## **Department of Rehabilitation**

The Department of Rehabilitation currently operates with three full-time physical therapists, one occupational therapist and one full-time speech-language-hearing therapist. We tailor therapy to each patient's condition and aim for recovery of ADL function and the function of postoperative patients. To this end, we proactively perform cancer rehabilitation aimed at post-discharge recuperation, as well as maintenance and improvement of patient quality of life (QOL). With respect to points of concern for patients in each clinical department, a joint rehabilitation conference is held with rehabilitation staff, ward nurses, post-discharge coordination staff, and the palliative care team, during which issues concerning each patient's rehabilitation are discussed and rehabilitation goals are unified.

## **Department of Urology**

We are specialized for diagnosis and treatment of cancers of the genitourinary and male reproductive system, encompassing the kidney, adrenal glands, bladder, prostate and testes. With the definite increase of aged population in Japan, we are especially interested in early diagnosis and QOL-oriented treatment of prostate and bladder cancers. Basic research is focused on the regulatory mechanisms of abnormal prostatic growth and molecular diagnosis of bladder cancer.

## **Department of Gynecologic Oncology**

Our Department is the most comprehensive gynecologic oncology center in the Tokai area. We perform approximately 140 major operations on new patients with gynecologic malignancies every year. We are committed to offering high standard options in technology and treatments for patients with gynecologic malignancies of the uterine cervix and endometrium, ovary and vulva. In addition to the decision to undergo surgery, patients can choose traditional or minimally invasive surgical treatments: for example, laparoscopic surgery for early endometrial carcinoma, tracheleromy for early cervical cancer, and robotic assisted surgery for early cervical cancer. Comprehensive surgery is followed by adjuvant therapy such as chemotherapy or radiation to improve the prognosis for patients with recurrence risk factors. For advanced cervical cancer, chemo-radiation therapy is ongoing in partnership with the Department of Radiation Oncology. In the treatment of the recurrent cancer, we perform chemotherapy, radiotherapy, or drug clinical trials for disease control and palliation. We also perform the total pelvic extirpation for recurrent cancer if appropriate. To improve the treatment for gynecologic cancer, the research program in our department emphasizes three major areas: (1) molecular analysis of mechanisms of progression of CIN lesions; (2) presentation of optimal combination chemotherapy and salvage chemotherapy for chemoresistant ovarian cancer; (3) treatment of hereditary cancer such as HBOC or Lynch syndrome. Women with BRCA1 and BRCA2 mutations can undergo risk reducing salpingo-oophorectomy (RRSO) as a clinical trial.

## **Department of Neurosurgery**

The Department of Neurosurgery, established in 2016, has a very short history. Although many patients with cancer suffered from involvement of the central nervous system such as brain metastasis, our Center was not able to provide sufficient neurosurgical service. However, now we are developing neurosurgical apparatus, staff and an environment in the Center to provide adequate service for those patients who have brain metastasis for good quality of life. We will also treat primary brain tumors including benign ones in the near future.

## **Department of Anesthesiology**

More than 3,000 operations for various kinds of malignant disease are performed annually. We are responsible for perioperative management of these patients in the OR as well as in the ICU. Another important task is to treat cancer patients with acute and chronic pain, alleviation of which is essential for maintaining quality of life.

## **Department of Intensive Care**

The Department of Intensive Care at our center was established in April 2009. The Unit is now a 21 bed, state-of-the-art facility in the 4th East Ward of the hospital, including 4 beds in the intensive care unit (ICU) and 17 beds in the high care unit (HCU). Our medical system manages 24-hour acute dysfunction in patients with respiratory, circulatory, or metabolic disease. Especially, a respiratory

support team (RST) composed of physician and special co-medical staff has been organized to achieve the optimal results for patients with respirators in April 2011. RST assists in making decisions regarding long-term respiratory management. Our medical staff is aiming to achieve zero mortality rate in the ICU and HCU.

### **Department of Diagnostic and Interventional Radiology**

Our department has major responsibilities in imaging diagnoses and image guided percutaneous treatments. Current diagnostic systems such as CT, MRI, US, mammography and unified CT/angiography (Interventional CT system) provide high diagnostic quality. Concerning image guided percutaneous treatments, we perform all kinds of interventions involving biopsy, drainage, embolization, ablation, and regional chemotherapy for better management of cancer patients. Especially, we have introduced many techniques and regimens in the treatment of hepatic cancer.

### **Department of Radiation Oncology**

We have three linear accelerators (linac), 192Iridium high dose rate remote-after-loading system (RALS), and low dose rate radiation sources (125I) for a brachytherapy treatment. Features of our Department are conformal radiotherapy as an external beam therapy, chemoradiotherapy. The conformal radiotherapy developed by ex-President Dr. Takahashi was a first in the world and has been used in many cases for radical treatment. Chemoradiotherapy is being applied for most cases of locally advanced head and neck cancer, cervical cancer and esophageal cancer. Alternating chemotherapy (5FU and Nedaplatin or Cisplatin) and radiation therapy is standard therapy for locally advanced cervical cancer. The definitive radiotherapy for head and neck cancer or prostate cancer is a modern type of IMRT by helical tomotherapy or volumetric modulated arc therapy (VMAT), supported with image-guided radiotherapy (IGRT).

### **Department of Outpatient Service**

Our Department is responsible for maintaining high quality and efficient outpatient services and provides comprehensive and specified medical care services, including radiation treatment, diagnostic imaging, infusion therapy, cancer specific clinics and support services. In addition, there are a number of designated services including diabetic clinic and genetic counseling. Sections of Ophthalmology and Dermatology have been assigned to the Department of Outpatient services.

The Section of Ophthalmology is committed to treatment of ocular, orbital and ocular adnexal malignancies, as well as providing comprehensive ophthalmic care for cancer patients in cooperation with Nagoya University Hospital and Nagoya Medical Center. The Ophthalmology clinic is open every Friday.

The Section of Dermatology provides clinical services for the diagnostic evaluation of skin cancer and interdisciplinary management of various diseases affecting skin and connective tissues. The Dermatology clinic is open every weekday except Friday. Patients with skin cancer are treated in close collaboration with tertiary care hospitals, such as Nagoya University Hospital.

### **Department of Surgical Center**

The mission of our department is linkage and coordination among various surgical departments. Actual operations are conducted through cooperation among the staff of the Department of Anesthesiology and of various sections of surgery, and nurses working in the operating rooms. Our department has multiple operating rooms where various endoscopic surgeries, intraoperative radiation therapy, and sentinel navigation surgeries can be performed. The number of surgeries has been increasing yearly and we perform about 3,000 surgeries per year.

### **Department of Cardiology**

There are many cancer patients with heart troubles. Many heart diseases are life-threatening, and heart diseases associated with cancer are special and complicated. Therefore, in patients with cancer, medical treatment of heart disease is very important but very difficult. Our department is responsible for solutions to heart problems related to cancer by superior cardiological skills.

Furthermore, this department performs cancer therapy via Kampo medicine (Japanese oriental herbal medicine). It has become clear, recently, that treatment with Kampo medicine is very useful for cancer therapy. There are many Kampo drugs with anti-cancer activity such as Juzen-taiho-to, Ninjin-youei-to, Hochu-ekki-to, Kaiji, and Hange-shashin-to. These drugs are very effective to cancer therapy. However, Kampo medicine can be very dangerous in cancer therapy, because the

misuse of Kampo drugs exacerbates the cancer. Therefore, Kampo medicine for cancer therapy must be made by expert medical doctor with the correct knowledge of Kampo medicine. Our department has 25 years therapeutic experience and a wealth of knowledge concerning Kampo medicine as anti-cancer therapy.

### **Department of Palliative Care**

Our Department assists cancer patients and their family suffering from various types of physical, psychological, social and spiritual pain so as to enable them to cope successfully with their illness. Our most important mission is to help maintain the quality of life and daily functions of patients and their family as much as possible. Though we do not have a palliative care ward (so-called hospice ward) at Aichi Cancer Center Hospital, all the staff are united in carrying out the palliative care program led by the Palliative Care Team to support patients and their family who live their lives as true to themselves as possible. A psycho-oncologist joined our department in April 2006 to provide in-depth counseling and support aimed at relieving patients' anxiety, depression, delirium, and so on. In July 2012, a palliative care doctor joined in full time to deal with patients total pain (physical, psychological, social and spiritual pain) more systemically. We believe that the hopes of patients and their families take priority over all other things. In April 2014, the Palliative Care Center was established in our hospital. This Center integrates the Palliative Care Team, palliative care outpatients and functions for regional palliative care collaboration. We not only advise patients about options such as home care and admission to a hospice, but also offer counseling related to financial problems and interpersonal relationship issues.

### **Department of Psycho-Oncology**

Although Psycho-Oncology division had been included in the Department of Palliative Care since 2006, it became independent of it in 2017. The psychiatrist as a member of Palliative Care Team/Palliative Care Center provides the care/treatment for Total Pain. The illness of the patients is varied from the organic/functional disease (delirium, dementia, and depression) to the psycho-social problem (adjustment disorder, alcoholic problem, etc.) The works features the Narrative Therapy, Dignity Therapy, and Cancer/Family Education (Graphic Medicine) in addition to the general Bio-Psycho-Social Approach.

### **Department of Nursing**

Our Department is dedicated to providing a cancer-nursing service with the highest possible level of quality based on the mission of the Aichi Cancer Center. Through the collaboration of physicians and other medical staff, we help patients to cope with cancer and increase their quality of life. Although the duration of time of living with cancer can vary depending on the cancer type, we continue to make every effort to support patients and their families at any stage of the disease.

### **Department of Pharmacy**

Our Department is dedicated to providing high quality pharmacy services that result in optimal medication. We also provide admixture of anti-cancer drugs for patients undergoing chemotherapy. Our pharmacists provide to take medicine guidance to inpatients in wards, where we work closely with physicians and nurses to prevent, identify and resolve medication-related problems. Our Department is also responsible for providing drug information that facilitates optimal and safe drug use.

### **Department of Nutritional Management**

There are many patients who think meals are the most pleasant events in their hospital life. We serve meals and play a role in nutritional management for patients. Clinical dietitians, together with licensed cooks, work hard to prepare appropriate meals for their condition. Furthermore, we give nutritional advice and instruction for both inpatients and outpatients.

### **Department of Medical Safety Management**

The Department of Medical Safety Management is composed of three sections involved in patient safety.

Section of Medical Safety Management: Our mission is reducing medical errors in our hospital. All of the section members strive to attain and maintain the safe and comfortable environment of our

hospital. To improve our medical care, we offer educational programs to reduce medical errors.

**Infection Control Management Section:** We are working to control various infectious diseases and to maintain the quality of medical treatment. Our main objective is the prevention of nosocomial infection and the control of multidrug-resistant bacteria such as MRSA. We consistently monitor the frequency of detection of multidrug-resistant bacteria so as to take proper measures against outbreaks.

**Medical Electronics Maintenance Section:** Medical electronics (ME) equipment is a part of modern medical advancement, and has applications in every area of medical specialization. We aim to ensure the security of our ME equipment inside the hospital and to keep it in reasonable operating condition.

### **Department of Clinical Research**

The Department of Clinical Research at Aichi Cancer Center Hospital supports industry-sponsored, cooperative group, and investigator-initiated clinical trials in accordance with the Good Clinical Practice (GCP) and clinical research guidelines in Japan. This department consists of three branches (Center of Support for Clinical Trial under the Japanese GCP to support industry- or investigator-initiated trials for investigational new drug (IND) or medical device), Center of Support for Clinical Trial under the Japanese Guideline for Clinical Research, and Center of Clinical Trials Management). The Department conducts operational activities including registration of application forms, management of essential documents, preparation for source data verification by monitors, preparation for audits, management of hospital charges for study participants, accounting, preparation for the Institutional Review Board (IRB), etc. Clinical Research Coordinator (CRC) assists investigators to facilitate clinical trials and provides consultative support to study participants. In 2017, 165 industry- or investigator- initiated trials for IND and 120 cooperative group and investigator-initiated clinical trials have been supported.

### **Outpatient Treatment Center**

The Outpatient Treatment Center is committed to provide infusional chemotherapy or oral anticancer agents against all kinds of cancers for a large number of outpatients. On July 1st 2013, we established a new "Outpatient Treatment Center" for increasing patients year by year who are undergoing chemotherapy as outpatient care with confidence in the comfortable environment utilizing the natural light and warmth of wood. Our Outpatient Treatment Center have 60 beds and reclining chairs which are largest in Japan, and also have full-time professional medical staffs such as doctors, nurses, and pharmacists to be able to offer highly safe treatment with high quality. In 2017, we have treated 25,598 patients, and 104 patients as the average of a day.



## Precision Medicine Center

It is now possible to obtain whole genome sequences of cancer, and the genetic status of individual cancers becomes an important information to determine the therapeutic strategy in clinical practice. Accordingly, Aichi Cancer Center has started a new program for precision medicine in 2017 to utilize the cancer genomics for clinical practice. The program is being conducted in close collaboration with the Department of Pathology and Molecular Diagnostics. Currently, lung and colorectal cancer patients are analyzed with cancer panels using Ion Torrent S5, and the number of analyses had surpassed more than 1,000 as of December 2017.

## Regional Medical Liaison and Patient Support Center

The Center is located on the 2nd floor of the Outpatient Building and is open Monday - Friday 9:00 am - 4:00 pm. This center provides regional medical liaison services and patient support services. Newly diagnosed patients have lots of questions and concerns: Should I tell my family about my cancer? How do I choose treatment for my cancer? How much does treatment cost? To provide patients with the fullest support, knowledgeable staff including social workers in the Patient Support Services Department provide an opportunity in a confidential setting to respond to questions, concerns and complaints from patients and families or to seek resolution. They also provide information about resources and services, including financial support programs, community support programs and hospice care, available to patients and families, as well as education about patient rights and responsibilities. In addition, they collaborate with clinical staff to provide cancer patients, caregivers and the general public with accurate, reliable information to help them make intelligent decisions about cancer care. Regional Medical Liaison Department provides pre- and post-hospitalization support. As a pre-hospitalization support, we provide medical referral assistance services. Through this medical acceptance process, referring physicians can smoothly obtain appointments for patients. As post-hospitalization support, we provide medical referral services as well as coordinate with the local attending doctor to arrange a return to home or to another community care setting when inpatients are discharged.

## Palliative Care Center

Our Center, newly opened in April 2014, is located in just the center of the outpatient clinic. All the staff of this center (nurse, pharmacist, social worker, registered dietitian, doctor, etc.) specializes in palliative care. We assist cancer patients suffering from total pain (physical, psychological, social and spiritual pain) so as to enable them to cope successfully with their illness. Though we do not have a hospice ward at Aichi Cancer Center Hospital, all the staff are united in carrying out the palliative care program. We not only advise patients about options such as supportive care during anticancer treatment, home care and admission to a palliative care unit, but also offer counseling related to financial problems and interpersonal relationship issues.





## Sarcoma Center

Sarcoma is one type of cancer that arises in the connective tissue of the body including bone, muscle, nerve, blood vessel, and fat. Compared to the major cancers (gastric cancer, lung cancer, colon cancer, breast cancer, liver cancer) it is a rare cancer with an extremely low incidence. Because of its rarity, experts of sarcoma are extremely few, interfering with its diagnosis at most institutions to such an extent that sarcoma has come to be referred to as 'THE FORGOTTEN CANCER'. For the optimal treatment of sarcomas a multidisciplinary approach at specialized institutions is essential, and it is considered desirable that patients be concentrated and treated at such specialized institutions. Against this background in October 2016 we established the first Sarcoma Center in the Chubu region of Japan.

At our hospital centered on the Department of Orthopedic Surgery, we are engaged in the care of numerous sarcoma patients from throughout the central Japan region, and offer a team of professionals with extensive experience in sarcoma management, consisting of orthopedic surgeons, medical oncologists, pathologists, radiologists and reconstructive surgeons, being one of the very few such institutions in Japan. Since sarcomas are not limited to the extremities but can also arise at any other site in the body including the head and neck region, trunk and retroperitoneum, we often hear of patients being baffled as to the hospital department they should report to, namely orthopedic surgery, dermatology, general surgery, plastic surgery, urology, gynecology and so on. As a result of this confusion, not a few patients finally end up at our hospital without a proper diagnosis having been made, despite having consulted multiple medical institutions and multiple hospital departments. Our mission therefore is to make it possible for this kind of patient to be seen immediately and benefit from multidisciplinary therapy in our center without hesitation or anxiety. To this end we closely collaborate with multiple hospital departments to be able to provide the most up-to-date team medicine for all sarcoma patients wherever they may be from diagnosis to treatment. Furthermore, we participate in clinical research with other institutions specializing in sarcoma throughout Japan, and are active in the establishment of standard therapies and the devising of novel ones.



# Activities in the Research Institute

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## **Division of Epidemiology and Prevention**

We aim to provide a basis for planning, provision and evaluation of cancer control and for evaluation of quality of medical care, and to suggest areas that may be fruitful for further investigation using data from population-based cancer registries in Japan and the world. In addition, it has been supporting the Aichi Cancer Registry for the improvement of data quality in collaboration with the Department of Health and Welfare, Aichi Prefectural Government.

## **Division of Molecular Oncology**

Our goal is to determine the genetic lesions giving rise to human solid cancers and use this information for prevention, diagnosis, and treatment of these diseases. Currently, we are focusing on malignant mesothelioma. These studies also provide an opportunity to dissect biochemical and pathological pathways of malignant phenotypes including dysregulated cell growth, differentiation, invasion, and metastasis. Human cancers arise because of genetic mutations in oncogenes and tumor suppressor genes, and so we are studying candidate genes, conducting systematic molecular analyses of biochemical pathways, and pursuing global approaches such as next-generation sequencing technologies. Epigenetic changes with DNA methylation and histone modification also identify this as an important mechanism of inactivation of tumor suppressor genes.

Understanding the functions of the genes mutated and the signaling pathways disrupted will provide a foundation for a translational research approach to human malignancies from bench to bedside.

## **Division of Molecular Medicine**

Research in this laboratory is focused on elucidating genetic and molecular bases of human cancer in conjunction with environmental exposures, with a view to applying the obtained knowledge to clinical oncology and prevention. Currently we are working on two aspects: (1) molecular epidemiology of cancer and its application in clinical oncology and prevention, and (2) molecular biology on hematological malignancies, with physicians/researchers within and outside Aichi Cancer Center. Specifically, the first aspect is challenged by (1) elucidating new gene-environment interactions between genetic background and environmental factors, (2) development of risk prediction models integrating genetic and environment factors, and (3) development of application of developed models in pre- and post-clinical setting. The latter aspect is challenged by elucidation of biological and clinical significance of genetic alteration including chromosomal translocation and genomic amplification/loss in hematological malignancies.

## **Division of Immunology**

Cytotoxic T lymphocytes (CTLs) play a central role in cancer immunity, recognizing target antigens expressed on cancer cell surface via T cell receptors (TCRs). TCR binds to its cognate peptide antigen presented on major histocompatibility complex (MHC) molecules on the target surface. Though administration of immune checkpoint inhibitors has brought one of the most remarkable advances in cancer therapy history, a substantial number of patients still await additional or alternative treatments.

We have been pursuing identification of target proteins and epitopes recognized by cytotoxic T lymphocytes (CTL) specific to tumor-associated, minor histocompatibility or viral antigens. The object of our research is to establish molecular and cellular bases for novel cancer therapy taking advantage of updated knowledge of immune responses. Recent activities also include elucidation of the intracellular processing pathway to yield such CTL epitopes.

Notably, we are now exploring a new strategy to obtain cancer-specific TCR with high affinity to improve efficacy of adoptive administration of TCR gene transferred T cells. To enhance the affinity of TCR against HLA-A\*24:02/hTETRT peptide complex, we generated the libraries with PCR-mediated saturation mutagenesis in their complementarity-determining regions (CDRs). Transient transfection of the library into CD3-introduced cultured cells enabled us to isolate many high affinity TCR clones. We believe our novel strategy may circumvent technical obstacles in phage- or yeast-mediated TCR display systems.

## Division of Microbiology and Oncology

Normal cellular homeostasis requires the coordinated regulation of signaling molecules in space, time and quantity. Accumulations of genetic and epigenetic alterations or oncogenic viral infections disrupt the stringent regulation of signaling networks and lead to cellular transformation and tumor progression. Our studies involve dissecting genes, proteins, and signaling mechanisms directly responsible for oncogenic phenotypes and identifying novel therapeutic targets. Currently, our research interest is concentrated on the following issues: (1) Molecular mechanisms of exosome regulation by Src-mediated cancer progression, (2) Spatial regulation of Src via lipid rafts controls cancer progression, and (3) MicroRNA-mediated gene expression controls Src-related oncogenic signaling.

## Division of Molecular Pathology

Cancer is a systemic disease. Heterotypic interactions between cancer cells and non-cancer stromal cells in the tumor microenvironment play essential roles in cancer progression. Cancer cells can also interact with more distant tissues or organs, causing systemic changes in the body. Metastasis, a spreading of cancer cells from the primary site to different parts of the body, and cachexia, a wasting syndrome characterized by the loss of skeletal muscle mass that leads to progressive weight loss, represent such systemic changes, and are also the major causes of cancer mortality. Using genetically-engineered and other mouse models of colorectal cancer, we are currently focusing on the following subjects: (1) Clarifying the roles of tumor microenvironment in cancer progression, (2) Elucidating the molecular mechanisms of metastasis, and (3) Unraveling the pathophysiology of cancer cachexia.

## Division of Biochemistry

Cells need to respond to environmental signals to proliferate in a coordinated fashion during development and differentiation. Mutations in genes functioning in cell cycle control and maintenance of tissue architecture lead to uncontrolled proliferation, genetic instability, and invasion (metastasis) by cancer cells. However, the precise mechanisms remain largely unknown.

Our research aim is to elucidate how the cell cycle (including cell cycle checkpoints) and tissue architecture (including the intracellular cytoskeletal network) are controlled. Our attention is focused on 3 specific areas: (1) Identification and functional analysis of protein kinases involved in cell cycle checkpoints, (2) Roles of centrosomes and primary cilia in cell cycle control, and (3) Biological links between aneuploidy and tumorigenesis, senescence, or aging.

## Central Service Unit

The Central Service Unit is responsible for the maintenance and operation of various research instruments and equipment in the core facility, including those used for molecular biology, biochemistry, cell biology, and immunology. We are in charge of radiation control including dose management of radioisotope (RI) users and periodic examination of RI contamination in the radiation controlled area, as well as of the management of poisonous and deleterious substances. We also provide support for running the animal facility and for maintaining general facilities of the Institute buildings.



## **Cancer Biobank Aichi**

In 2017, Cancer Biobank Aichi (CBBA) was established within Aichi Cancer Center (ACC), as a health resource, with the aim of improving the prevention, diagnosis and treatment of cancer. We prospectively collect blood and tissue samples of patients and store specimens from previously conducted clinical and epidemiological studies conducted at ACC. By integrating epidemiological and clinical information with stored samples, we assist all the research activities leading to individualized prevention and treatment of cancer.

# Aichi Cancer Center International Symposia

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When the Aichi Cancer Center celebrated its 30th Anniversary in 1994, the first International Symposium was held inviting several distinguished guest speakers from abroad as well as from Japan. Since then, Symposia have been held on a regular basis. The topics so far have been as follows:

1. "From Prevention to Treatment", December 1994.
2. "Role of DNA Transactions in Carcinogenesis", December 1995.
3. "Recent Advances in Hepatobiliary-Pancreatic Cancer", December 1996.
4. "The Cutting Edge of Lung Cancer Research", January 1998.
5. "Role of Carbohydrate-mediated Cell Recognition and Adhesion in the Progression and Metastasis of Malignant Cells", November 1998.
6. "Recent Advances in the Surgical Treatment for Colorectal Cancer", December 1999.
7. "Cancer Diagnostics with the Power of Molecular Knowledge", January 2001.
8. "Prospects for Conquering Stomach Cancer in the 21st century", February 2002.
9. "Molecular Pathology and Immunotherapy of Hematological Malignancies: New Perspectives ", February 2003.
10. "Diagnostic and Therapeutic Advances in Radiology", February 2004.
11. "Forefront of Cancer Prevention Strategy in Asia", February 2005.
12. "Perspective of Oncological Strategy for Gastrointestinal Cancer", January 2007.
13. "Perspective of Prevention and Tailored Diagnosis / Treatment for Breast Cancer", February 2008.
14. "Pancreatobiliary Cancer Update-Prevention, Diagnosis and Treatment", January 2009.
15. "New Molecular Target Therapy and Signal Transduction", March 2010.
16. "Cancer Drug Resistance: Mechanisms and Strategies for Its Circumvention" as the Aichi Cancer Center 50th Anniversary International Symposium, March 2015.



# Statistics

## Organization

### Number of staff

Type of profession \ Organization	Total	Administration Office	Hospital	Research Institute
Total staff	738	28	657	53
Administrative staff	33	27	6	
Medical social workers	1		1	
Physicians	137	1	107	29
Dentists	2		1	1
Senior researchers	13		1	12
Radiological technicians	28		28	
Physical therapists	5		5	
Speech-language-hearing therapists	2		2	
Occupational therapists	2		2	
Pharmacists	34		34	
Clinical laboratory technicians	32		31	1
Clinical engineers	4		4	
Nurses	399		399	
Assistant nurses	3		3	
Dieticians	3		3	
Dental hygienists	1		1	
Other meal service workers	15		15	
Clinical trial coordinators	14		14	
Research assistants	10			10

as of January 1, 2018

## Hospital

### Patients

Item	2014 fiscal year	2015 fiscal year	2016 fiscal year
1) Outpatients			
Number of new patients	5,279	5,240	5,404
Number of total patient visits	141,149	138,798	139,270
Average number of patient visits per day	578.5	571.2	573.1
Average visiting frequency of patient	26.7	26.5	25.8
2) Inpatients			
Number of new inpatients	9,181	9,775	10,289
Number of total discharged patients	9,140	9,789	10,301
Number of deceased patients	372	370	346
Average number of inpatients per day	372.6	386.8	384.7
Average patient stay in hospital	13.9	13.5	12.6

### Resident training

The resident system was started in April 1986 to train physicians in the diagnosis and treatment of cancer patients.

	2014 fiscal year	2015 fiscal year	2016 fiscal year
Number of residents	53	48	55

### Research resident training

The research residency system was started in April 2001 to train young researchers in the field of basic and applied cancer researches at our research institute.

	2014 fiscal year	2015 fiscal year	2016 fiscal year
Number of research residents	16	12	10

### Training of technical personnel for medical treatments

The shortage of specialized technical personnel for the treatment of cancer is an obstacle in the promotion of cancer control programs. To solve this problem, since 1966, full scale training has been provided.

The accomplishment of this Center in this area has gained an international reputation and applicants for this training course now come from various countries as well as from all over Japan.

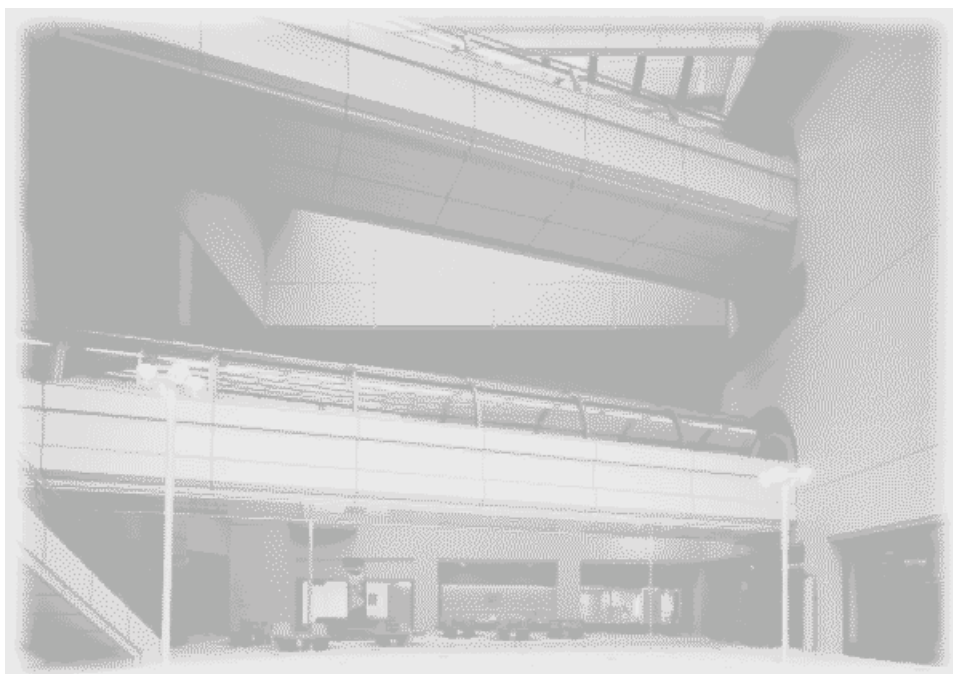
	1966-2016 fiscal years	2014 fiscal year	2015 fiscal year	2016 fiscal year
Total	5,581	74	72	66
Physicians	3,512	51	26	36
Radiology technicians	227	1	0	1
Clinical laboratory technicians	594	3	7	5
Nurses	317	2	15	0
Others	931	17	24	24

### Budget for the Cancer Center

(Unit: thousand yen)

Revenue			
Item	2015 fiscal year	2016 fiscal year	2017 fiscal year
Total	19,272,025	23,574,351	21,518,645
Revenues from medical practices	16,727,001	20,769,240	18,510,360
Revenues from non-medical sources	2,545,024	2,805,111	3,008,285

Expenditure			
Item	2015 fiscal year	2016 fiscal year	2017 fiscal year
Total	18,770,901	22,391,814	20,889,408
Expenditure for medical practices	18,622,752	22,211,626	20,710,180
Expenditure for non-medical sources	143,149	175,188	174,228
Reserve fund	5,000	5,000	5,000



## **AICHI CANCER CENTER**

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