National Cancer Center Japan

Overview

April 2020

National Cancer Center

Leading nation's cancer treatment, prevention, control programs, research and education

1962 established by **Ministry of Health and Welfare** (MHLW*1) as the first National Center for Advanced and Specialized Medical Care (followed by five more)

2010 designated "**Incorporated Administrative Agency***2"

2015 appointed "**National Research and Development Agency** *3"

*1 MHLW: currently Ministry of Health, Labour and Welfare
*2 Public Service Entity
*3 Highest Ranked Research Organization

Milestones

1962 Ministry of Health and Welfare establishes National Cancer Center Hospital starts operating

1992 Establishes NCC Hospital East

2004 Establishes Research Center for Cancer Prevention and Screening

2005 Establishes Research Center on Innovative Oncology

2006 Establishes Center for Cancer Control and Information Services

2010 Becomes Independent Administrative Institution

2012 Establishes Exploratory Oncology Research & Clinical Trial Center (EPOC)

2015 Appointed National Research and Development Agency

2016 Establishes Center for Research Administration and Support/ Center for Cancer Registries

2017 Establishes Cancer Metabolome Research Center in Yamagata Prefecture
Establishes Center of New Surgical and Endoscopic Development for Exploratory Technology (NEXT)

2018 Establishes Center for Cancer Genomics and Advanced Therapeutics (C-CAT)

History of Cancer Control

1964 National Strategy: 5 Pillars of Cancer Control

1984 Comprehensive 10-year Strategy for Cancer Control

1994 New 10-year Strategy to Overcome Cancer

2004 3rd-term Comprehensive Ten-year Strategy for Cancer Control

2005 Action Plan 2005

2006 Cancer Control Act

2007 Basic Plan to Promote Cancer Control Programs

2012 2nd Basic Plan to Promote Cancer Control Programs

2013 Cancer Registration Promotion Act

2014 10-year Strategy of Cancer Research

2015 AMED starts Japan Cancer Research Project

2017 3rd Basic Plan to Promote Cancer Control Programs

2018 3rd Basic Plan to Promote Cancer Control Programs

Vision and Mission

Prevent, overcome, with and beyond cancer

Vision

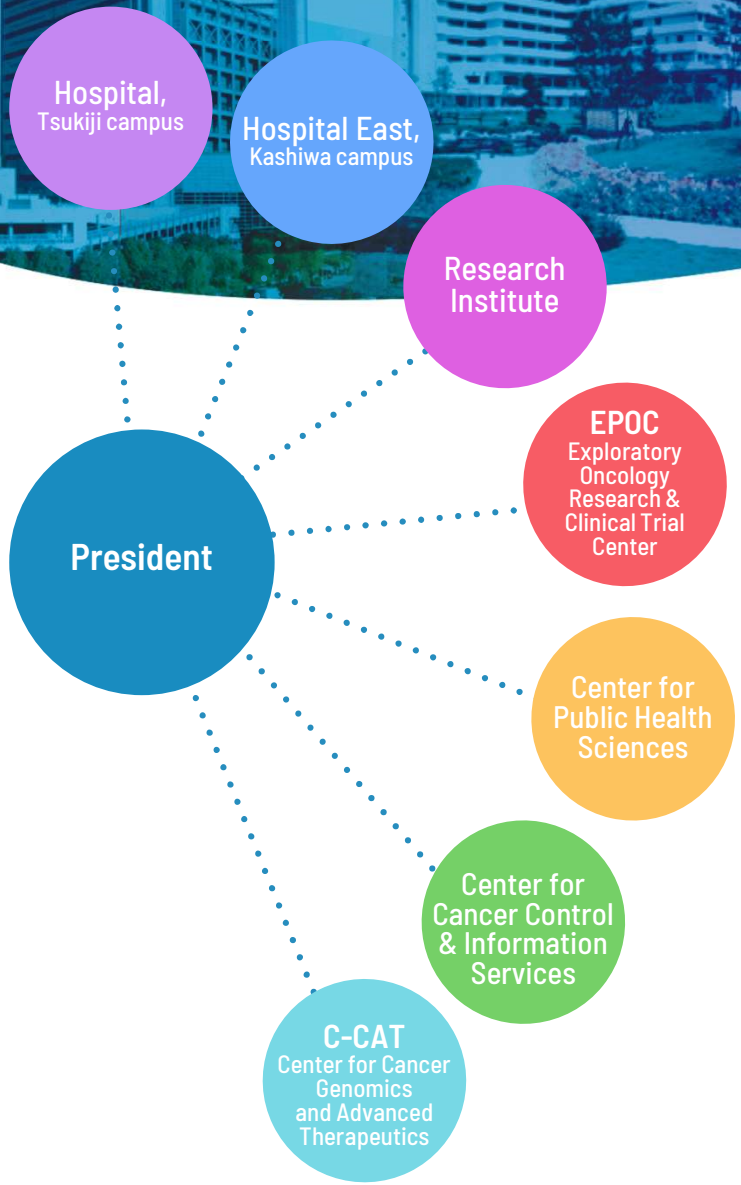
NCC is committed to providing the best possible cancer treatment and care in partnership with communities

Mission

- Discover the fundamental causes of cancer, towards early diagnosis and prevention
- Promote innovation in diagnosis and treatment
- Establish and make available the most advanced standard of care to all patients
- Explore and support patients with the best “cancer survivorship”
- Garner cancer information and disseminate to society
- Develop talent
- Advocate policies
- Contribute globally, working with international partners

NCC Organization

Number of Staff: 3774 （at 1 April, 2020）



Auditors

President's Offices

- Board of Directors
- Directors' Meeting
- Executive Advisers to President
- Strategic Planning Bureau
- Center for Research Administration and Support
- Center for Education and Professional Career Development
- IT Integrating and Support Center
- Office for Advanced Medical Care Evaluation & Health Technology Assessment
- Practical Research for Innovative Cancer Control Management Office
- Administrative Departments
- Research Audit Section

Audit office

Hospital, Tsukiji campus

- Director
- Deputy Directors

Clinical management, Education, Research, Safety management, Development & planning

- Dept. of Safety Management
- Dept. of Medical Affairs
- Center for Education and Professional Career Development
- Research Audit Section
- Ethical Review Support Section

Clinical departments

-Neurosurgery and Neuro-Oncology
-Ophthalmic Oncology
-Head and Neck Surgery
-Head and Neck Medical Oncology
-Plastic and Reconstructive Surgery
-Breast Surgery
-Breast and Medical Oncology
-Thoracic Surgery
-Thoracic Oncology
-Esophageal Surgery
-Gastric Surgery
-Colorectal Surgery
-Gastrointestinal Medical Oncology
-Endoscopy
-Hepatobiliary and Pancreatic Surgery
-Hepatobiliary and Pancreatic Oncology
-Urology
-Gynecology
-Musculoskeletal Oncology and Rehabilitation
-Dermatologic Oncology
-Hematology
-Hematopoietic Stem Cell Transplantation
-Pediatric Oncology
-Pediatric Surgery
-General Internal Medicine
-Dentistry
-Anesthesia and Intensive Care
-Palliative Medicine
-Psycho-Oncology
-Diagnostic Radiology
-Radiation Oncology
-Diagnostic Pathology
-Clinical Laboratory
-Experimental Therapeutics

Specialist departments

-Outpatient Treatment Center
-Endoscopy Center
-Appearance Support Center
-Rare Cancer Center
-Interventional Radiology Center
-Supportive Care Development Center
-Genetic Medicine and Services
-Cellular Therapy Processing
-Innovation Center for Supportive, Palliative and Psychosocial Care
-Cancer Screening Center
-Clinical Laboratories
-Surgical Center
-Clinical Engineering and Medical Technology
-Radiation Safety and Quality Assurance
-Clinical Ethics
-Nutrition Management
-Infectious Diseases
-Medical Informatics
-Center for Physician Referral and Medical Social Service
  - Consultation, Counseling and Support Service Center
-Pharmacy
-Nursing
-Radiological Technology
-Clinical Research Support

Hospital, Tsukiji campus

232 Staff Doctors, 147 Resident Doctors, 649 Nurses (at 1 April 2020)

Out-patient

- 1500 patients/day(new and returning)
- Out-patient treatment center
- (69 beds): chemotherapy for 188 patients/day
- High precision radiation therapy

In-Patient

- 17 operation rooms; 5800 operations/annum
- Advanced endoscopic surgery for early gastric cancer
  EMR endoscopic mucosal resection
  ESD endoscopic submucosal dissection
- Cutting-edge Interventional radiology with 2 Angio-CT systems
- Hematopoietic Stem Cell Transplant
- Palliative Medication and Patient Support
- Hospital based clinical trials and research

Cancer Screening Services

- High-precision screening with spiral-CT, PET (positron emission tomography)
- 3,000 screenings/annum

Rare cancer hotline

Out-patient Treatment Center 2

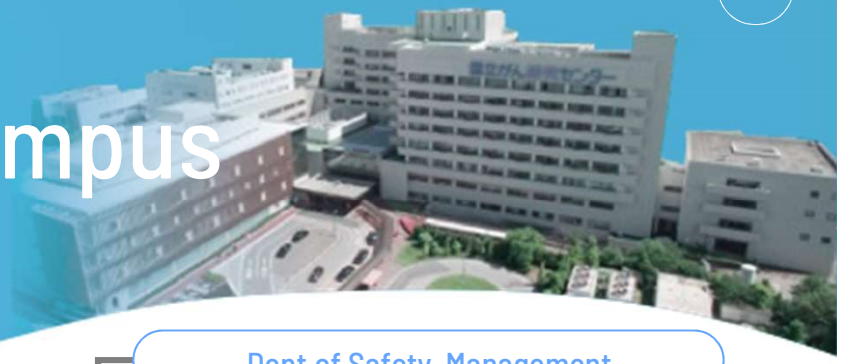
Appearance Support Center

Consultation, Counseling and Support Service Center

Cyber Knife

Endoscopy therapeutic room
Built-in wiring ceiling system

Hospital East, Kashiwa campus



- Director
  - Deputy Directors
    - Clinical management, Education, Research, Safety management
  - NEXT Medical Device Innovation Center
    - Surgical Device Innovation Office
    - Endoscopic Device Innovation Office
  - Dept of Safety Management
  - Dept of Medical Affairs
  - Center for Education and Professional Career Development
  - Research Audit Section
  - Ethical Review Support Section
  - Quality Management Section
  - Collaboration Support Office
  - Research Administration Section
  - Clinical departments
    - -Head and Neck Surgery
    - -Head and Neck Medical Oncology
    - -Plastic and Reconstructive Surgery
    - -Breast Surgery
    - -Breast and Medical Oncology
    - -Thoracic Surgery
    - -Thoracic Oncology
    - -Esophageal Surgery
    - -Gastric Surgery
    - -Colorectal Surgery
    - -Gastrointestinal Oncology
    - -Gastroenterology and Endoscopy
    - -Hepatobiliary and Pancreatic Surgery
    - -Hepatobiliary and Pancreatic Oncology
    - -Urology
    - -Gynecology
    - -Musculoskeletal Oncology and Rehabilitation
    - -Hematology
    - -Pediatric Oncology
    - -Dentistry
    - -General Internal Medicine, Cardiovascular Medicine
    - -Anesthesiology
    - -Intensive Care Medicine
    - -Palliative Medicine
    - -Psycho-Oncology Service
    - -Diagnostic Radiology
    - -Radiation Oncology
    - -Pathology and Clinical Laboratories
    - -Experimental Therapeutics
  - Specialist departments
    - -Outpatient Treatment Center
    - -Endoscopy Center
    - -Supportive Care Center
    - -Medical Concierge Promotion Office
    - -Ladies Center
    - -Rare Cancer Center
    - -Clinical Research Support Office
    - -Genetic Medicine and Services
    - -Nursing
    - -Pharmacy
    - -Clinical Laboratories
    - -Radiological Technology
    - -Medical Informatics
    - -Office of Cancer Registry
    - -Surgical Center
    - -Clinical Engineering and Medical Technology
    - -Radiation Safety and Quality Assurance
    - -Rehabilitation
    - -Nutrition Management Office
    - -Social Worker
    - -Certified Nurse Curriculum

Hospital East, Kashiwa campus

425 beds (25 palliative) ,152 Staff Doctors, 117 Resident Doctors/560 Nurses (at 1 April 2020)

Leading Edge Care

- Laparoscopic/robotic surgery, minimal invasive treatments i.e. ESD
- Largest scale outpatient center, pharmacist consultations
- First proton treatment facility in Japan, high precision radiology treatment

Holistic Support

- For patients/family for both physical and mental wellbeing and social life, starting from diagnosis
- Specialist care for female cancer patients/families
- First palliative care ward in national hospital, close collaboration with communities

Therapeutics Development

- Abundant experience in early clinical trials and translational research
- New surgical procedures/endoscopic equipment development research – collaboration with academia

Outpatient Center

Hotline

Proton treatment facility

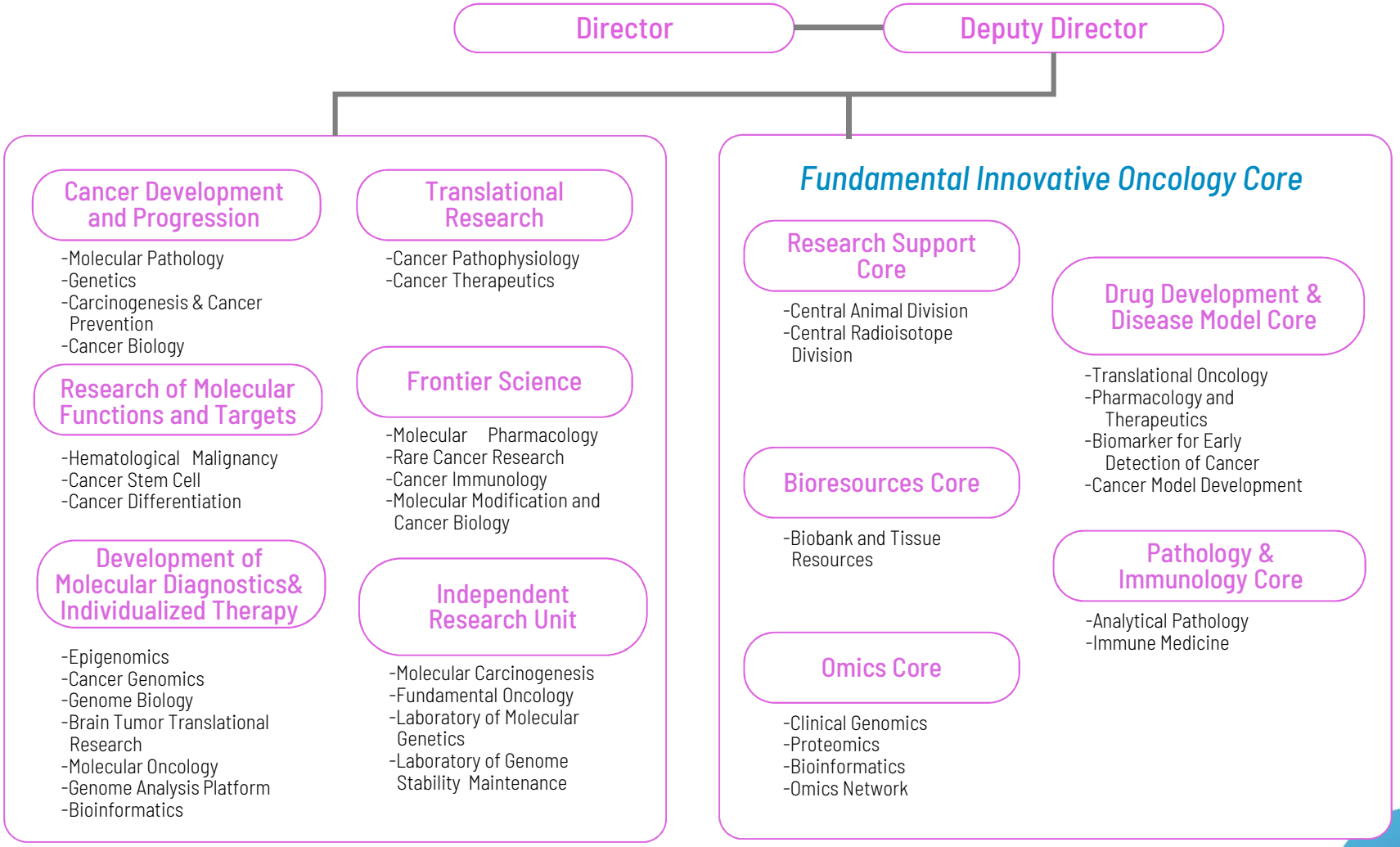
Supportive care center

Ladies center

Palliative care wards

Center of New Surgical and Endoscopic Development for Exploratory Technology

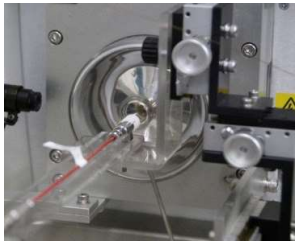
Research Institute



Research Institute

Largest cancer research center in Japan, with 422 research staff

(141 adjuncts, 199 visiting fellows/invited scholars at 1 April 2020)



Major Accomplishments

1960's to 1990's

- Heterocyclic amines (food-born carcinogens) discovery
- PCR-SSCP method development (citations 3,000+)
- Chromosome 21 map completion, AML1 identification, causative gene of leukemia

Recently

- developed synthetic lethality based treatment
- discovered RET fusion oncogene drug resistance mechanism
- international collaborative research on carcinogenesis mechanism, prevention and treatment
- developed integrated cancer medical system with AI
- discovered diagnostic markers with body fluids microRNA analyses

FIOC: Bridging the gap, between preclinical and clinical

Research Institute

Fundamental Innovative Oncology Core (FIOC)

EPOC

Hospital

Hospital East

FIOC

- Research Support Core — Work with academia/industry in research/drug development
- Bio-resources Core
- Omics Core — Develop original organoid or animal models
- Drug Development & Disease Model Core — Support animal & human biological experiments
- Pathology & Immunology Core — Established first Clinical Sequencing laboratory in Japan

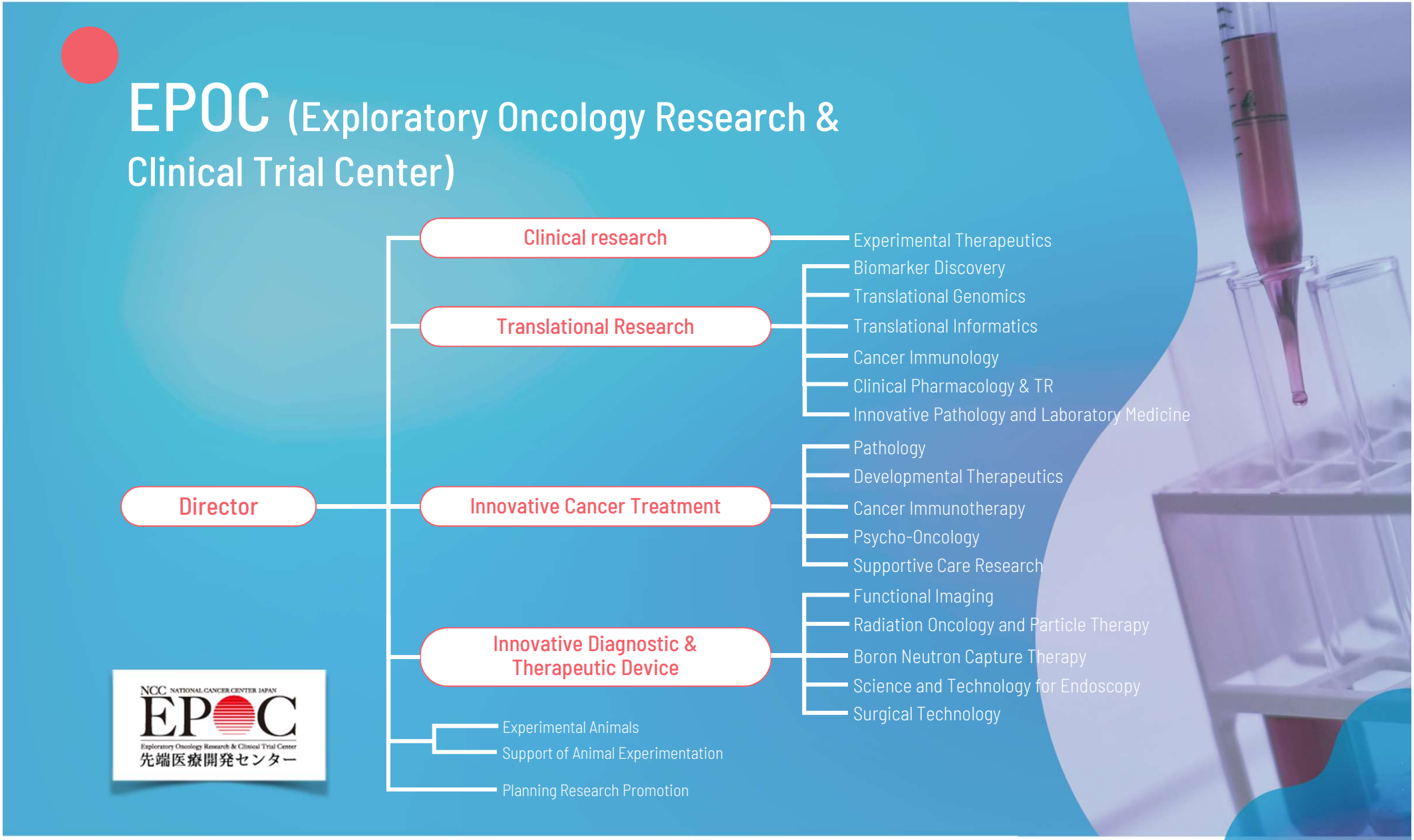
< Bio-resources core > (March 2020)

- 83,286 cases of genomic testable blood/tissue samples
- 26,588 cases of pathological material with clinical information

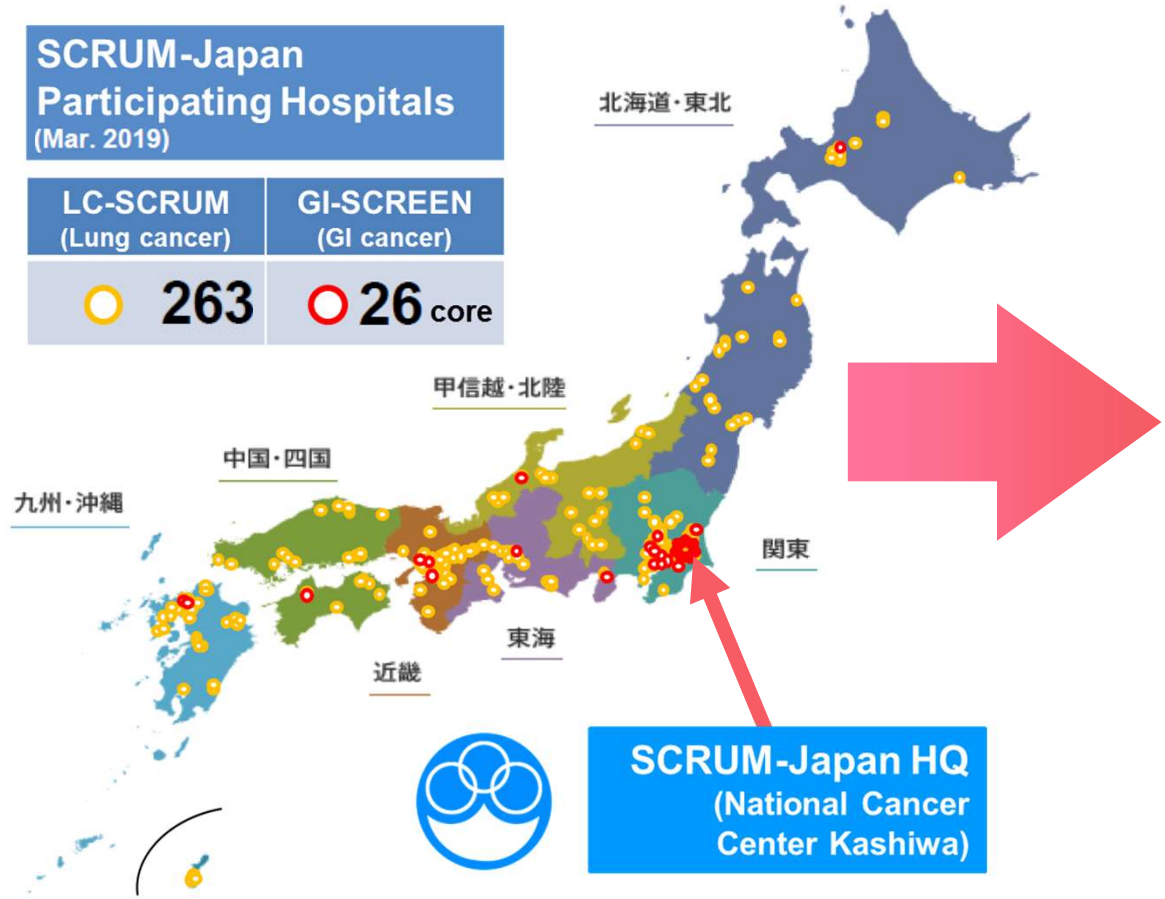
- Cell line
  - 1065 cell lines
  - Self-made 388 lines
- Animal model
  - Transplanted model
  - Produced PDX model 291 lines
  - Organoid models

CLIA level laboratory

EPOC (Exploratory Oncology Research & Clinical Trial Center)

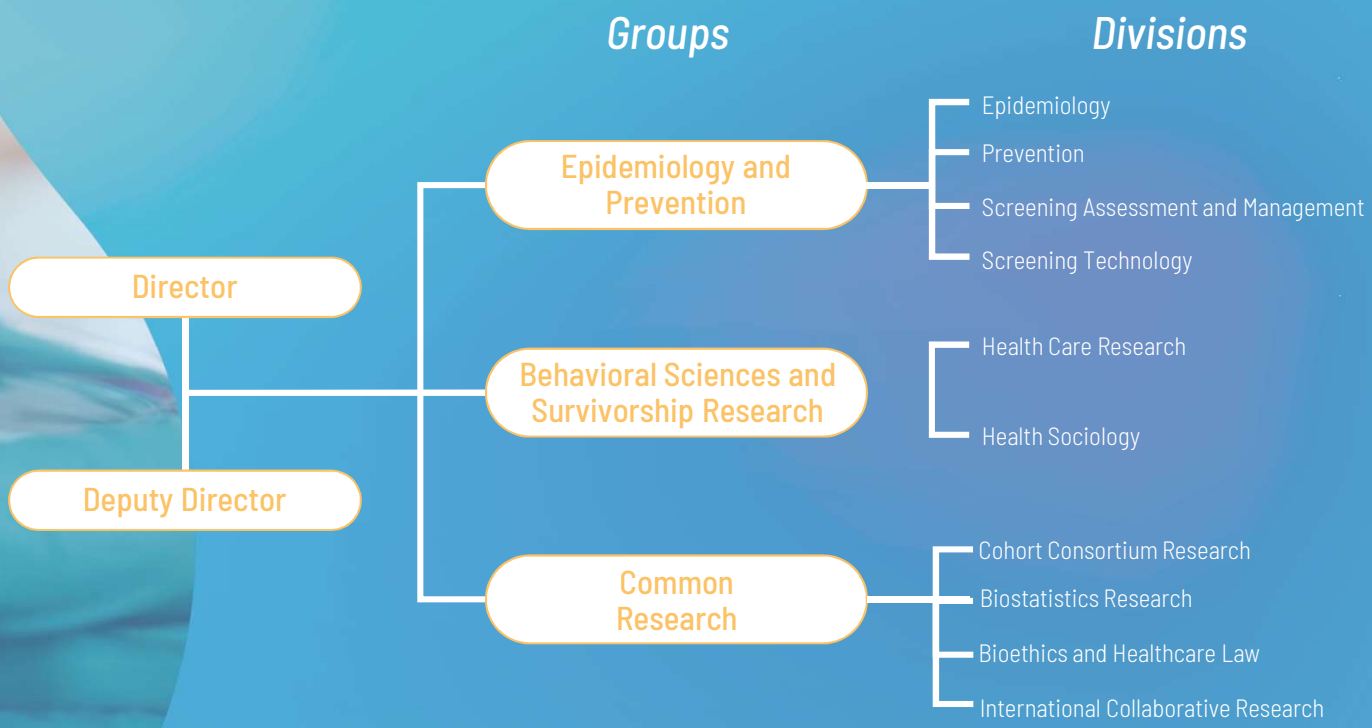


Working with academia and industry
SCRUM-Japan Enrollment
(Feb 2015 – Mar 2019)



No.	
Lung cancer	**5,159**
non-sq NSCLC	4,383
Squamous	776
GI cancers	**5,740**
Esophagus	369
Gastric	1,141
Small intestine	93
Colorectal	2,788
HCC	67
Biliary tract	418
Pancreas	652
NET	75
GIST	79
Others	60
Total	10,899

Center for Public Health Sciences



Center for Public Health Sciences

Public health research, extending healthy life expectancy

interdisciplinary approaches combining sociology, economics, and ethics, for early detection and prevention of cancer, and cancer survivorship support

Cancer Prevention Studies

- Etiology, epidemiological cohort studies, for healthy life extension
- D & I (dissemination and implementation) approach

Early Cancer Detection Research

- Developing and establishing cancer screening methods
- Building screening efficacy evidence base
- Developing screening guidelines by assessing their efficacy, improving management via quality control, and increasing participation rate

Research for Patients, towards a more fulfilling life

- Studies for QOL improvement of cancer survivors and their families, recurrence prevention, supportive treatment, and community/workforce re-entry
- Studies towards improving support for cancer survivors

Research Infrastructure

- biostatistics, health sociology, clinical economics and bioethics.

Center for Cancer Control & Information Services

- Director
  - Cancer Information Service
  - Medical Support and Partnership
  - Cancer Survivorship Research
  - Cancer Statistics Integration
  - Health Services Research
  - Tobacco Policy Research
  - Center for Cancer Registries

Center for Cancer Control & Information Services

Core Functions

1. *National/hospital-based cancer registry management and analyses*
2. *cancer information services and consultation services network*
3. *National cancer services network support*
4. *Evidence based policy support and evaluation*

Patients, families& general public

ganjoho.jp
(gan = cancer joho = info)

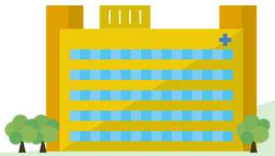
Web-based & printed info

Designated Cancer Care Hospitals

Cancer Care Support Center

Local Hospitals

Local Governments



Affiliated associations

Center for Cancer Genomics and Advanced Therapeutics (C-CAT)

Mission

1

Control quality and advance cancer genomic diagnosis:

Accumulate clinical and genomic information of Japanese cancer patients, establish a database optimized to serve the populace
Provide support to Expert Panels at Designated Core Hospitals for Cancer Genomic Medicine
Communicate genomic medicine-related information with the public, and advocate policy underpinned by nation-wide statistics of cancer genomic medicine

2

Lead data sharing:

Promote data sharing among designated and cooperative hospitals of cancer genomic medicine following appropriate protocol, and promote cancer care covered by national healthcare insurance

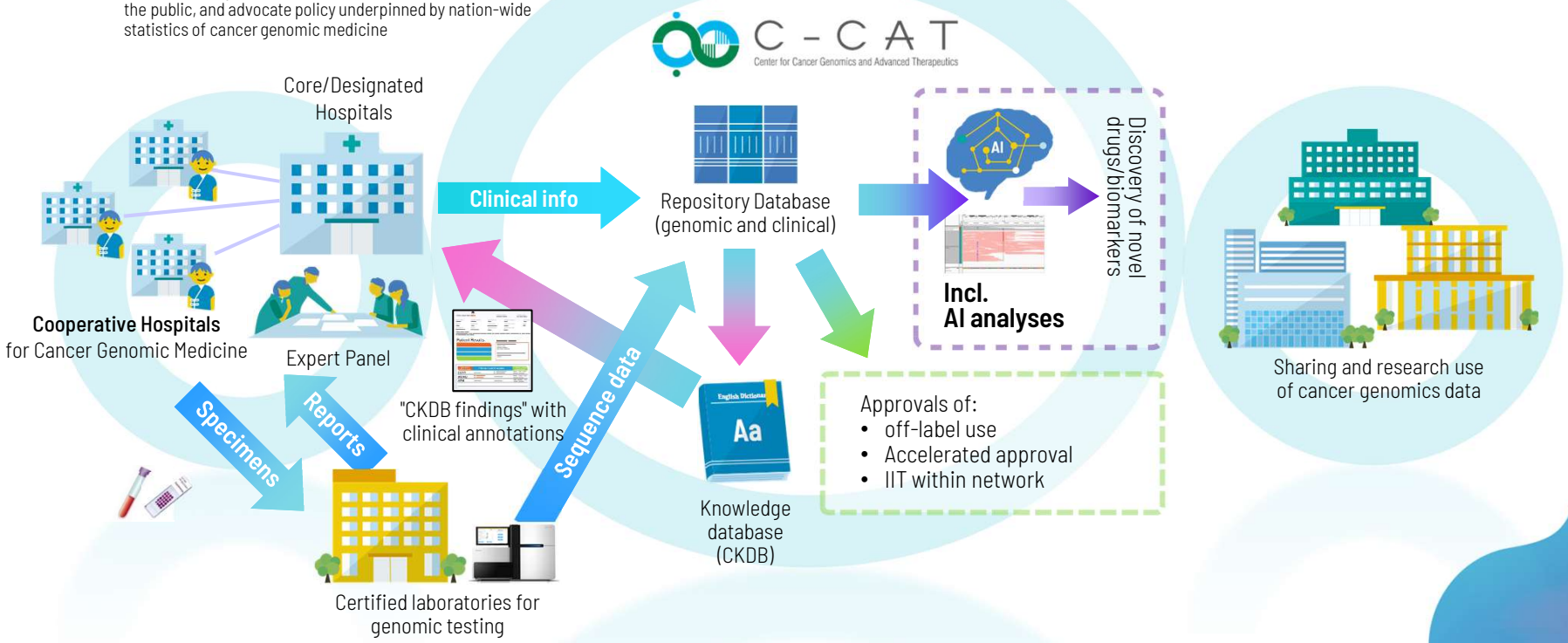
3

Promote clinical trials, research and development:

Establish data utilization as foundation for clinical trials including investigator-initiated trials, and for drug/device development and precision medicine for cancer patients

4

Conduct research, nurture talent in preparation for the introduction of Whole Genome Sequencing to health care

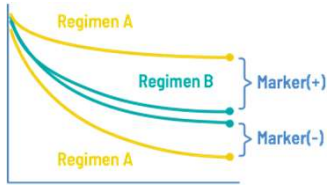


Center for Research Administration and Support (CRAS)

Center for Research Administration and Support (CRAS)

Research Administration Division

medical policy advocacy/research promotion, research funds/grants application and management, Research Administrator; research audit; alliance and intellectual property



Biostatistics Division

research planning, design, data analysis, interpretation support

Bioethics Division

Research ethics consultation, education, ethical / COI committee secretariat

NCCJ Publications and Citations

(1) Publications and citations (at 1 June 2019)

Year	2013	2014	2015	2016	2017	2018	Total
Total publication including review articles (articles only)	629 (583)	685 (647)	699 (646)	792 (737)	836 (771)	806 (747)	4,447 (4,131)
Citation （Articles only）	18,187 (16,422)	13,118 (11,778)	14,778 (13,708)	13,524 (12,465)	8,540 (7,834)	2,219 (2,063)	70,366 (64,270)
└ Highly cited （articles only）	15 (12)	12 (9)	30 (28)	26 (21)	35 (33)	23 (22)	141 (125)
Impact factor 15+ （articles）	20(20)	17 (16)	30 (29)	42 (41)	52 (48)	40 (38)	201 (192)

(2) Comparison with Japanese Academia （2013 –2018）

Highly Cited Papers　NCC ranked 15th covering 22 fields

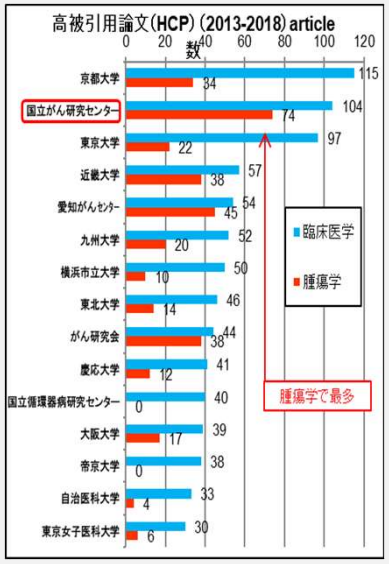
Total 22 Fields			
Ranking	Academia	High Citation Publication （HCP） Articles only, 2011-2016 # of HCP （A）	HCP rate
1	国立大学法人東京大学Tokyo University	760	1.52
2	国立大学法人京都大学 Kyoto Univeristy	507	1.39
3	国立研究開発法人理化学研究所 Riken	326	2.13
4	国立大学法人大阪大学 Osaka University	279	1.02
5	国立大学法人東北大学 Tohoku University	256	0.94
6	国立大学法人名古屋大学 Nagoya University	249	1.22
7	国立大学法人九州大学 Kyushu University	232	1.33
8	国立研究開発法人物質・材料研究機構 NIMS	193	2.3
9	国立大学法人筑波大学 Tsukuba University	190	1.44
10	国立大学法人東京工業大学 Tokyo Industrial University	183	1.5
11	国立大学法人神戸大学 Kobe University	147	1.5
12	国立大学法人岡山大学 Okayama University	138	1.59
13	国立大学法人北海道大学 Hokkaido University	132	0.69
14	国立研究開発法人高エネルギー加速器研究機構 （KEK）	126	3.3
15	学校法人早稲田大学 Waseda University	125	1.6
16	National Cancer Center	125	3.03
17	国立大学法人信州大学 Shinshu University	116	2.14
18	国立研究開発法人産業技術総合研究所 AIST	110	0.83
19	学校法人早稲田大学 TokyoCity University	106	2.45
20	国立研究開発法人自然科学研究機構 （NINS）	103	1.49

Clinical Medicine Publications

- #1 in oncology
- Top tier in clinical medicine

Highly cited papers

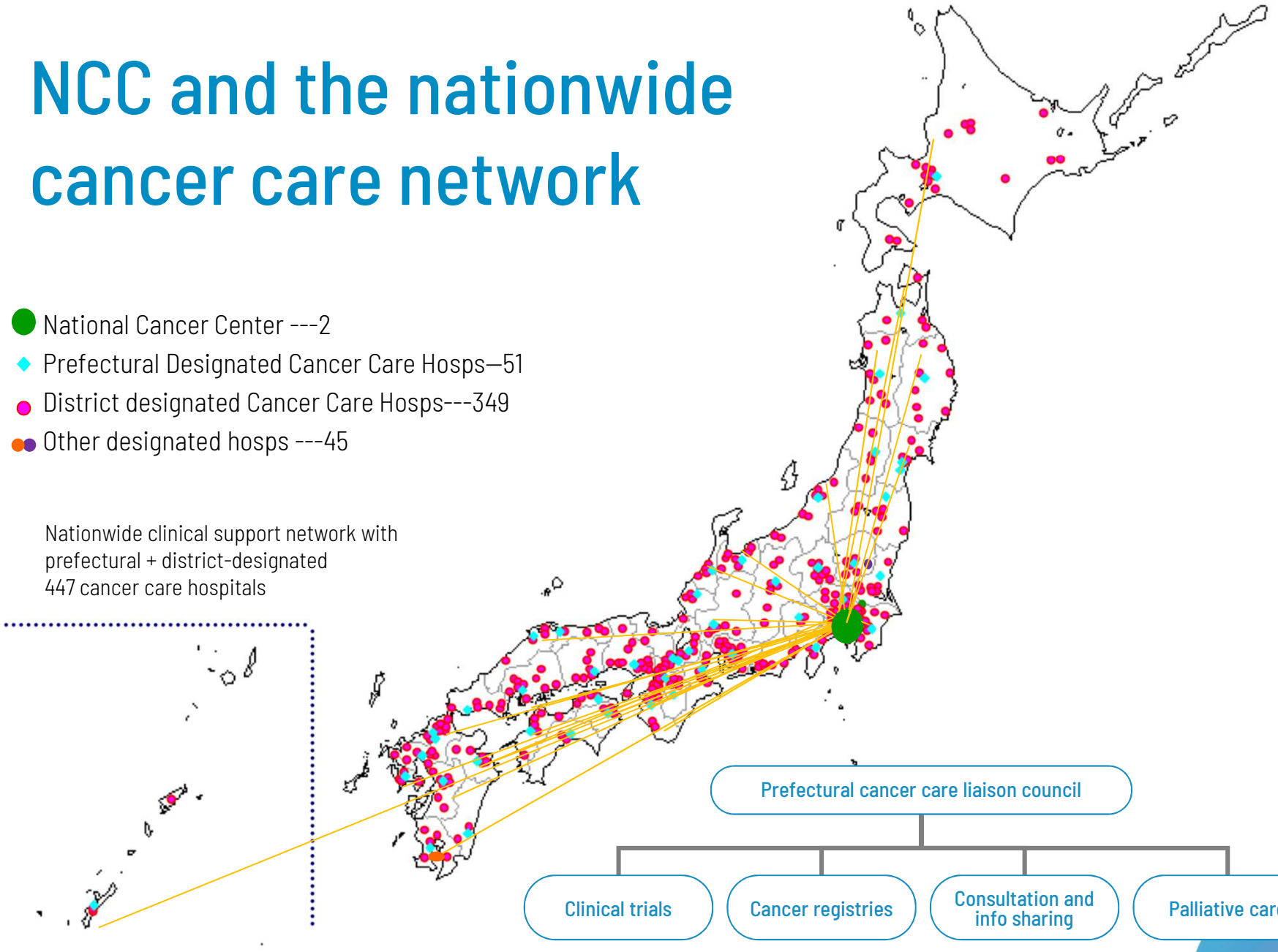
- #1 in oncology
- #2 in clinical medicine



NCC and the nationwide cancer care network

- National Cancer Center ---2
- Prefectural Designated Cancer Care Hosps—51
- District designated Cancer Care Hosps---349
- Other designated hosps ---45

Nationwide clinical support network with
prefectural + district-designated
447 cancer care hospitals



Prefectural cancer care liaison council

- Clinical trials
- Cancer registries
- Consultation and info sharing
- Palliative care

Overseas Partners

Memoranda of Understanding concluded with:

IARC (International Agency for Research on Cancer)

National Cancer Institute, USA

Massachusetts General Hospital

INCa (Institut National Du Cancer)

China-Japan Friendship Hospital

National Cancer Center, PRC

National Cancer Center, Korea

National Cancer Research Institute, UK

Dharmais Cancer Hospital, Indonesia

Asian Phase 1 Consortium
Chinese University of Hong Kong
National Cancer Center Singapore
National Taiwan University Hospital
Seoul National University Hospital

National Cancer Institute, Thailand

Ho Chi Minh City Oncology Hospital, Vietnam

Vital Strategies