Press Conference

President of JST

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Japan Science and Technology Agency

JST's Attitude towards Health and Medical Research

独立行政法人 科学技術振興機構 Japan Science and Technology Agency

◆ Basic idea

Develop medical technology to satisfy Unmet Needs (unsatisfied needs for medical treatment) and promote basic research towards Proof of Concept (POC)

◆ Management Practice centered on POC

◆ Accelerate the practical application of research results in collaboration with different programs

Research Phases	Generate scientific knowledge	Design concepts for medical technology	Develop medical technology	Apply technology
JST's Handling Programs	PRESTO	CREST/ERATO	ACCEL/COI	A-STEP/Advanced Measuring Technology

JST's Infectious Disease

- How does JST position the research for infectious diseases in its innovation strategies?
- Current situations and challenges regarding infectious diseases
- What are infectious diseases?
- Trends in R&D
- JST's approaches

How does JST position the research for infectious diseases in its innovation strategies?

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- ✓ Focusing on infectious diseases as part of a strategic package for “social technology and social infrastructure”
- ✓ Emphasizing quick response to risk as well as creation of new technology
- ✓ Dealing with mainly advanced technology, Big Data, and design of social system

Current situations and challenges regarding infectious diseases

- ✓ Infectious diseases are classified as acute diseases and result in death when treatment is delayed.
- ✓ They appear mainly due to microbial infection but are unlikely caused by lifestyle .
- ✓ The morbidity rate tends to decline, but the rate of the decline has slowed down.

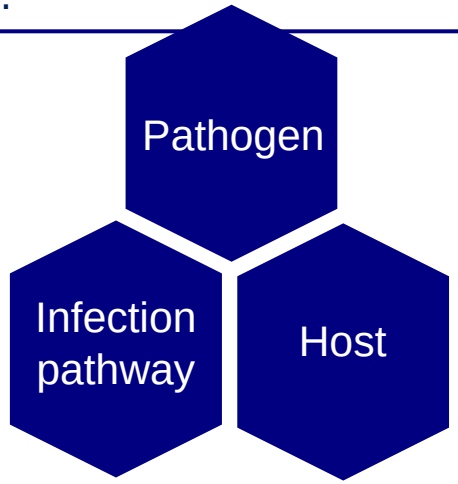
- ✓ The mortality rate of infected individuals is lower than that from cancer and heart disease.
- ✓ The mortality from pneumonia, TB, and other infectious diseases shows a tendency to increase.
- ✓ The cases of pneumonia have sharply increased (domestically). TB has become one of the three major infectious diseases (WHO).

◆ Challenges in recent years
- ✓ Health damage caused by Influenza and other diseases.
- ✓ Increase in the number of rubella cases.
- ✓ Adverse reaction to cervical cancer vaccine.
- ✓ Emergence of nosocomial multidrug resistant bacteria.
- ✓ Rapid spread of infection on a global scale

→ Those have surfaced at all levels – locally, regionally, nationally, and globally.

What are infectious diseases?

- ✓ Infectious diseases are caused by pathogenic microorganisms in the environment that invade a human body.
- ✓ Infections are contracted through replication following invasion of the human body by a pathogen.
- ✓ Some of the cases develop symptoms (apparent infection) but others don't (inapparent infection).



Three major factors in the pathogenesis of infectious diseases

◆Factors for infectious diseases

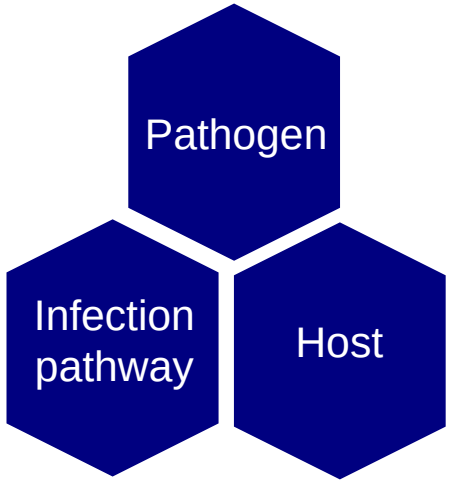
- ✓ Pathogen：Presence of pathogenic microorganisms
- ✓ Infection pathway：Secure infection pathway
- ✓ Host：Places where pathogen replicates

◆ Non-infectious diseases associated with infectious diseases

- ✓Cervical cancer/vulvar cancer triggered by human papillomavirus
- ✓Hepatocellular carcinoma caused by hepatitis B or C
- ✓Gastric cancer induced by helicobacter pylori
- ✓Arteriosclerosis set off by chlamydial disease

Trends in R&D

- ✓ Collect and analyze information on infectious diseases (Ministry of Health, Labor and Welfare (MHLW)).
- ✓ Elucidate infection mechanism including pathogenic microorganisms (MHLW and Ministry of Education, Culture, Sports, Science and Technology (MEXT)).
- ✓ Develop diagnosis, prevention, and treatment techniques (MHLW and MEXT).



Three major factors in the pathogenesis of infectious diseases

◆Pathogen:
Mechanism of virus replication and others; systems for escaping from host immune responses

◆Infection pathway:
Keep track of pathogen sources as well as infection pathways and the speed of infection, and share the information

◆Host:
Response mechanism; disease onset mechanism

◆Develop prevention and treatment techniques
Develop vaccines, antibiotics antivirus drugs, etc.

◆Infectious disease approaches in Japan

- ➢ MHLW:
  - ✓ Keep track of infection trends (National Institute of Infectious Diseases); develop vaccine (National Institute of Biomedical Innovation); develop hepatitis measure techniques (Health and Labour Sciences Research Grant)
- ➢ MEXT(including JST):
  - ✓ Elucidate infection mechanism and host response mechanism; develop innovative medical technology

JST's Major Approaches

- ✓ Identify infection sources, elucidate the diffusion mechanism of infection, and develop spread prediction techniques, etc. in international collaboration.
- ✓ Elucidate replication mechanism including a pathogenic microorganism as well as host response mechanism
- ✓ Develop prevention, diagnostic and therapeutic techniques based on the above movement and knowledge

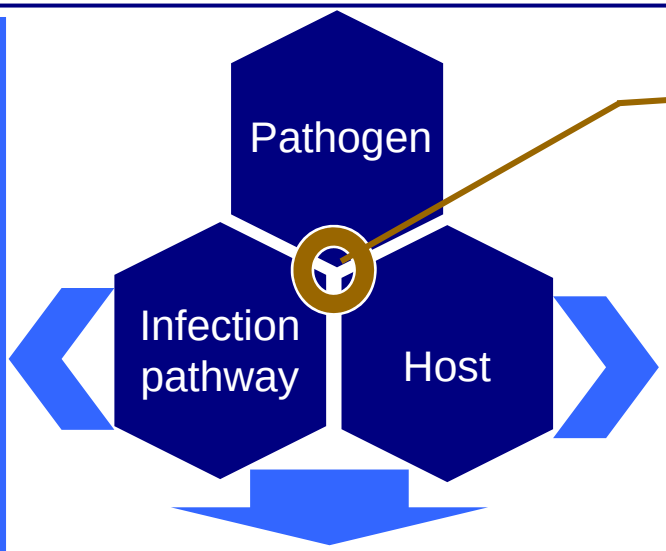
CRDS

SATREPS

NBDC

e-ASIA

- Propose strategies
- Identify infection sources
- Elucidate and predict the diffusion mechanism of infection



ERATO

CREST

PRESTO

- Replicate mechanism including a pathogenic microorganism
- Host response mechanism

ACCEL

Advanced Measuring Technology

A-STEP

- Search for drug-discovery seeds
- Develop diagnostic technology
- Produce prototypes including instruments