

BIOTEC-Eisai Collaboration on Drug Discovery During COVID-19 Pandemic

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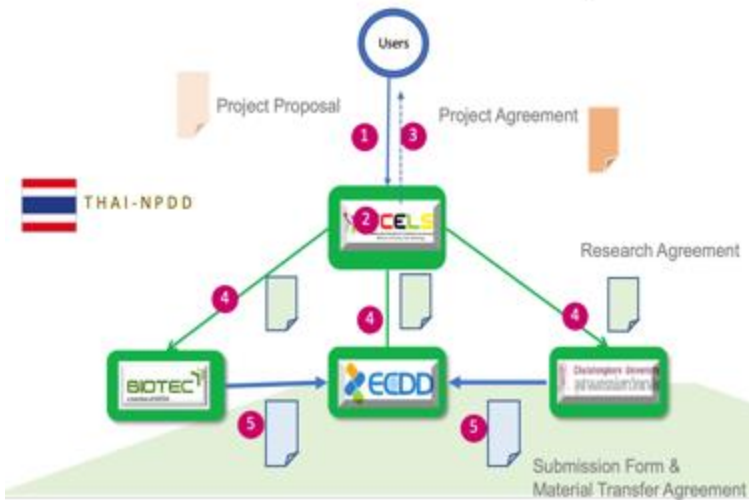


Challenges of Modern Drug Discovery

Nagoya protocol
on Access and
Benefit-Sharing

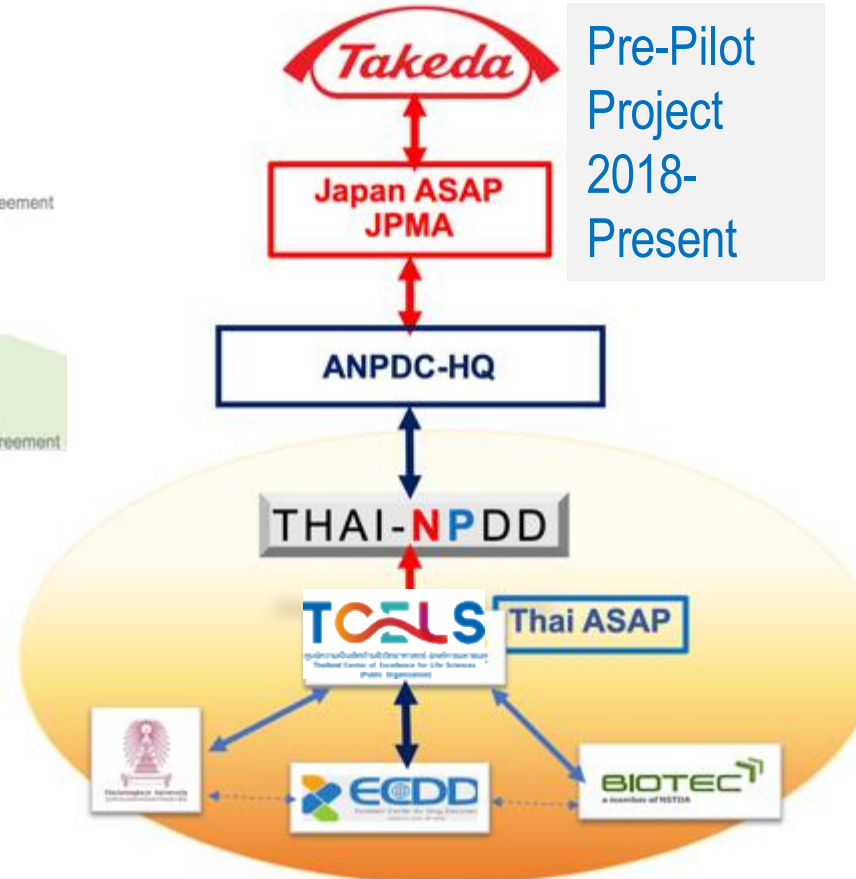


BIOTEC Activities in NPDD Network

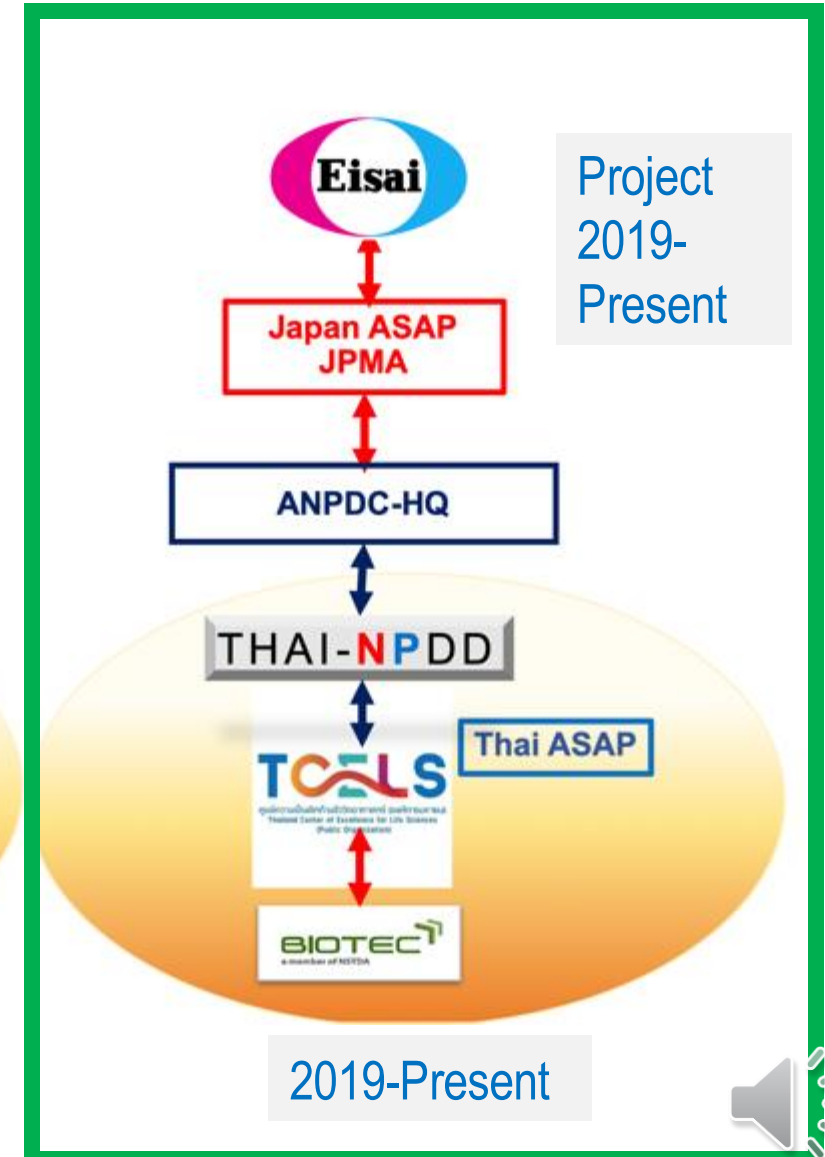


Guideline for the cross-border collaboration in the Natural Product for Drug Discovery (NPDD) network

2016-2017



2018-Present



2019-Present





BIOTEC-Eisai collaboration under the NPDD



Discussion at the 8th APAC Annual Meeting

APRIL, 2019 :

TOKYO



Meeting at BIOTEC

AUGUST, 2019:

PATHUMTHANI

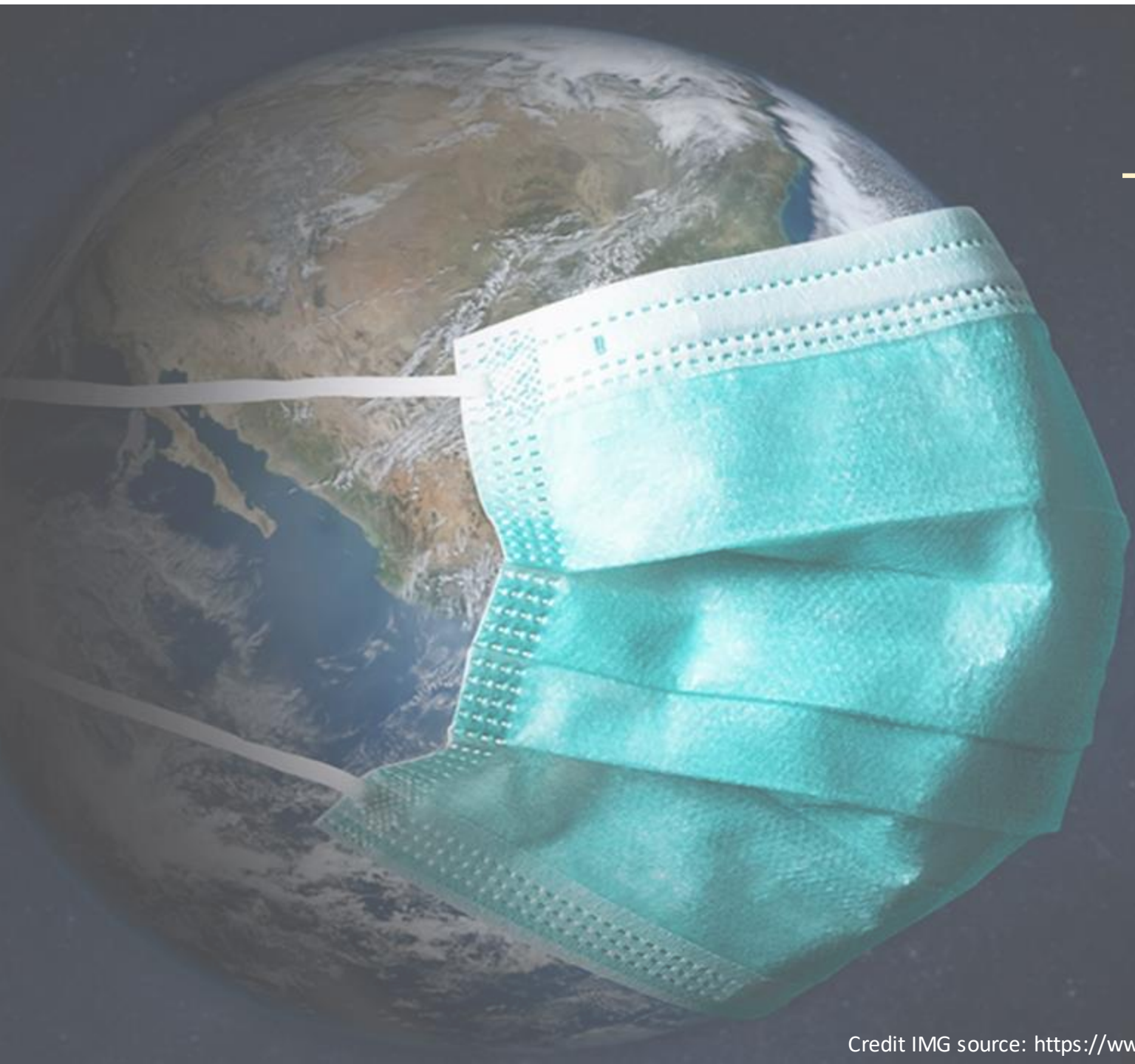


Meeting at EISAI

OCTOBER, 2019 :

TSUKUBA





COVID-19 Pandemic

The new challenges of 2020-2021

Rethink how we do collaborative research

Re-vision how collaboration can be continued

Re-imagine the new collaboration model



BIOTEC-Eisai collaboration under the NPDD



1. Technology Transfer on Phenotypic Screening

INTERNSHIP

SMALL SCALE SCREENING

JAN- APR 2020

POSTPONED

INTERNSHIP

2. Crude Extract Library Construction

EXCHANGE of PROTOCOL INFORMATION

SAMPLE PREPARATION

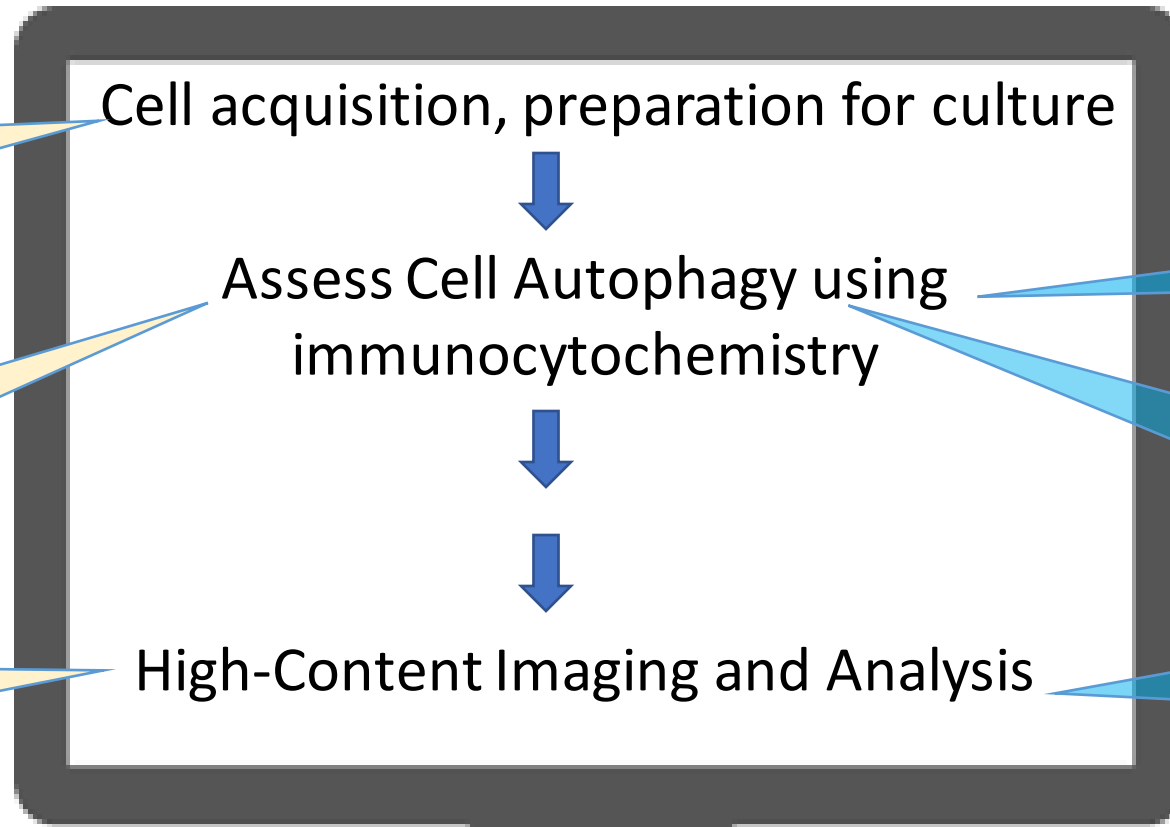
3. Consultation for medicinal chemistry



Changed to be **online-training!**. Aug-DEC 2020



Online Training : High-Content Screening & Analysis



It takes more than 2 month to order celline from aboard

I cannot find Antibodies you suggested

I am reading the manual online

Here is the protocol. Pls try it.

I found this distributor, you may order antibodies from this .

Your machine is different from what I used to



Online Training : Revisited

- **Consultative** , not *Demonstrative and Instructive* Approaches
 - Differences in Equipment and Protocols
 - Demo is necessary to show the problems for finding solution together , not for instruction
- **Sharing information** and knowledge
 - Analytical and Lab Protocols
 - Material distributor
 - Tips
- **Availability of Materials**
- **Fast Response /Effective Communication**
 - Different Time zones
 - Slow response -> Slow progress

- Able to setup and work in BIOTEC's environment

- Take more time due to the differentness

- Internship at Eisai is still needed for us to gain insights with the different platform



Stay Connected

Keep (Remote) Collaborating!



TO BE
CONTINUED

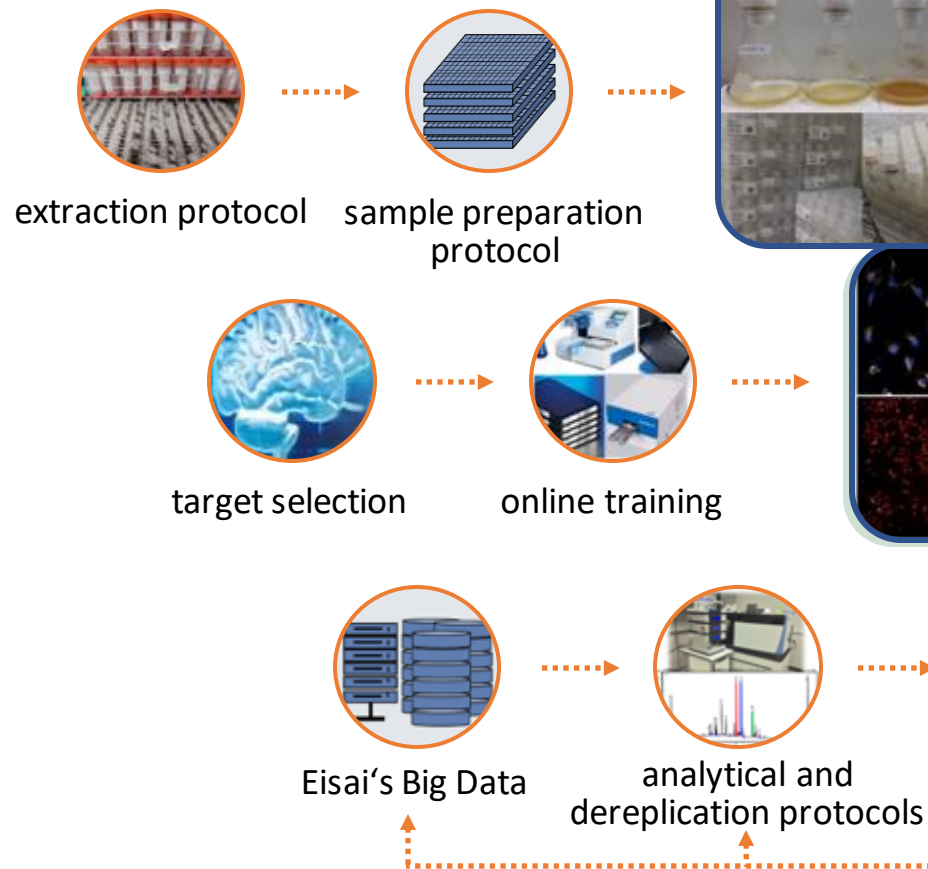
BIOTEC-Eisai collaboration under the NPDD



• Microbial Bioresources (TBRC)

- ◇ selection based on taxonomic diversity
- ◇ focusing on fungal group(s) of interest

Technology Transfer from Eisai



• Building Crude Extract Library

- ◇ for pre-pilot/pilot screening
- ◇ for in-house collection











• High Content Phenotypic Screening

- ◇ interpretation of screening results
 - ◇ selection of hit samples
- } joint decision-making

• Natural Product Database

- ◇ adaptation of Eisai's protocol for development of BIOTEC's own database (inclu. crude extract, screening, and chemical profiling data)
- ◇ alignment both analytical systems for dereplication of hit samples



1. CBS	 WESTERDIJK FUNGALBIO DIVERSITY INSTITUTE
2. FGSC	 FUNGAL GENETICS STOCK CENTER
3. NBRC	 NBRC NITE Biological Resource Center
4. DSMZ	 Leibniz Institute DSMZ-German Collection of Microorganisms and Cell Cultures GmbH
5. TBRC	 TBRC THAILAND BIORESOURCE RESEARCH CENTER
6. ICMP	 Manaaki Whenua Landcare Research
7. BCCM/LMG	 BCCM · LMG
8. BCCM/MUCL	 BCCM · MUCL
9. BCRC	 BCRC 生物資源保存及研究中心 Bioscience Resource Center and Research Institute
10. JCM	 JCM Japan Collection of Microorganisms

Source: <http://gcm.wdcm.info>

Microbial Resources

Thailand Bioresource Research Center (TBRC)

<https://www.tbrcnetwork.org>






<https://www.amibase.org>

TOP1 in ASEAN

>90,000 strains

Filamentous fungi: 62%



	Bacteria
	Filamentous Fungi
	Yeast

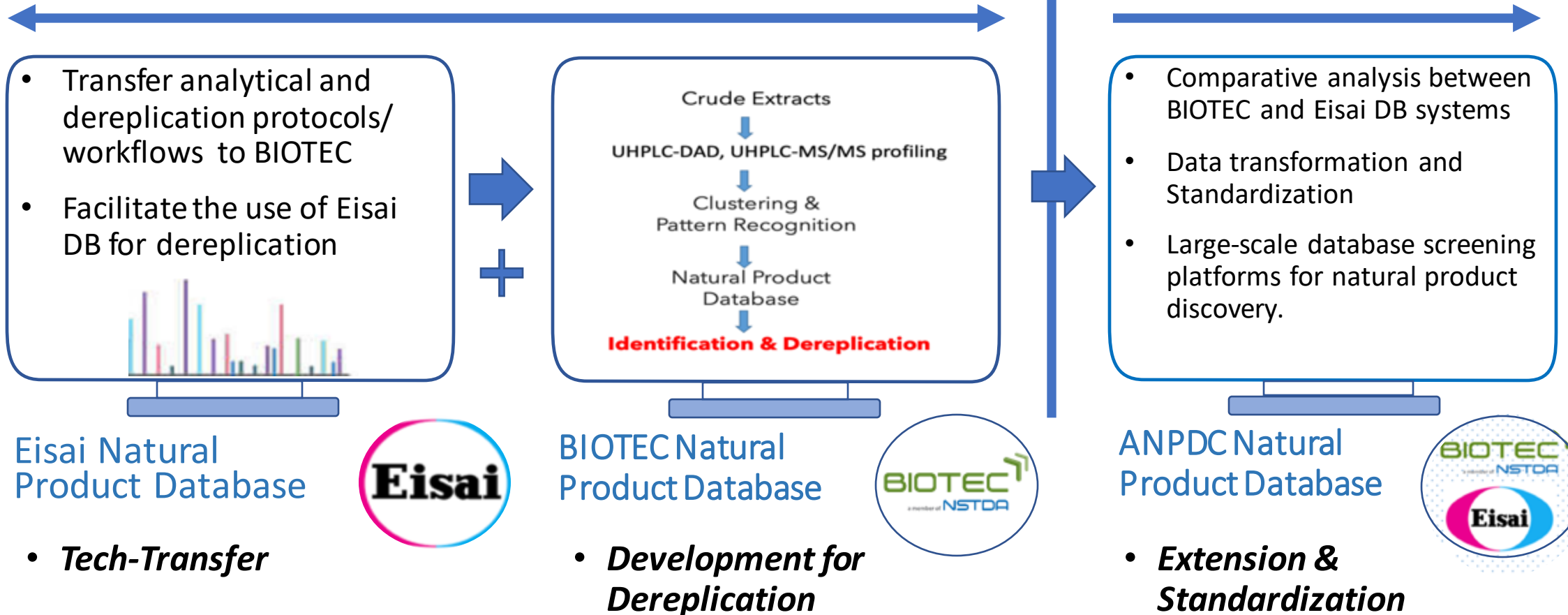
Filamentous fungi in our collection were isolated from wide variety of substrates and natural habitats in Thailand; for example, insects, plant parts, fresh water, soil, high temperature environments, high pH environments and marine environments



Database Development for Rapid Screening and Dereplication of Microbial Natural Products

2021

Future Plan



Conclusion and on-going activities



- High content phenotypic screening on the proposed drug target is being transferred from Eisai by an online training.
- The screening result interpretation of hit sample selection will be addressed by shared decision-making. Dereplication of hit candidates through Eisai's big database is requisite for speeding up the natural products discovery process.
- Next, developing a data model standard and protocols will be discussed.



Thank you for your attention!

