

Appendix 4.2

Innovation of photonic and electrochemical biosensors for cholangiocarcinoma diagnosis

Open Workshop for Innovation of photonic and electrochemical biosensors for cholangiocarcinoma diagnosis, mission plan in KKU, Thailand on June 20-21, 2024.

This symposium is the output of the ASEAN IVO (http://www.nict.go.jp/en/asean_ivo/index.html) project,

[Innovation of photonic and electrochemical biosensors for cholangiocarcinoma diagnosis], and financially supported by NICT (<http://www.nict.go.jp/en/index.html>).

I. Organizer:

Name:	Prof. Somchai Pinlaor
Position:	Project Leader
Institution:	Department Parasitology, Faculty of Medicine, KKU, Thailand

II. Program agenda:

Date: 20th-21st June 2024

Venue:

- a) BAYASITA@KKU Hotel, Khon Kaen University, Khon Kaen Province 40002, Thailand
- b) Srinagarind Hospital, No. 123 Thanon Mittraphap, Nai Mueang, Mueang Khon Kaen District, Khon Kaen 40002, Thailand



BAYASITA@kku
(<https://bayasita.kku.ac.th/th/>)



Srinagarind Hospital
(<https://srinagarind.md.kku.ac.th/>)

Program agenda

Time	Activities	Speaker	Remark
20 th June 24			
8.00-8.30	Registration / Modulator / MC	Dr. Apisit Chaidee Ms. Phonpilas Thongpon, MD KKU	
8.30-8.50	Open Remark	1. Assoc. Prof. Thuss Sanguansak, MD, Vice Dean for International Relations and Corporate Communication, Faculty of Medicine, KKU 2. Mr. Nishino Hisanori, Director of NICT Asia center in BKK, Thailand 3. Prof. Pewpan Maleewong, Vice President of Research Affair KKU	
8.50-9.00	Group photo		
9.00-9.45	The carcinogenic mechanism of opisthorchiasis-associated CCA: from the discovery to application	Prof. Shosuke Kawanishi, Suzuka University of Medical Science	
9.45-10.30	Phenotype and CCA genesis between CCA in fluke- endemic and fluke free	Prof. Chawalit Pairojkul (Zoom) Khonkaen University	Via Zoom
10.30- 10.40	Refresh		
10.40- 11.10	Innovation of photonic and electrochemical biosensors for communication	Prof. Tetsuya Kawanishi, Waseda University/NICT	
11.10- 11.40	Biosensor based on silicon photonic for diagnosis	Prof. Nipon Theera-Umpon, director of Biomedical Engineering Institute, CMU	
11.40- 12.10	SERS and AI for biomedical diagnostic	Dr. Noppadon Nuntawong, NECTEC	
12.10- 13.00	Lunch		
13.00- 13.30	Proteomics tool for discovery CCA diagnosis	Dr. Sittiruk Roytrakul, BIOTEC	
13.30- 14.00,	miRNA for CCA diagnosis	Ms. Aye Myat Mon	
14.00- 14.30	SERS and AI for detection of diseases	Assist. Prof. Chavis Srichan/ Dr. Phoborn	
14.30- 15.00	Photonic sensor	Dr. Kouichi Akahane	
15.00- 15.10	Refresh		
15.10-	Device fabrication	Dr. Nithi Atthi	

15.40			
15.40-16.00	Discovery of Serotransferrin Glycoforms: Novel Markers for Diagnosis of Liver Periductal Fibrosis in Opisthorchiasis and Prediction of Clinical Severity in Cholangiocarcinoma	Assoc.Prof. Raynoo Thanan	
16.00-16.20	Advancements in the Development of Nanosensors for the Detection of 8-oxo-dG, a Biomarker of DNA Damage	Assist.Prof. Chadamas Sakonsinsiri	
16.20-16.40	My Recent & Ongoing CCA research	Prof. Somchai Pinlaor	
16.40	Closing Remark	Mr. Hiroshi Emoto	
21 st June 2024			
8.30-9.00	Registration	Dr.Apisit Chaidee Ms.Phonpilas Thongpon	
09.00-09.30	Progress Report from MD KKU	Prof.Somchai Pinlaor Mr.Thatsanapong Pongking Khonkaen University	
09.30-10.00	Progress report from EN KKU	Dr. Chavis Srichan Dr. Phopporn Danvirutai Khonkaen University	
10.00-10.30	Progress Report from CMU	Dr. Ukrit Mankong Dr. Suruk Udomsom Chiang Mai University	
10.30-11.00	Progress Report from NSTDA	Dr. Sittiruk Roytrakul	
11.00-11.30	Progress Report from LAO team	Dr. Champadeang Vongdala /team	
11.30-12.00	Summarize progress report of 1 st year project	Prof. Somchai Pinlaor	
Lunch			
13.00-15.30	Visiting on Srinagarind Hospital & MD-KKU	All participant	
15.30-16.00	Refresh	Comeback to Bayasita Hotel	
16.00-17.00	Group Discussion	All participant	
17.00	Closing Remark	Dr. Matsumoto /NICT team	

Program Aenda for visit Srinagarind Hospital and faculty of Medicine, KKU

(Time 13.00-16.00)

21 st June 2024			
13.00-13.30	Brings participants from BAYASITA@KKU to a Hospital by two Van	Dr.Apisit /Kitti/Somchai	
13.30-14.20	Visit BIOBLANK, at Wevichakan's Building and CARI institute	Dr.Apisit /Kitti/Somchai	
14.20-15.00	Visit Pathology lab center	Dr.Apisit /Kitti/Somchai	
15.00-15.15	Visit around a Hospital	Dr.Apisit /Kitti/Somchai	
15.15-16.00	Visit CCA excellent center	Dr.Apisit /Kitti/Somchai	
16.00-16.30	Brings participants from the Hospital to BAYASITA@KKU by Bus	Dr.Apisit /Kitti/Somchai	
16.30-17.00	Refresh	BAYASITA@KKU	

III. Participants:

No	Name	Organizations
1	Dr.Ukrit Mankong	CMU, Thailand
2	Dr.Suruk Udomsom	CMU, Thailand
3	Prof.Nipon Theera-Umpon	CMU, Thailand (Self-support)
4	Dr.Nithi Atthi	Thai Microelectronics Center (TMEC), Thailand
5	Dr.Noppadon Nuntawong	National Electronics and Computer Technology Center (NECTEC), Thailand
6	Dr.Mati Horprathum	National Electronics and Computer Technology Center (NECTEC), Thailand
7	Dr.Pitak Eiamchai	National Electronics and Computer Technology Center (NECTEC), Thailand
8	Dr.Saksorn Limwichean	National Electronics and Computer Technology Center (NECTEC), Thailand
9	Dr.Sittiruk Roytrakul	National Center for Genetic Engineering and Biotechnology (BIOTEC), Thailand
10	Dr. Champadeng Vongdala	Mittaphab Hospital, Lao PDR
11	Dr. Keoudone THAMMAVONG	Mittaphab Hospital, Lao PDR
12	Dr.Toshimasa Umezawa	National Institute of Information and Communications Technology (NICT), Japan
13	Dr.Atsushi Matsumoto	National Institute of Information and Communications Technology (NICT), Japan
14	Dr. Kouichi Akahane	National Institute of Information and Communications Technology (NICT), Japan
15	Dr. Hiroshi Emoto	National Institute of Information and Communications Technology (NICT), Japan
16	Prof. Tetsuya Kawanishi	Waseda university/NICT, Japan
17	Prof. Shosuke Kawanishi	Suzuka University of Medical Science
18	Mr. Nishino Hisanori	NICT in Asia center, BKK, Thailand

19	Mr. Kazuo Imai	Imai engineering, Japan
20	Dr. Naoya Wada	National Institute of Information and Communications Technology (NICT), Japan
21	Dr. Yuto Tanaka	National Institute of Information and Communications Technology (NICT), Japan
22	Dr.Somchai Pinlaor	MD KKU, Thailand
23	Dr.Chavis Srirach	EN KKU, Thailand
24	Dr.Pobporn Danvirutai	EN KKU, Thailand
25	Dr.Kitti Intuyod	MD KKU, Thailand
26	Dr.Apisit Chaidee	MD KKU, Thailand
27	Dr.Sirinapha Klungsaeng	MD KKU, Thailand
28	Dr.Chawalit Pairojkul	MD KKU, Thailand
29	Ms.Aye Myat Mon	AMS KKU, Thailand
30	Ms.Narumon Mahaamnad	MD KKU, Thailand
31	Ms.Phonpilas Thongpon	MD KKU, Thailand
32	Mr.Thatsanapong Pongking	AMS KKU, Thailand
33	Mr.Suppakrit Kongsintaweesuk	AMS KKU, Thailand
34	Ms.Keerapach Tunbenjasiri	AMS KKU, Thailand
35	Mr.Nutchanon Pinlaor	MD KKU, Thailand
36	Dr.Porntip Pinlaor	AMS KKU, Thailand
37	Dr.Raynoo Thanan	MD KKU, Thailand
38	Dr.Chadamas Sakonsinsiri	MD KKU, Thailand
39	Mr.Pakornkiat Tanasuka	MD KKU, Thailand
40	Ms.Sasitorn Chomwong	MD KKU, Thailand
41	Mr.Naruechar Charoenrum	MD KKU, Thailand
42	Mr.Thet Htun Oo	MD KKU, Thailand

43	Ms. Waleeporn Kaewlert	MD KKU, Thailand
44	Ms. Rara Fentari	MD KKU, Thailand
45	Ms. Ei Htet Htet Khin	MD KKU, Thailand
46	Ms. Kanwara Sonnara	AHS, BU, Thailand
47	Mr. Witsavawit Boonying	EN, KKU, Thailand
48	Mr. Sorrakrit Wannaawong	EN, KKU, Thailand
49	Mr. Napongsadis Khrueangph	EN, KKU, Thailand
50	Mr. Pollasate chuneterasart	EN, KKU, Thailand
51	Ms. Jutamas Pidech	EN, KKU, Thailand
52	Ms. Oraya sahat	PH, KKU, Thailand
53	Ms. Kodchakorn Khemtonglang	EN, KKU, Thailand
54	Ms. Chotinut Jongjaihan	EN, KKU, Thailand
55	Ms. Raksawan Deenonpoe	MD KKU, Thailand
56	Ms. Chinnamai Wongseecha	MD KKU, Thailand
58	Mr. Peerawich Donthaisong	MD KKU, Thailand
59	Ms. OHNMAR ZAW	AMS KKU, Thailand
60	Ms. Sarai Srichai	MD KKU, Thailand
61	Ms. Panitnipa Siriboon	MD, KKU, Thailand
62	Ms. Benjawan Kaewseekhao	MD, KKU, Thailand
63	Ms. Chotima Potisap	MD, KKU, Thailand
64	Prof. Wanchai Maleewong	MD, KKU, Thailand
65	Ms. Martha Magdalena	MD, KKU, Thailand
66	Ms. Putu Ririn Andreani	MD, KKU, Thailand
67	Dr. Hiroto Tanaka	NICT, Japan
68	Dr. Phetsamone Arounlangsy	Mittaphab Hospital, Lao PDR

IV. Summary of the activities corresponding to the objectives.

This two-day workshop, with a budget of approximately 107,226 THB, aims to provide a comprehensive update on cholangiocarcinoma (CCA) research and the latest developments in electrochemical and photonic biosensors. It also serves as a one-year progress review for the ASEAN IVO project's onsite mission, facilitating team formation and strategic planning to achieve the project's goals.

Key objectives and activities include:

1. Knowledge Exchange:

Presentations by renowned experts in CCA and biosensor technology:

- Prof. Shosuke Kawanishi on the mechanisms of opisthorchiasis-associated CCA
- Prof. Chawalit Pairojkul on CCA phenotypes and genesis in fluke-endemic and fluke-free areas
- Prof. Tetsuya Kawanishi on innovations in photonic and electrochemical biosensors
- Prof. Nipon Theera-Umpon on silicon photonic-based biosensors for diagnosis
- Etc.,

2. Project Progress Review:

Teams from MD-KKU, EN-KKU, CMU, NECTEC, BIOTEC, TMEC and Lao PDR. will present their first-year activities and outline plans for the second year.

3. Collaborative Planning:

Discussions on future activities to ensure project objectives are met.

NICT team to provide guidance on project management and technical approaches.

4. Practical Experience and Networking:

Site visits to KKU campus, BIOBANK, Central Laboratory of Pathology at Srinagarind Hospital, and the Cholangiocarcinoma Research Excellent Center.

These visits offer hands-on experience, networking opportunities, and inspiration for innovative problem-solving.

5. Skill Development:

Participants will gain insights into emerging trends and advancements in biosensor technology, with a focus on improving diagnostic accuracy and patient care.




6. Team Building:

Activities designed to build trust, confidence, and showcase achievements among research teams.

The workshop structure ensures a balance between theoretical knowledge, practical applications, and strategic planning. By bringing together experts and project teams, it fosters an environment conducive to knowledge sharing, collaboration, and innovation in the fields of CCA research and biosensor technology. This comprehensive approach aims to accelerate progress towards the project's ultimate goals of improving CCA diagnosis and treatment through advanced biosensor applications.

V. Others

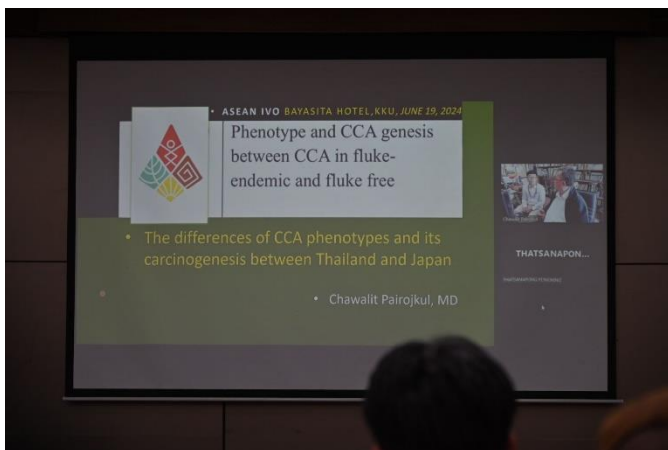
(I) Picture of the activities.

Picture(s) of the event	Picture description
	<p>Announcement of the workshop</p>
	<p>Opening remark by Mr. Nishino Hisanori, Director of NICT Asia Center in BKK, Thailand</p>
	<p>Group photos of participants after opening remarks</p>



The invited speakers talk on their topics

-Prof. Shosuke Kawanishi, Suzuka University of Medical Science, Japan



-Prof. Chawalit Pairojkul, Faculty of Medicine, Khon kaen University, Thailand



-Prof. Tetsuya Kawanishi,
Waseda University/NICT,
Japan



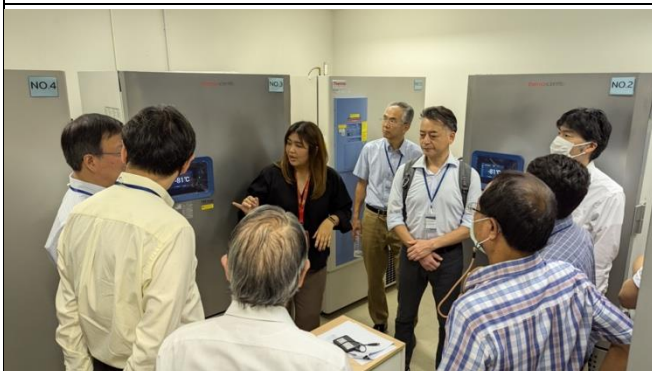
-Prof. Nipon Theera-Umpon,
director of Biomedical
Engineering Institute, CMU,
Thailand



The participants have
discussed on the speaker topic
on day 1 workshop, 20th June,
2024.



Group discussion on day 2
(21st June 2024)



Visit Biobank, at Vejwachakan
Building

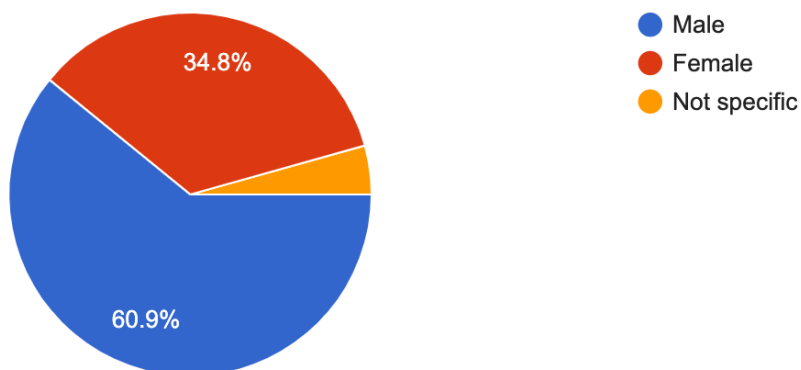
	<p>Visit Biobank, at Vejwachakan Building and Research Affair, MDKKU, and Cholangiocarcinoma research institute (CARI)</p>
	<p>Visit Pathology laboratory center</p>
	<p>Visit Srinagarind Hospital</p>
	<p>Visit CCA excellent center</p>



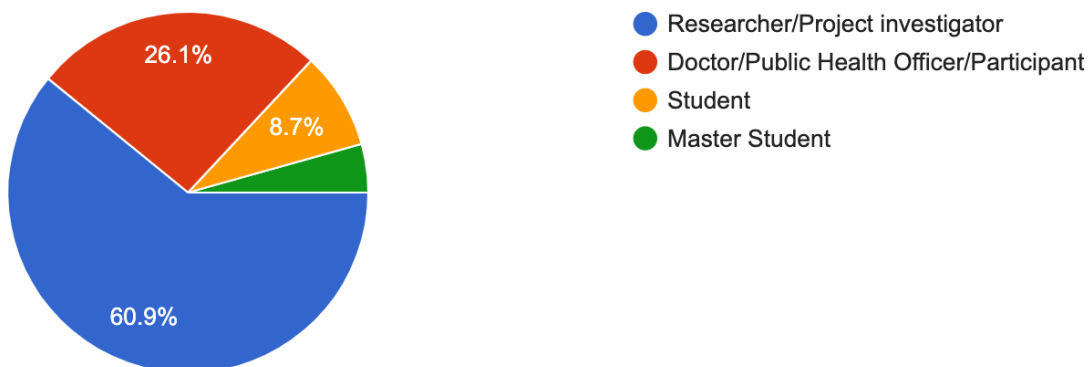
Closing remark by Mr. Hiroshi Emoto, ASEAN IVO secretariat.

(II) Evaluation results

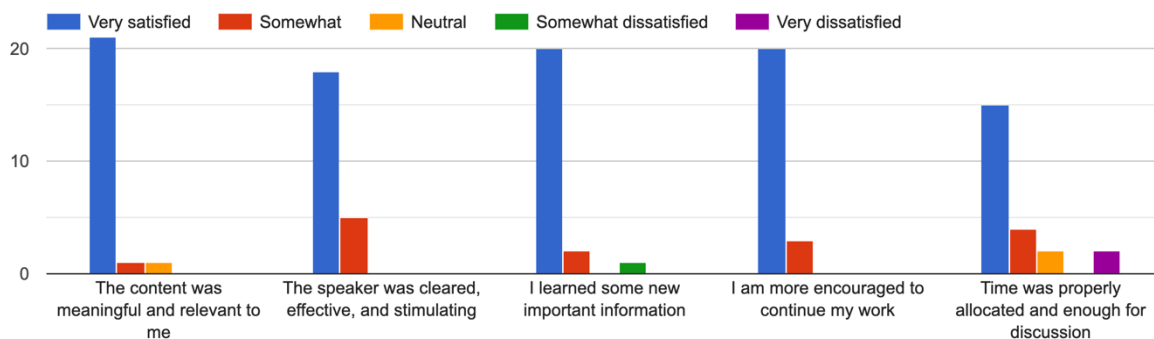
(1) Gender of the evaluate persons.



(2) Role of the evaluate persons.



(3) Meeting content evaluation.



Project Leader: Prof.Somchai Pinlaor
 Institution of the Project Leader: Khon Kaen University
 Date: June 26th, 2024