

Opportunities For the Medical Sector in Thailand

Innovation and R&D Support For the Healthcare Sector In Thailand

Prof. Dr. Sansanee Chaiyaroj

Program Management Unit For Competitiveness (PMU-C)

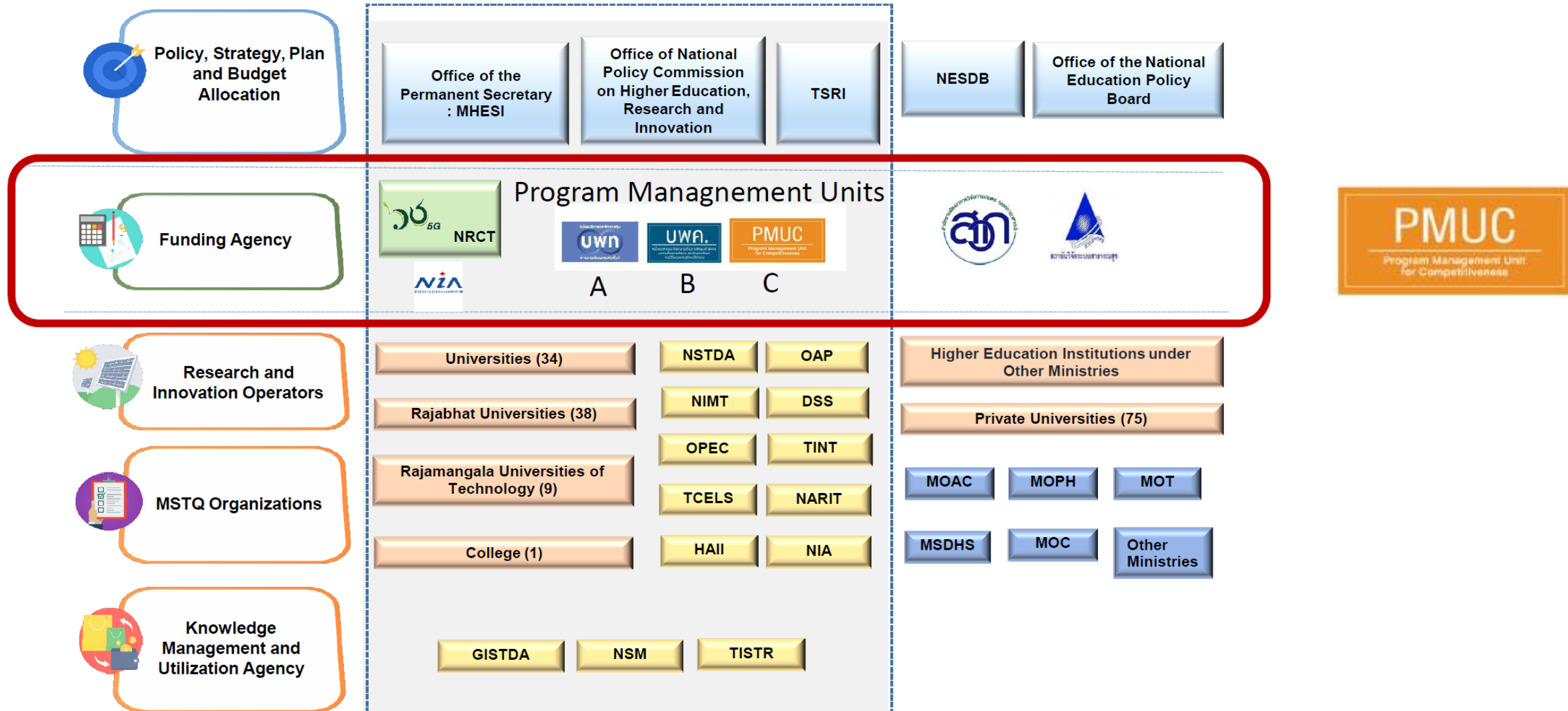
Webinar Platform 10:00-11:50 am

July 1, 2021

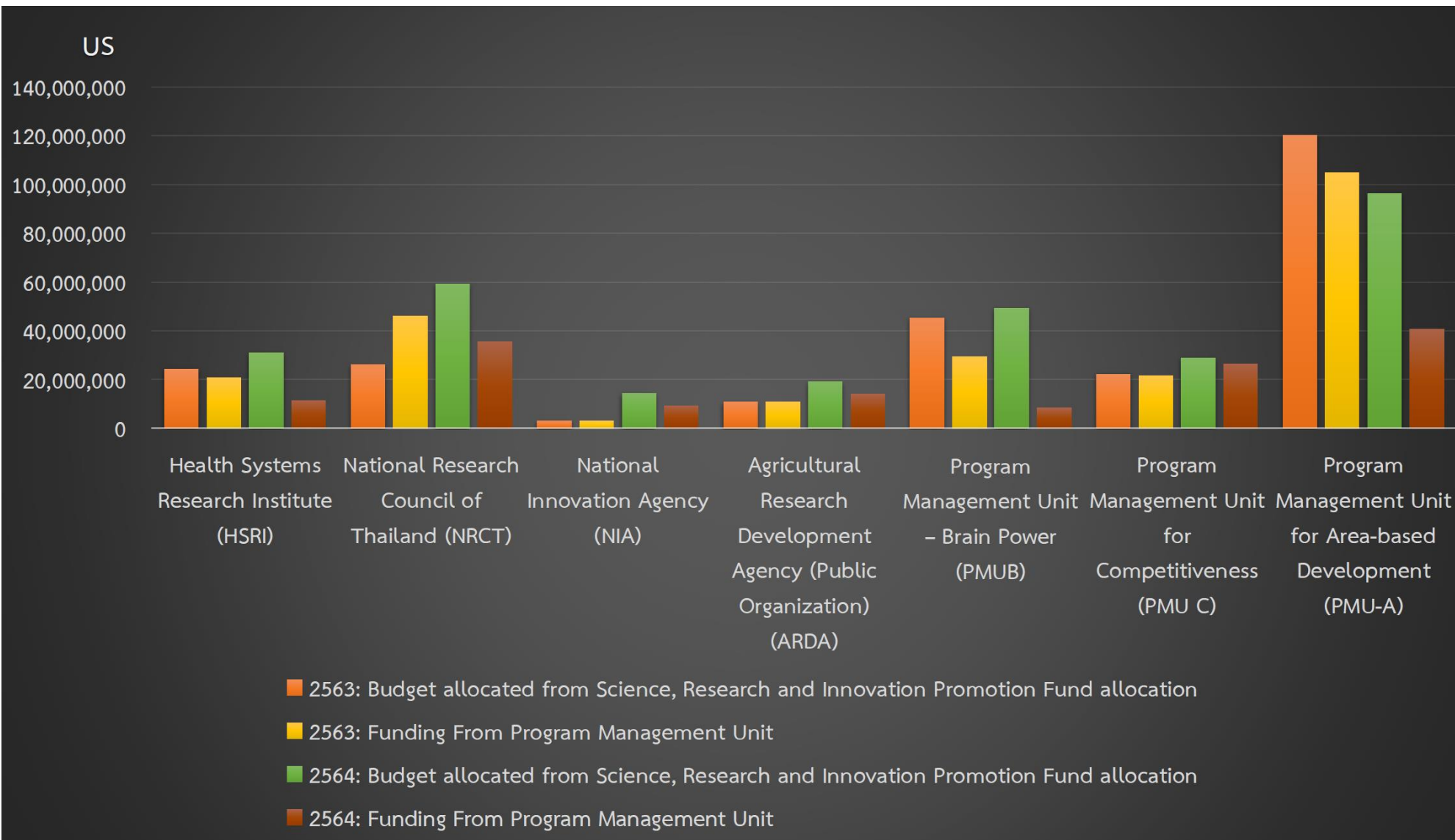
Organization of Thai Research and Innovation Agencies

Ministry of Higher Education, Science, Research and Innovation (MHESI)

Other Ministries



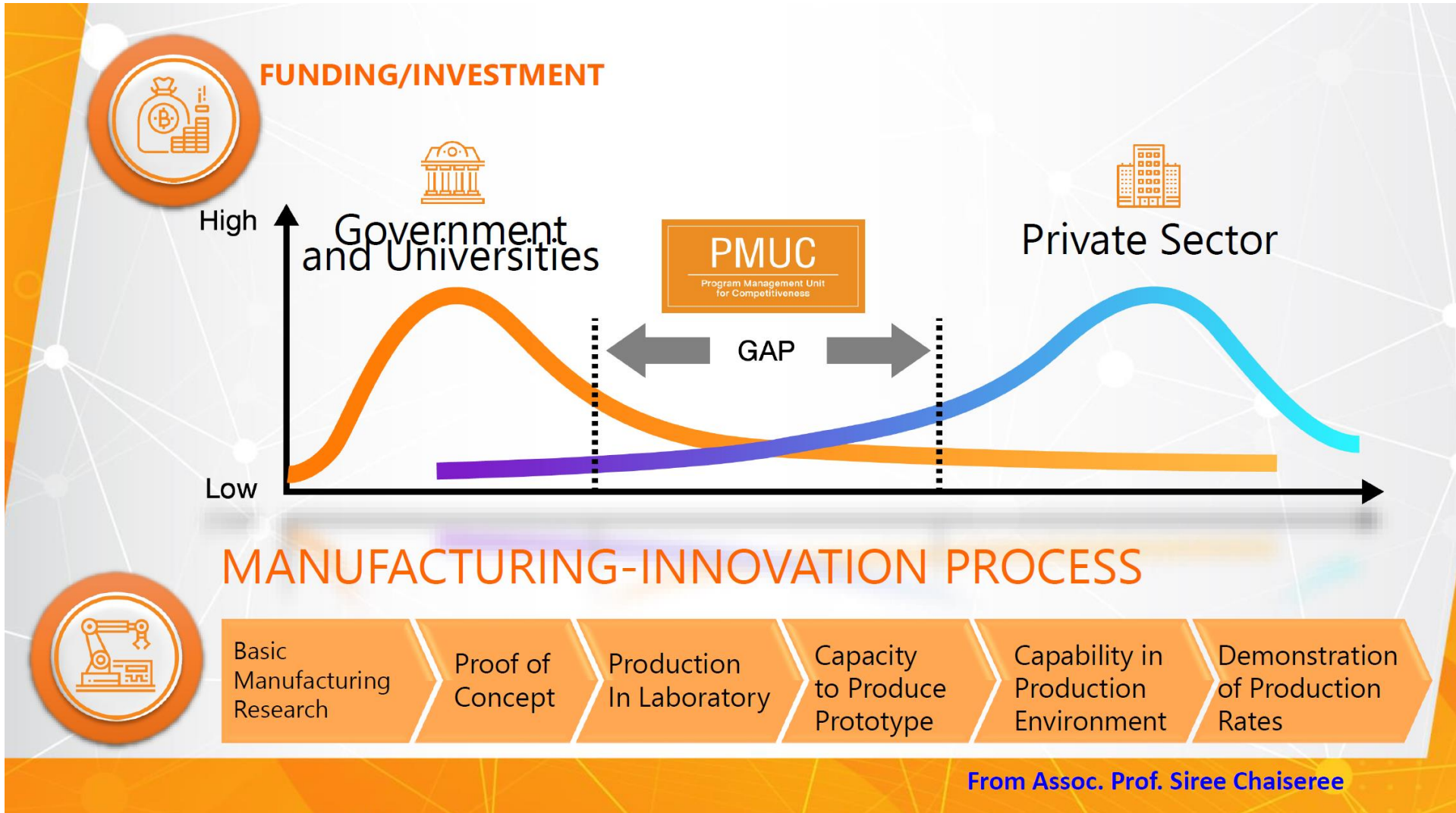
Research Budget Allocations from Thailand Science Research and Innovation (TSRI)



Medicine and healthcare RDI funds comes from

- 1. HSRI**
- 2. NRCT**
- 3. PMU-C**

PMUC Funding Schemes

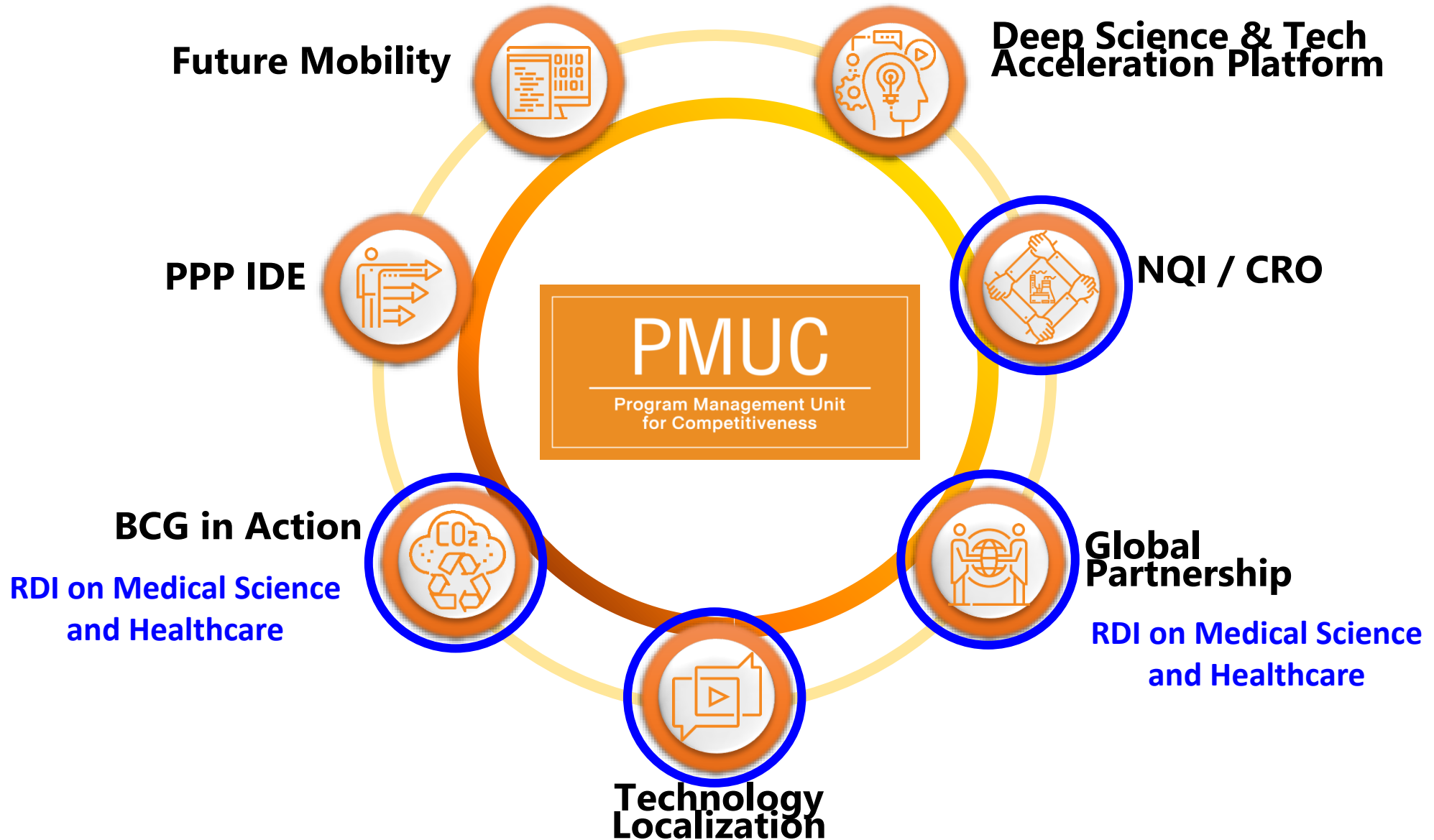


- Universities (Academia)
- University-Industry JV
- Spin-off Companies
- Start-ups
- SME in collaboration with University
- Multinational Company with university collaboration

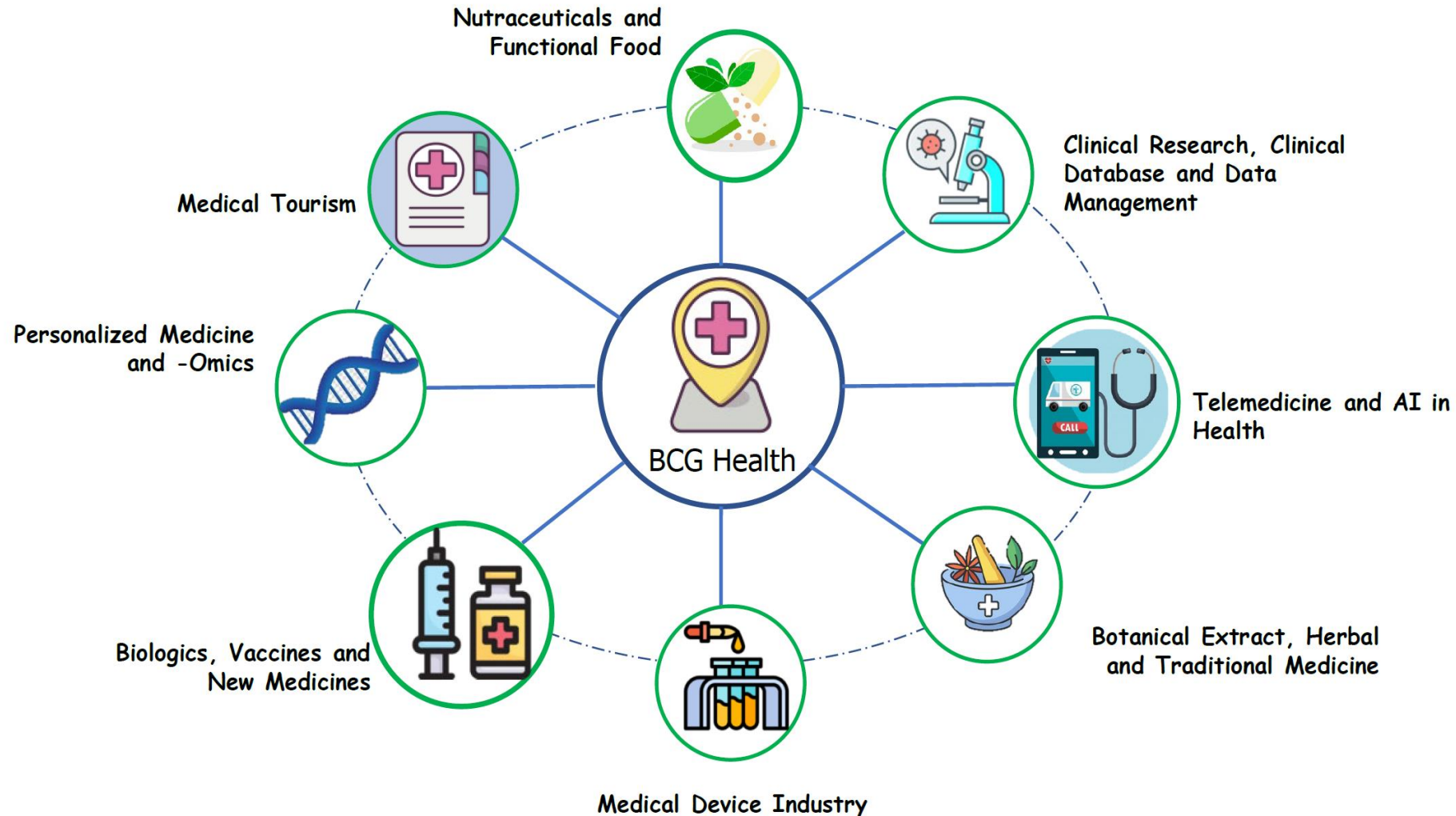


Triple & Quadruple Helix Model of Innovation

Strategic Programs of PMUC



Different Research Areas of Medical Innovation



Research, Development, Innovation and Manufacturing

Example I. Siam BioScience Co., Ltd.

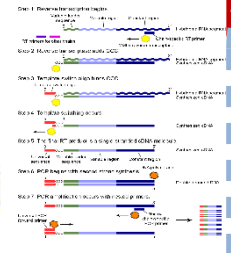
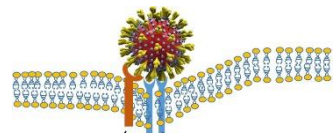


Value Chain of Realtime RT-PCR Diagnostic Kit Development to Market

Regulatory Compliance

Co-development of DMSc, MOPH and Siam Bioscience, Co., Ltd.

Scientists from the Department of Medical Sciences, Ministry of Public Health



ISO 13485



Discovery

POF

IP Protection



Negotiation
-Upfront Fee
-%Royalty Fee

Thai FDA -Registration
Third Party Usability Testing

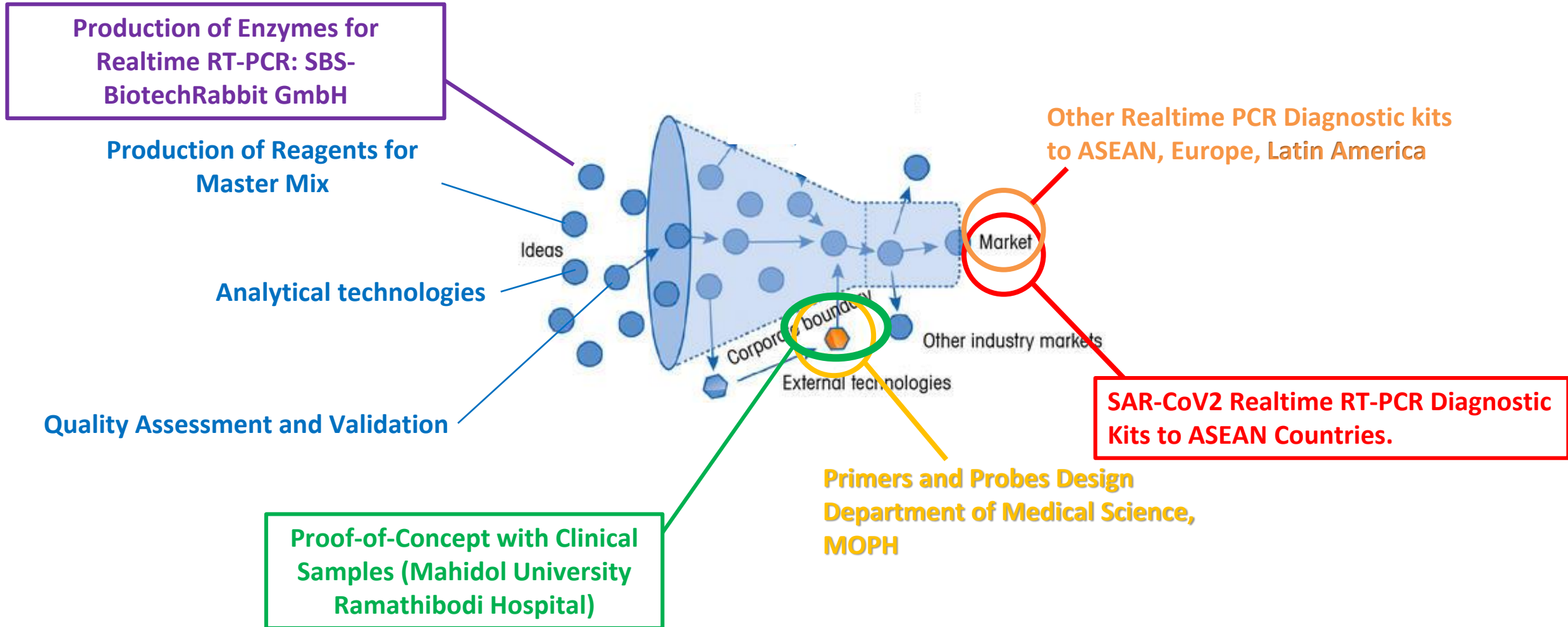
Output & Outcome

1. Production for DMSC
2. Export to ASEAN Countries
3. Talents & Capability Building
4. Facilities & Infrastructure with International Standards
5. Reduce import of Foreign
6. National Securities



Open Innovation:
To Increase Confidence in Quality, Manufacturing, and Development of Second Generation Product and Shorten Time to Market

Siam Bioscience Co. Ltd.

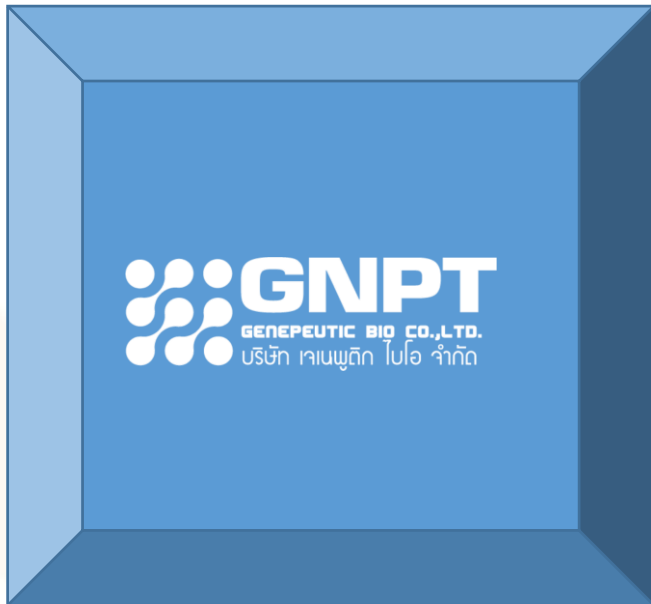


Advanced Therapeutic Medicinal Products



Thaifoods Group. Pcl

Mahidol University



Mr. Somphote Ahunai
CEO of Energy Absolute, Pcl

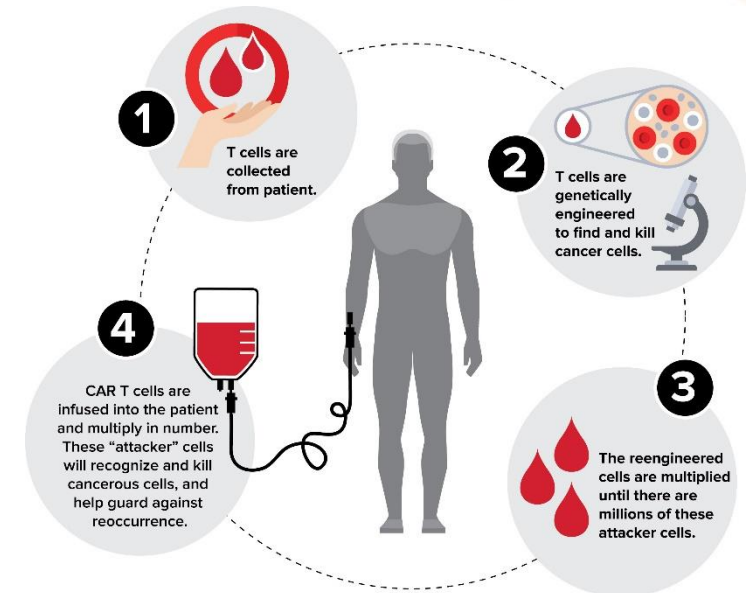


National Science and Technology Development Agency



The Thailand Board of Investment (BOI) has approved business promotions for new projects in the field of advanced biotechnology, worth a combined 2.4 billion baht (around USD78 million) in investment, which include Genepeutic Bio, a biotech startup for advance therapeutic medical products (ATMPs) manufacturing.

The Mahidol/TCELS CD19 CAR constructs resulted from the research works developed by Prof. Dr. Suradej Hongeng and his team, Ramathibodi hospital, Mahidol University. The phase I clinical trial for evaluating toxicity and efficacy is expected to begin in early 2022. The CD19 CAR T-cells using in the clinical trial will be manufactured in Genepeutic Bio production facility.



CAR T-Cell Immunotherapy
TURNING THE BODY INTO A CANCER FIGHTER.

Botanical Extracts: Kratom and others



Teva Pharmaceutical Industries Ltd.



Interpharma GROUP

Interpharma
VALUE YOUR LIFE.



- A holding company listed in Stock Exchange of Thailand and specialize in research & development, production and distribution of holistic healthcare products for both human and animal

55% **Intervetta**
VALUE THEIR LIFE.

- A company specialize in research & development and distribution of animal healthcare products

60% **Interpetrina**

- A joint venture company between Interpharma PCL and Asian Sea Corporation PCL, specialized in research and development of innovative pet food products

100% **MODERN PHARMA**

- A pharmaceutical company developing & producing pharmaceutical products for human and animals.

51% **บริษัท อินเทอร์เน็ตฟาร์มา-ชีวจี จำกัด**
Interpharma-ZEAvita Co., Ltd.

- A joint venture company between Interpharma PCL and Thai Union Group PCL, specialized in research and development of innovative fish based Nutraceuticals

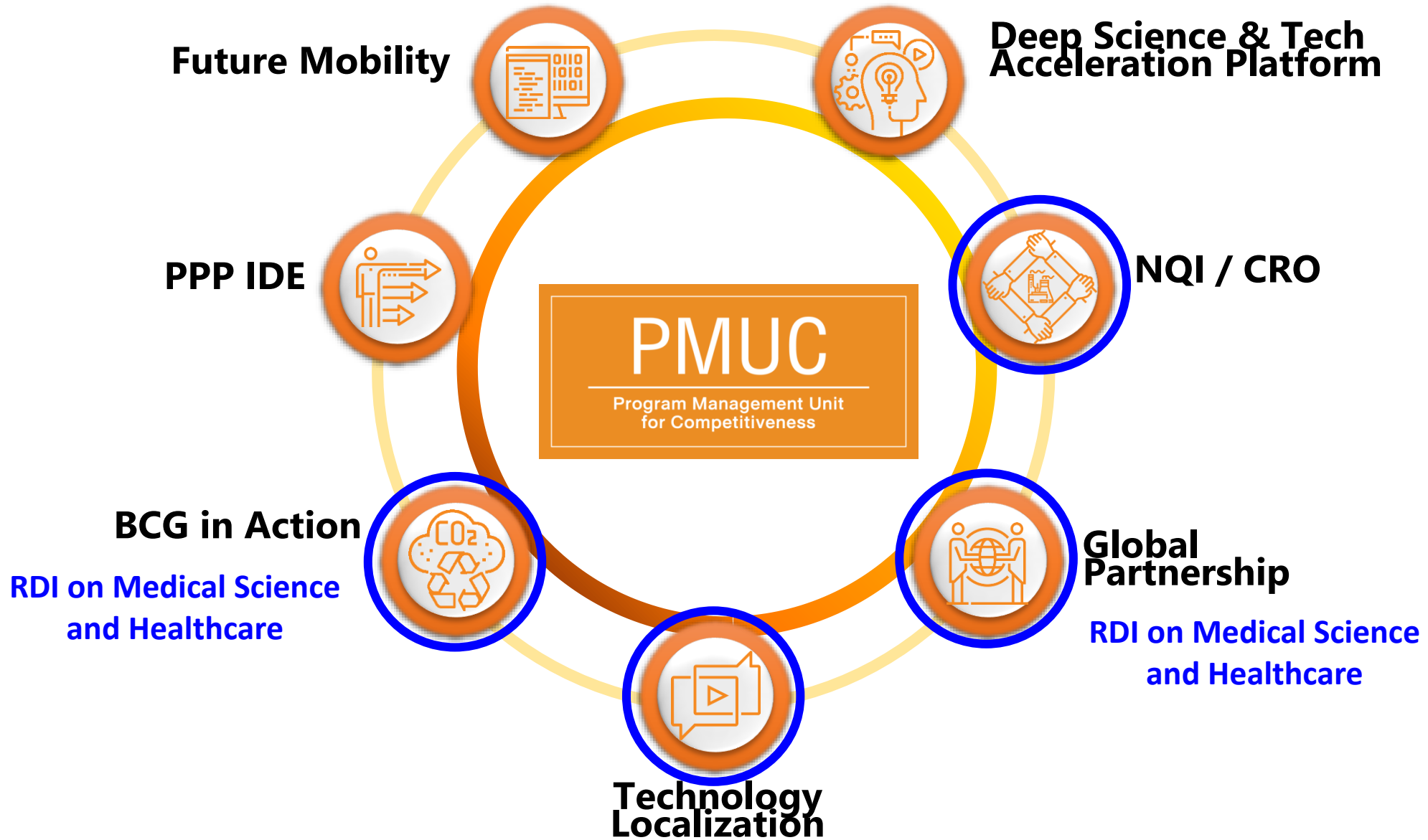
**CDMO: Siam BioScience Co.,Ltd.
Kinggen Biotech Co., Ltd.
Bionet Asia Co., Ltd.**

*Growth Factors>>>> Cosmeceuticals and Wound Healings
Vaccine and Biologics Developemnt and Productions*

Abbrev.	Name	Biopharma Cosmeticeutical Research			Function	Status
		*	*	*		
EGF	Epidermal growth factor	*	*	*	1,4	Finish
a/bFGF	acidic/basic fibroblast growth factor	*	*		2,3,4,5	Finish
IGF-1/2	Insulin-liked growth factor 1/2	*	*	*	1,2	Finish
VEGF	Vascular epithilial growth factor	*	*		5	Finish
TGF-B1	Transforming growth factor	*	*		1,2,3	Finish
KGF	Keratinocyte growth factor	*	*	*	1	Finish
PDGF	Plelete-derived growth factor	*	*		2,3,4	Finish
IL-2	Interleukin-2	*		*	Proliferation	Finish
BMP-2	Bone morphogenesis protien-2			*	Proliferation	Finish
SCF	Stem-cell growth factor	•		*	Proliferation	Not start
NGF	Nerve growth factor	•		*	Proliferation	Not start



Strategic Programs of PMUC



BIOCOMPATIBILITY TESTING OF MEDICAL DEVICES

Irritation Tests
ISO 10993-10

Cytotoxicity Tests
ISO 10993-5

Genotoxicity Tests
ISO 10993-3

Sensitization Tests
ISO 10993-10

Hemocompatibility Tests
ISO 10993-4



Systemic Toxicity Testing
ISO 10993-11

Implantation Tests
ISO 10993-6

Ocular Biocompatibility Test
ISO 9394

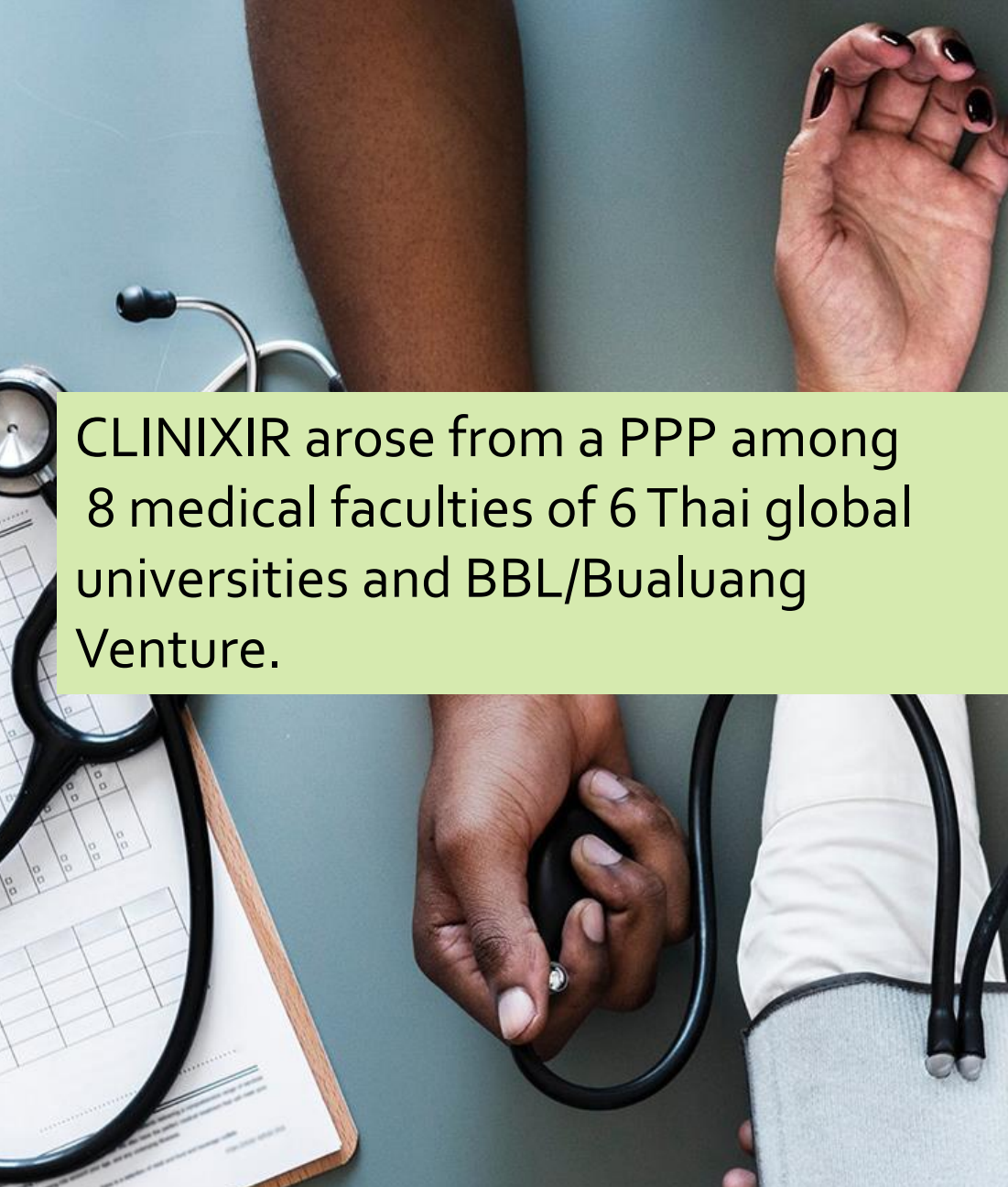
Cytotoxicity Test of Contact Lenses
ISO 18189



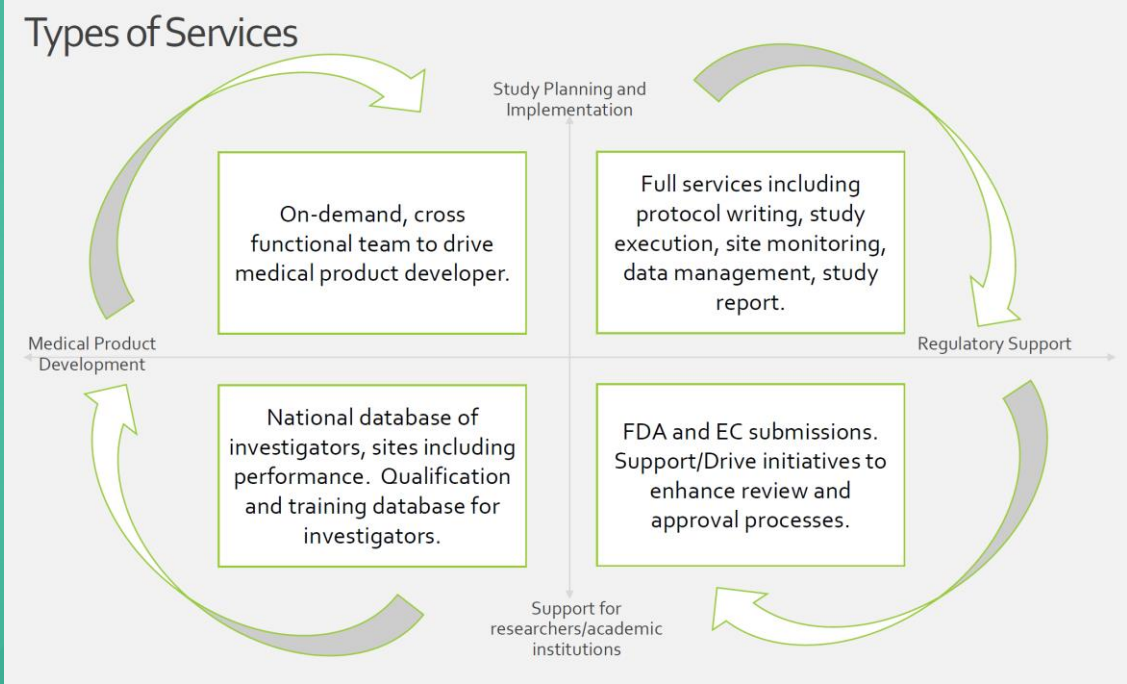
Biocompatibility Testing

- Toxicological testing of devices comes under the rubric of "Biocompatibility Testing"
- Safety assessment of medical devices is guided by toxicology studies recommended by the Biological Evaluation of Medical *Devices Technical Committee of the International Organization for Standardization (ISO) documents 10993* (ISO 10993 Technical Committee).
 - The ISO guidelines are compendial methods;
 - described in the *U.S. Pharmacopoeia (USP)*





CLINIXIR arose from a PPP among 8 medical faculties of 6 Thai global universities and BBL/Bualuang Venture.



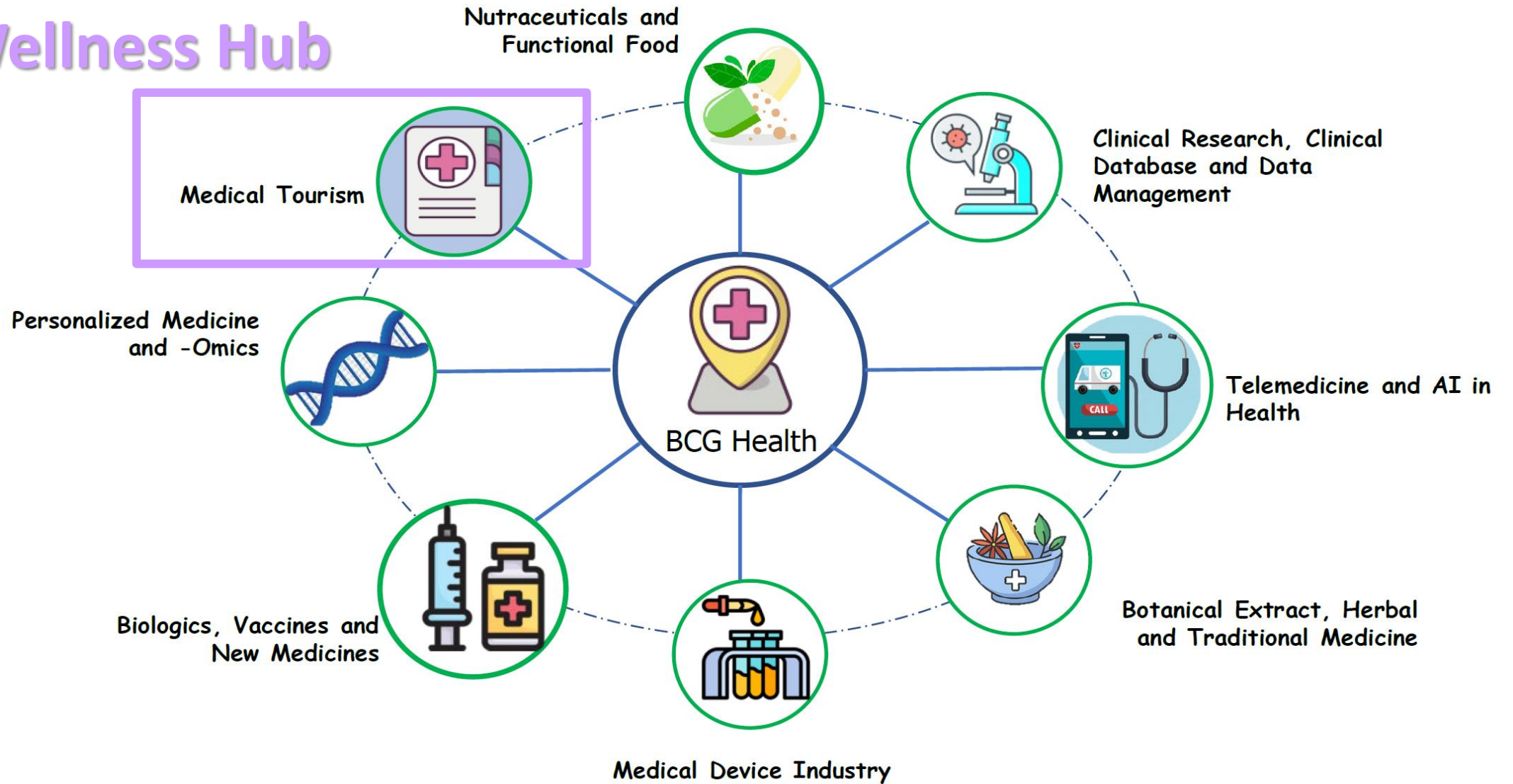
Clinixir
One-stop clinical research services
for Thailand

Clinixir Co. Ltd.

Asia Centre Building, 15th Floor, 173/10 South Sathorn Road, Thung Maha Mek, Bangkok Thailand 10120

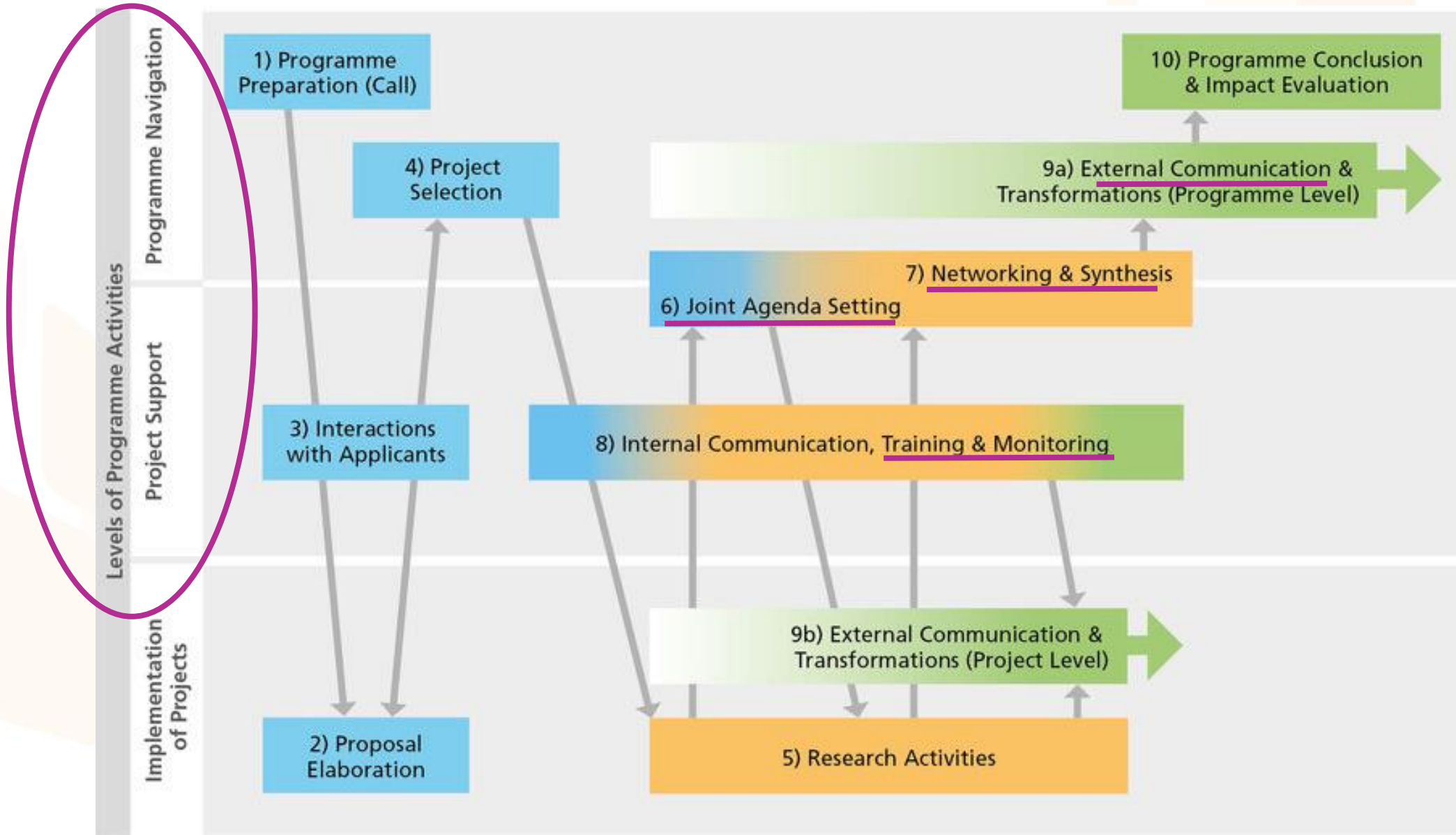
Different Research Areas of Medical Innovation

Wellness Hub



Research, Development, Innovation and Manufacturing

In Summary



THANK YOU



กระทรวงการอุดมศึกษา วิทยาศาสตร์ วิจัยและนวัตกรรม
Ministry of Higher Education, Science, Research and Innovation



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