TMU-Research Center of Urology and Kidney

Monthly Meeting

Times：2025/1/16(Thursday) 9:00-10:00

Google meet link： https://meet.google.com/hai-agex-ayk

Meeting Chairperson：Kuan-Yu Hung

Participant：

【TMUH】Ming-Che Liu、Yao-Chou Tsai、Shauh-Der Yeh、Chien-Chih Wu、Hsiao-Yu Lin、Jeng-Cheng Wu、Ching-Hsin Chang、Wei-Chieh Chen、Fang-Yu Ku、Shih-Hsiu Lo、Te-Chao Fang、Hsi-Hsien Chen、Yen-Chung Lin、Chih-Chin Kao、Ching-Yi Chen、Shu-Ching Yeh、TING-EN TAI

【WFH】Yu-Ching Wen、Liang-Ming Lee、Ke-Hsun Lin、Yung-Wei Lin、Chi-Hao Hsiao、Syuan-Hao Syu、Chung-Howe Lai、Yung-Ho Hsu、Chih-Chen Hsu、Tso-Hsiao Chen、Cho-Hsing Chung 、Chung-Yi Cheng、Chung-Te Liu、Yun-Hong Yang、Ming-Che Lee、Yueh-Lin Wu、I-Wen Wu

【SHH】Mai-Szu Wu、Chia-Chang Wu、Chia-Hung Liu、Yi-Te Chiang、Kai-Yi Tzou、Wei-Tang Kao、Su-Wei Hu、Wen-Ling Wu、Mei-Yi Wu、Lie-Yee Hung、Cai-Mei Zheng、Yu-Wei Chen、Chia-Te Liao、Cheng-Hsien Chen、Hui-Wen Chiu、Po-Han Yu、Tze-Wah Kao、Kuan-Hung Lin

【SKMH】Yuh-Mou Sue、Chu-Lin Chou

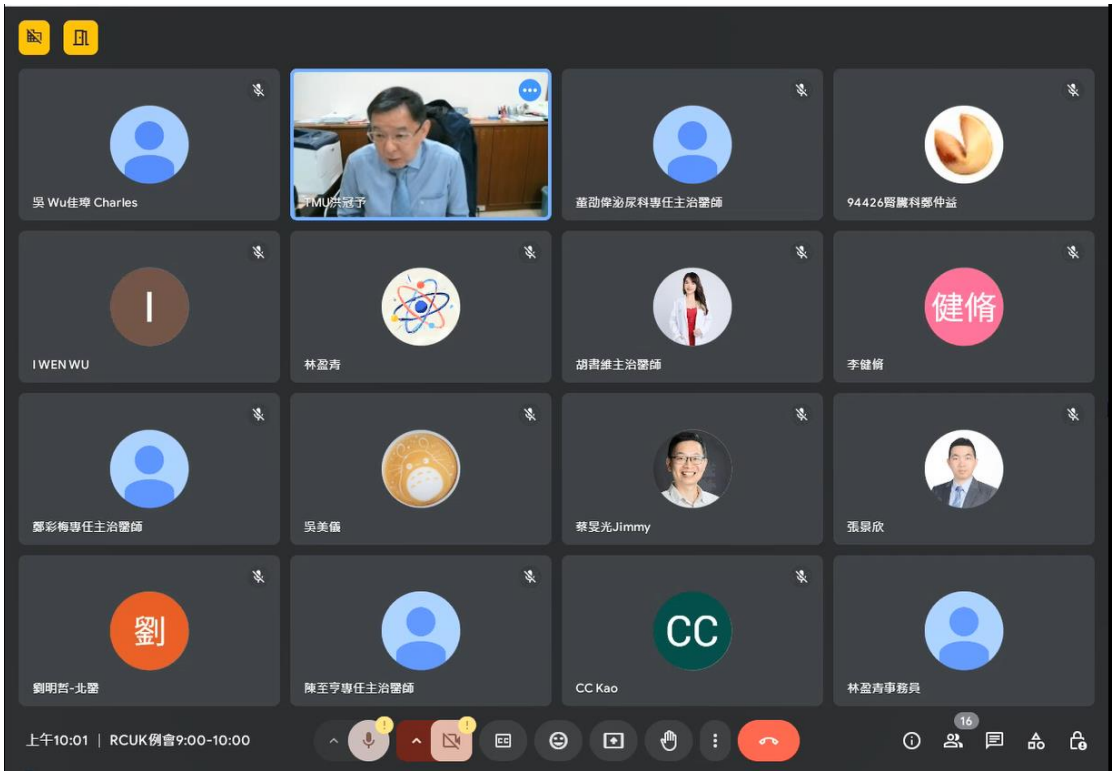
Chief：Mai-Szu Wu (President, TMU)、Chih-Cheng Hsu (Professor, NHRI)、Ke-Hung Tsui (Vice President, SHH) 、Shing-Hwa Lu

Agenda： 1.Progress report on the renal and urinary precision health plan and biological sample database

2. Chronic Kidney Disease Team

3. Urology Innovation Technology and Surgical Team

4. Severe Kidney Disease Team



臺北醫學大學
TAIPEI MEDICAL UNIVERSITY

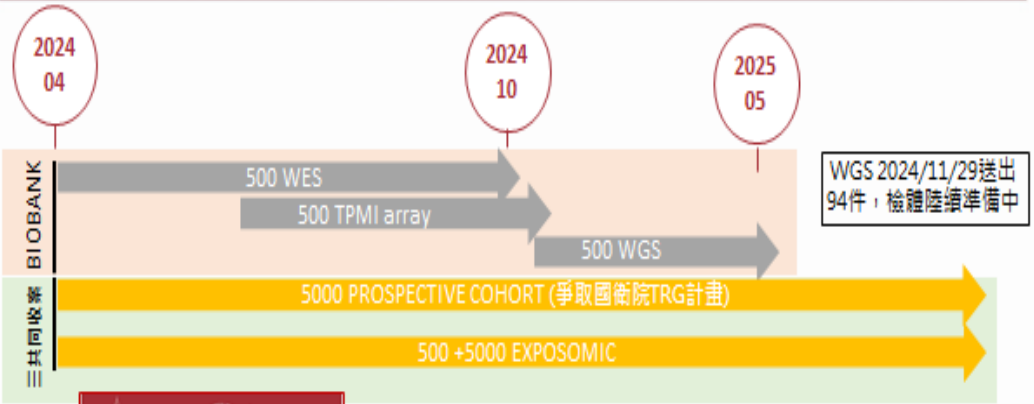
臺北醫學大學
泌尿腎臟研究中心

腎臟泌尿精準健康計畫及生物檢體資料庫進度報告

報告人：吳逸文 副教授

113年12月19日

精準腎臟健康計畫進度：



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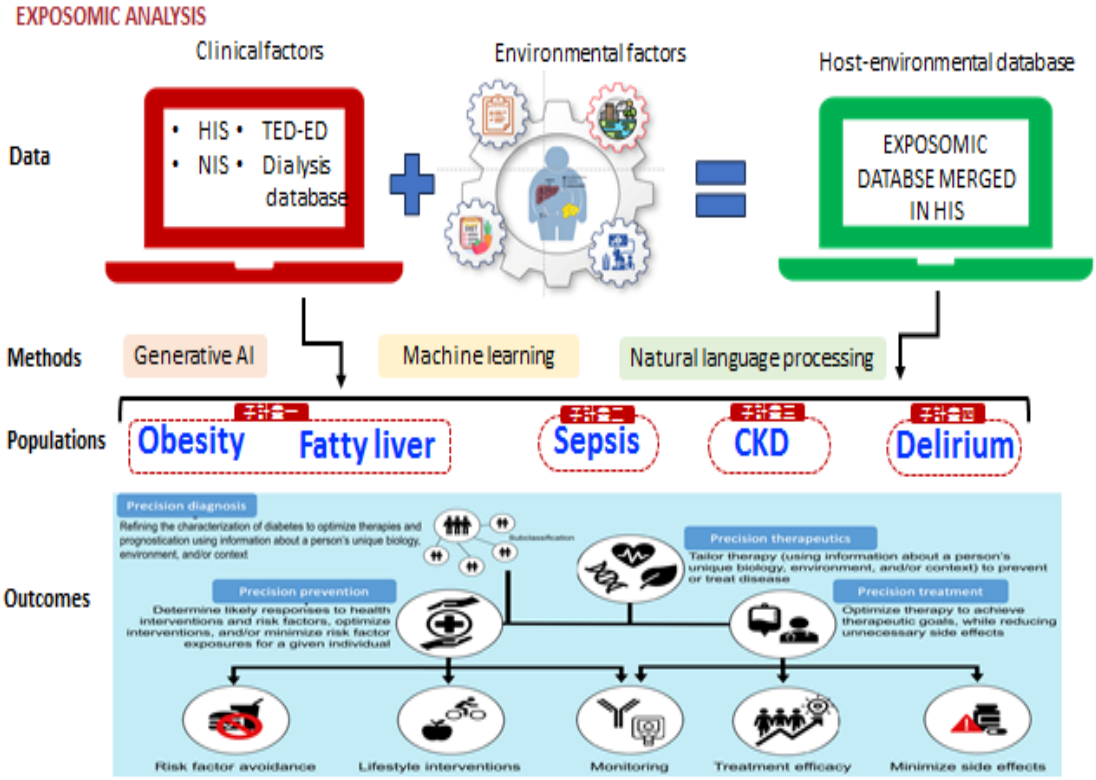
Biobank 收案時，公衛學生同時收集問卷

附醫	雙和	萬芳
高治圻	林冠宏	吳岳霖
吳逸文	廖家德	



One campus: 共同收案，共享資料，共同發表

- **Prospective Genomic Cohort Establishment:**

高治圻/吳逸文	廖家德/林冠宏	吳岳霖
IgA nephropathy	Polycystic kidney disease	Other kidney disease
	Diabetic kidney disease	

年度	月份	腎臟科_雙和_血液	腎臟科_附醫_血液	腎臟科_萬芳_血液
2024	7	0	1	0
2024	8	0	2	0
2024	9	0	7	0
2024	10	0	13	0
2024	11	0	11	0
2024	12	0	18	0

目前成果及未來工作

目前成果：

- 教育部深耕計畫：腎病精準醫學計畫（吳逸文, 2024/1-2024/12）
- 國際研討會：台灣腎臟醫學會-台馬泰國際研討會（吳逸文, 2024/12/14)

未來工作：

論文撰寫：TMU data, validation with All of US database（預計2025/02投出）

國科會計畫：2件（吳逸文，洪冠宇，已投出）

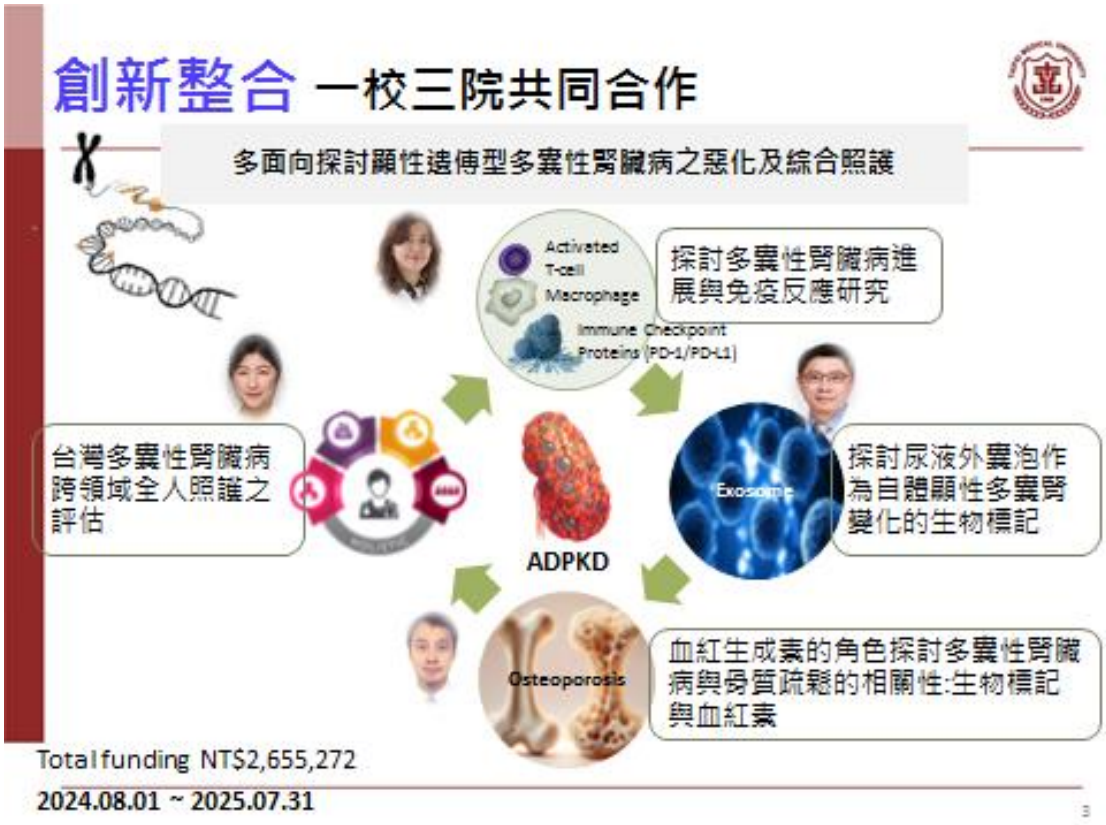
教育部深耕計畫：1件（吳逸文，已投出）

國衛院計畫：1件（吳麥斯，預計2025/03投出）

慢性腎病團隊

報告人：鄭仲益醫師 (萬芳醫院)

114.01.16



收案流程

- ≥ 18 years ADPKD 病人, PKD1 or PKD2
- Exclusion criteria:
  1. 接受過腎移植的病人
  2. 癌症患者或過去五年接受癌症治療的患者
  3. eGFR < 15 ml/min/1.73m^2
- 驗血、驗尿與問卷(全人照護)

探討多囊性腎臟病與骨質疏鬆的相關性

- Disrupted Ca-Pi homeostasis
- Impaired bone formation
- Enhanced bone resorption
- Altered bone matrix quality

CKD

- Defective **polycystins** lead to abnormal Ca signaling
- **Chronic inflammation**

計畫目標

- 三院一起收案增加病人數
- 跨領域全人照護: questionnaire
- 多囊腎免疫反應: serum
- 外泌體在多囊腎的生物標記角色: plasma, urine
- 釐清多囊腎病人在骨生成過程中的生理機制: serum

各院區個人發展- 國科會計畫

萬芳醫院

代謝體學導出的營養介入療法: 以色胺酸為模型揭示營養素阻止急性腎損傷至急性腎臟病的轉變

多年期: 2024-2027

北醫附設醫院

慢性腎臟病患之智慧醫療、AI早期偵測血管鈣化及評估復健延緩認知與身體機能衰退

一年期: 2024

雙和醫院

Etelcalcetide經由調控DUSP4和TRAF3路徑於慢性腎臟疾病-礦物質骨病變可改善硫酸吲哚酚引起的低骨轉換率

多年期: 2021-2024

What Makes Rezūm™ Water Vapor Therapy Unique?

Boston Scientific

Powered by Convective Water Vapor Energy, Rezūm energy to effectively treat lower urinary tract symptoms secondary is a fundamentally different way of applying thermal energy to benign prostatic hyperplasia (BPH).

The **THREE** key features that make Rezūm different from all other BPH therapies currently available are:

1. **Unique Heat Source** – Water Vapor Energy
2. **Unique Heat Transfer Mechanism** – Convection
3. **Uniquely Uses Prostate Anatomy** – Contained

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Unique Heat Source- Thermal Effects on Tissue[1,2]

Boston Scientific

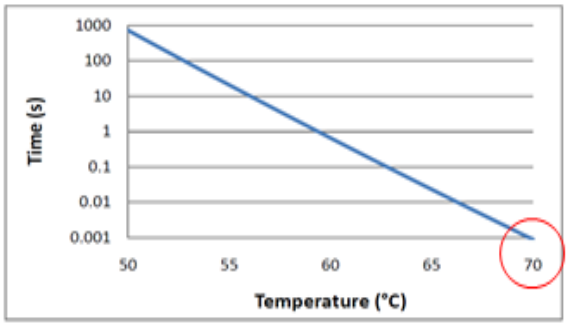

Figure 3. Graph of temperature vs. the time needed to cause tissue ablation (necrosis).[1]

At >70°C cell death is immediate and irreversible

During a Rezūm™ treatment, 103°C water vapor is convectively delivered into 37°C prostate tissue, increasing the temperature of tissue within each treatment area to approximately 70°C+ over the course of each 9 second treatment, resulting in instantaneous cell death[2].

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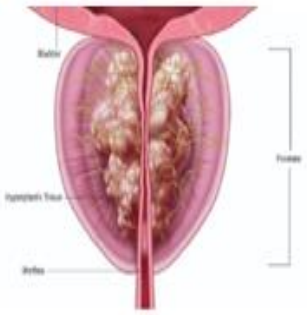
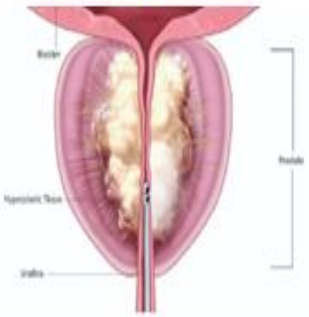
Thermal effect on Prostatic Tissue

Boston Scientific

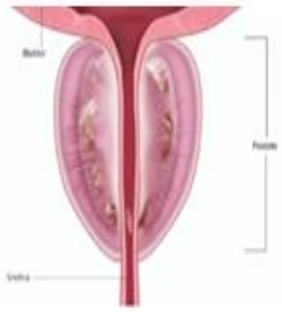
Before



During



After



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5-Year Data Overview[8]

Boston Scientific

Objective

- To evaluate the safety and efficacy of the Rezūm™ Water Vapor System and assess its effect on urinary symptoms secondary to benign prostatic hyperplasia (BPH)
- Primary Endpoints: safety and efficacy

Key elements of the study design

- Randomized, sham control trial (rigid cystoscopy). 197, 61
- Prostates between 30 and 80g
- Patients with a median lobe were not excluded
- Durability analysis: per protocol
- 60-month follow-up

5-Year Data:

- Authors: Kevin T. McVary, Marc C. Gittelman, Kenneth A. Goldberg, Kalpesh Patel, Neal D. Shore, Richard M. Levin, Marc Pliskin, J. Randolf Beahrs, David Prall, Jed Kaminetsky, Barrett E. Cowan, Christopher H. Cantrill, Lance A. Mynderse, James C. Ulchaker, Nicholas N. Tadros, Steven N. Gange, and Claus G. Roehrborn

- *Journal of Urology*, April 2021

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Rezūm System Pivotal Study[7]

Boston Scientific

Objective: To evaluate the safety and efficacy of the Rezūm System and assess its effect on urinary symptoms secondary to benign prostatic hyperplasia (BPH). Primary Endpoint: safety and efficacy.

Study Design: Level I - RCT 2:1 thermal therapy vs. control (rigid cysto); 15 U.S. sites; 197 subjects enrolled (136 thermal therapy, 61 control)

Main Outcome Measures: IPSS, QoL, Qmax, IIEF-EF, MSHQ-Function, MSHQ-Bother, Minimal Clinically Important Difference (MCID) in ED

Study Protocol: Subjects ≥ 50 yrs old; 30-80 cm^3 prostate; IPSS ≥ 13; Qmax 5 ≤ 15mL/s; daily dose of LUTS or ED meds prohibited; median lobes not excluded

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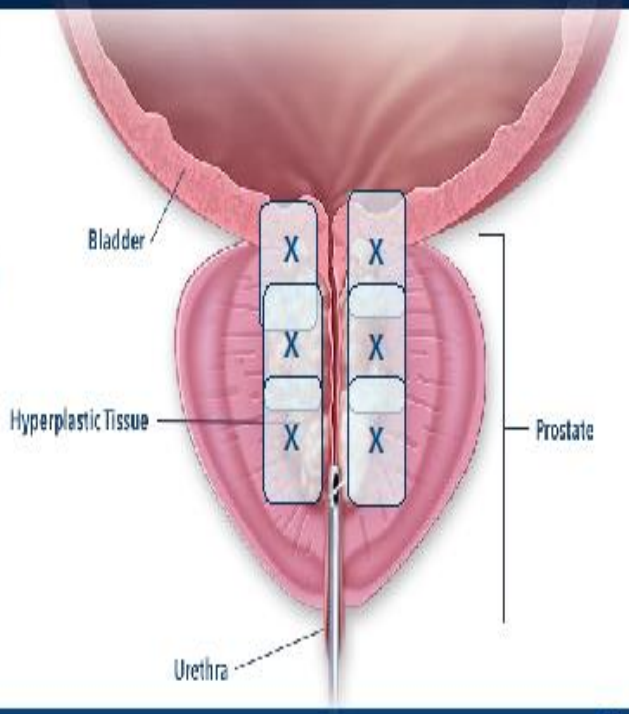
Objective of the Rezūm Procedure[10]

Boston Scientific

Create a thermal lesion the length of the prostatic urethra, along each lateral lobe.

Accomplished by:

- **Creating contiguous, overlapping lesions** between the bladder neck and proximal to verumontanum, ~1cm apart.
- **Targeting the bulk** of the adenoma.
- **Following the natural slope** of the urethra.



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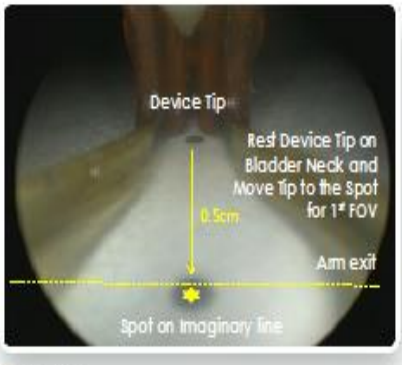
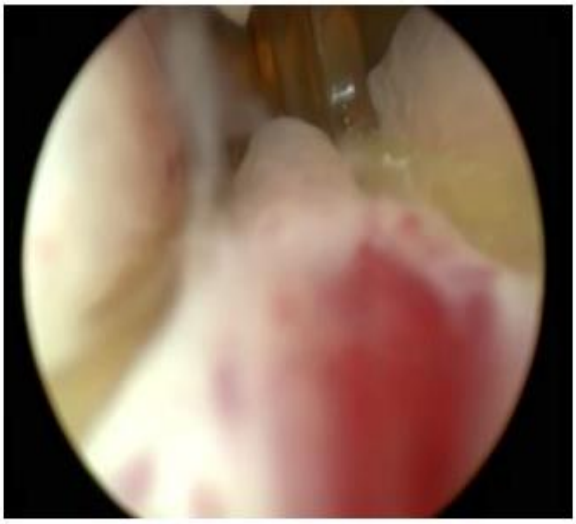
Using "Fields of View" (FOV) to Measure

Boston Scientific

1 Field of View = 0.5 cm

- The distance from the visible tip of the device to an imaginary line, level to where the device arms exit the screen.
- Treatments are spaced 1cm apart (2 FOVs)





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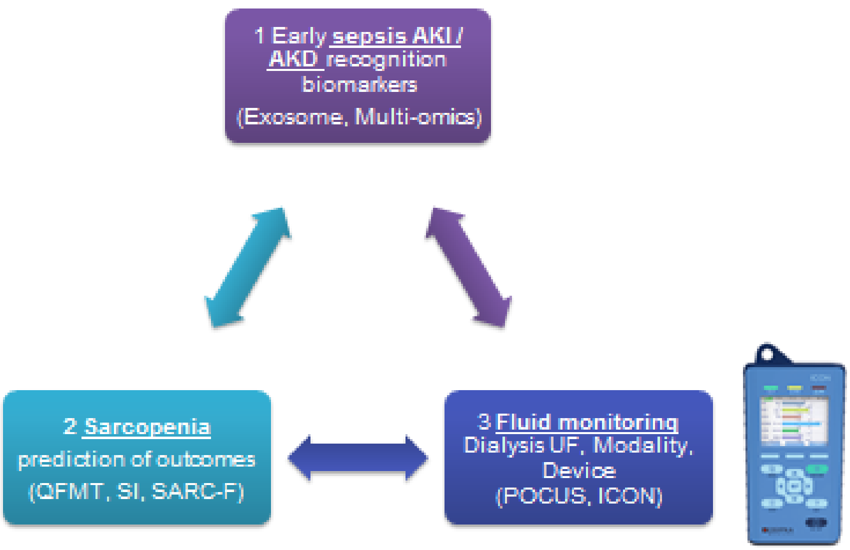
臺北醫學大學
TAIPEI MEDICAL UNIVERSITY

重症腎病團隊

報告人：高治圻
114.1.16

Critical-ill patients



Clinical samples collection

Project 1

Early AKI / AKD recognition biomarker

110/8/20~114/1/10，收案96個病人，含血液與尿液檢體

Project 2

Sarcopenia change in Critical-ill AKI patients

112/12/13~114/1/10，收案42個病人，含血液檢體

Project 2

Sarcopenia change in Critical-ill AKI patients

IRB 112/12/13已通過，到114/1/10為止，已收案42個病人

Critical-ill AKI patients

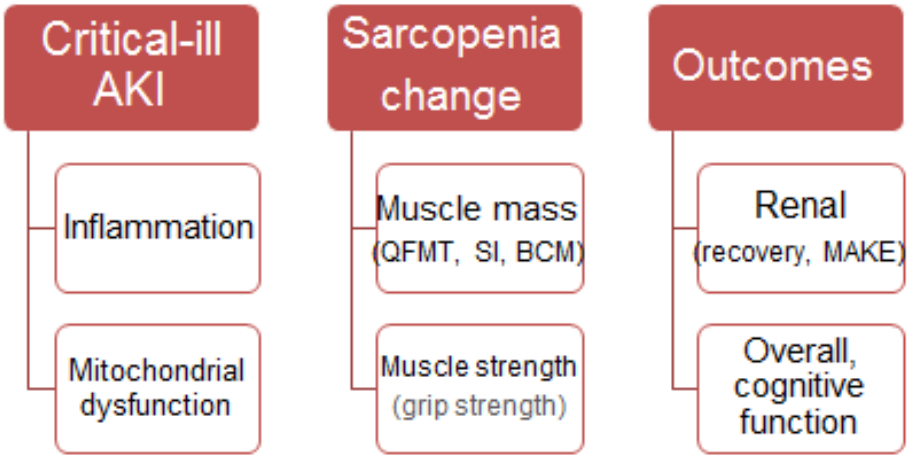
- Quadriceps femoris muscle thickness (QFMT) — D1, D8
- Sarcopenia index (SI) — D1, D8
- Body composition monitor (BCM) — D1, D8

* Gold standard for muscle mass: paraspinal muscle surface area at L4 (CTMSA)

Construct sarcopenia model to predict patients' outcomes

Project 2

Sarcopenia change in Critical-ill AKI patients



-MAKE (major adverse kidney events)
-QFMT (quadriceps femoris muscle thickness)
-SI (sarcopenia index)
-BCM (body composition monitor)

Project 3

Fluid monitoring at ICU

- Dialysis UF adjustment
- Modality influence
- Devices (ex. POCUS, ICON…) for fluid monitoring