TMU-Research Center of Urology and Kidney

Monthly Meeting

Times：**2025/3/13(Thursday) 9:00-10:00**

Google meet link： https://meet.google.com/ihn-wugo-jfv

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、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

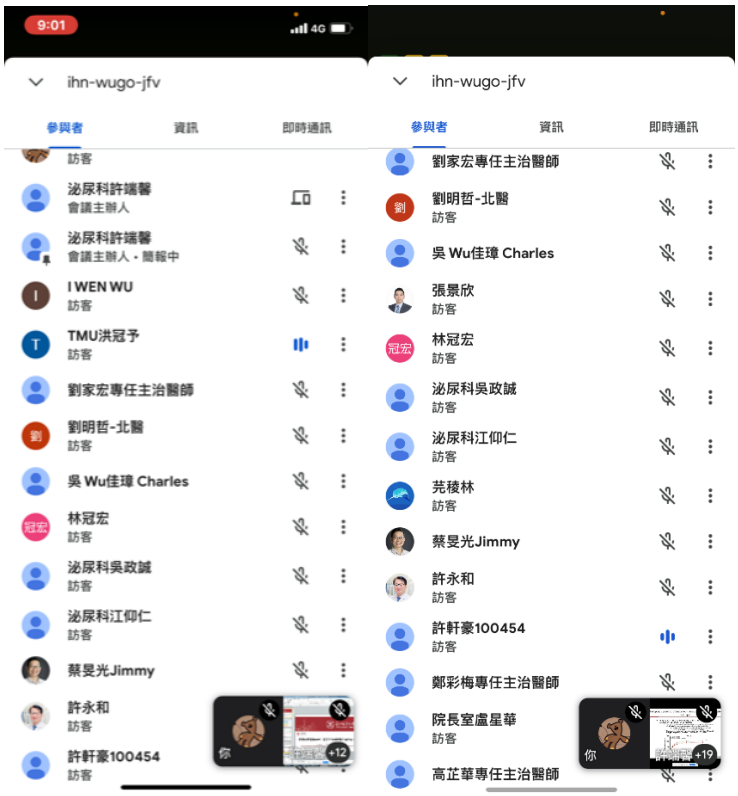
【SKMH】Yuh-Mou Sue、Chu-Lin Chou

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. Functional Urological Team

3. Acute Kidney Disease Team



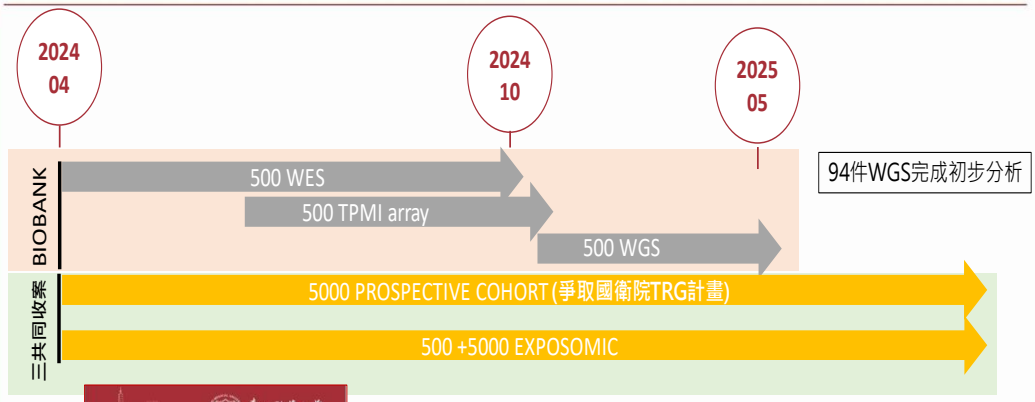
臺北醫學大學
泌尿腎臟研究中心
TMU Research Center of Urology and Kidney

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

114年3月13日

精準腎臟健康計畫進度：



https://docs.google.com/forms/d/e/1FAIpQLSeWgJ5cNSuaBjDkuUtRfqtUY7G5mW43UIG8jxj49klc9c5Sw/viewform?usp=pp_url&entry.1813552769=T20241105-01

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

IgA nephropathy

廖家德/林冠宏

Polycystic kidney disease

Diabetic kidney disease

吳岳霖

Other 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	腎臟科_雙和_尿液	腎臟科_附醫_尿液	腎臟科_萬芳_尿液	問卷_雙和	問卷_附醫	問卷_萬芳
2024	7	0	1	0	0	0	0	0	0	0
2024	8	0	2	0	0	0	0	0	0	0
2024	9	0	7	0	0	0	0	0	0	0
2024	10	0	13	0	0	0	0	0	0	0
2024	11	0	11	0	0	0	0	0	0	0
2024	12	0	18	0	0	0	0	0	0	0
2025	1	0	12	0	0	0	0	0	0	0
2025	2	0	10	1	0	0	0	0	10	0

目前成果及未來工作

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)
- **論文**： Polygenic Score for Kidney Function and Clinical Management through Whole-Exome Sequencing in the Taiwanese Population (已投搞)
- **計畫: 國科會**：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）

未來工作：

國衛院計畫：1 件（吳麥斯，預計2025/03 投出）

泌尿腎臟研究中心
RCUK

組別：功能性泌尿團隊
報告人: 萬芳醫院 許軒豪醫師
20250313

分析因膀胱纖維化導致膀胱功能損害之研究

- 研究背景: 膀胱纖維化導致功能失常，導致間質性膀胱炎/膀胱疼痛症候群
- 研究目的: 藉由分析結抗膀胱纖維化的pathway，找出可以間質性膀胱炎/膀胱疼痛症候群的藥物

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Biomedicine & Pharmacotherapy

journal homepage: www.elsevier.com/locate/biopha

Original article

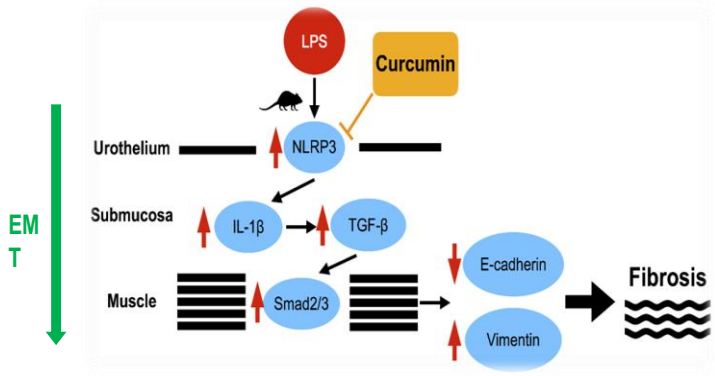
Therapeutic effect of modulating the NLRP3-regulated transforming growth factor-β signaling pathway on interstitial cystitis/bladder pain syndrome

Hung-Jen Shih [a,b,c], Chao-Yuan Chang [d,e,f], Chung-Howe Lai [a,1], Chun-Jen Huang [d,e,f,*,1]

[a] Department of Urology, Wan Fang Hospital, Taipei Medical University, Taipei, Taiwan
[b] Department of Urology, School of Medicine, College of Medicine, Taipei Medical University, Taipei, Taiwan
[c] Department of Urology, Changhua Christian Hospital, Changhua, Taiwan
[d] Integrative Research Centre for Critical Care, Wan Fang Hospital, Taipei Medical University, Taipei, Taiwan
[e] Department of Anesthesiology, Wan Fang Hospital, Taipei Medical University, Taipei, Taiwan
[f] Graduate Institute of Clinical Medicine, College of Medicine, Taipei Medical University, Taipei, Taiwan

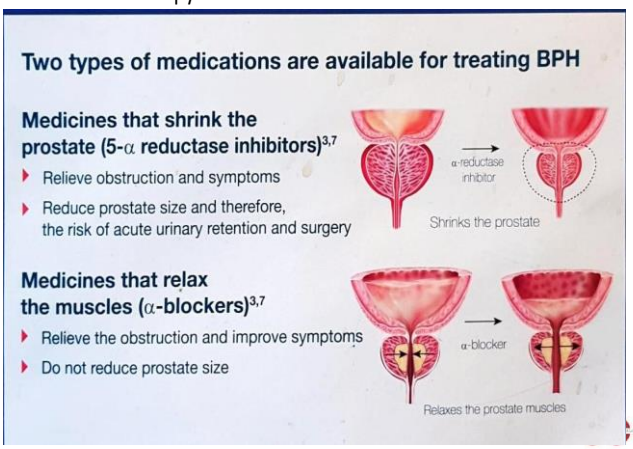
Results & Conclusion

- The pathogenesis of chronic inflammation -induced IC/BPS is associated with the NLRP3 inflammasome /IL-1β-related TGF -β/Smad pathway.
- Downregulation of the expression of this pathway through curcumin mitigates chronic inflammation -induced bladder injury .



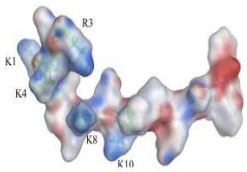
Medication for BPH

- Preventing or reducing bladder tissue remodeling in a timely manner is the treatment goal of BOO because delay treatment may induce irreversible bladder damage
  - A novel therapy that can stop or reverse bladder remodeling is in need for effective therapy of BOO.

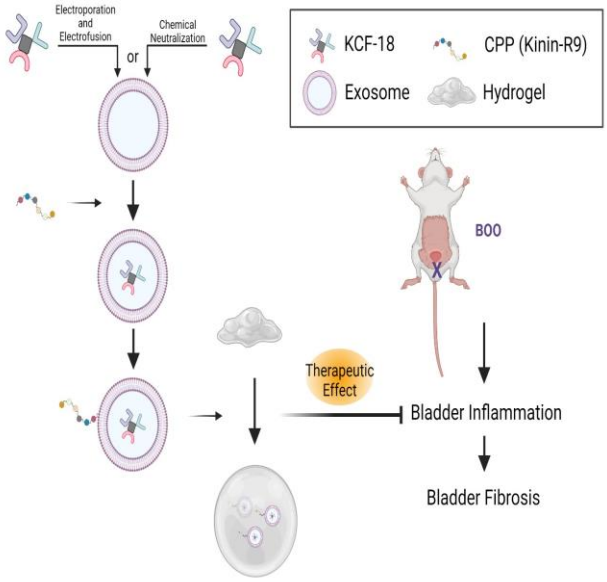


A novel cytokine inhibiting therapy : KCF-18

- KCF18 is a designed peptide which composed of 18 amino acids derived from the receptors of the TNF-α, IL-1β and IL-6.
  - The composition of KCF18 is N-terminal amino acids from TNF receptor-1, middle amino acids from IL-1 receptor and C-terminal amino acids from IL-6 receptor.
  - The anti-inflammatory effects of KCF18 have been confirmed in in vitro and in vivo studies.
- This novel peptide may serve as an effective anti-inflammatory treatment for BOO-induced bladder remodeling



Enhance biodistribution in bladder



臺北醫學大學
泌尿腎臟研究中心
TMU Research Center of Urology and Kidney

急性腎病團隊
AKI-AKD bundle and oXiris

報告人：林冠宏 醫師

114.03.13

Outline

- AKI-AKD bundle
- oXiris

OXFORD ERA ndt

Nephrol Dial Transplant, 2025, **40**, 524–536
https://doi.org/10.1093/ndt/gfae168
Advance access publication date: 17 July 2024

A novel real-time model for predicting acute kidney injury in critically ill patients within 12 hours

Tao Sun[1,*], Xiaofang Yue[1,*], Xiao Chen[1,*], Tiancha Huang[1,*], Shaojun Gu[1], Yibing Chen[1], Yang Yu[1], Fang Qian[1], Chunmao Han[1], Xuanliang Pan[1], Xiao Lu[1], Libin Li[1], Yun Ji[1], Kangsong Wu[1], Hongfu Li[1], Gong Zhang[1], Xiang Li[1], Jia Luo[2], Man Huang[1,2], Wei Cui[1], Mao Zhang[1] and Zhihua Tao[1]

[1]The Second Affiliated Hospital of Zhejiang University School of Medicine, Hangzhou, China
[2]Chongqing Zhongyuan Huiji Biotechnology Co. Ltd, Chongqing, China
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Correspondence to: Zhihua Tao. E-mail: zrtzh@zju.edu.cn
*These authors contributed equally to this work

Artificial intelligence-enabled decision support in nephrology

Tyler J. Loftus, Benjamin Shickel, Tezcan Ozrazgat-Baslanti, Yuanfang Ren, Benjamin S. Glicksberg, Jie Cao, Karandeep Singh, Lili Chan, Girish N. Nadkarni & Azra Bihorac

Nature Reviews Nephrology **18**, 452–465 (2022) | Cite this article

Box 1 | **AI algorithms and applications frequently used in healthcare**

Types of health data

Structured data

- Demographics
- Laboratory tests
- Medications
- Diagnoses
- Procedures

Unstructured data

- Clinical notes
- Waveform data
- Images
- Videos

Types of AI

Unsupervised learning
Supervised learning
Reinforcement learning

Algorithms

Generalized linear models
Discriminant analysis
Naive Bayes
Support vector machine
Decision trees
Random forest
Gradient boosting machines
Neural networks

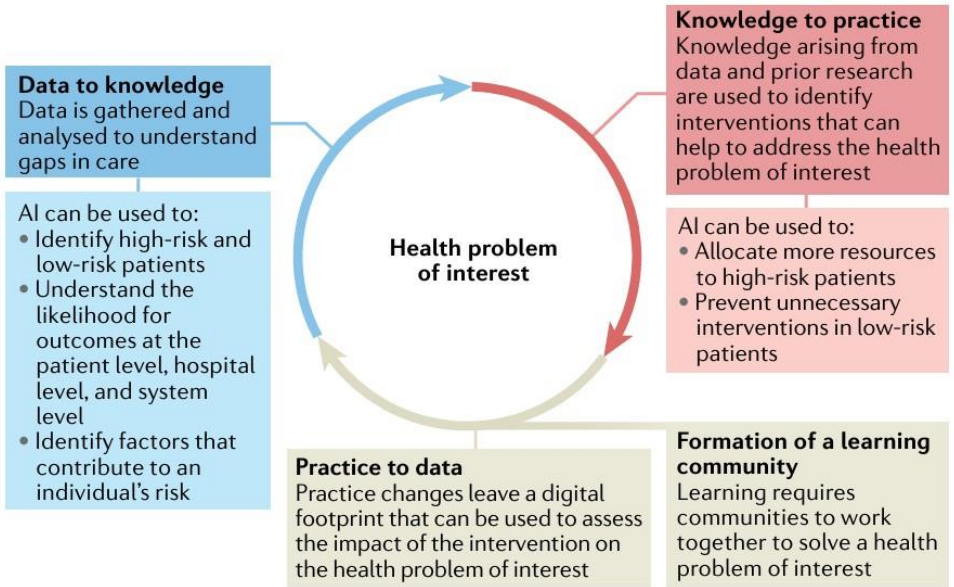
- Convolutional neural networks
- Recurrent neural networks

Applications

Biomarker discovery
Drug discovery
Disease diagnosis

- CheXNet
- Diabetic retinopathy
- Skin cancer
- Breast cancer nodal metastasis

Patient risk stratification
Treatment recommendation systems



ICU team sepsis bundle care

ORIGINAL ARTICLE

Early Goal-Directed Therapy in the Treatment of Severe Sepsis and Septic Shock

Authors: Emanuel Rivers, M.D., M.P.H., Bryant Nguyen, M.D., Suzanne Havstad, M.A., Julie Ressler, B.S., Alexandria Muzzin, B.S., Bernhard Knoblich, M.D., Edward Peterson, Ph.D., and Michael Tomlanovich, M.D., for the Early Goal-Directed Therapy Collaborative Group* Author Info & Affiliations

Published November 8, 2001 | N Engl J Med 2001;345:1368-1377 | DOI: 10.1056/NEJMoa010307
VOL. 345 NO. 19 | Copyright © 2001

Protocolised Management In Sepsis (ProMISe): a multicentre randomised controlled trial of the clinical effectiveness and cost-effectiveness of early, goal-directed, protocolised resuscitation for emerging septic shock

Health Technology Assessment, No. 19.97

Paul R Mouncey, Tiffany M Osborn, G Sarah Power, David A Harrison, M Zia Sadique, Richard D Grieve, Rahi Jahan, Jermaine CK Tan, Sheila E Harvey, Derek Bell, Julian F Bion, Timothy J Coats, Mervyn Singer, J Duncan Young, and Kathryn M Rowan.

Author Information and Affiliations

Southampton (UK): NIHR Journals Library; 2015 Nov.

ORIGINAL ARTICLE

A Randomized Trial of Protocol-Based Care for Early Septic Shock

Author: The ProCESS Investigators* Author Info & Affiliations

Published May 1, 2014 | N Engl J Med 2014;370:1683-1693 | DOI: 10.1056/NEJMoa1401602 | VOL. 370 NO. 18

ORIGINAL ARTICLE

Goal-Directed Resuscitation for Patients with Early Septic Shock

Author: The ARISE Investigators and the ANZICS Clinical Trials Group* Author Info & Affiliations

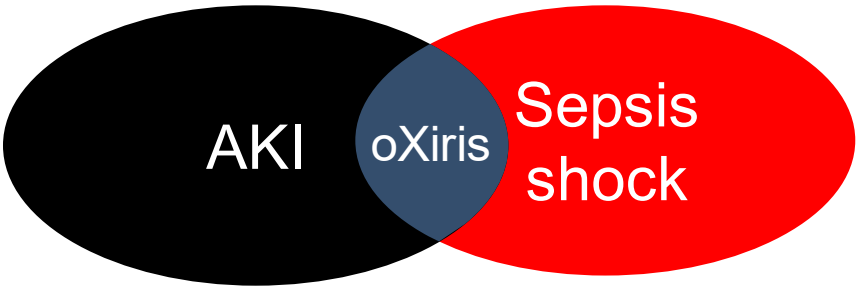
Published October 16, 2014 | N Engl J Med 2014;371:1496-1506 | DOI: 10.1056/NEJMoa1404380
VOL. 371 NO. 16 | Copyright © 2014

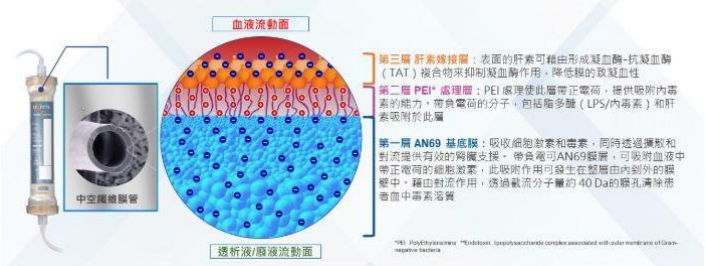
Review > Kidney Int. 2019 Jul;96(1):52-57. doi: 10.1016/j.kint.2018.11.047. Epub 2019 Mar 4.

Fluid management in the critically ill

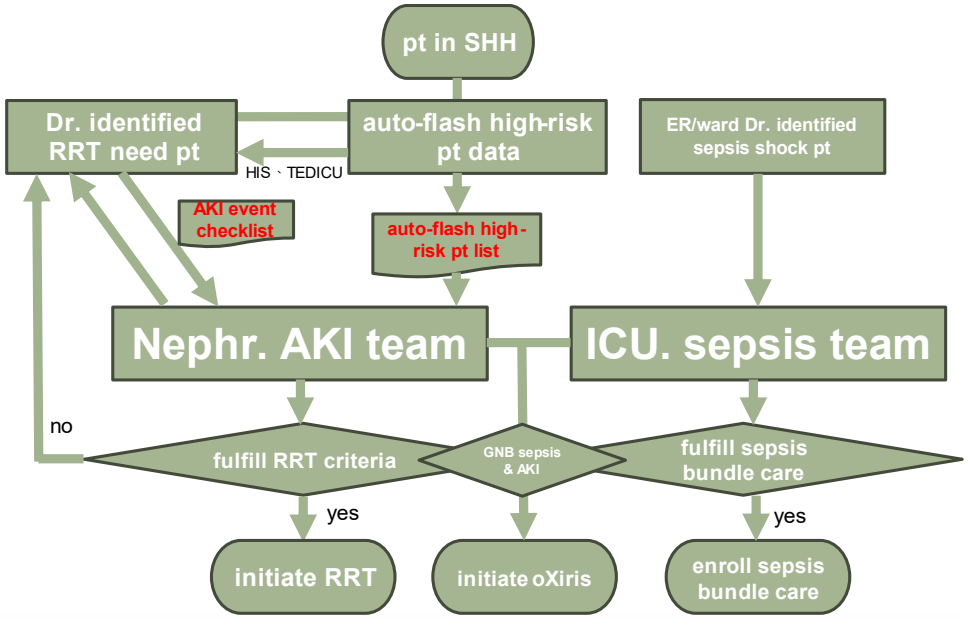
Jean-Louis Vincent [1]

Initiation of oXiris





Initiation of oXiris **flow chart**



Conclusion

- AI輔助警示需兼顧sensitivity and specificity，才能最大化發現迫在眉睫的AKI病人與最小化醫療單位警示疲乏。
- 利用腎內AKI-AKD bundle警示系統和重症加護單位sepsis bundle系統，早期找出適合oXiris治療的病人。