

司徒卓俊



CHEUK CHUN SZETO

14

NEPHROLOGY

Biomarker and Translational Research

## Research Progress Summary

Current research activities concentrate on clinical and laboratory study of peritoneal dialysis and glomerulonephritis, notably IgA nephropathy. In addition, the research team led by Cheuk Chun Szeto has secured extra financial and technical support for expanding the ongoing territory-wide research project on autosomal dominant polycystic kidney disease.

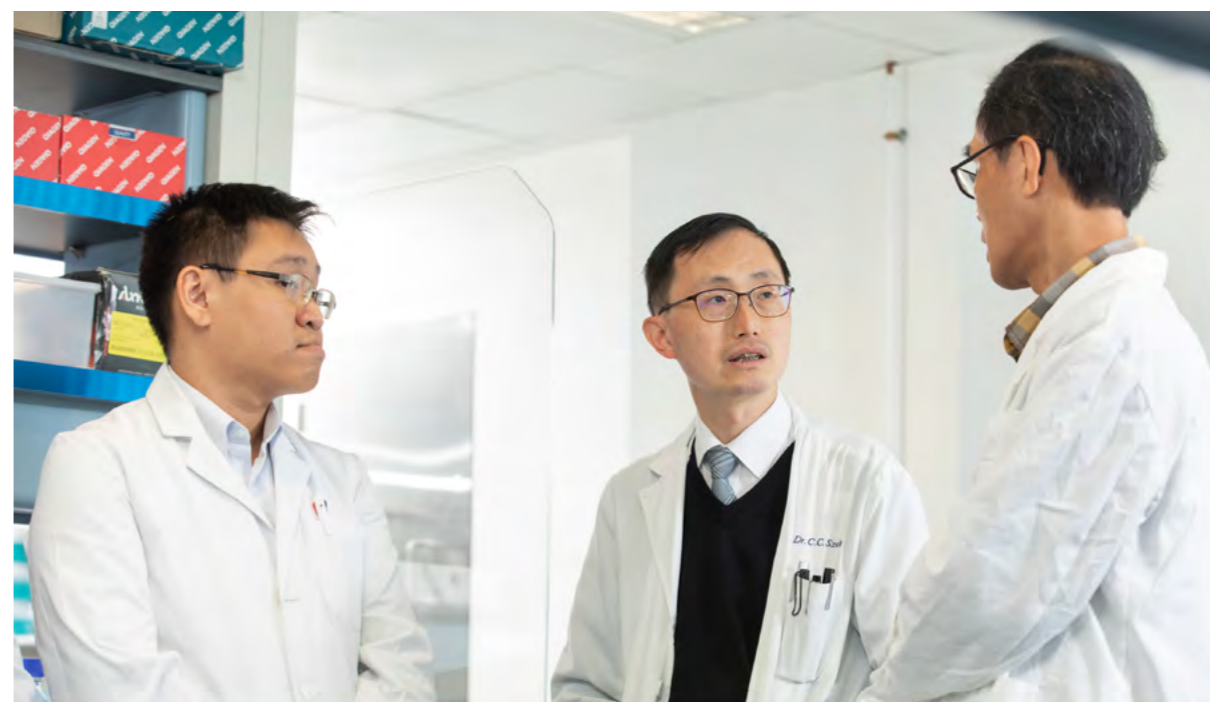
#### Efforts made to attract private funds for research

The team received various donations supporting clinical and laboratory research during this period. In addition, they have been actively exploring various funding sources from overseas non-profit making establishments.

#### Opportunities and difficulties in inter-institutional collaboration in research activities

Over the past year, they had increasing collaboration with academic institutes and pharmaceutical companies. Here are a few recently completed or on-going collaboration with international and regional organisations:

1. With Stanley Fan, Barts Health NHS Trust, London, United Kingdom on: Polymerase Chain Reaction/Electrospray Ionisation-Mass Spectrometry (PCR/ESI-MS) for rapid bacterial identification in peritoneal dialysis effluent.
2. With Chris McIntyre, Division of Nephrology, Schulich School of Medicine and Dentistry, University of Western Ontario, Canada on: Endotoxemia in chronic kidney disease.
3. With Daniel March, Department of Infection, Immunity & Inflammation, University of Leicester, United Kingdom on: Endotoxemia and cardiovascular disease in dialysis patients.
4. With Christoph Aufricht, Medical University of Vienna, Austria on: Alanyl-Glutamine in Peritoneal Dialysis Fluids Improves Peritoneal Health and Systemic Inflammation.





### Principal Investigator

Cheuk Chun Szeto



### Team members

Peter Poon, Ka Bik Lai, Cathy Luk, Dineal Than, Lingfeng Zeng, Phyllis Cheng, Jack Ng, Winston Fung, Gordon Chan

#### Promotion of research collaboration with industry and other outreaching activities

Their patient population represents a wealth of resources for clinical research. They are actively exploring opportunities to collaborate with industrial and biotechnological establishments in the field of peritoneal dialysis for product development and validation.

Ongoing and upcoming collaborative work with biotechnological establishments (not including pharmaceutical company sponsored clinical trials) include:

1. Ethos Biosciences, Philadelphia, USA on: Novel urinary biomarkers for chronic kidney disease.
2. LiberDi, The Trendlines Group, Israel on: The liberDi dialysis system.

3. Zytotec GmbH, Germany on: Alanyl-Glutamine in Peritoneal Dialysis Fluids Improves Peritoneal Health and Systemic Inflammation.



## Research and Scholarship

### Fellowships

Member's Name	Details	
	Fellowship	Organisation
Winston Fung	Emerging Leaders Program	International Society of Nephrology

### Academic Editorship

Member's Name	Details	
	Role	Journal
Cheuk Chun Szeto	Deputy Editor	Nephrology
	Associate Editor	Peritoneal Dialysis International
	Theme Editor (Peritoneal Dialysis)	Clinical Kidney Journal
	Editorial Board	Clinical Journal of American Society of Nephrology

### Reviewer of Journal / Conference

Member's Name	Details	
	Role	Journal / Conference
Cheuk Chun Szeto	Chair of Nephrology Annual Review Course	World Congress of Nephrology 2021
	Co-Chair of Scientific Committee (Dialysis Sub-theme)	16 <sup>th</sup> Asia Pacific Congress of Nephrology
	Member of Grant Review Board	National Science Centre (Narodowe Centrum Nauki – NCN), Poland Marsden Fund, Royal Society Te Apārangi, New Zealand

## Grants and Consultancy

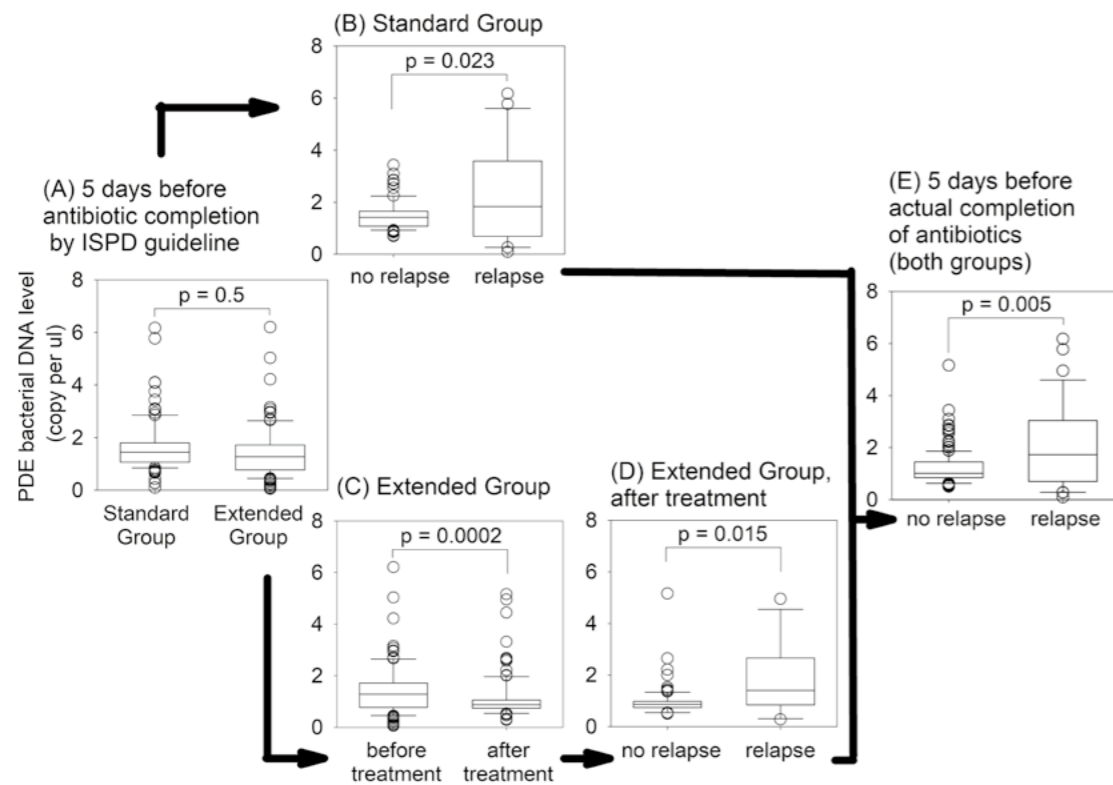
Name	Project Title	Funding Source	Start Date (dd/mm/yyyy)	End Date (dd/mm/yyyy)	Amount (HK\$)
Cheuk Chun Szeto	A Phase 2 Study to Evaluate the Safety and Effect on Proteinuria of OMS721 in Subjects with IgA Nephropathy, Lupus Nephritis, Membranous Nephropathy, or C3 Glomerulopathy including Dense Deposit Disease	Omeros Corporation	10/2018	02/2022	179,250
	A Randomized, Multicenter, Double-blind, Parallel-group, Active-control Study of the Efficacy and Safety of Sparsentan for the Treatment of Immunoglobulin a Nephropathy	Retrophin, Inc.	11/2018	06/2023	358,147
	Role of TGF-beta/Smad3 Signaling in Lupus Nephritis	Research Grants Council – General Research Fund	06/2019	08/2022	1,064,682
	Translating Multi-omic Discoveries to Transform Diabetes Care and Reduce Diabetic Complications	Research Grants Council – Research Impact Fund	01/2019	12/2023	12,000,000
	Randomized, Double-blind (Within Dose Groups), Placebo-controlled and Parallel Group Trial to Investigate the Effects of Different Doses of Oral BI 685509 Given Over 20 Weeks on UACR Reduction in Patients with Non-diabetic Kidney Disease	Boehringer Ingelheim International GmbH	06/2021	01/2023	358,988

## Publications

### A. Journal Papers

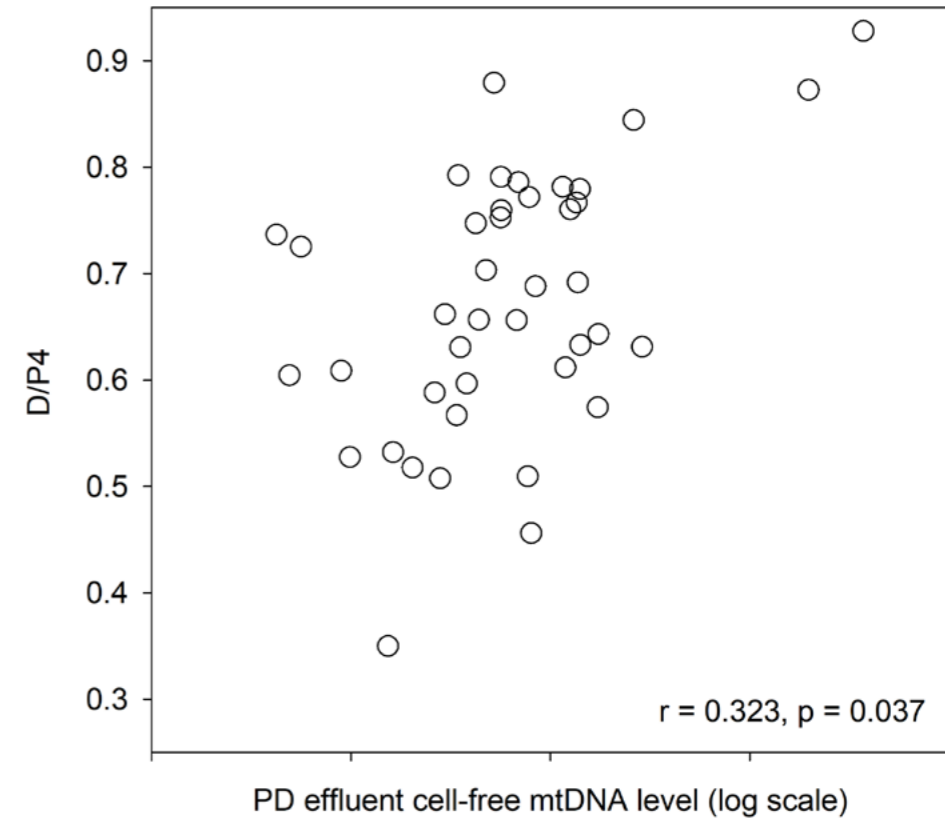
- Szeto CC, Ng JKC, Wing-Shing Fung W, Chan GCK, Cheng PMS, Lai KB, Pang WF, Chow KM, Leung CB, Li PKT. Extended antibiotic therapy for the prevention of relapsing and recurrent peritonitis in peritoneal dialysis patients: A randomized controlled trial. *Clinical Kidney Journal*. 2021;14(3):991-997. doi:10.1093/ckj/sfaa256.
- Zeng L, Szeto CC. Urinary podocyte markers in kidney diseases. *Clinica Chimica Acta*. 2021;523:315-324. doi:10.1016/j.cca.2021.10.017. (Review)

3. Fung WWS, Chow KM, Li PKT, Szeto CC. Clinical course of peritoneal dialysis-related peritonitis due to non-tuberculosis mycobacterium – A single centre experience spanning 20 years. *Peritoneal Dialysis International: Journal of the International Society for Peritoneal Dialysis*. 2022;42(2):204-211. doi:10.1177/08968608211042434. (Epub ahead of print)
4. Fung WWS, Chow KM, Szeto CC. Bilious peritoneal dialysate in a peritoneal dialysis patient. *Kidney International*. 2021;100(2):485. doi:10.1016/j.kint.2020.12.018. (Editorial)
5. Than WH, Ng JKC, Fung WWS, Chan GCK, Lai KB, Luk CCW, Cheng PMS, Chow KM, Szeto CC. Prognostic significance of peritoneal dialysis effluent mitochondrial DNA level. *Clinica Chimica Acta*. 2021;519:1-9. doi:10.1016/j.cca.2021.03.028.
6. Szeto CC, Ng JKC, Fung WWS, Lai KB, Chow KM, Li PKT, Massiah A, Alcolea-Medina A, Wilks M, Fan SL. Polymerase chain reaction/electrospray ionization–mass spectrometry (PCR/ESI-MS) is not suitable for rapid bacterial identification in peritoneal dialysis effluent. *Peritoneal Dialysis International: Journal of the International Society for Peritoneal Dialysis*. 2021;41(1):96-100. doi:10.1177/0896860820917845.



Peritoneal dialysis effluent (PDE) bacterial DNA fragment level: (A) comparison between the Standard and Extended Group at the time of randomisation, i.e. 5 days before antibiotic completion according to the International Society for Peritoneal Dialysis (ISPD) guideline; (B) for the Standard Group, comparison between patients with and without relapsing or recurrent peritonitis episodes; (C) for the Extended Group, change in PD effluent bacterial DNA level after an extra week of antibiotic therapy; (D) for the Extended Group, comparison between patients with and without relapsing or recurrent peritonitis episodes; and (E) comparison between patients with and without relapsing or recurrent peritonitis episodes, 5 days before the actual completion of antibiotics for the entire study population. (All data were compared by the Mann Whitney U test, except that part (C) was by the Wilcoxon signed rank test.)

**Source:** Szeto CC, Ng JKC, Wing-Shing Fung W, Chan GCK, Cheng PMS, Lai KB, Pang WF, Chow KM, Leung CB, Li PKT. *Extended antibiotic therapy for the prevention of relapsing and recurrent peritonitis in peritoneal dialysis patients: A randomised controlled trial. Clinical Kidney Journal*. 2021;14(3):991-997. doi:10.1093/ckj/sfaa256.



Relation between dialysate-to-plasma creatinine concentration at 4 hours (D/P4) and cell-free mtDNA level in dialysis effluent.

**Source:** Szeto CC, Ng JKC, Wing-Shing Fung W, Chan GCK, Cheng PMS, Lai KB, Pang WF, Chow KM, Leung CB, Li PKT. *Extended antibiotic therapy for the prevention of relapsing and recurrent peritonitis in peritoneal dialysis patients: A randomised controlled trial. Clinical Kidney Journal*. 2021;14(3):991-997. doi:10.1093/ckj/sfaa256.

