

Nephrology Laboratory

Lab Introduction

The main researches in our laboratory are as follow:

1. Neutrophil function analyses in PD-related peritonitis

Various functions of neutrophils, including neutrophil extracellular trap formation, reactive oxygen species production, and phagocytosis, are evaluated under different PD solutions. Besides, by analyzing neutrophil functions from PD dialysate effluents from patients with PD-related peritonitis, we try to identify neutrophil-related factors which correlate with prognosis of PD-related peritonitis.

2. Neutrophil function analyses in head and neck squamous cell carcinoma (HNSCC)

By cooperation with otorhinolaryngology in E-Da Hospital, the immunosuppressive neutrophils in HNSCC are investigated.

Principal Investigator:

Ching-Fang Wu, MD, PhD.

Assistant Professor

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Attending nephrologist

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Educations:

PhD

Molecular medicine program, Hannover Medical University, Hannover, Germany

Medicine

National Taiwan University School of Medicine, Taipei, Taiwan

Academic Experiences:

<u>Duration</u>	<u>Department</u>	<u>Position</u>
2017/02~2020/07	School of Medicine for International Students, I-Shou University, Kaohsiung.	Adjunct assistant Professor
2020/08~	School of Medicine, I-Shou University, Kaohsiung.	Assistant Professor

Team Members:

Collaborating Investigators:

Hung-Hsiang Liou, MD

Shih-Yuan Hung, MD

Assistants:

Yu-An Liu, M. Sc. (2022/07~present)

Techniques & Equipments

A. Cell & tissue culture:

Laminar flow

CO₂ incubator

Inverted phase contrast microscope

Vacuum suction pump

Magnetic cell sorting (MACS) system

B. General purpose equipments:

Centrifuge

Microcentrifuge

Digital dry bath

Thermostatic water bath

Magnetic stirrer

C. Sample storage devices:

4°C, -20°C, -80°C refrigerators, and liquid nitrogen tank (35 L)

D. Frequently used techniques:

Cell and tissue culture

RT-PCR, qPCR

Western blotting

Flow cytometry

ELISA

Immunofluorescent stain

Research Projects (within 3 years)

Project titles	PI	Source	Duration
Modulation of neutrophil extracellular traps as a potential adjuvant therapy against peritoneal dialysis-related peritonitis	Wu CF	EDA	2022/2~2023/1
The impact of telemonitoring on compliance and outcomes of patients undergoing automated peritoneal dialysis with SHARESOURCE	Hung SY	Baxter	2020/3~2022/2
The potential of LOX-1 as a surface marker for immunosuppressive neutrophils in head and neck cancer (EDPJ108044)	Wu CF	NSC	2019/8~2021/7
The effect of high glucose peritoneal dialysis fluid and bacterial peritonitis on neutrophils (108EDN07)	Wu CF	EDN	2019/7~2020/6
The influence of peritoneal dialysate solutions on the functions of neutrophils (EDAHP108054)	Wu CF	EDA	2019/3~2020/2

Selected Publications:

1. Wu CF, Hung TT, Su YC, Chen PJ, Lai KH, Wang CC. Endoplasmic Reticulum Stress of Oral Squamous Cell Carcinoma Induces Immunosuppression of Neutrophils. *Frontiers in Oncology* (2022 Mar) 12: 818192.
2. Wu CF, Liou HH (co-first), Kuo CC, Tsai MH, Chang MY, Lee YC, Lin TM, Hung SY. The Association of Urinary Sclerostin and Renal Magnesium Handling in Type 2 Diabetic Patients with Chronic Kidney Disease. *Kidney Blood Press Res* (2021 Aug). 46 (4): 514-522.
3. Chen YT, Hsu H, Lin CC, Pan SY, Liu SY, Wu CF, Tsai PZ, Liao CT, Cheng HT, Chiang WC, Chen YM, Chu TS, Lin SL. Inflammatory macrophages switch to CCL17-expressing phenotype and promote peritoneal fibrosis. *J Pathol* (2020 Jan). 250 (1): 55-66.