

**【Symposium 4-3】**

**Uremia-Associated Immunosenescence and Clinical Outcomes in Patients with CKD**

Ting-Yun Lin

Division of Nephrology, Taipei Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation, New Taipei City, Taiwan; School of Medicine, Tzu Chi University, Hualien, Taiwan.

Chronic kidney disease (CKD) is a significant contributor to premature and accelerated aging. Patients with CKD not only exhibit common aging-associated conditions such as frailty, osteoporosis, muscle wasting, and cardiovascular disease but also share immunological features with the elderly—a phenomenon referred to as immunosenescence. While the exact mechanisms underlying uremia-associated immunosenescence remain incompletely understood, several factors have been implicated in its pathophysiology. In addition to age-related inflammation, CKD-specific contributors such as disruptions in the phosphate-Klotho axis, vitamin D deficiency, and microbial dysbiosis have been proposed. However, the potential role of uremic toxin accumulation in driving immunosenescence remains largely unexplored. This talk will delve into immune dysfunction in CKD, with a particular focus on the impact of uremic toxins on immunosenescence and its clinical implications.

