



*toxins*



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## Gut Microbiota Dynamics and Uremic Toxins

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### Message from the Guest Editors

Recent evidence has highlighted the importance of gut microbiota in the pathophysiology of various diseases, including kidney diseases. The gut microbiota is involved in the production of many uremic toxins, such as indoxyl sulfate, p-cresyl sulfate, and trimethylamine N-oxide, which are retained in chronic kidney disease (CKD). Retention of these uremic solutes results in a variety of symptoms, such as cardiovascular dysfunction, pruritus, fatigue, renal anemia, mineral bone disorder, and neurological impairment, all of which appear in CKD patients. Alteration of gut microbiota composition affects the plasma levels of these uremic solutes in CKD. Microbiota also produces beneficial metabolites for the host, such as short-chain fatty acids. Thus, modulation of the intestinal microbiota by factors, such as by antibiotics, pre- and probiotics, nonlethal inhibition of microbial-specific enzymes, and pharmacological approaches targeting the intestine, could be an interesting approach to control uremic symptoms and the disease condition.



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## Message from the Editor-in-Chief

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