

Uromodulin: Roles in Health and Disease

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Abstract

Uromodulin, a protein exclusively produced by the kidney, is the most abundant urinary protein in physiological conditions. Already described several decades ago, uromodulin has gained the spotlight in recent years, since the discovery that mutations in its encoding gene *UMOD* cause a renal Mendelian disease (autosomal dominant tubulointerstitial kidney disease) and that common polymorphisms are associated with multifactorial disorders, such as chronic kidney disease, hypertension, and cardiovascular diseases. Moreover, variations in uromodulin levels in urine and/or blood reflect kidney functioning mass and are of prognostic value for renal function, cardiovascular events, and overall mortality. The clinical relevance of uromodulin reflects its multifunctional nature, playing a role in renal ion transport and immunomodulation, in protection against urinary tract infections and renal stones, and possibly as a systemic antioxidant. Here, we discuss the multifaceted roles of this protein in kidney physiology and its translational relevance.

Keywords: ADTKD; CKD; Tamm-Horsfall protein; autosomal dominant tubulointerstitial kidney disease; chronic kidney disease; kidney; uromodulin.