

# Soluble urokinase receptor (suPAR) predicts mortality and cardiovascular disease in mild-to-moderate CKD

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## INTRODUCTION AND OBJECTIVES

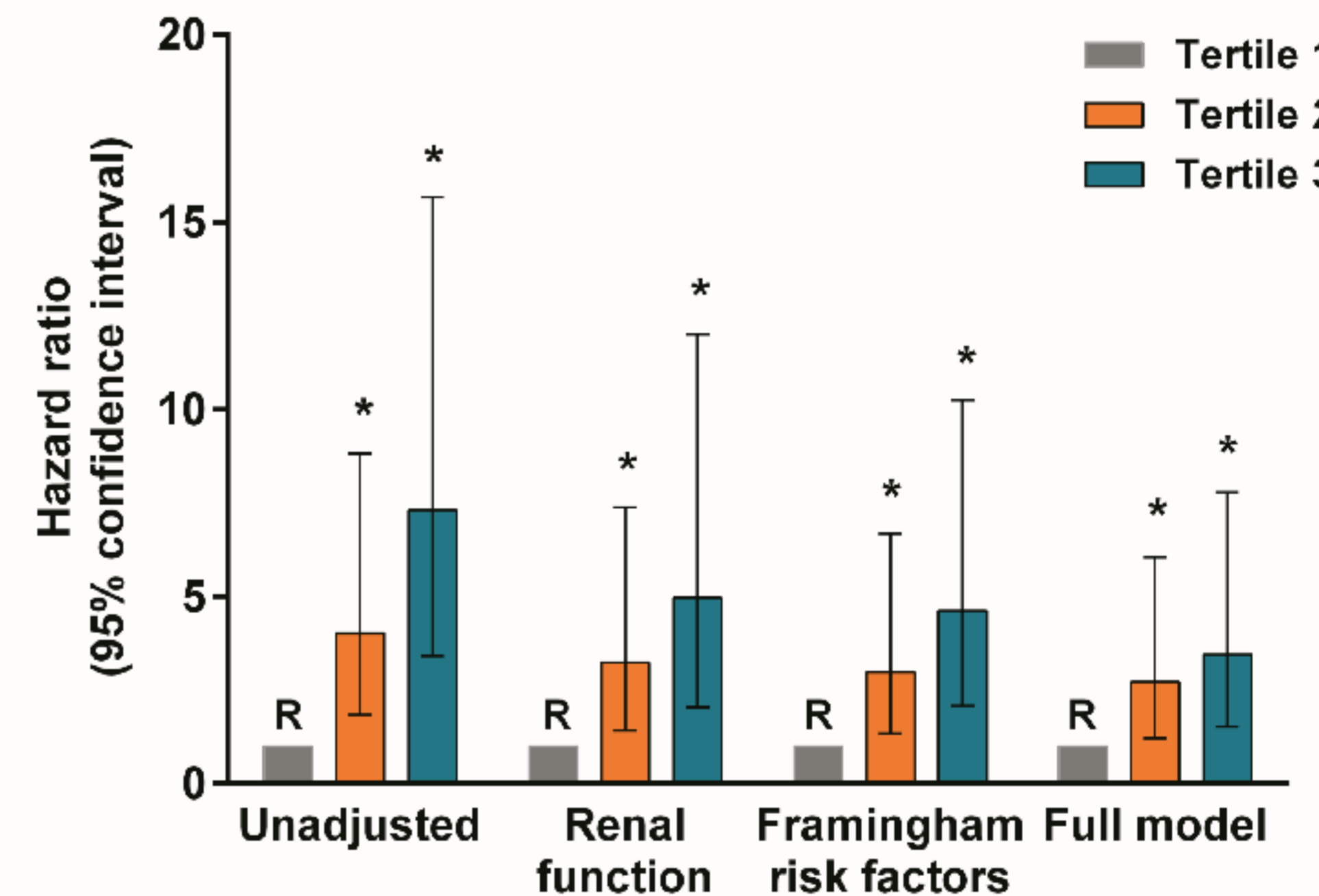
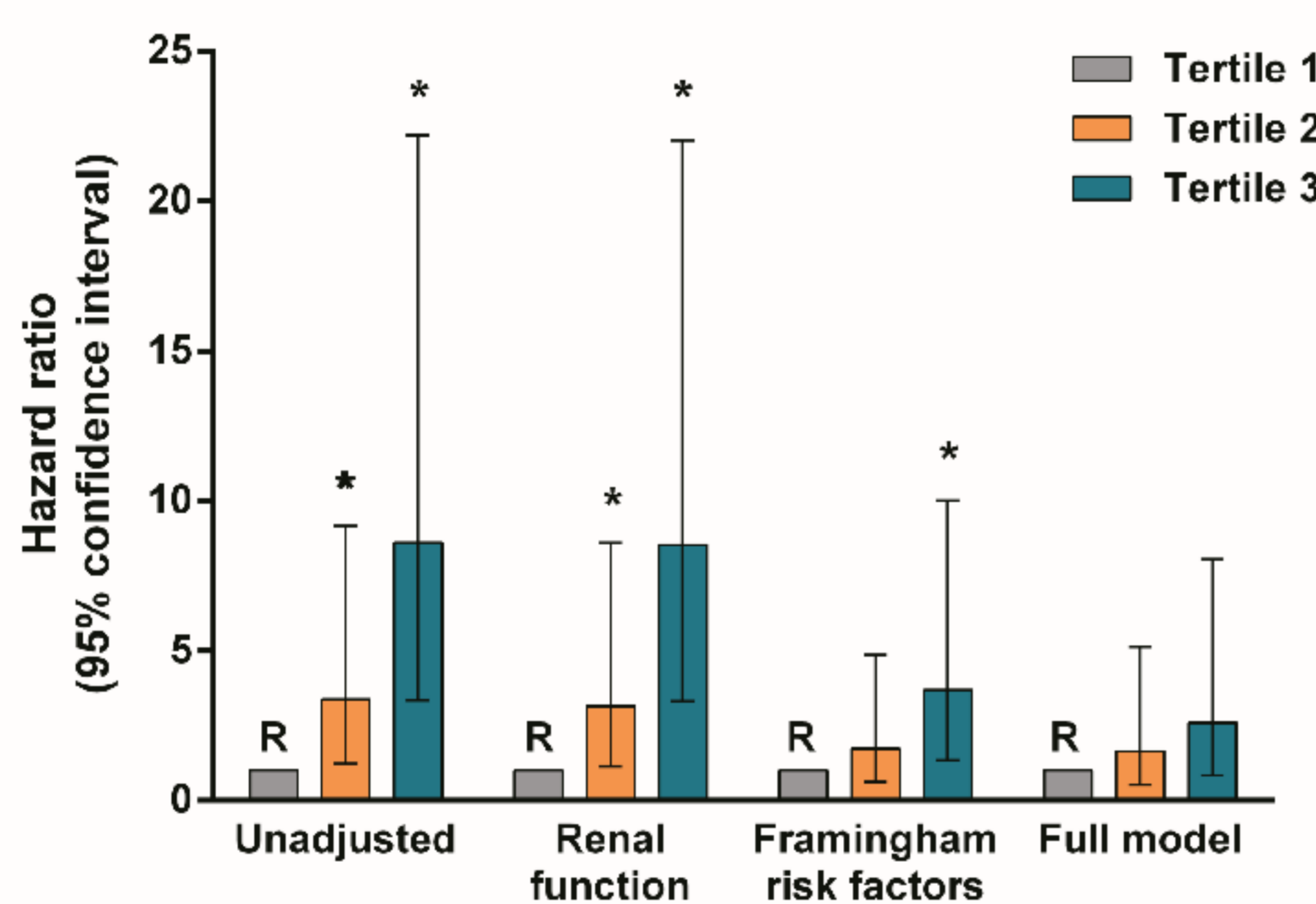
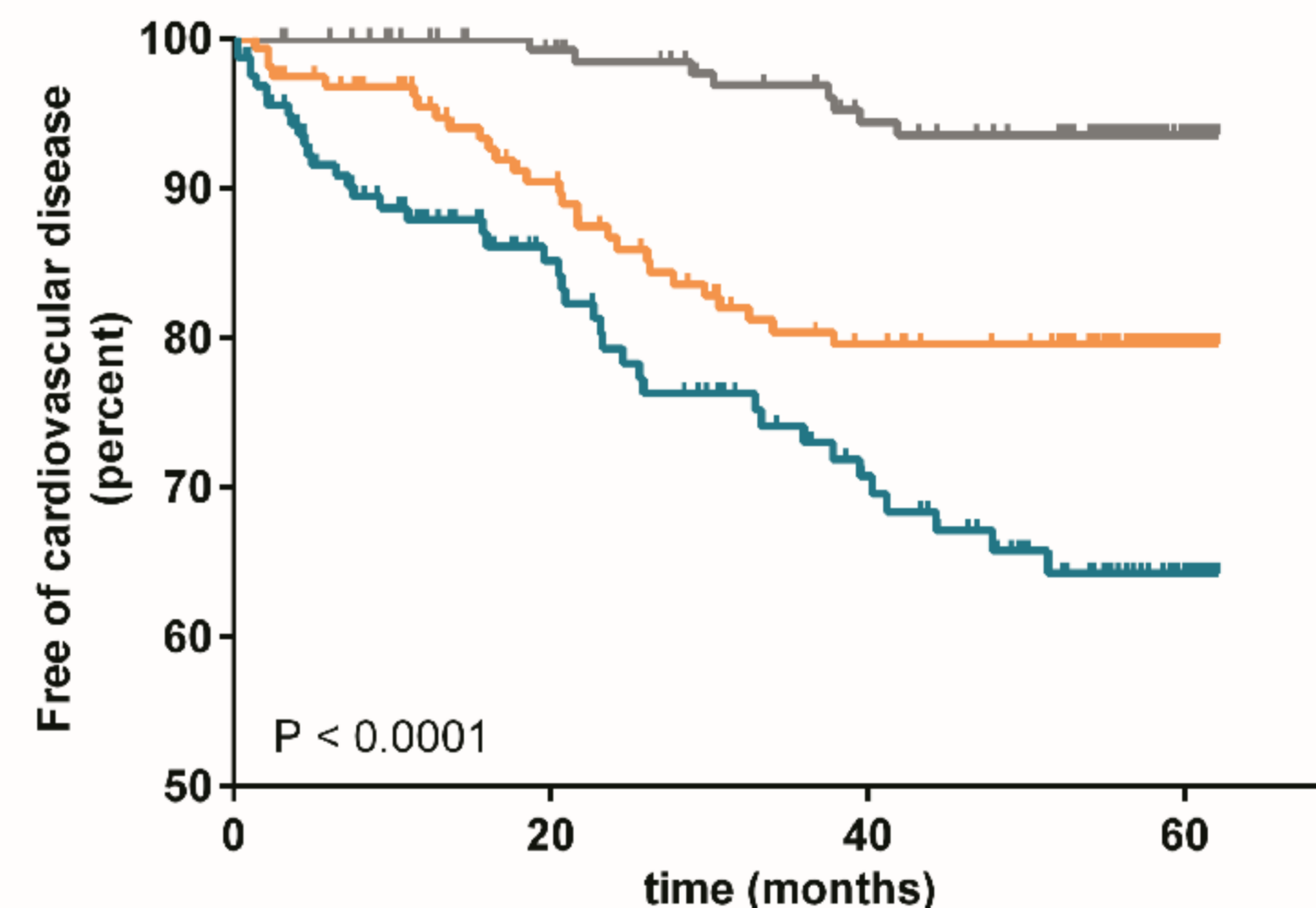
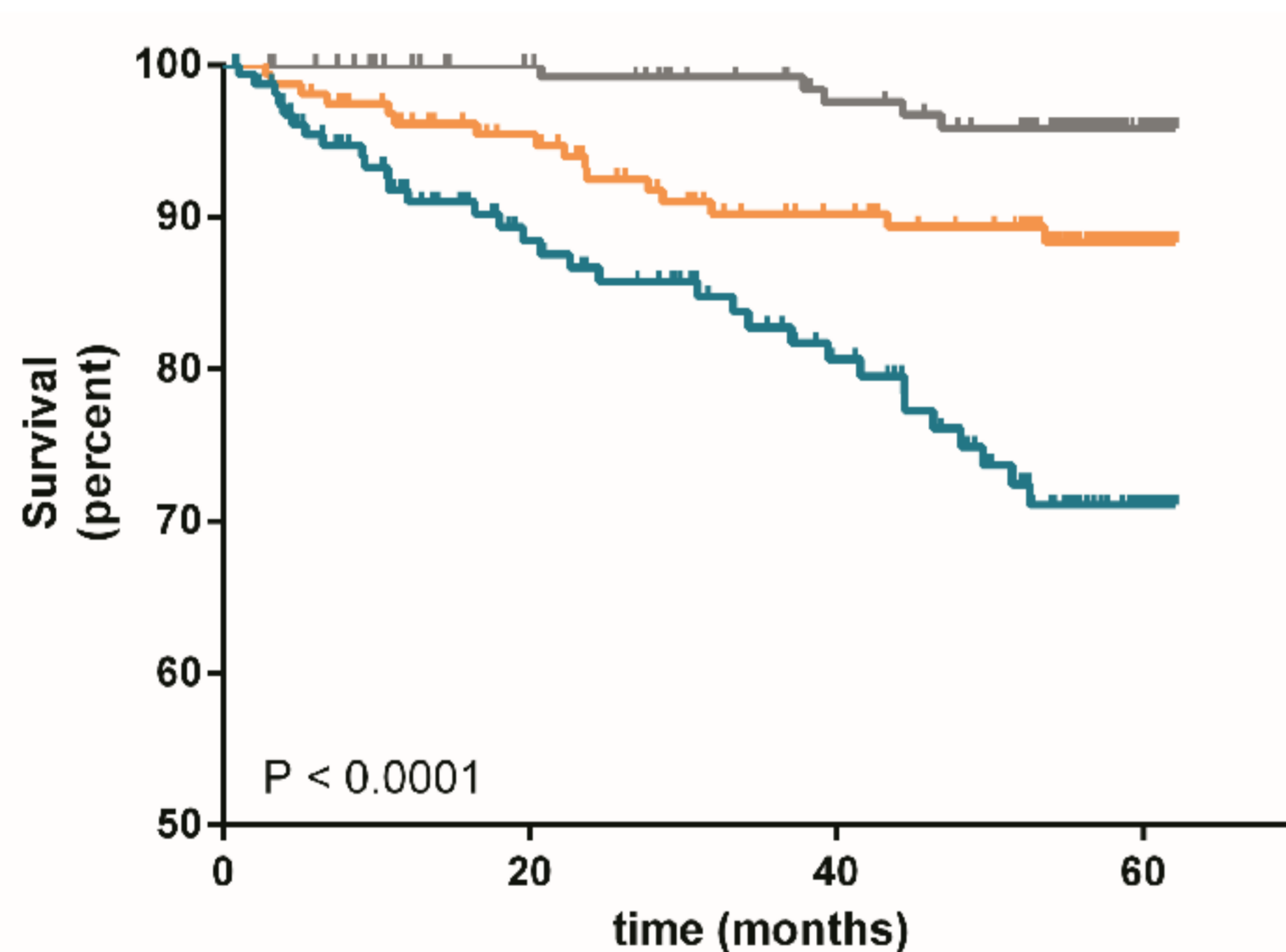
suPAR is linked to mortality and cardiovascular disease in patients without chronic kidney disease (CKD). Studies evaluating the role of suPAR as FSGS biomarker observed an inverse association between eGFR and suPAR. Whether suPAR accumulates in patients with CKD and whether accumulation of suPAR is associated with mortality in CKD has not been studied to date.

## METHODS

We measured suPAR concentrations in patients with CKD from the Leuven mild-to-moderate CKD study (Clinical trials protocol NCT00441623) using the human uPAR enzyme-linked immune sorbent assay (R&D systems™). Associations with overall mortality and cardiovascular disease were explored using Kaplan-Meier estimates and multivariate Cox proportional hazards analyses.

## RESULTS

We determined suPAR concentrations in 486 patients with known non-FSGS CKD patients. eGFR was the strongest determinant of suPAR concentrations ( $P < 0.0001$ ) and suPAR accumulated in patients at low eGFR. suPAR concentrations were associated with overall mortality ( $P < 0.0001$ ) and cardiovascular events ( $P < 0.0001$ ). suPAR remained associated with cardiovascular disease in multivariate analysis.



## CONCLUSIONS

suPAR accumulates in patients with CKD and is directly and gradually associated with overall mortality and cardiovascular events, independent of kidney function. Given the versatile roles of uPAR as signaling orchestrator, accumulation of suPAR in patients at lower eGFR may be in the causal chain of extrarenal manifestations of CKD.