

SIGNIFICANCE STATEMENT

Neointima formation is the leading cause of arteriovenous fistula (AVF) failure. This article reports evidence that loss of glutathione S-transferase $\alpha 4$ in CKD causes the accumulation of 4-hydroxynonenal, which in turn, stimulates proliferation of vascular smooth muscle cells. These responses result in neointima formation and accelerate AVF failure. Increasing glutathione S-transferase $\alpha 4$ expression may provide a protective strategy to improve AVF maturation.