The global obesity pandemic is one of the major public health crises facing the world today. Obesity is not only a strong risk factor for the development of insulin resistance and type 2 diabetes (T2DM), but has also been implicated in the pathogenic processes underlying numerous metabolism-related disorders. Importantly, abundant clinical and epidemiological evidence has shown that central obesity is closely related to cardiovascular mortality, and is a significant risk factor for arterial thrombosis and venous thromboembolism with increased thrombin generation and platelet hyperactivity\(^1\)\(^-\)\(^3\). Therefore, identifying the molecules linking obesity with thrombosis may help us to better understand the pathogenesis of metabolism-related thrombosis.

Heparin cofactor II (HCII), a serine protease inhibitor (serpine) first identified in 1974\(^4\), has structural similarities to antithrombin\(^5\). HCII is mainly produced in the liver and secreted into the bloodstream. Physiologically, HCII binds to dermatan sulphate, which is present on the surfaces of cells comprising the vascular endothelium and primarily acts as an anticoagulant\(^5\) (Fig. 1). Via its inhibitory effects on thrombin action, HCII has emerged as a novel vascular protective factor against vascular remodeling and atherosclerosis in humans and mice\(^6\)\(^-\)\(^8\). However, the role of HCII in the regulation of obesity and diabetes has yet to be characterized.

In conclusion, central obesity is accompanied by significant alterations in coagulable state. Additional important risk factors for thromboembolism in obese patients include inflammation, decreased fibrinolysis, increased thrombin generation and platelet hyperactivity. HCII-targeted therapies may help to control the thrombotic process and minimize the risk of cardiovascular complications in patients with metabolic syndrome. HCII and its related signaling could thus represent a potential therapeutic target for hypercoagulable states in patients with obesity, T2DM and especially thrombosis-related metabolic dysfunction.

Conflicts of Interest
None.

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