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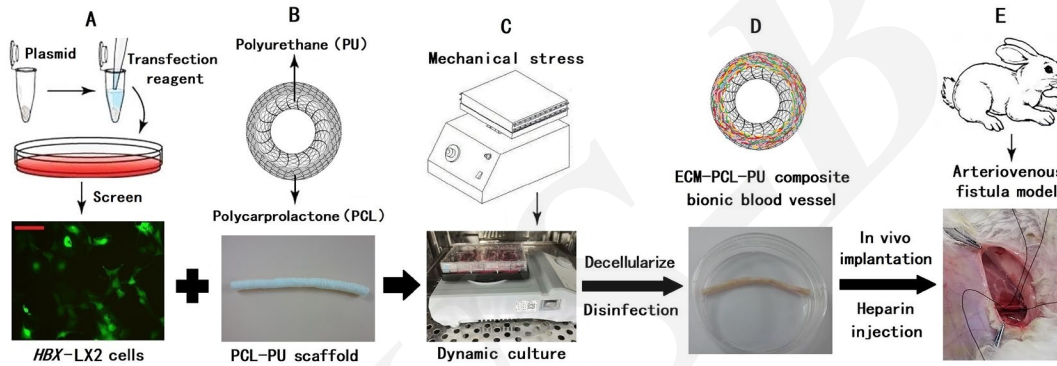
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# **Hemodialysis bilayer bionic blood vessels developed by the mechanical stimulation of hepatitis B viral X (*HBX*) gene-transfected hepatic stellate cells**

**Key words:** composite bilayer bionic blood vessels; extracellular matrix (ECM); hepatic stellate cells (HSCs); hepatitis B viral X (*HBX*) gene; mechanical force

# Research Summary

This article mainly focused on the preparation of human-derived ECM-PCL-PU artificial vascular scaffolds for dialysis:

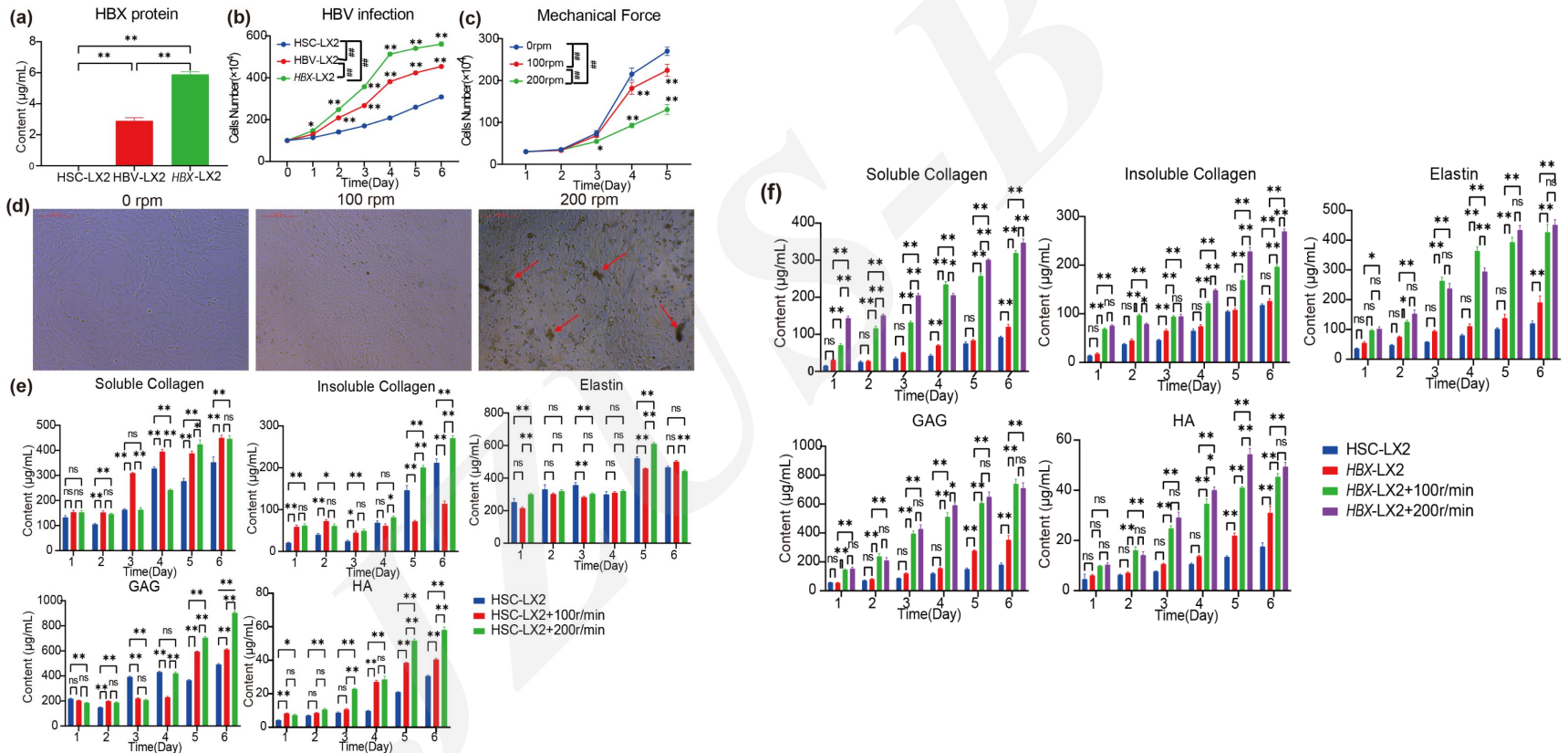


## Article Highlights:

1. Preparation of a bilayer vascular scaffold with a dense inner layer and a porous outer layer, which is suitable for cell growth and adhesion.
2. Mass production of human ECM in vitro using *HBX-LX2* cells inspired by the mechanism of HBV-induced liver fibrosis.
3. In vitro mass production of orderly growing ECM fibers and subsequent fusion with the porous layer of the bilayer vascular scaffold under the combined effect of *HBX* and mechanical force, in order to construct artificial blood vessels for dialysis with stiffness similar to natural blood vessels.

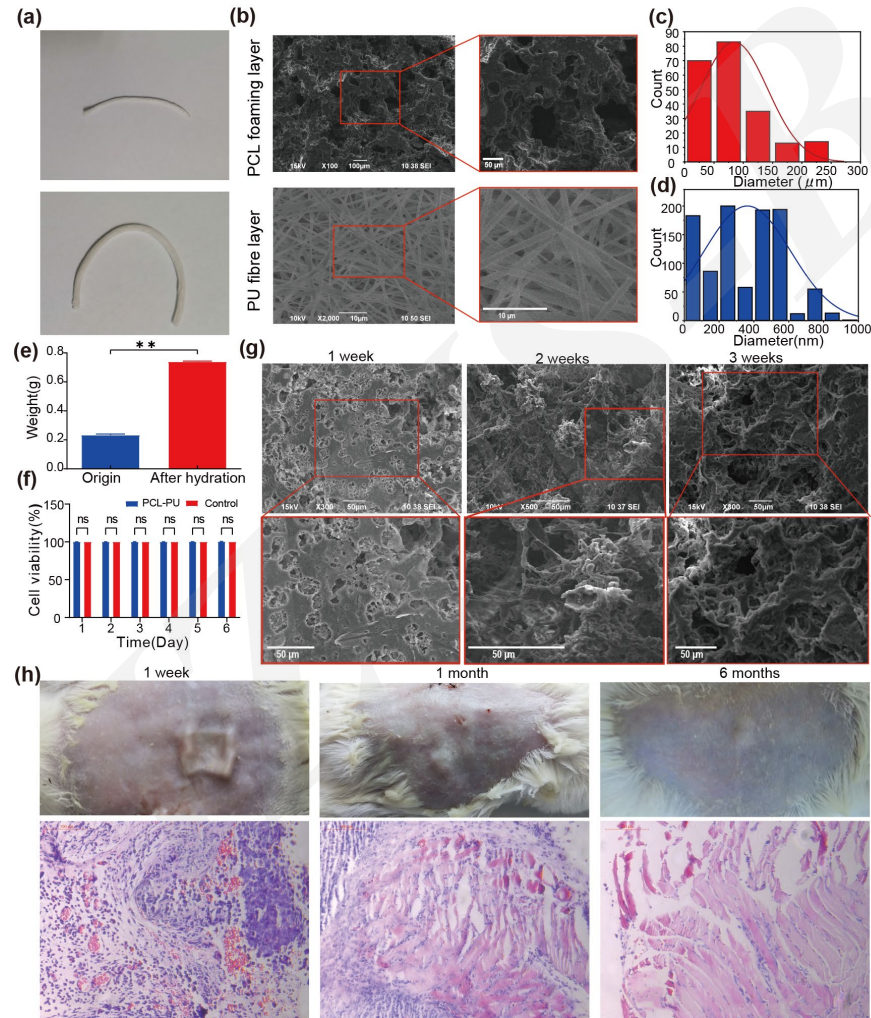
# Innovation points

## ● Cell line development and evaluation



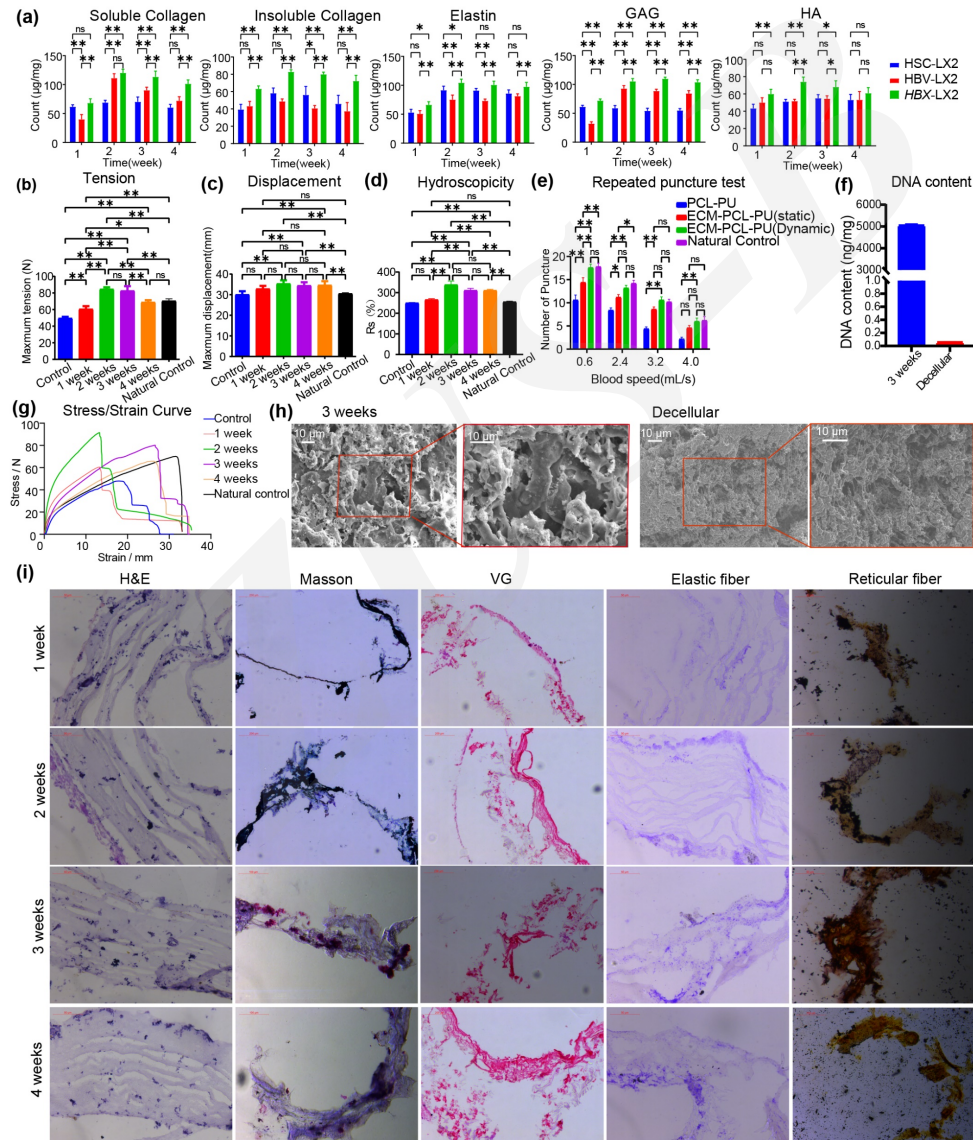
# Innovation points

## • Preparation and characterization of PCL-PU bilayer vascular scaffolds



# Innovation points

- Preparation and detection of human-derived ECM-PCL-PU vascular scaffolds



# Innovation points

- Bio-vascularization of rabbit neck graft using a human-derived ECM-PCL-PU

