

RSC Sustainability

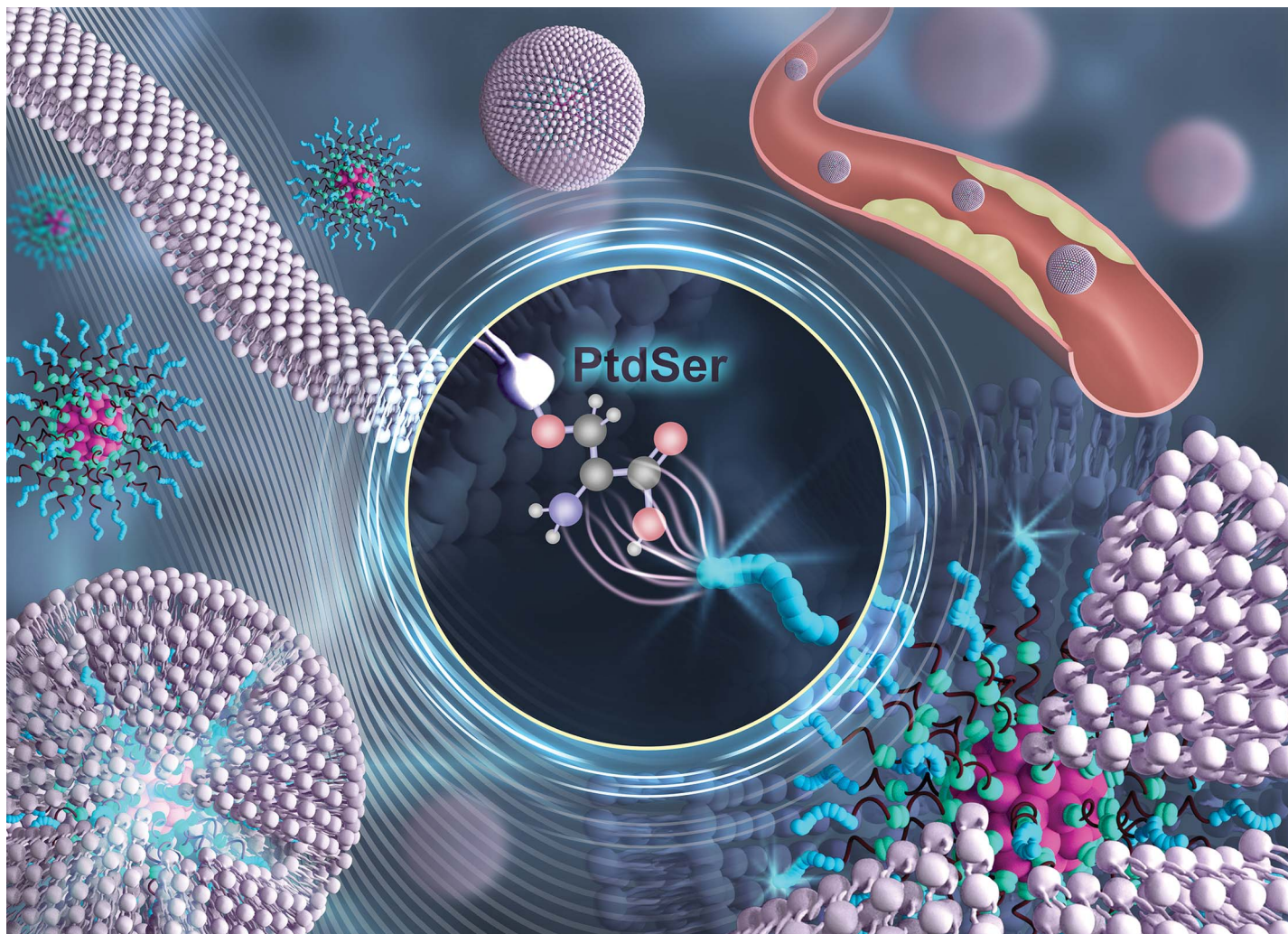
GOLD
OPEN
ACCESS

Dedicated to sustainable
chemistry and new solutions

For an open, green and inclusive future

rsc.li/RSCSus

Fundamental questions
Elemental answers



Showcasing research from Professor Wei Wu's laboratory, College of Bioengineering, Chongqing University, Chongqing, China.

Universal cell membrane camouflaged nano-prodrugs with right-side-out orientation adapting for positive pathological vascular remodeling in atherosclerosis

The research explores a universal nanotherapeutic approach for treating atherosclerosis. It presents the development of right-side-out orientated self-assembly cell membrane-camouflaged nanoparticles (OEM-ETBNPs) designed to target foam cells in atherosclerotic plaques. These nanoparticles utilize the intrinsic affinity between phosphatidylserine (PS) on the inner leaflet of cell membranes and PS-targeted peptide-modified nanoparticles. The study demonstrates that the engineered cell membrane with overexpressed integrin $\alpha 9\beta 1$, integrated with reactive oxygen species (ROS)-cleavable prodrugs, enhances targeted drug delivery and on-demand drug release, ultimately promoting positive cellular phenotypic conversion and improving therapeutic efficacy in atherosclerosis.

As featured in:



See Kai Qu, Kun Zhang, Wei Wu *et al.*, *Chem. Sci.*, 2024, 15, 7524.