

Supplementary information content file description

All data supporting the findings of this study are available within the article and its supplementary information (SI). The SI comprises 8 supplementary figures and 12 supplementary tables.

Supplementary figures include the preparation process schematic of the temperature-responsive AgNP-loaded wound dressing (AWD), key material characterization data (UV-Vis spectra, SEM images, FTIR spectra, DSC/TGA curves), performance test results (swelling rate, morphology changes under temperature treatment), and the hypothesized TRPV4-activated wound healing mechanism diagram.

Supplementary tables contain detailed experimental information, including animal experimental groupings, histopathological scoring criteria for wound healing, material parameters for finite element simulation, pore structure parameters of AWD/OAWD, water vapor transmission rate (WVTR) of different dressings, Ag⁺ release kinetics data, cell viability results of AWD extracts, simulation and experimental wound contracture rates, thermosensitive response indicators of various dressings, and in vitro/in vivo wound healing evaluation metrics.