

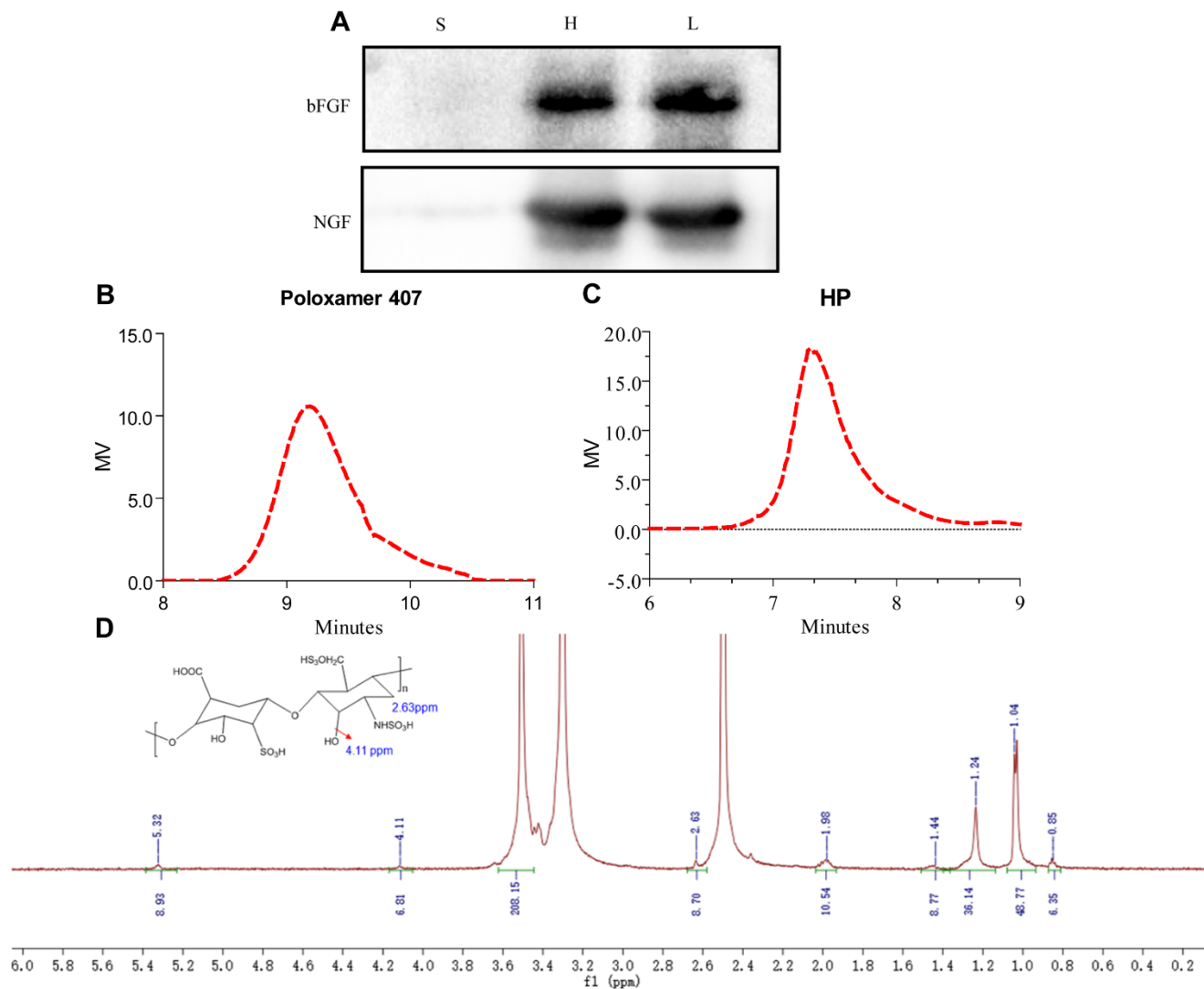
1 Supplementary Table 1

2 The expression levels of microtubule and functional protein in each group.

Group	Control	PNI-diabetics	HP hydrogel	Free GFs	GFs-HP
Ace-tubulin/ Tubulin	0.550±0.007	0.314±0.019	0.344±0.031	0.448±0.020	0.560±0.020
Tau/GAPDH	0.041±0.001	0.016±0.001	0.017±0.002	0.025±0.002	0.032±0.002
GAP43/GAPDH	0.178±0.007	0.137±0.017	0.148±0.022	0.227±0.013	0.294±0.009

3 Data are expressed as mean ± SEM, n = 5 per group.

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7 Supplementary figure 1: A. Western blotting analysis of the loading efficiency for NGF and bFGF (16 mg

8 HP, NGF and bFGF are both 0.1 mg). S: NGF in the supernatant after centrifugation. H: GFs in the settled

9 hydrogel solution. L: total amount of GFs in the loading solution Pure HP bound GFs with high loading

10 efficiency; B. The purity and molecular weight of synthetic HP were detected through gel permeation

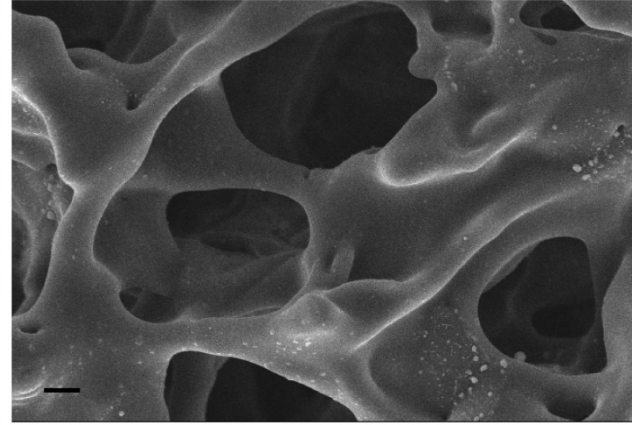
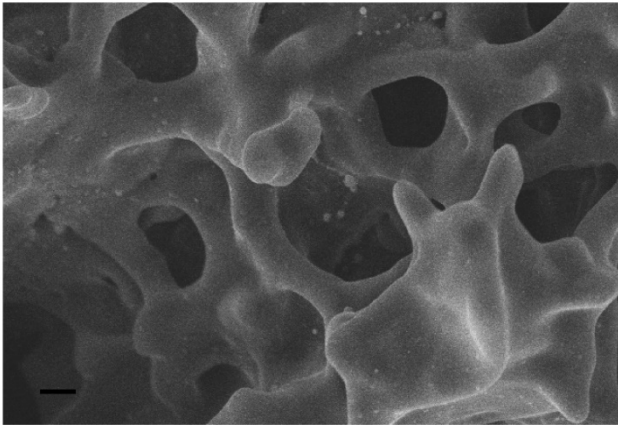
11 chromatography (GPC); C. The purity and the Mw of HP were also evaluated through GPC; D. ¹H-nuclear

12 magnetic resonance (¹H-NMR) spectra of HP.

HP

GFs-HP

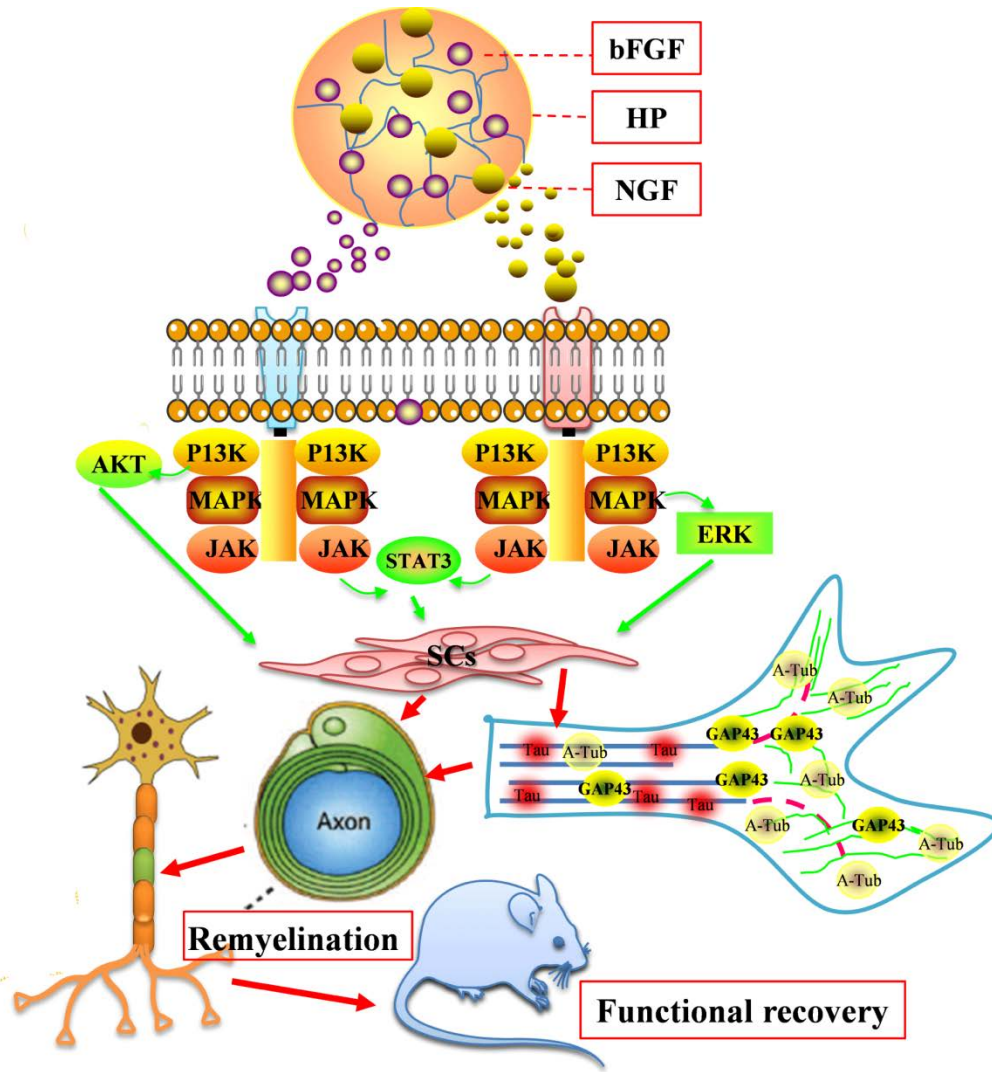
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15 Supplementary figure 2: SEM micrograph of HP and GFs-HP in high magnification. The images revealed
16 that HP and GFs-HP mainly consisted of interconnected porous domains. Scale bar = 50 μm .



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18 Supplementary figure 3: Illustration of proposed signaling mechanism of GFs-HP hydrogel's
 19 neuroregenerative effects. bFGF and NGF released are from the HP hydrogel to bind with their receptors,
 20 activating intracellular domains. Afterwards, the receptors activate the PI3K/Akt, JAK/STAT3 and
 21 MAPK/ERK signal transduction pathways, possibly promoting SCs proliferation. Microtubule
 22 stabilization and functional protein secretion may also be augmented, enhancing axonal-myelinated
 23 partnership, leading to remyelination and restoration of myelinated fibers. Ultimately, morphological and
 24 structural improvements accelerate functional recovery after sciatic nerve injury in diabetic rats.