

## Supplementary Material

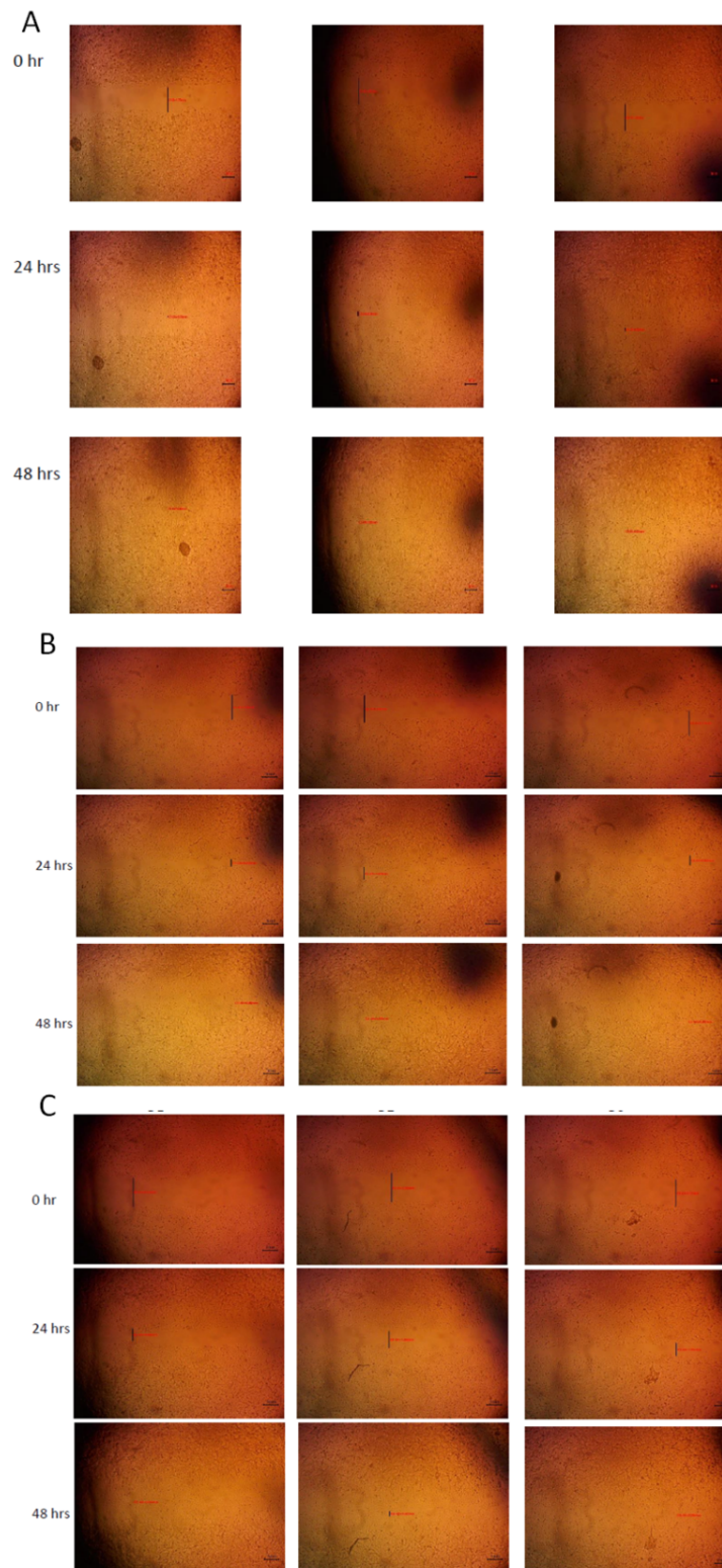
**Table S1.** Average particle size, polydispersity index, zeta potential, and entrapment efficiency % of the prepared H/CS/PLGA NPs formulations.  $50.29 \pm 2.38$

Formula	Particle Size $\pm$ SD (nm)	PDI $\pm$ SD	Zeta Potential $\pm$ SD (mV)	Entrapment Efficiency $\pm$ SD (%)
F1	$188.2 \pm 5.66$	$0.11 \pm 0.03$	$12.33 \pm 1.55$	$50.29 \pm 2.38$
F2	$205.8 \pm 9.79$	$0.08 \pm 0.04$	$9.1 \pm 0.79$	$46.25 \pm 7.97$
F3	$205.25 \pm 1.34$	$0.10 \pm 0.03$	$11.5 \pm 6.15$	$60.03 \pm 4.62$
F4	$197.23 \pm 2.57$	$0.12 \pm 0.005$	$6.24 \pm 0.37$	$48.91 \pm 5.59$
F5	$210.35 \pm 1.48$	$0.15 \pm 0.04$	$10.65 \pm 0.92$	$87.84 \pm 16.00$
F6	$202.93 \pm 0.83$	$0.13 \pm 0.02$	$7.42 \pm 0.22$	$58.418 \pm 5.48$
F7	$198.2 \pm 5.80$	$0.13 \pm 0.019$	$8.99 \pm 2.53$	$53.84 \pm 2.02$
F8	$197.47 \pm 4.17$	$0.11 \pm 0.023$	$5.34 \pm 0.78$	$46.89 \pm 10.36$
F9	$197.6 \pm 3.39$	$0.12 \pm 0.03$	$9.16 \pm 1.11$	$51.42 \pm 3.34$
F10	$205.27 \pm 7.31$	$0.23 \pm 0.095$	$8.50 \pm 0.40$	$24.89 \pm 2.97$
F11	$197.28 \pm 12.88$	$0.14 \pm 0.011$	$5.52 \pm 3.56$	$45.90 \pm 8.47$
F12	$203.65 \pm 2.33$	$0.17 \pm 0.018$	$3.45 \pm 0.28$	$32.97 \pm 2.07$

<b>F13</b>	214.10 ± 4.81	0.18 ± 0.016	12.2 ±2.12	32.47 ±0.03
<b>F14</b>	202.80 ± 4.86	0.25 ± 0.13	9.27 ±2.73	50.58 ±7.72
<b>F15</b>	199.42 ± 11.63	0.13 ± 0.057	9.22 ±1.24	54.07 ±0.05
<b>F16</b>	198.20 ± 8.34	0.12 ± 0.027	7.39 ±6.6	75.28 ±6.82
<b>F17</b>	180.12 ± 2.04	0.11 ± 0.012	2.63 ±0.42	44.74 ±4.84

**Table S2.** Composition and sonication time of the<sup>33</sup> BBD for H/CS/PLGA NPs.

<b>Formula</b>	<b>HARF : PLGA weight ratio</b>	<b>CS: PLGA weight ratio</b>	<b>Sonication time (min)</b>
F1	0.3	0.8	4
F2	0.5	0.4	4
F3	0.3	0.8	12
F4	0.3	0.4	8
F5	0.1	0.8	8
F6	0.3	0.4	8
F7	0.3	0.4	8
F8	0.5	0	8
F9	0.3	0.4	8
F10	0.5	0.4	12
F11	0.3	0	4
F12	0.1	0	8
F13	0.5	0.8	8
F14	0.1	0.4	4
F15	0.3	0.4	8
F16	0.1	0.4	12
F17	0.3	0	12



**Figure S1.** Representing images for the *in vitro* scratch wound healing assay using human skin fibroblasts cultured on polystyrene plates for (A) H/CS/PLGA NPs, (B) free HARE, and (C) CS/PLGA blank NPs. Images were taken using an inverted microscope at 0, 24, and 48 h. The experiment has been conducted in triplicates. Vertical black lines in all panels indicate scratch size.