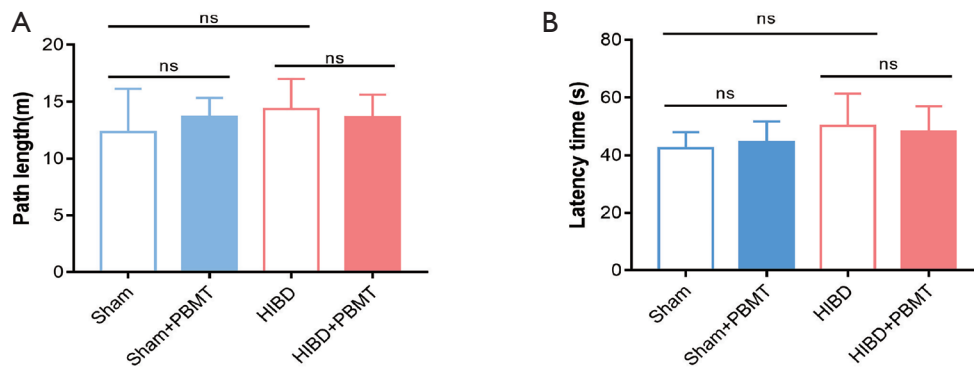


**Figure S1** Experimental procedures *in vivo* and *in vitro*. PBMT, photobiomodulation therapy; NSC, neural stem cell; OGD, oxygen-glucose deprivation; MWM, Morris water maze; qPCR, quantitative real-time polymerase chain reaction; WB, Western blot; EdU, 5-ethynyl-2'-deoxyuridine; CCK-8, cell counting kit-8.



**Figure S2** Cognitive function of rats in different groups. (A) The path length of rats in different groups in the Morris water maze (MWM) experiment with a visual platform; (B) the latency time of rats in different groups in the MWM experiment with a visual platform. ns no statistical significance versus the indicated group. PBMT, photobiomodulation therapy; HIBD, hypoxic-ischemic brain damage.

**Table S1** The related primer sequences in this study

Primer name	Primer sequence
PI3K	F: CTGGAAGCCATTGAGAAG
	R: CAGGATTTGGTAAGTCGG
Akt	F: TGAGACCGACACCAGGTATTTTG
	R: GCTGAGTAGGAGAACTGGGGAAA
GSK-3 $\beta$	F: CATCCTTATCCCTCCTCACGCT
	R: TATTGGTCTGTCCACGGTCTCC
$\beta$ -catenin	F: GTTCTACGCCATCACGACAC
	R: GAGCAGACAAGCACTTTC
Cyclin D1	F: TTCATCGAACACTTCCTCTCCA
	R: GAGGGTGGGTTGGAAATGAA
GAPDH	F: CTGGAGAAACCTGCCAAGTATG
	R: GGTGGAAGAATGGGAGTTGCT