

**Supplementary information for**

**Inhibition of amyloid- $\beta$  (A $\beta$ )-induced cognitive impairment and neuroinflammation in CHI3L1 knockout mice through downregulation of ERK-PTX3 pathway**

Hyeon Joo Ham<sup>1</sup>, Yong Sun Lee<sup>1</sup>, Ja Keun Koo<sup>1</sup>, Jaesuk Yun<sup>1</sup>, Dong Ju Son<sup>1</sup>, Sang-Bae Han<sup>1</sup>,  
and Jin Tae Hong<sup>1</sup>

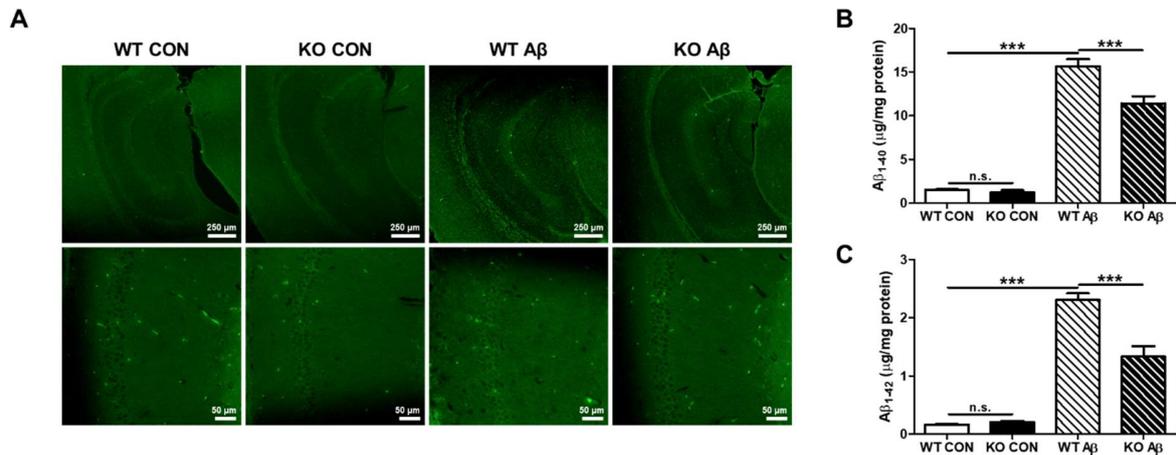
<sup>1</sup>College of Pharmacy and Medical Research Center, Chungbuk National University, Osongsaengmyeong 1-ro, Osong-eup, Heungdeok-gu, Cheongju, Chungbuk, 28160, Republic of Korea

\*Correspondence: Dr. Jin Tae Hong (jinthong@chungbuk.ac.kr), College of Pharmacy and Medical Research Center, Chungbuk National University, Osongsaengmyeong 1-ro, Osong-eup, Heungdeok-gu, Cheongju, Chungbuk, 28160, Republic of Korea, Tel: +82-043-261-2813, Fax: +82-043-268-2732.

**Supplementary Table S1. List and sequences of qPCR primers for mRNA expression**

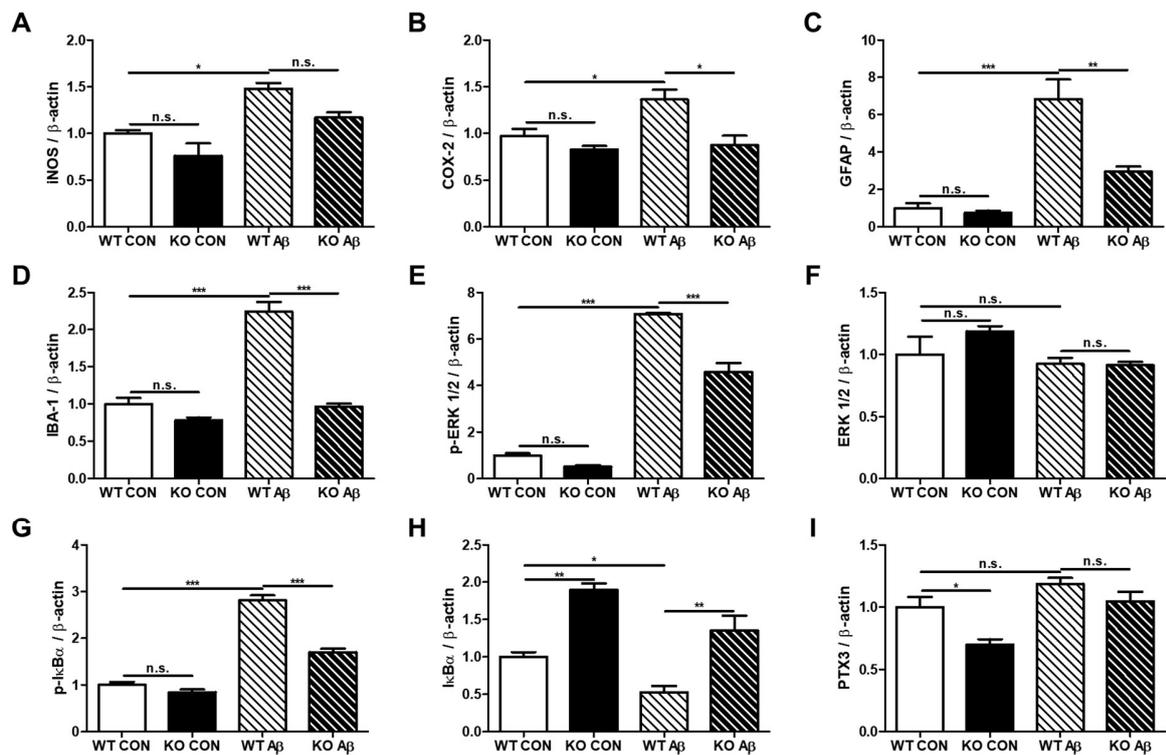
	<b>Forward (5'→3')</b>	<b>Reverse (5'→3')</b>	<b>Species</b>
<i>β-actin</i>	GGCTGTATTCCCCTCCATCG	CCAGTTGGTAACAATGCCATGT	Mouse
<i>Tnf</i>	TCTTCTCATTCCCTGCTTGTGG	CACTTGGTGGTTTGCTACGA	Mouse
<i>Il1b</i>	CCTTCCAGGATGAGGACATGA	TGAGTCACAGAGGATGGGCTC	Mouse
<i>Il6</i>	GAGGATACCACTCCCAACAGACC	AAGTGCATCATCGTTGTTTCATACA	Mouse
<i>Ccl2</i>	TTAAAAACCTGGATCGGAACCAA	GCATTAGCTTCAGATTTACGGGT	Mouse
<i>Cd16</i>	TTTGGACACCCAGATGTTTCAG	GTCTTCCTTGAGCACCTGGATC	Mouse
<i>Cd32</i>	AATCCTGCCGTTCCCTACTGATC	GTGTCACCGTGTCTTCCTTGAG	Mouse
<i>Cd68</i>	TTCTGCTGTGGAAATGCAAG	AGAGGGGCTGGTAGGTTGAT	Mouse
<i>Cd86</i>	TGTTTCCGTGGAGACGCAAG	TTGAGCCTTTGTAAATGGGCA	Mouse

## Supplementary figure S1. Effect of CHI3L1 deficiency on A $\beta$ deposition



(A) The deposition of A $\beta$  plaques in hippocampus was determined by Thioflavin S staining. (B) The levels of A $\beta_{1-42}$  and (C) A $\beta_{1-40}$  in mice hippocampus as 100  $\mu\text{g}$  of tissue lysate, were assessed using the specific ELISA kits. Each value is mean  $\pm$  S.E.M. from 8-10 samples. \*\*\*, Significantly different between the two groups ( $p < 0.001$ ).

**Supplementary figure S2. Relative intensity of each band in Western blots in Figure 3D, 3E, and 6E**



The intensity of each band was measured and the ratio of each protein relative to  $\beta$ -actin was calculated. (A, B, C, D) The relative ratio of each protein in Figure 3D were calculated. (E, F, G, H) The relative ratio of each protein in Figure 3E were calculated. (I) The relative ratio of PTX3 in Figure 6E were calculated. Each value is mean  $\pm$  S.E.M. from 3 samples. \*, Significantly different between the two groups ( $p < 0.05$ ); \*\*, Significantly different between the two groups ( $p < 0.01$ ); \*\*\*, Significantly different between the two groups ( $p < 0.001$ ).