**Supplementary Data:**

**Morris Water Maze**

Morris water maze (MWM) apparatus (Zhenghua Bioinstrumentation Ltd, Anhui, China), including a black circular pool (diameter, 120 cm; height, 50 cm) with four equal quadrants, was filled with warm water maintained at a temperature of 23 ± 1 °C. A platform (diameter, 10 cm) was placed at a random location (unchanged during the training trails) in one quadrant and submerged 2 cm below the water surface. Each rat was released into the water facing the pool wall at water-level at a specific starting position at the quadrant opposite the platform. The time was recorded using a video recording device when rats reached the platform within 120 seconds, or was recorded as 120 seconds if rats failed to find the platform within 120 seconds. Each rat received two trials daily in MWM for five consecutive days (P32 to P36). The escape latency was defined as the time averaged in two trails per day. At P37, the platform was removed and each rat was allowed to swim freely for 120 seconds. The platform-crossing times were recorded as the counts of rats moved across the original area of the removed platform.

**TUNEL assay**

The P8 rat pups were anesthetized with intraperitoneal pentobarbital (100 mg/kg) and perfused with 4% paraformaldehyde. The brains were collected and embedded in paraffin. Hippocampal cell apoptosis was detected using terminal deoxynucleotidyl-transferase mediated 2’-deoxyuridine 5’-triphosphate nick end labeling (TUNEL) assay. Brain sections were cut into 5 μm sections in the coronal plane at a distance of 2 mm from the forehead to obtain the whole hippocampus. All the hippocampal sections from one rat pup were numbered, then five sections were selected according to systematic uniform random sampling. Sections were deparaffined and stained with a TUNEL kit (Roche Molecular Biochemicals, Mannheim, Germany) according to the manufacturer’s instruction. The TUNEL-positive nuclei exhibiting chromatin condensation and fragmented nuclei were identified as apoptotic cells. The total number of TUNEL-positive cells in hippocampus were counted by an investigator blinded to the studies under an Olympus fluorescence microscope (Olympus Co, Tokyo, Japan) using the Cellsense software package (Olympus). TUNEL staining in hippocampal CA1, CA3 and dentate gyrus (DG) regions were visualized at 400 × magnification. Two fields at each hippocampal region were selected, so a total of six images in the hippocampus of a section were observed. The apoptotic cells were counted carefully in six images for each sample selected from the five parallel sets of serial sections, and the cell counts were then averaged per animal and per group.