



**Supplemental Fig. S7.** The representatives of Western blotting data for brain protein expressions between a rat with highest cardiorespiratory fitness (CRF) level versus a rat with lowest CRF level of each group. ND, normal diet; HFD, high-fat diet; PGC-1 $\alpha$ , peroxisome proliferator-activated receptor gamma coactivator-1 $\alpha$ ; p-AMPK, phosphorylated-activated protein kinase; p-IRS, phosphorylated-insulin receptor substrate 1; IRS, insulin receptor substrate 1; MFN1, mitofusin 1; MFN2, mitofusin 2; OPA1, optic atrophy 1; p-DRP1<sup>ser616</sup>, phosphorylated-dynamin-related at serine<sup>616</sup>; DRP1, dynamin-related protein 1; PINK1, PTEN-induced kinase 1; LC3-II, light chain 3-II; Bax, Bcl-2-associated X protein; Bcl-2, B-cell lymphoma; GPX4, glutathione peroxidase 4; SOD2, superoxide dismutase 2; TNF- $\alpha$ , tumor necrosis factor- $\alpha$ ; p-NF $\kappa$ B, phosphorylated-nuclear factor kappa-light-chain-enhancer of activated B cells; NF $\kappa$ B, nuclear factor kappa-light-chain-enhancer of activated B cells; PSD-95, postsynaptic density protein 95; p-TrkB, phosphorylated-tropomyosin receptor kinase B; TrkB, tropomyosin receptor kinase B; BDNF, brain-derived neurotrophic factor; DCX, doublecortin; p-Tau, phosphorylated Tau; APP, amyloid-beta precursor protein; A $\beta$ , amyloid  $\beta$ ; BACE-1, beta-site amyloid precursor protein cleaving enzyme 1; sRAGE, soluble-receptor for advanced glycation end product.