

**Figure S4:** The original images of Western Blot analysis of p-ERK (A) and total ERK (B) after light activation of ChR2-GPR37. The p-ERK and total ERK levels for the control (mCherry-transfected) and opto-GPR37-transfected striatum were analyzed by WB for four samples (labeled as "1", "2", "3", and "4"), with each sample being pooled from 3-5 mice (see the Methods for the details). Ten minutes after light stimulation, the level of p-ERK in the opto-GPR37 group increased in comparison with the control group (N = 4 / group, N = number of samples). The lines from the sample "4" (A, B) were used in the Figure 4C.