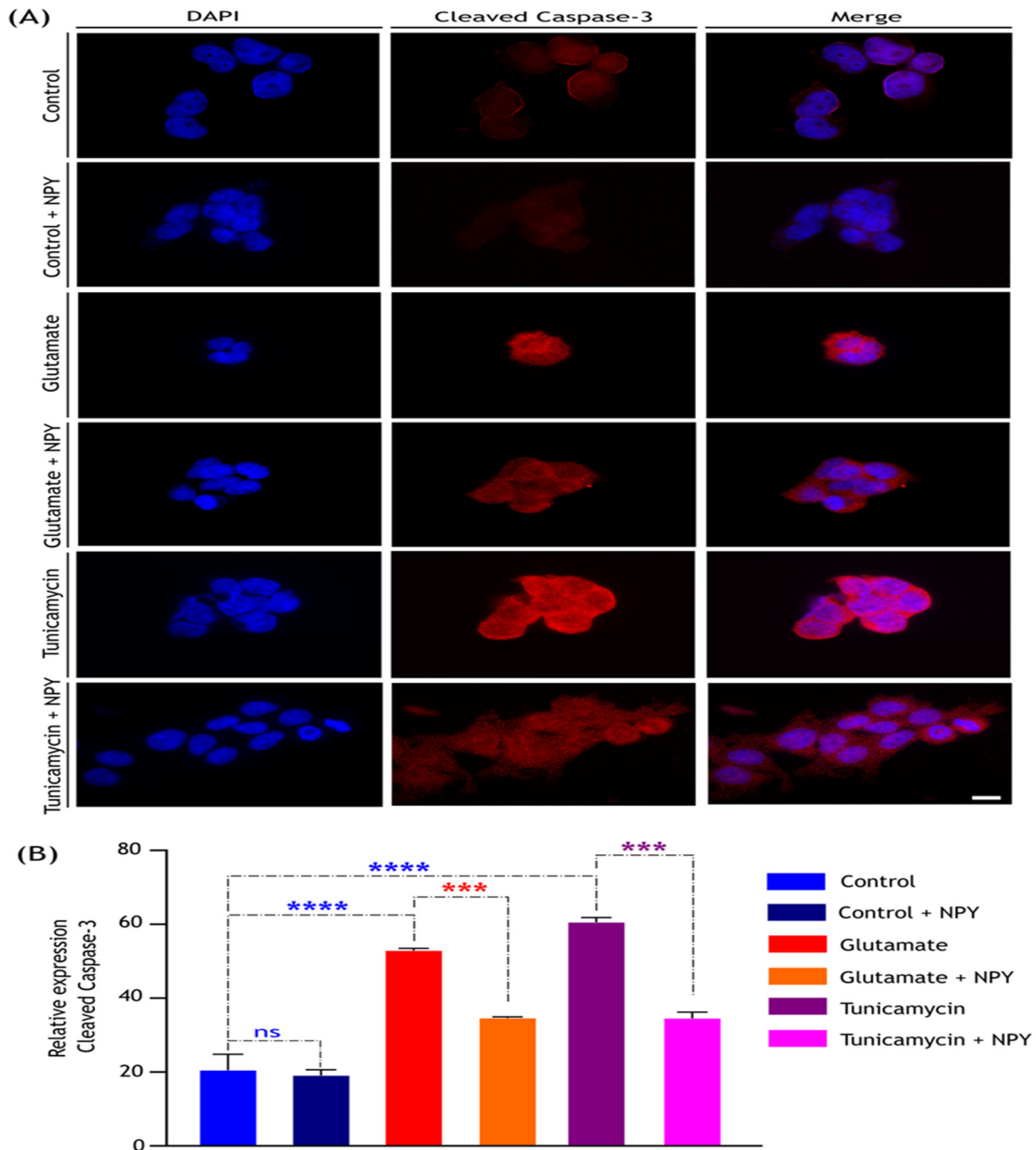
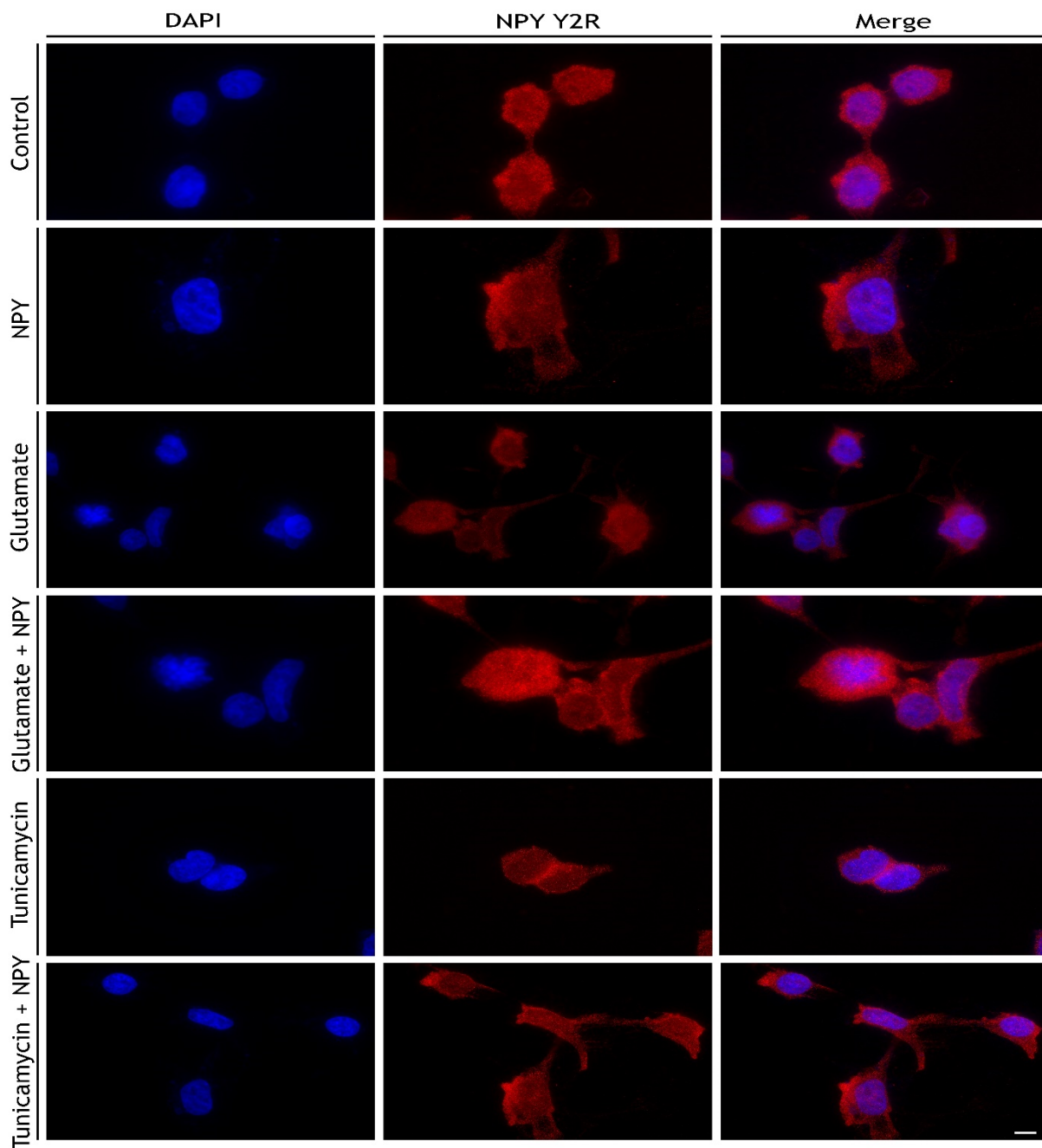


**Supplementary Figure S1: Effect of various concentrations of glutamate and tunicamycin on SH-SY5Y cell survival.**

(A) A significant decrease in the viability in cells exposed to L-glutamate at various doses (20-80 mM) for 12 and 24 h ( $F(4, 20) = 66.44$ , \*\*\*\*  $p < 0.0001$  represents significance between untreated and glutamate group in 12 h (red), #####  $p < 0.0001$  in 24 h (blue), two-way ANOVA, Bonferroni's post-hoc test,  $n=3$ ) and cells at 40 mM dose concentration exhibited around 50% cell viability. (B) A significant decrease in the viability in cells exposed to tunicamycin at various doses (1-8  $\mu\text{g/mL}$ ) for 12 and 24 h ( $F(4, 20) = 91.74$ , \*\*\*\*  $p < 0.0001$  represents significance between untreated and glu-tamate group in 12 h (red), #####  $p < 0.0001$  in 24 h (blue), two-way ANOVA, Bonferroni's post-hoc test,  $n=3$ ) and cells at 1  $\mu\text{g/mL}$  dose concentration exhibited around 50% cell viability.



**Supplementary Figure S2: NPY alleviates the apoptosis induced by glutamate and tunicamycin in SH-SY5Y cells.** (A) Immunofluorescence images of treated cells showing the expression of cleaved caspase 3. After 12 h of treatment, cells were fixed and immunostained with a cleaved caspase-3 antibody (red). Nuclei were stained with DAPI (blue). Scale bar = 10  $\mu$ m. (B) Cells which were exposed to toxicity (glutamate or tunicamycin) showed a significant increase in cleaved caspase-3 expression compared to control ( $F(5,12)=64.42$ , \*\*\*\*  $p < 0.0001$  (blue), one way ANOVA, Bonferroni's post-hoc test,  $n=3$ ) and a significant decrease in its expression was observed with NPY treatment ( $F(5,12)=64.42$ , \*\*\*  $p < 0.001$  (red represents significance between glutamate and glutamate + NPY; purple represents significance between tunicamycin and tunicamycin + NPY), one way ANOVA, Bonferroni's post-hoc test,  $n=3$ ). ns represent non-significant.



**Supplementary Figure S3: Expression of NPY-Y2R in SH-SY5Y cells.** Immunofluorescence images of treated SH-SY5Y cells showing the expression of NPY-Y2R. After 12 hours of treatment, cells were fixed and immunostained with an anti-NPY-Y2R antibody (red). Nuclei were stained with DAPI (blue). Scale bar = 10  $\mu$ m.