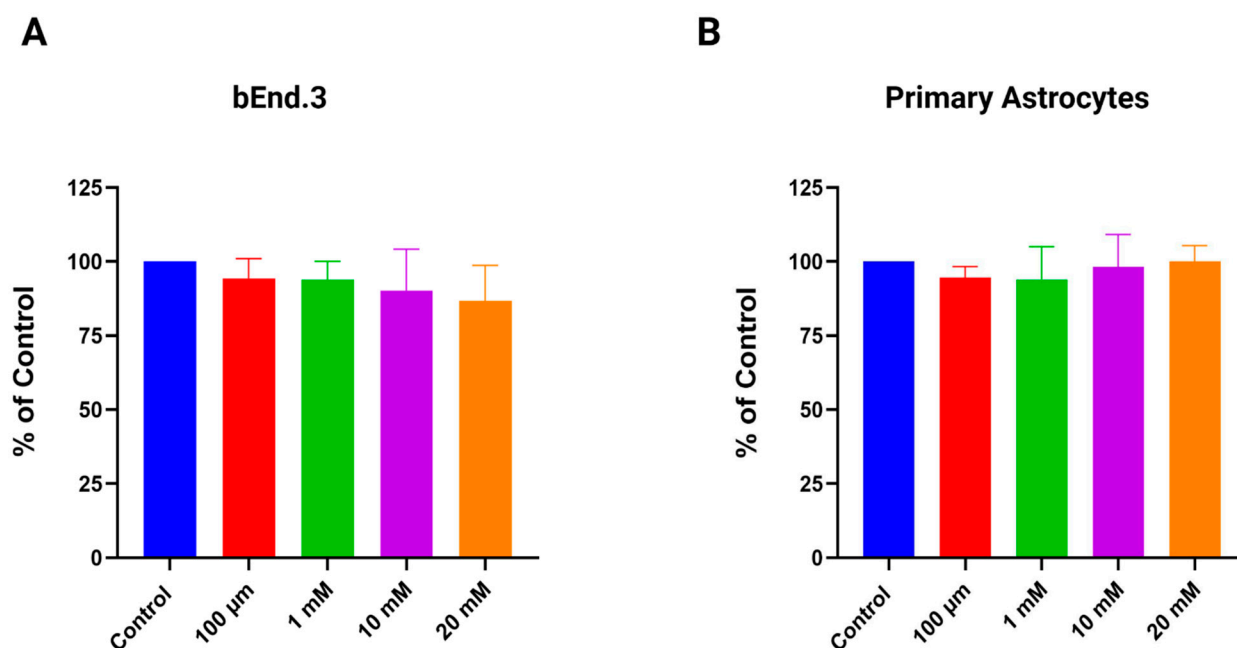
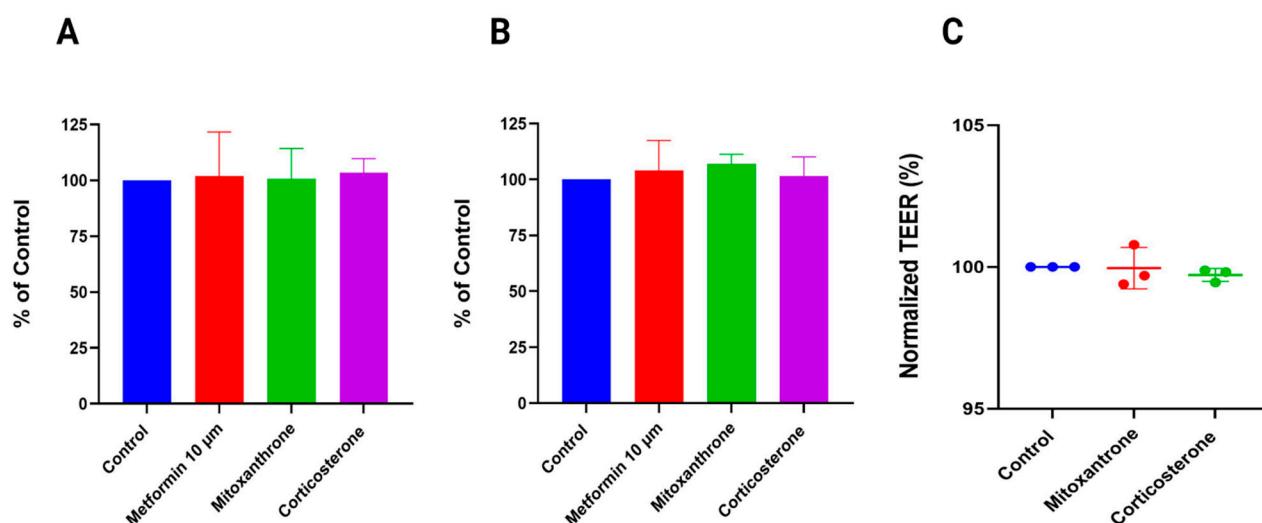


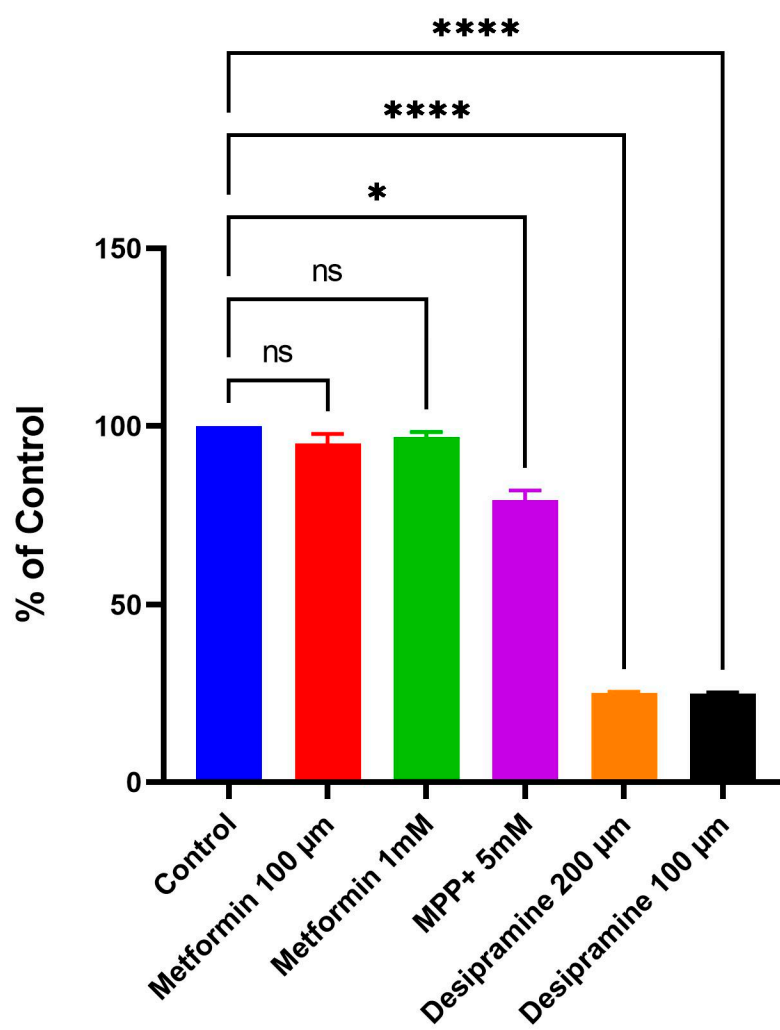
**Figure S1.** Permeability Coefficient (PC) of low molecular weight BBB markers, NaF (MW 376 Da), and [<sup>14</sup>C] sucrose (MW 342 Da), across an *in vitro* co-culture setup of BBB. The PC of NaF compared to [<sup>14</sup>C] sucrose was statistically non-significant. The experiments were performed under a similar setup of a co-culture model of brain endothelial cells and astrocytes. Unpaired student's *t*-test (*p* < 0.05); *n* = 3 biological replicates; mean ± SD.



**Figure S2.** MTS cell viability assay in bEnd.3 cells (A) and mouse primary astrocytes (B). The values are expressed as a percentage of the control value. No statistically significant differences were found among the groups. One-way ANOVA, followed by Tukey's multiple comparisons tests; *n* = 3 biological replicates; mean ± SD.



**Figure S3.** MTS cell viability assay in bEnd.3 cells (A) and mouse primary astrocytes (B), and TEER measurement of co-cultured cells after incubation with inhibitors (C). The values are expressed as a percentage of the control value. No statistically significant differences were found among the groups. One-way ANOVA, followed by Tukey's multiple comparisons tests;  $n = 2-3$  biological replicates; mean  $\pm$  SD.



**Figure S4.** MTS cell viability assay in bEnd.3 cells using during 4 hours of incubation with substrates/ inhibitors. The values are expressed as a percentage of the control value. The cell viability was significantly affected with MPP+ at 5 mM concentration, and desipramine at 100  $\mu$ m and 200  $\mu$ m concentrations respectively. One-way ANOVA, followed by Tukey's multiple comparisons tests; n=3; mean  $\pm$  SD.