



**SUPPLEMENTARY FIG. S5.** Treatment of cortical organoids with heparin and heparinase III. **(A)** Representative fluorescent images of markers: Glut (glutamate), GABA,  $\beta$ -tub ( $\beta$ -tubulin III), BRN2, TBR1, p-tau, and A $\beta$ 42 for iPSK3 samples after the treatments. Scale bar: 100  $\mu$ m. **(B)** Quantification of A $\beta$ 42, GABA, glutamate, BRNA, and TBR1 expression for samples after the treatments.