

## Supporting Information

### **Cadherin-dependent adhesion modulated 3D cell-assembly**

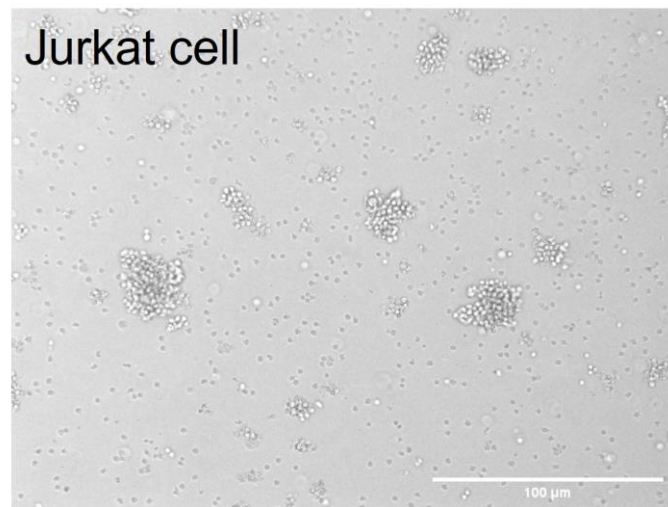
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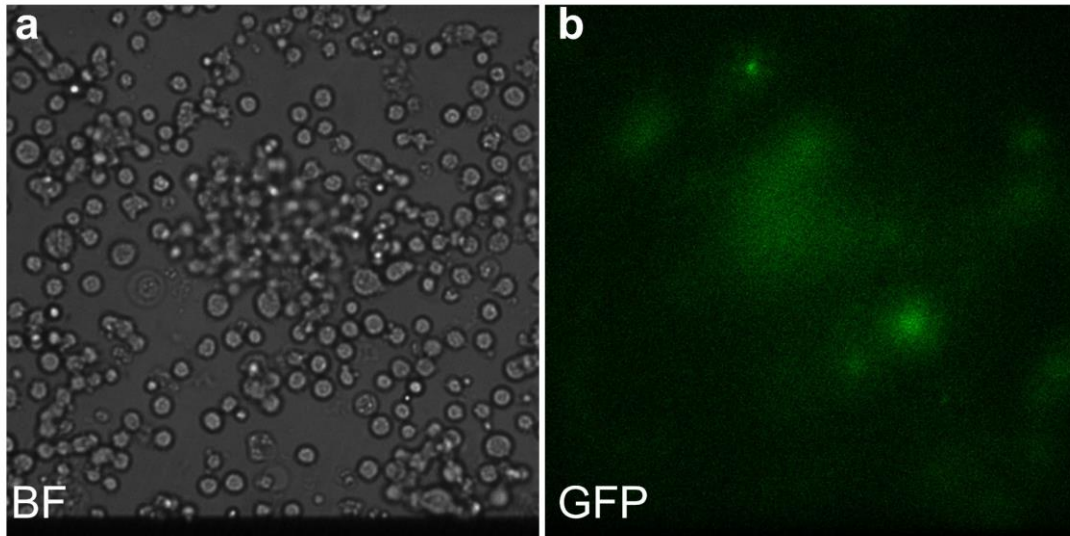
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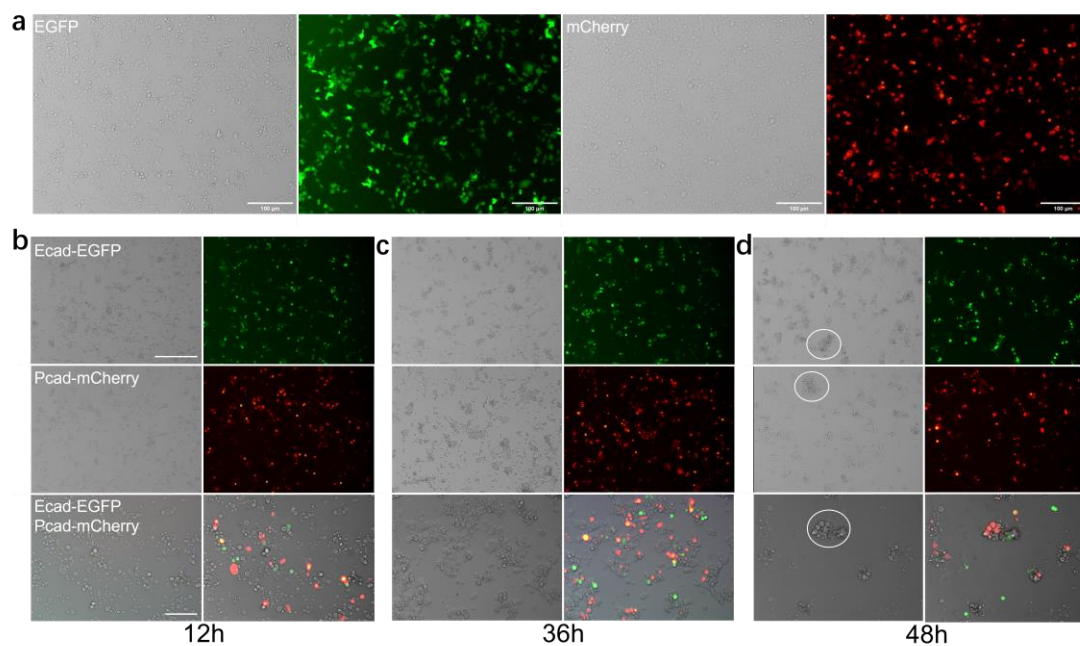
## S1. Supplementary Figures



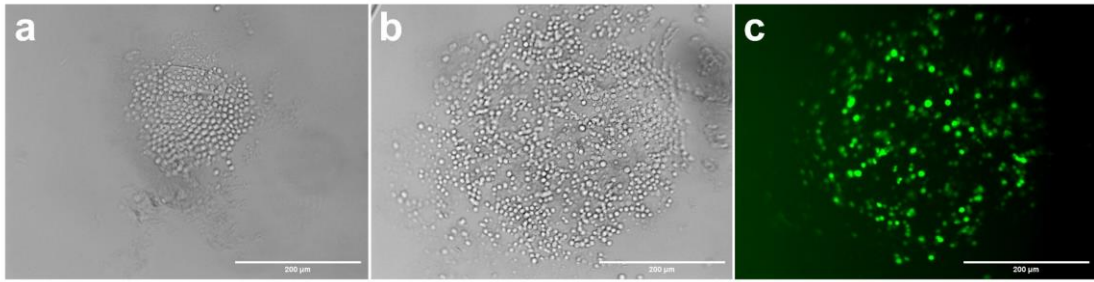
**Fig. S1.** Jurkat cells can aggregate automatically and assemble into cell clusters after natural growth, which were indistinguishable from the cell aggregates formed after expressing cadherin.



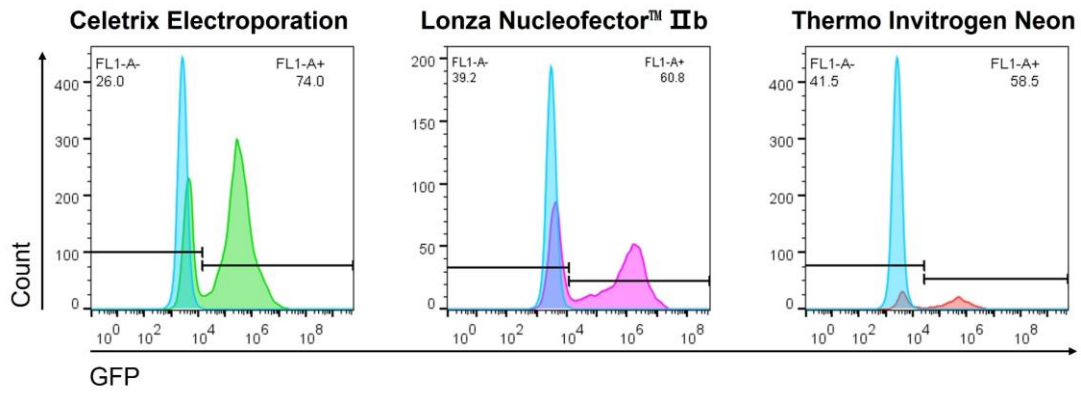
**Fig. S2.** Confocal microscopy images scanned from the Z-axis of assemblies formed by K562 cells after Ecad-EGFP expression. (a) Bright filed (BF). (b) Dark filed (GFP).



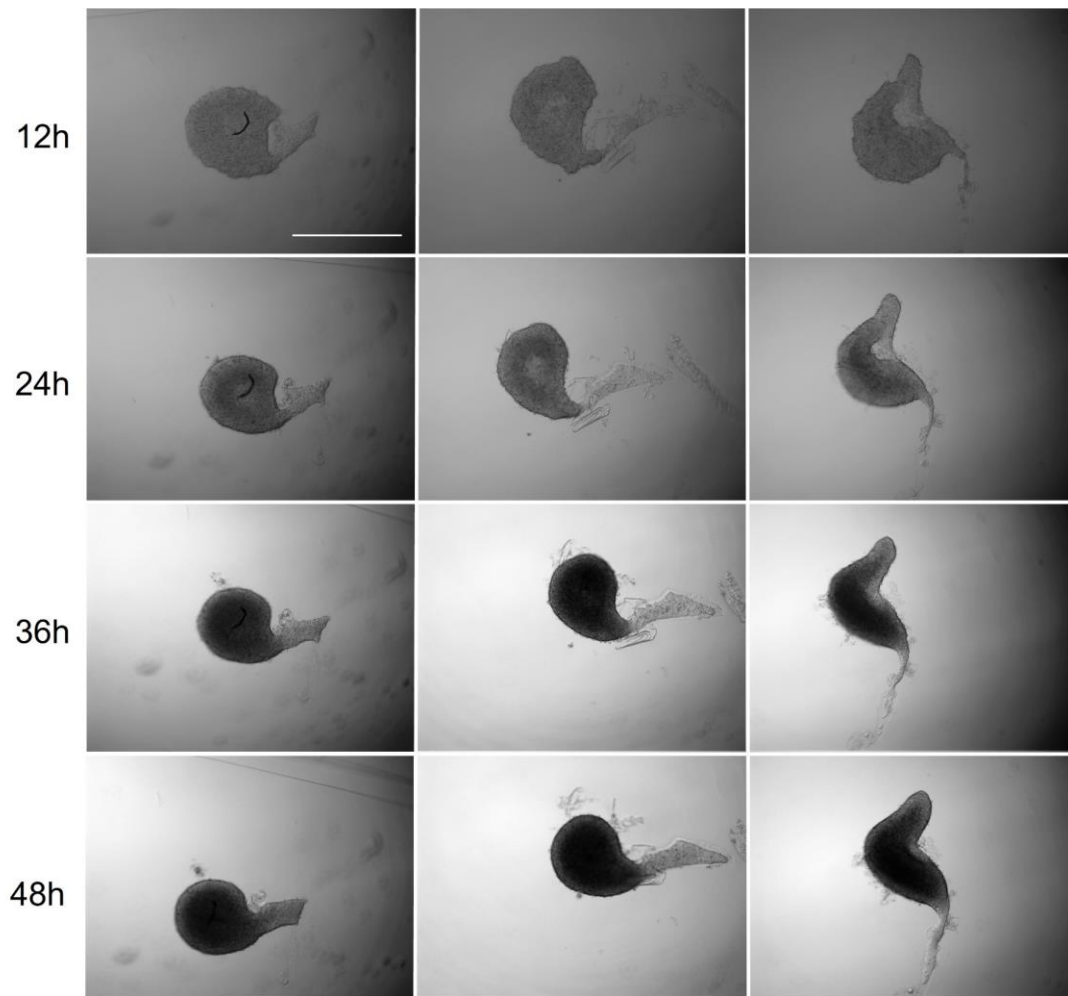
**Fig. S3.** Growth patterns and aggregated morphology of HEK293T cells expressing different proteins. (a) Fluorescence microscopy images of HEK293T transfected with the plasmid of EGFP and mCherry, respectively. The assembly results of HEK293T cells expressing Ecad-EGFP or/and Pcad-mCherry after cultured in 24-well plates for 12h (b), 36h (c), and 48h (d), respectively. Scale bar is 100 μm.



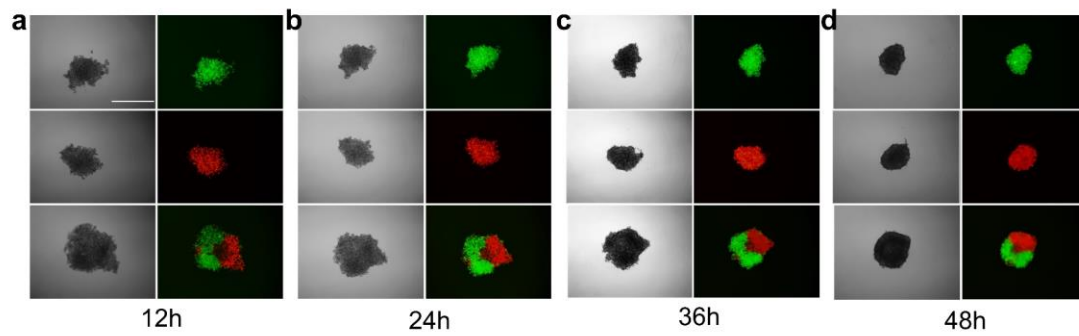
**Fig. S4.** K562 cells expressing Ecad-EGFP were cultured in a 96-well U-bottom culture plate. (a) Control. (b) Bright filed. (c) Dark filed. There were 40,000 cells per well. Scale bar is 200  $\mu\text{m}$ .



**Fig. S5.** Three electroporation instruments were used to test the efficiency of electroporation of HEK293T cells expressing Ecad-EGFP.

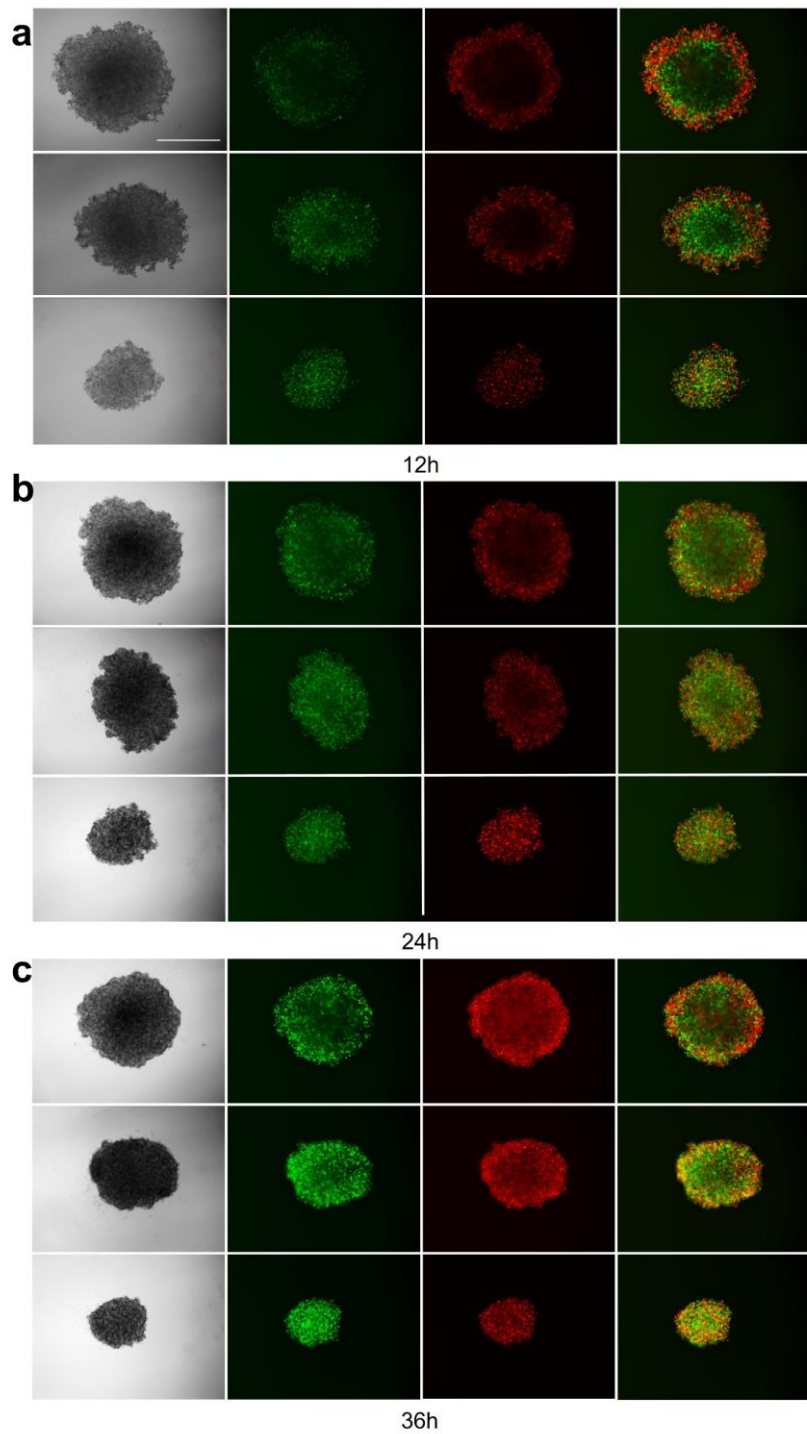


**Fig. S6.** Changes in the structure of normal HEK293T cells cultured in 96-well U-bottom plates over time. Scale bar is 200  $\mu\text{m}$ .

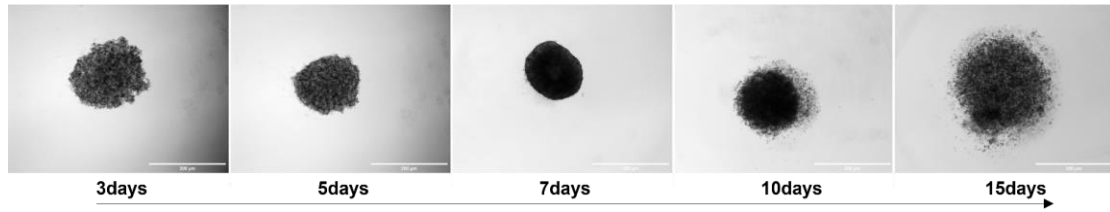


**Fig. S7.** Changes in the assembled structure of HEK293T cells electrotransduced with Ecad-EGFP and Ecad-mCherry for culturing alone or simultaneously in one well (without mixing, added from both sides) of a 96-well U-bottom culture plate when cultured for 12 h (a), 24 h (b), 36 h (c), and 48 h (d), respectively. Scale bar is 200  $\mu\text{m}$ .





**Fig. S8.** HEK293T cells were electroporated with Ecad-EGFP and Ecad-mCherry plasmids, then mixed and transferred to 96-well U-bottom culture plates for culturing of 12 h (a), 24 h (b). and 36 h (c), respectively. Scale bar is 200  $\mu\text{m}$ .



**Fig. S9.** HEK293T cells were transfected with cadherin plasmids and cultured for different days, the changes of 3D cell assemblies with the days.

Scale bar is 200  $\mu\text{m}$ .

## S2. Supplementary Tables

**Table S1.** Primer sequences (From 5' to 3').

Ecad-F	TAATACGACTCACTATAGGG
Ecad-R	CCGCGGTTAGTCGTCTCGCCGCCTCC
Pcad-F	TTAGTGAACCGTCAGATCCGCAGGGTCGAGCTCGGATCCA
Pcad-R	GGATCCCGGGCCCCGCGGAATTCCCTAGTCGTCTCT

**Table S2.** plasmids sequences. Only the key gene sequences were shown.

The promoter was a combination of CMV promoter and CMV enhancer, the plasmid frame was pcDNA3.1.

(E-cadherin, P-cadherin, IRES, EGFP, mCherry)

E	atgggcccctggagccgcagcctctcggcgctgctgctgctgctgcaggtctcctctggctctgccaggagccggagccc
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