

## **Description of Additional Supplementary Files**

**File Name:** Supplementary Data 1

**Description:** Differentially expressed genes ( $p_{adj} < 0.05$ ) are listed based on the comparison of CI-hnESCs and C-hnESCs.

**File Name:** Supplementary Data 2

**Description:** Top 50 enriched genes in each cluster of human day 6- blastoids.

**File Name:** Supplementary Data 3

**Description:** A list of antibodies used in this study.

**File Name:** Supplementary Data 4

**Description:** Lists of differentially expressed genes ( $p_{adj} < 0.05$  and  $\text{Log}_2\text{FC} > 1$ ) used in Gene-Set Variation Analysis.

**File Name:** Supplementary Movie 1

**Description:** Live imaging of formation of spontaneous blastoids.

**File Name:** Supplementary Movie 2

**Description:** One-shot imaging of spontaneous blastoids in AggreWells.