Electronic Supplementary Information

**A microengineered cell fusion approach with combined optical tweezers and microwell array technologies**

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Supplementary Information List:

Fig. S1 Detection and location of hESC (with GFP) in the round microwell. (a) Bright-field image. (b) Location of the center of the round microwell calculated based on its filled external contour. (c) Location of hESC with GFP in the marked microwell in the fluorescence image. (d) Corresponding location of hESC in the bright-field image.

Fig. S2 Schematic of cell trapping, levitation, and pairing in the microwell with combined optical traps and objective Z stage.

Fig. S3 Pairing two levitated hESCs with the radius of \(R_1\) and \(R_2\) by two optical traps with different distance \(D\).
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**Fig. S3** Pairing two levitated hESCs with the radius of \( R_1 \) and \( R_2 \) by two optical traps with different distance \( D \).