

20 **Supplemental Table 1.** Cell Lines and Culture Conditions For Trophoblast Differentiation

21 from hESC

Reference	hESC lines used	culture conditions for trophoblast differentiation
Xu <i>et al</i> [9]	H1, H7, H9, H14	80% DMEM/20% FBS, 1 mM L-glutamine, 0.1 mM $\beta$ ME, 1% NEAA, 4 ng/ml bFGF
Gerami-Naini <i>et al</i> [16]	H1	Suspension EBs, 2D differentiation: 68% DMEM/F12, 1% penicillin/streptomycin, 15% KOSR, 15% FBS, 1mM L-glutamine, 0.1 mM $\beta$ ME, 1% NEAA
Pera <i>et al</i> [28]	HES-2, HES-3	DMEM, without sodium pyruvate, 4500 mg/L glucose, 20% FBS, 0.1 mM $\beta$ ME, 1% NEAA, 2 mM glutamine, 50 U/ml penicillin, 50 mg/ml streptomycin.
Drukker <i>et al</i> [32]	H9	DMEM/F12, 20% FBS, 1% MEM NEAA, 1% GlutaMAX-I Supplement, 1% Pen/Strep, 0.055 mM $\beta$ ME
Hemberger <i>et al</i> [31]	Trophoblasts derived by EB culture and selection of hCG secreting colonies	hESC-derived trophoblast culture: RPMI/20% FCS, 50 $\mu$ M $\beta$ ME, 1 $\mu$ M sodium pyruvate, 50 U penicillin, 50 $\mu$ g/ml streptomycin, 25 ng/ml bFGF, 1 $\mu$ g/ml Heparin (70% CM)
Yu <i>et al</i> [10]	H1, H9, H14	mTeSR1 (with, without bFGF ( $5.77 \times 10^{-6}$ mM); see reference [34] for formulation details
Bernardo <i>et al</i> [29]	H9, HuES9	Chemically defined medium [29, 35]. Basic CDM: Iscove's modified DMEM/F12 at a 1:1 ratio, supplemented with Glutamax-I; bovine serum albumin (5 mg/ml); lipids at 1x (100x mixture of chemically defined lipid concentrate [Gibco-BRL]; transferrin 15 $\mu$ g/ml; monothioglycerol 450 $\mu$ M), insulin (7 $\mu$ g/ml).

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23 All cells were cultured at 37 C in room air/5% CO<sub>2</sub>. Please see the original publications for  
 24 details of sources of all reagents and conditions for maintenance of undifferentiated hESC.

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27 Abbreviations:

28 DMEM: Dulbecco's Modified Eagle Medium

29 FBS: fetal bovine serum

30  $\beta$ ME: 2-mercaptoethanol

31 KOSR: knockout serum replacement

32 NEAA: nonessential amino acids

33 CM: mouse embryonic fibroblast conditioned medium

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