

Fig. 1. TP63 isoforms in primary CTB. RT-PCR for various different TP63 isoforms. Fetal thymus expresses all six isoforms, whereas primary cytotrophoblast (CTB) expresses $\Delta Np63\alpha$, and to a lesser extent, $\Delta Np63\beta$.

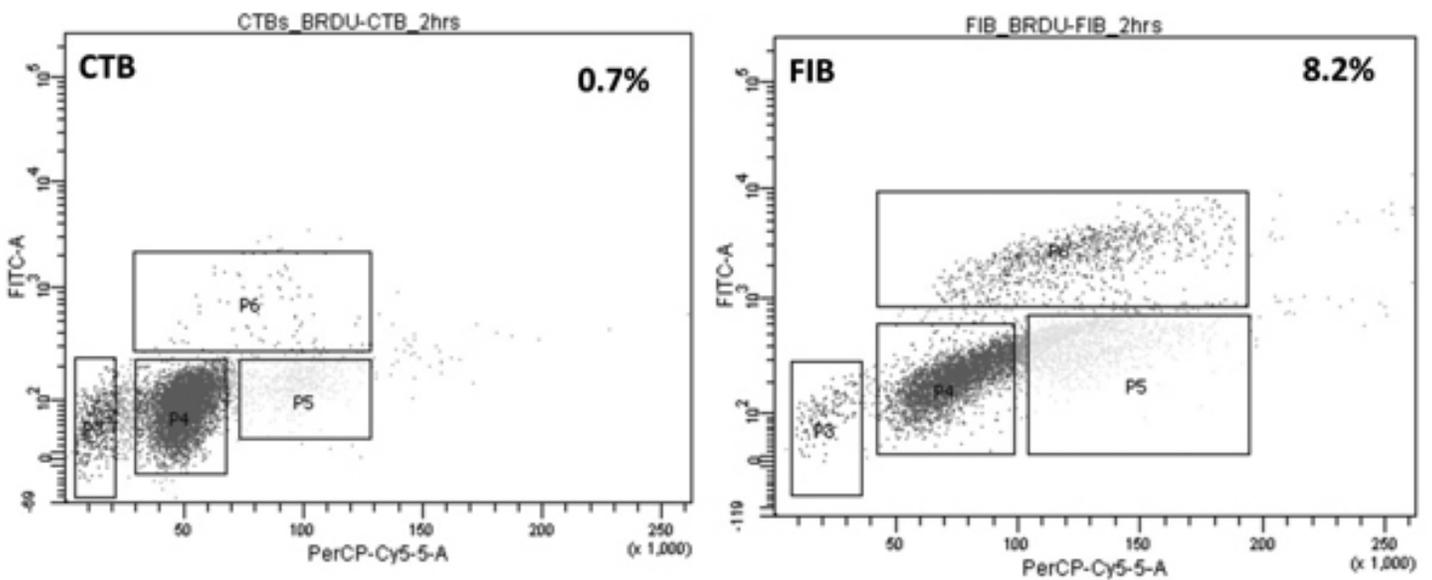


Fig. 2. Proliferative potential of primary CTB. Very few primary CTB incorporate BrdU (0.7%) compared with isolated fibroblast from the same placenta (8.2%).

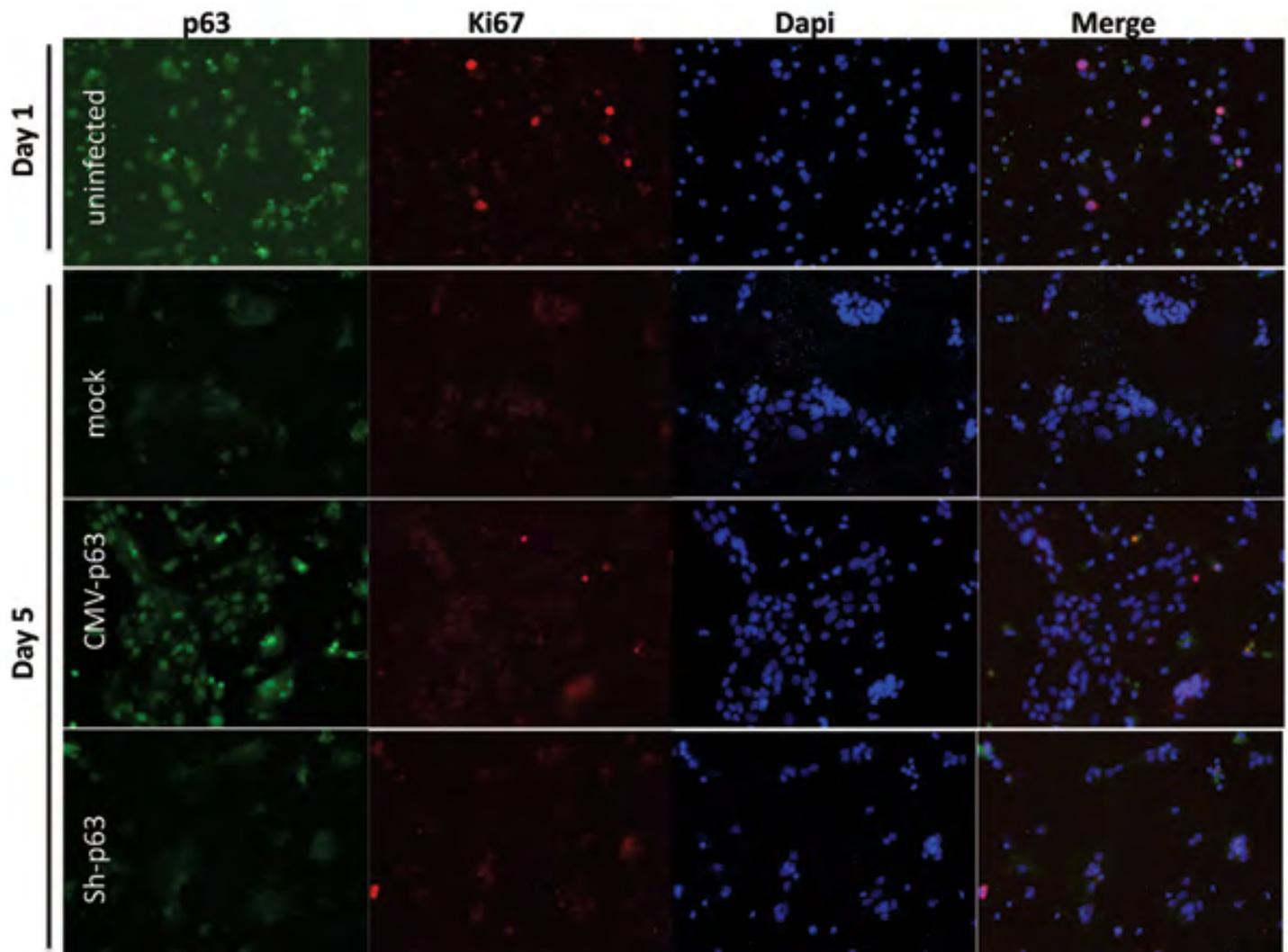


Fig. 3. Dissociation of Ki67 and p63 expression in isolated CTB. Even one day after plating, very few CTB express Ki67 (top panel). Forced expression of p63 does not lead to increased Ki67 index.

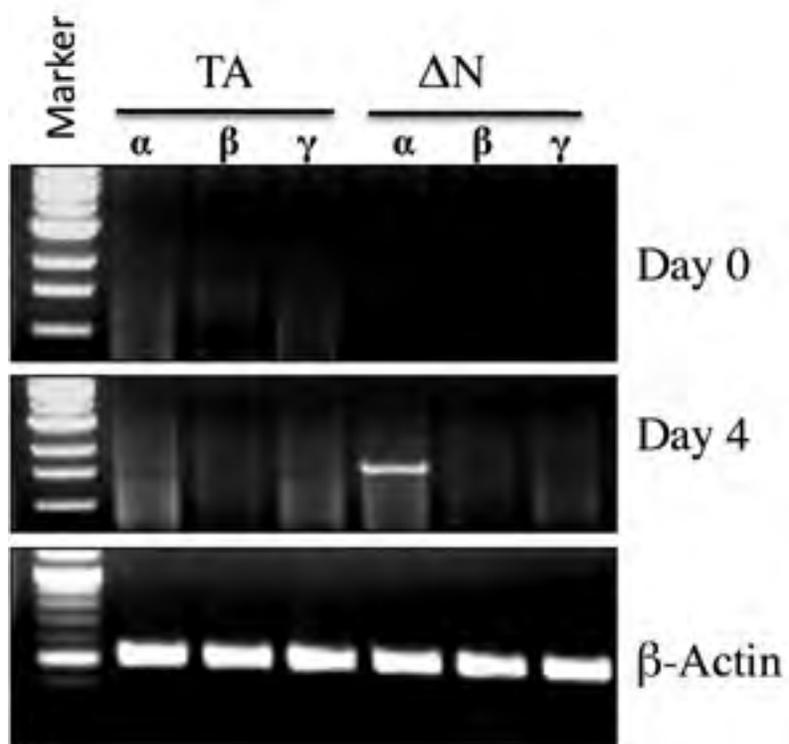


Fig. 4. TP63 isoforms in FCM-BMP4-treated hESCs. These cells only express the $\Delta Np63\alpha$ isoform.

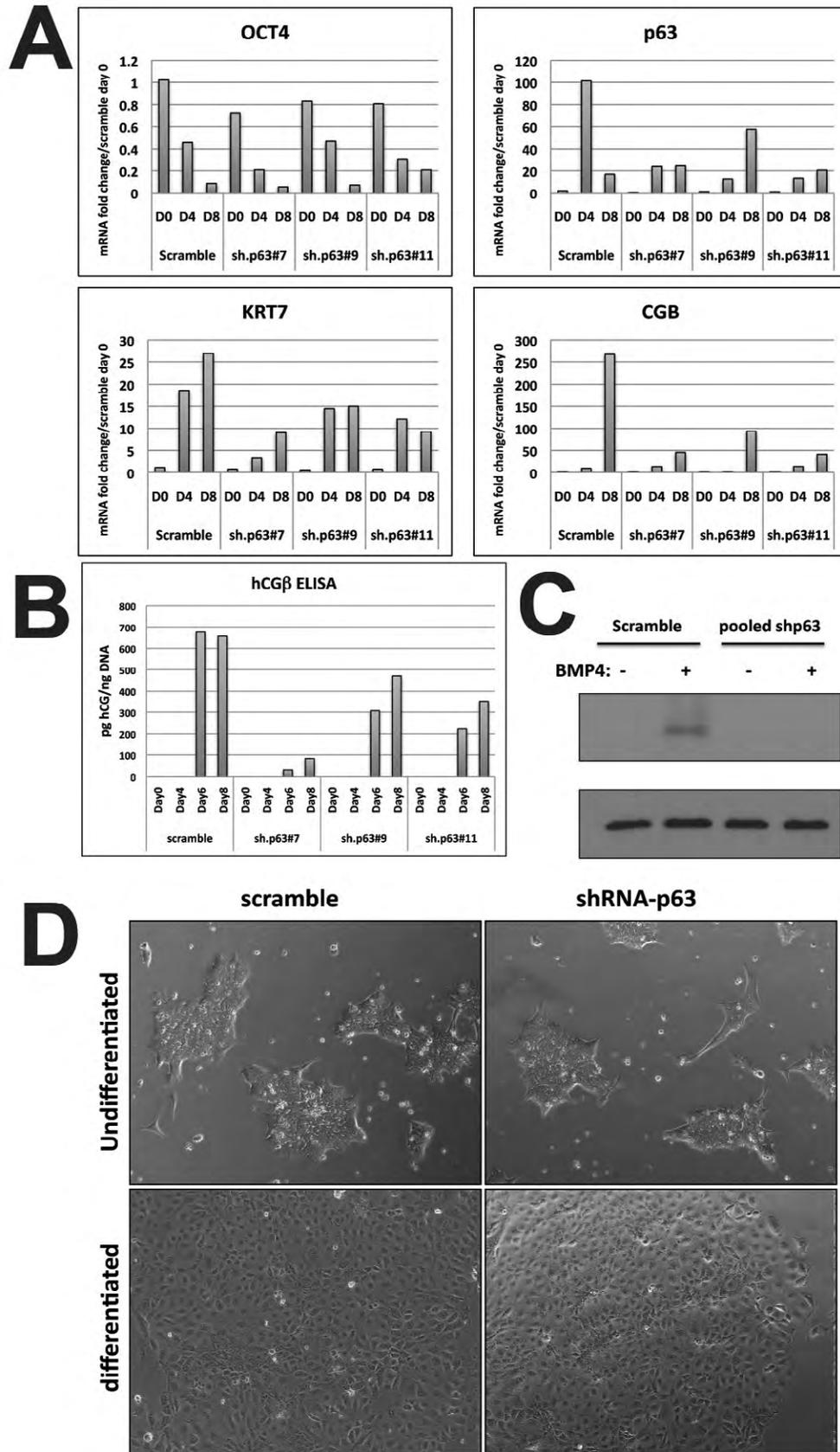


Fig. 5. p63 knockdown in hESCs. (A) Individual p63-shRNA constructs partially downregulate p63 mRNA, as well as other trophoblast-associated markers, upon FCM-BMP4 treatment. (B) Individual p63-shRNA constructs also partially interfere with hCG secretion in FCM-BMP4-treated hESCs. (C) Pooled p63-shRNA constructs fully downregulate p63 protein expression in FCM-BMP4-treated hESCs. (D) Morphology of scrambled- and p63-shRNA-expressing hESCs, following FCM-BMP4 treatment. Both display a flattened epithelial morphology.

Table S1. List of primers used for quantitative real-time PCR

Primer name	Primer sequence
GCM1	F 5'-AAG AAG TCC TGC CTG GGT GT-3' R 5'-CGT GCC TCC AGA AGT TGG T-3'
TP63 (ΔNp63 isoform)	F 5'-CTG GAA AAC AAT GCC CAG A-3' R 5'-AGA GAG CAT CGA AGG TGG AG-3'
KLF4	F 5'-ACC TAC ACA AAG AGT TCC CAT C-3' R 5'-TGT GTT TAC GGT AGT GCC TG-3'
KRT7	F 5'-AGG ATG TGG ATG CTG CCT AC-3' R 5'-CAC CAC AGA TGT GTC GGA GA-3'
CGA	F 5'-CAA CCG CCC TGA ACA CAT CC-3' R 5'-CAG CAA GTG GAC TCT GAG GTG-3'
CGB	F 5'-TGA GAT CAC TTC ACC GTG GTC TCC-3' R 5'-TTT ATA CCT CGG GGT TGT GGG G-3'
POU5F1(OCT4)	F 5'-TGG GCT CGA GAA GGA TGT G-3' R 5'-GCA TAG TCG CTG CTT GAT CG-3'
CDX2	F 5'-TGG ACA CGG ACC ACC AG-3' R 5'-GCT CTG GGA CAC TTC TCA GAG G-3'
HLAG	F 5'-CAG ATA CCT GGA GAA CGG GA-3' R 5'-CAG TAT GAT CTC CGC AGG GT-3'
STRA13	F 5'-CGT TGA GGC TGC GGT CAT GGA G-3' R 5'-CGC GGA CTG CTG CTT CTT TGG-3'
ELF5	F 5'-AGT CTG CAC TGA CAT TTT CTC ATC-3' R 5'-CAG AAG TCC TAG GGG CAG TC-3'
BRACHYURY	F 5'-AGT TGA GGA CAG CAG GTT TTA GTT-3' R 5'-GCT GAT TGT CTT TGG CTA CT-3'
HHEX	F 5'-CTC TAC TCT GGA GCC CCT TCT-3' R 5'-GTT TTG ACC TGT CTC TCG CT-3'
MIXL1	F 5'-ACG AAA TGT CTG AAG CCC CA-3' R 5'-GCT AGA GTC AGA GAT GCC CC-3'
GSC	F 5'-AAA GTG GAG GTC TGG TTT AAG AA-3' R 5'-TGT TCC ACT TCT CCG CGT TC-3'
LHX1	F 5'-CAT CAG ACC AAA CCA AAG ACC A-3' R 5'-CCG AAA CAC CGG AAG AAG TC-3'
SOX9	F 5'-GCT CTG GAG ACT TCT GAA CGA GA-3' R 5'-CCC GTT CTT CAC CGA CTT CCT-3'
18S	F 5'-CGC CGC TAG AGG TGA AAT TCT-3' R 5'-CGA ACC TCC GAC TTT CGT TCT-3'

Table S2. List of reverse-transcriptase PCR primers for various TP63 isoforms

Gene abbreviation	Primer sequence
TAp63 isoform	F 5' -AAG ATT GAG ATT AGC ATG GAC TG-3' R 5' -GCG CGT GGT CTG TGT TAT AG-3'
Δ Np63 isoform	F 5' -CTG GAA AAC AAT GCC CAG ACT C-3' R 5' -GCG CGT GGT CTG TGT TAT AG-3'
α isoform	F 5' -GAG GTT GGG CTG TTC ATC AT-3' R 5' -AGG AGA TGA GAA GGG GAG GAG A-3'
β isoform	F 5' -GAG GTT GGG CTG TTC ATC AT-3' R 5' -TCA GAC TTG CCA GAT CCT GAC A-3'
γ isoform	F 5' -GAG GTT GGG CTG TTC ATC AT-3' R 3' -GCT CCA CAA GCT CAT TCC TGA A-3'

Table S3.

[Download Table S3](#)

Table S4.

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Table S5.

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