

SUPPLEMENTARY TABLES

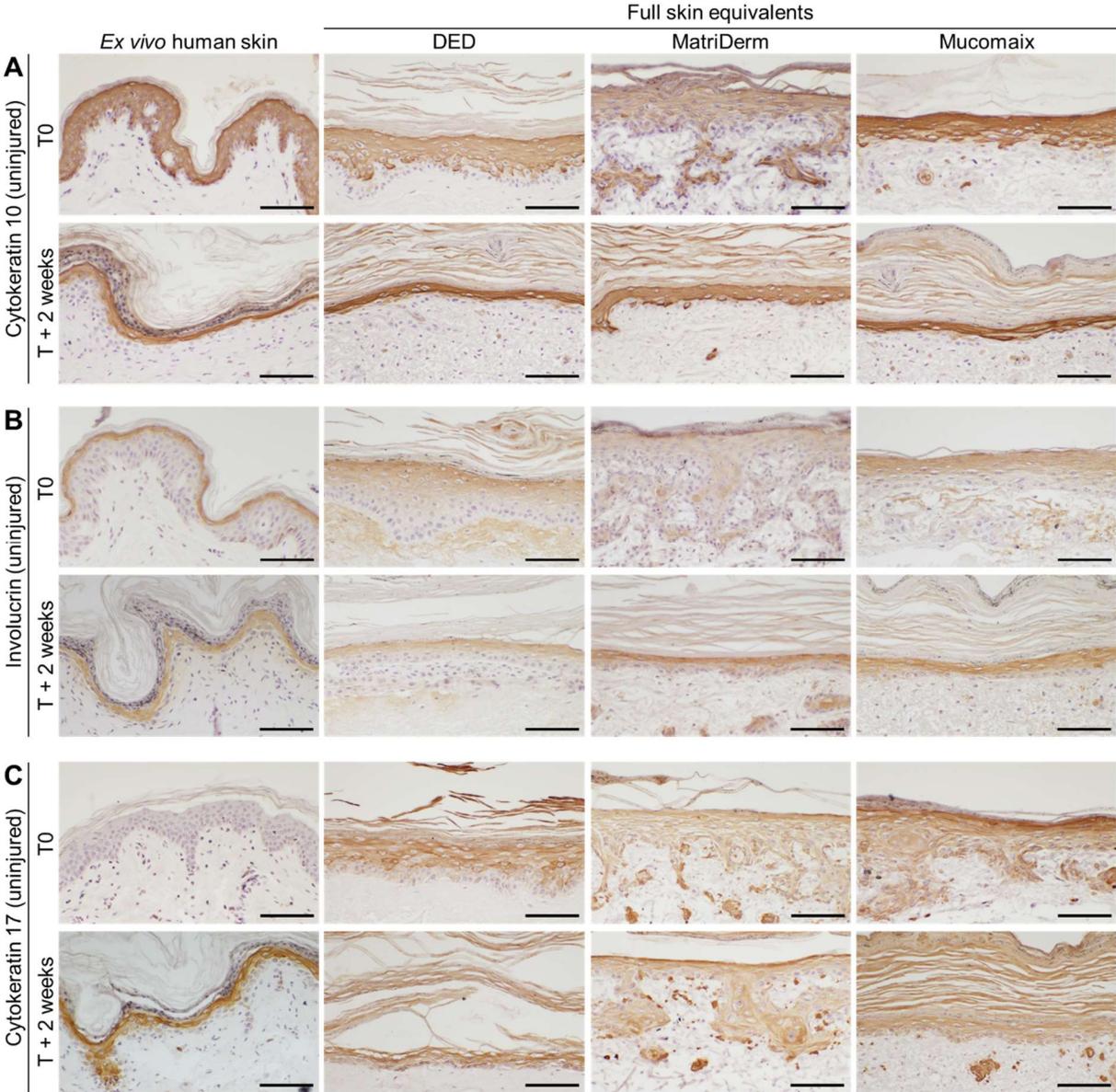
Supplementary Table S1. Culture medium for cells and full skin equivalents.

Medium	Contents
Culture medium	Dulbecco's Modified Eagle's Medium (DMEM), 10% fetal calf serum (Fetalclone III, Logan, UT); 1% 200 mM glutamine, antibiotics (100 IU/mL penicillin, 100 mg/mL streptomycin; Invitrogen)
FSE I medium	DMEM/Ham's F12 Nutmix (3:1) (Invitrogen, Paisley, UK), 5% fetal calf serum (Fetalclone III, Logan, UT), 1 mM hydrocortisone, 1 mM isoproterenol, 0.1 mM insulin, a lipid supplement (25 mM palmitic acid, 15 mM linoleic acid, 7 mM arachidonic acid, and 24 mM bovine serum albumin) (all Sigma-Aldrich, St. Louis, MO), antibiotics (100 IU/mL penicillin, 100 mg/mL streptomycin; Invitrogen)
FSE II medium	DMEM/Ham's F12 Nutmix (3:1) (Invitrogen, Paisley, UK), 2% fetal calf serum (Fetalclone III, Logan, UT), 1 mM hydrocortisone, 1 mM isoproterenol, 0.1 mM insulin, 1.9 μ M DL- α -tocopherol, a lipid supplement (25 mM palmitic acid, 15 mM linoleic acid, 7 mM arachidonic acid, and 24 mM bovine serum albumin) (all Sigma-Aldrich, St. Louis, MO), antibiotics (100 IU/mL penicillin, 100 mg/mL streptomycin; Invitrogen)
FSE III medium	DMEM/Ham's F12 Nutmix (3:1) (Invitrogen, Paisley, UK), 0.5% fetal calf serum (Fetalclone III, Logan, UT), 1 mM hydrocortisone, 1 mM isoproterenol, 0.1 mM insulin, 1.9 μ M DL- α -tocopherol, 130 mg/mL ascorbic acid, a lipid supplement (25 mM palmitic acid, 15 mM linoleic acid, 7 mM arachidonic acid, and 24 mM bovine serum albumin) (all Sigma-Aldrich, St. Louis, MO), antibiotics (100 IU/mL penicillin, 100 mg/mL streptomycin; Invitrogen)

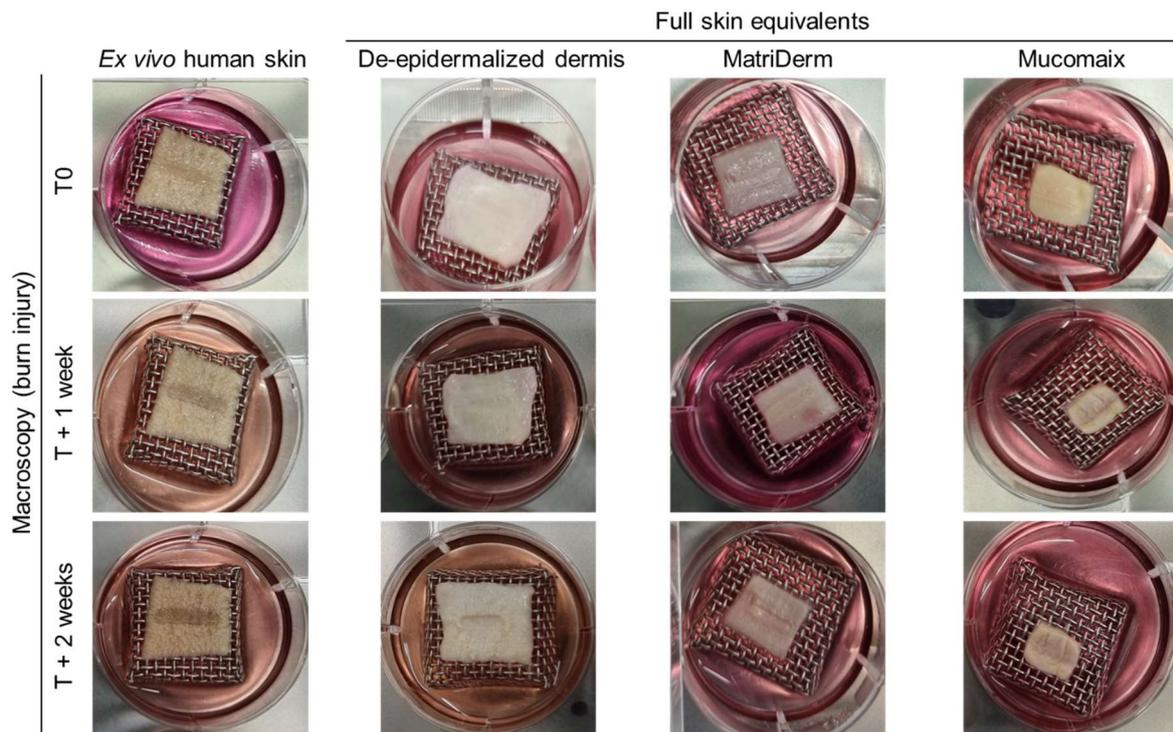
Supplementary Table S2. Antibodies used for immunohistochemistry.

Primary antibody	Clone	Host	Dilution	Manufacturer	Antigen retrieval
Pan-cytokeratin	PCK-26	Mouse	1:200	Sigma	Triton
Cytokeratin 10	Polyclonal	Rabbit	1:5000	Abcam	Citrate
Cytokeratin 15	EPR1614Y	Mouse	1:200	Abcam	Citrate
Cytokeratin 17	E3	Mouse	1:500	DAKO	Citrate
Involucrin	SY5	Mouse	1:250	Novocastra	Triton
Collagen IV	CIV 22	Mouse	1:100	DAKO	Triton
Laminin α 5	4C7	Mouse	1:200	DAKO	Triton
Vimentin	V9	Mouse	1:1000	DAKO	Triton
α-SMA	1A4	Mouse	1:500	DAKO	Tris/EDTA
Ki67	MIB1	Mouse	1:100	DAKO	Tris/EDTA
BrdU	IIB5	Mouse	1:200	MP Biomedicals	HCl/Borax

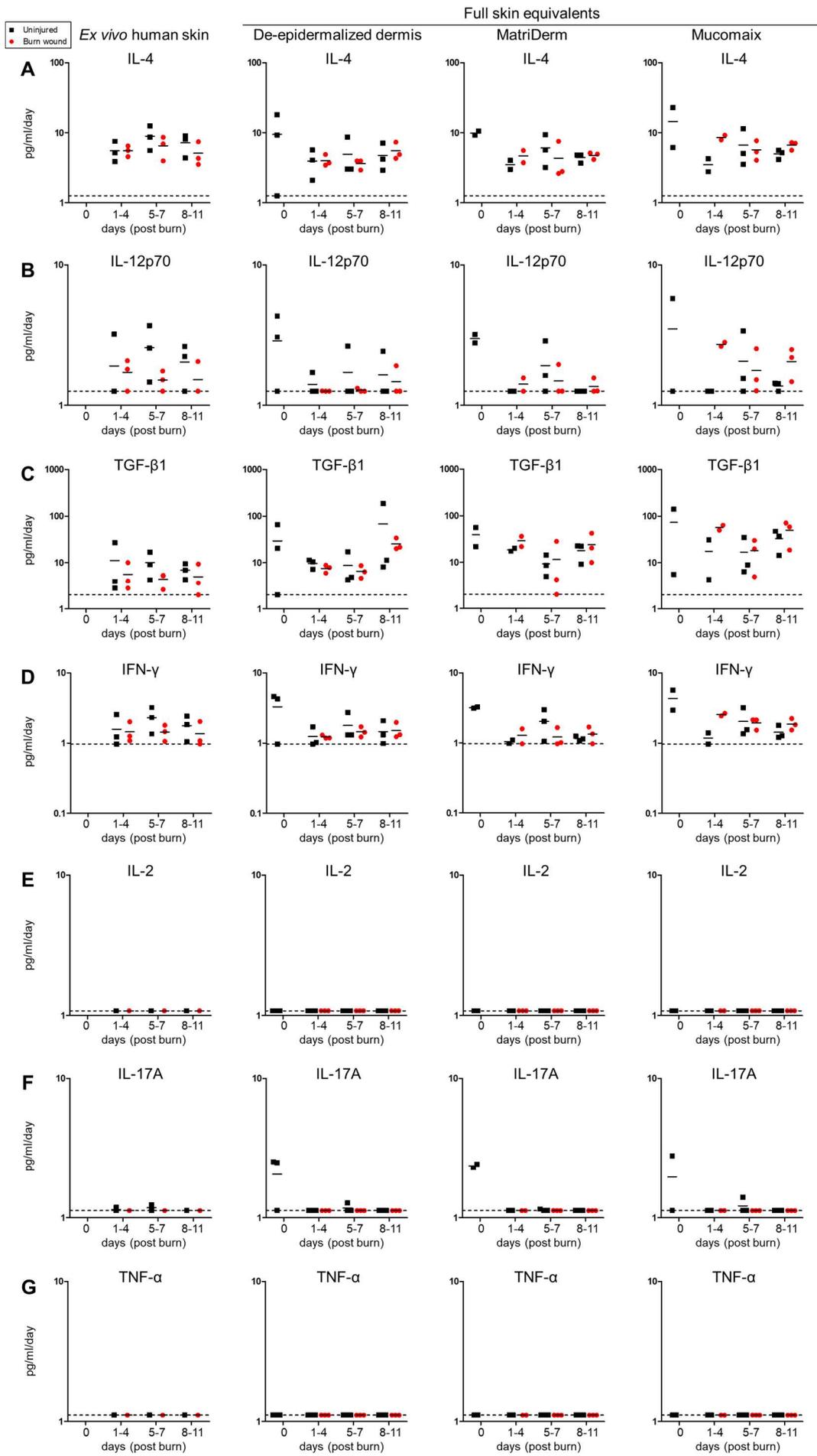
SUPPLEMENTARY FIGURES



Supplementary Figure S1. Microscopic images of cytokeratin 10, involucrin and cytokeratin 17 in cultured skin models. Ex vivo human skin (left) and full skin equivalents generated from de-epidermalized dermis, MatriDerm and Mucomaix (right). Immunohistochemical (A) cytokeratin 10; (B) involucrin; (C) cytokeratin 17 DAB staining. Models were produced from 3 different skin donors in duplicate. For the full skin equivalent models, day 0 was after the initial 3 weeks of culture. Black scale bar = 100 μm.



Supplementary Figure S2. Macroscopic images of burn-injured skin models. *Ex vivo* human skin (left) and full skin equivalents generated from de-epidermalized dermis, MatriDerm and Mucomaix (right). Models were produced from 3 different skin donors in duplicate. For the full skin equivalent models, day 0 was after the initial 3 weeks of culture.



Supplementary Figure S3. Cytokines detected in culture medium of burn-injured and uninjured skin models. *Ex vivo* human skin (left) and full skin equivalents generated from de-epidermalized dermis, MatriDerm and Mucomaix (right). Level of (A) IL-4; (B) IL-12p70; (C) TGF- β 1; (D) IFN- γ ; (E) IL-2; (F) IL-17A; (G) TNF- α in the culture medium at T0, T + 1-4, T + 5-7 and T + 8-11 days (after burn injury). Samples from biological duplicates were pooled per donor (n = 3 donors) and re-calculated into pg/ml per day of culture to compensate for intermittent medium changes. Striped line indicates the highest or lowest level of quantification. Because *ex vivo* human skin models were started at T0, no levels are shown for day 0. For the full skin equivalent models, day 0 was after the initial 3 weeks of culture.