

Supplementary Table S2. Chemokines, cytokines, and biomarkers (CCBMs) expressed or secreted in cells, tissues, and tissue explants after irradiation with UVC, UVB, or UVA.

| Wavelength (nm) | CCBM | Dose(s) | Cells/tissues | Outcome (reference) |
|-------------------------------------|--------------|---|---------------|--|
| UVC spectrum (200 to 290 nm) | | | | |
| 255 / 405 | FGF1 | 9.28 mJ/cm ² / 17.88 mJ/cm ² | Fibroblasts | • Fibroblasts had increased levels of FGF-acidic secretion at 24 hours after exposure [6] |
| 255 / 405 | FGF1 | 9.28 mJ/cm ² / 17.88 mJ/cm ² | HEPM cells | • HEPM cells had decreased levels of FGF-acidic secretion at 48 hours after exposure [6] |
| 255 / 405 | IL6 | 9.28 mJ/cm ² / 17.88 mJ/cm ² | Fibroblasts | • Fibroblasts had increased levels of IL6 secretion at 24 and 48 hours after exposure [6] |
| 255 / 405 | IL6 | 9.28 mJ/cm ² / 17.88 mJ/cm ² | HEPM cells | • HEPM cells had increased levels of IL6 secretion at 24 hours after exposure [6] |
| 255 / 405 | PIGF | 9.28 mJ/cm ² / 17.88 mJ/cm ² | Fibroblasts | • Fibroblasts had increased levels of PIGF secretion at 24 hours after exposure [6] |
| 255 / 405 | PIGF | 9.28 mJ/cm ² / 17.88 mJ/cm ² | HEPM cells | • HEPM cells had decreased levels of PIGF secretion at 24 hours after exposure [6] |
| 255 / 405 | TGFA | 9.28 mJ/cm ² / 17.88 mJ/cm ² | Fibroblasts | • Fibroblasts had increased levels of TGFA secretion at 48 hours after exposure [6] |
| 255 / 405 | TNF α | 9.28 mJ/cm ² / 17.88 mJ/cm ² | HEPM cells | • HEPM cells had increased levels of TNFA secretion at 48 hours after exposure [6] |
| 255 / 405 | VEGF | 9.28 mJ/cm ² / 17.88 mJ/cm ² | Fibroblasts | • Fibroblasts had decreased levels of VEGF secretion at 24 hours after exposure [6] |
| 255 / 405 | VEGF | 9.28 mJ/cm ² / 17.88 mJ/cm ² | HEPM cells | • HEPM cells had decreased levels of VEGF secretion at 24 hours after exposure [6] |
| 254 | FGF | 15-60 mJ/cm ² | Skin | • Epidermal wounds in rats had increased levels of FGF expression [56] |
| 254 | FN1 | | Fibroblasts | • Human fibroblasts had increased levels of fibronectin secretion and collagen lattices contain treated fibroblasts contracted faster at 7 days [12] |
| 254 | TGFB | 15-60 mJ/cm ² | Skin | • Epidermal wounds in rats had increased levels of TGFB mRNA expression and secretion at 7 (15 mJ/cm ²) and 21 (60 mJ/cm ²) days after exposure [57] |
| 255 | BMP10 | 9.28 mJ/cm ² | HEPM cells | • HEPM cells had decreased levels of BMP-10 secretion at 48 hours after exposure [6] |

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|-------------------------------------|-------|--------------------------|-------------------|---|
| 255 | FGF1 | 9.28 mJ/cm ² | HEPM cells | <ul style="list-style-type: none"> HEPM cells had decreased levels of FGF-acidic secretion at 24 hours after exposure [6] |
| 255 | IL6 | 9.28 mJ/cm ² | Fibroblasts | <ul style="list-style-type: none"> Fibroblasts had increased levels of IL6 secretion at 24 and 48 hours after exposure [6] |
| 255 | IL6 | 9.28 mJ/cm ² | HEPM cells | <ul style="list-style-type: none"> HEPM cells had increased levels of IL6 secretion at 24 and 48 hours after exposure [6] |
| 255 | PIGF | 9.28 mJ/cm ² | Fibroblasts | <ul style="list-style-type: none"> Fibroblasts had increased levels of PIGF secretion at 24 hours after exposure [6] |
| 255 | TGFA | 9.28 mJ/cm ² | Fibroblasts | <ul style="list-style-type: none"> Fibroblasts had increased levels of TGFA secretion at 24 hours after exposure [6] |
| 255 | VEGF | 9.28 mJ/cm ² | Fibroblasts | <ul style="list-style-type: none"> Fibroblasts had decreased levels of VEGF secretion at 24 hours after exposure [6] |
| 255 | VEGF | 9.28 mJ/cm ² | HEPM cells | <ul style="list-style-type: none"> HEPM cells had increased levels of VEGF secretion at 24 hours after exposure [6] |
| 200-320 a | CSF | 300 J/m ² | Keratinocytes | <ul style="list-style-type: none"> Murine PAM212 cells had increased levels of GM-CSF mRNA expression and secretion as early as 1 hour after exposure [58] |
| 200-320 a | IL3 | 300 J/m ² | Keratinocytes | <ul style="list-style-type: none"> Murine PAM212 cells had increased levels of IL3 mRNA expression as early as at 1 hour after exposure [58] |
| UVB Spectrum (290 to 320 nm) | | | | |
| 250-400 i | IL6 | 100 J/m ² | Keratinocytes | <ul style="list-style-type: none"> Human epidermal cells had increased levels of IL6 mRNA expression and secretion at 24 hours after exposure [59] |
| 250-360 h | IL3 | 120-400 J/m ² | Keratinocytes | <ul style="list-style-type: none"> Murine PAM 212 cells had increased levels of IL3 expression and secretion after exposure [60] |
| 280-315 | IL6 | 250-500 J/m ² | Keratinocytes | <ul style="list-style-type: none"> NHEK had increased levels of IL6 expression and secretion at 24 hours after exposure [61] |
| 280-315 | TNFA | 250-500 J/m ² | Keratinocytes | <ul style="list-style-type: none"> NHEK had increased levels of TNFα expression and secretion at 24 hours after exposure [61] |
| 280-320 | VEGF | 30-60 mJ/cm ² | Skin | <ul style="list-style-type: none"> Biopsies from human and murine skin had increased levels of VEGF immunostaining at 48 hours after exposure [26] |
| 301-312 k | ICAM1 | 100 mJ/cm ² | Endothelial cells | <ul style="list-style-type: none"> Human dermal microvascular endothelial cell (HDMEC) had increased levels of |

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| | | | | ICAM-1 expression at 24 hours after exposure [62] |
| 305 e | IL1 | 0.1 J/cm ² | Keratinocytes | <ul style="list-style-type: none"> Human keratinocytes had increased levels of IL1 secretion at 4 days after exposure [25] |
| 310 | IL1 | 100-800 mJ/cm ² | Keratinocytes | <ul style="list-style-type: none"> Human squamous cell carcinoma, murine Pam 212, and murine epidermal cell keratinocytes had increased levels of IL1 mRNA expression and secretion at 24 hours after exposure [63–65] |
| 310 g | IL1 | 184 mJ/cm ² | Skin | <ul style="list-style-type: none"> Biopsies from human skin had increased levels of IL1 immunostaining at 24 hours after exposure [27] |
| 310 g | TNFA | 184 mJ/cm ² | Skin | <ul style="list-style-type: none"> Biopsies from human skin had increased levels of TNF immunostaining at 24 hours after exposure [27] |
| 310 j | SELE | 2.5 MED | Skin | <ul style="list-style-type: none"> Biopsies from human skin had increased levels of E-selectin immunostaining at 4, 8, 24 hours after exposure [27] |
| 310 j | ICAM1 | 15-20 mJ/cm ² | Endothelial cells | <ul style="list-style-type: none"> Human dermal microvascular endothelial cell (HMEC-1) line had increased levels of ICAM-1 staining expression at 24 hours after exposure [66] |
| 310 j | ICAM1 | 2.5 MED | Skin | <ul style="list-style-type: none"> Biopsies from human skin had increased levels of ICAM-1 immunostaining at 4, 8, 24 hours after exposure [27] |
| 312 | CCL2 | 2 MED | Skin | <ul style="list-style-type: none"> Biopsies from human skin had increased levels of CCL2 mRNA expression at 24 hours after exposure [28] |
| 312 | CCL20 | 2 MED | Skin | <ul style="list-style-type: none"> Biopsies from human skin had increased levels of CCL20 mRNA expression at 24 hours after exposure [28,67] |
| 312 | CXCL1 | 2 MED | Skin | <ul style="list-style-type: none"> Biopsies from human skin had increased levels of CXCL1 mRNA expression at 24 hours after exposure [28] |
| 312 | CXCL8 | 2 MED | Skin | <ul style="list-style-type: none"> Biopsies from human skin had increased levels of IL8 mRNA expression at 24 hours after exposure [28] |
| 312 | IL10 | 2 MED | Skin | <ul style="list-style-type: none"> Biopsies from human skin had increased levels of IL10 mRNA expression at 24 hours after exposure [28] |
| 313 b | IL6 | 10-100 J/cm ² | Keratinocytes | <ul style="list-style-type: none"> Normal and malignant human keratinocytes had increased levels of IL6 mRNA |

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| | | | | expression and secretion at 24 hours after exposure [68] |
| 313 f | TNFA | 200-750 J/m ² | Keratinocytes | <ul style="list-style-type: none"> Human HaCaT cells had increased levels of TNFA secretion at 24 hours after exposure [69] |
| 313 f | TNFA | 200-750 J/m ² | Skin | <ul style="list-style-type: none"> Murine epidermis and dermis had increased levels of TNFA expression at 12 hours after exposure [69] |
| NB-UVB | SMAD3 | 1.5-1.8 J/cm ² | Skin | <ul style="list-style-type: none"> Biopsies from skin of individuals with atopic dermatitis had increased levels of Smad3 mRNA expression at 12 hours after exposure [70] |
| NB-UVB | SMAD4 | 1.5-1.8 J/cm ² | Skin | <ul style="list-style-type: none"> Biopsies from skin of individuals with atopic dermatitis had increased levels of Smad4 mRNA expression at 12 hours after exposure [70] |
| NB-UVB | TGFB | 1.5-1.8 J/cm ² | Skin | <ul style="list-style-type: none"> Biopsies from skin of individuals with atopic dermatitis had increased levels of TGFB mRNA expression at 12 hours after exposure [70] |
| UVB | TGFA | 3 MED | Skin | <ul style="list-style-type: none"> Cutaneous exudates from human skin abrasions had increased levels of TGFA in irradiated sites at 30 minutes after exposure [71] |
| UVA spectrum (320 to 400 nm) | | | | |
| 340-400 | CXCL8 | 20 J/m ² | Skin | <ul style="list-style-type: none"> Sclerotic skin biopsies had increased levels of IL8 mRNA expression (20 J/m², cumulative 800 J/m² total) that decreased after irradiation [22] |
| 340-400 | IL6 | 20 J/m ² | Skin | <ul style="list-style-type: none"> Sclerotic skin biopsies had increased levels of IL6 mRNA expression (20 J/m², cumulative 800 J/m² total) that decreased after irradiation [22] |
| 360 c | CSF | 1-10 J/cm ² | Keratinocytes | <ul style="list-style-type: none"> Human HaCaT keratinocytes had increased levels of GM-CSF mRNA expression and secretion at 24 and 48 hours after exposure through an IL1 alpha independent pathway [24] |
| 365 d | CSF | 1 J/cm ² | Keratinocytes | <ul style="list-style-type: none"> Human keratinocytes had increased levels of GM-CSF secretion at 4 days after exposure [25] |

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|-------|------|--------------------------|---------------|---|
| 365 d | IL6 | 1 J/cm ² | Keratinocytes | <ul style="list-style-type: none"> Human keratinocytes had increased levels of IL6 secretion at 4 days after exposure [25] |
| 365 d | IL8 | 1 J/cm ² | Keratinocytes | <ul style="list-style-type: none"> Human keratinocytes had increased levels of IL8 secretion at 4 days after exposure [25] |
| 405 | FGF1 | 17.88 mJ/cm ² | Fibroblasts | <ul style="list-style-type: none"> Fibroblasts had decreased levels of FGF-acidic secretion at 24 hours after exposure [6] |

^aUV range from 290 to 320 nm

^bUV range from 290 to 320 nm, emission peak at 313 nm

^cUV range from 330 to 460 nm, emission peak at 360 nm

^dUV range from 310 to 400 nm, emission peak at 365 nm

^eUV range from 295 to 315 nm, emission peak at 305 nm

^fUV range from 290 to 320 nm, emission peak at 313 nm

^gUV range from 270 to 380 nm, emission peak at 310 nm

^hUV range from 250 to 360 nm; 65% in range of 280 to 315 nm (UVB); remaining in range of 250 to 280 nm (UVC) and in range of 315 to 360 nm (UVA)

ⁱUV range from 250 to 400 nm

^jUV range from 270 to 400 nm, emission peak at 310 nm; 43.3% in range of 290 to 320 nm (UVB); <0.1% in range of 200-290 nm (UVC); and 56.6% in range of 320-400 nm (UVA)

^kUV range of 290 to 325 nm, emission peaks at 301 and 312 nm

MED, minimum erythema dose