

SUPPORTING INFORMATION

Extending the acute skin response spectrum to include the far-UVC

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	Wavelength (nm)																
	200	205	210	215	220	225	230	235	240	245	250	255	260	265	270		
Exposure Dose (mJ/cm ²)	200	205	210	215	220	225	230	235	240	245	250	255	260	265	270		
	100.0	118	40	32	25	20	16	13	10	8.3	7.0	5.8	4.6	3.7	3		
	200	236	80	64	50	40	32	26	12.5	16.6	8.75	11.6	9.2	7.4	6		
	400	472	160	128	100	80	64	31.4	15	20.75	10.5	14.5	11.5	14.8	12		
	800	944	320	256	200	160	70.8	39.25	17	24.9	12.25	17.4	13.8	18.5	15		
	1600	1888	640	512	400	197.9	88.5	47.1	17.5	29.05	14	20.3	16.1	22.2	18		
	3200.0	2360	1280	1024	800	247.3	106.2	52	20	33.2	28	23.2	18.4	25.9	21		
			1600	1280	1000	296.9	123.9	54.95	21.25	66.4	56	46.4	36.8	29.6	24		
				1536	1200	320	128	62.8	25.5	132.8	112	92.8	73.6	59.2	48		
					1400	346.3	141.6	104	29.75	265.6	224	185.6	147.2	118.4	96		
					1600	395.8	256	208	34								
						640	512	260	40								
						800	640	312	80								
						960	768	364	160								
						1120	896	416	320								
						1280	1024										

Table S1. Doses at each wavelength used to expose mice during the two stages of the study. The lowest exposure doses at each wavelength were based on the current 8-hour exposure limits as defined by ICNIRP,¹ followed by increments of 2x, 4x, 8x, 16x, and 32x of these limits during the first stage of the study. The remaining of the exposure doses used at each wavelength were based on the estimated safe dose established during the initial stage of the process as well as 1.25x, 1.5x, 1.75x, and 2x this estimated safe dose.

Stratum Corneum and Epidermis Thickness Measurements

Materials and Methods. 72 h after exposure, mice were euthanized by CO₂ asphyxiation and dorsal skin was harvested and immediately fixed in 10 % formalin (Epredia, Kalamazoo, MI) overnight at room temperature. Three randomly selected unirradiated skin tissues for each section of the grid were selected. Thickness measurements were performed by means of the Image-Pro Plus 6.0 software (Media Cybernetics, Silver Springs, MD) on hematoxylin-eosin stained 5 mm tissue sections. For the selected tissues, multiple randomly selected fields of view were analyzed across the tissues and the thickness of the stratum corneum and epidermis were collected following our previous mouse skin study.¹ A one-way ANOVA test was used to statistically compare the thickness of the stratum corneum and epidermis of each dorsal section. Measurements represent the average $\pm$ standard deviation.

Results. The stratum corneum and epidermis on the dorsal side of hairless mice skin was found to have an average thickness of $4.70 \pm 0.88 \mu\text{m}$ and $20.86 \pm 5.52 \mu\text{m}$, respectively (Table S2). Following a one-way ANOVA test, no statistical differences were observed across the various sections of the dorsal region that were irradiated with UVC light in this study.

Grid Section	Stratum Corneum Thickness (μm)	Epidermis Thickness (μm)
1	4.69 ± 1.15	20.19 ± 4.99
2	4.92 ± 1.00	20.33 ± 4.27
3	4.95 ± 0.67	22.54 ± 7.92
4	4.57 ± 0.68	21.60 ± 4.96
5	4.71 ± 0.89	20.69 ± 4.69
6	4.65 ± 0.93	21.95 ± 4.57
7	4.53 ± 0.88	20.34 ± 5.96
8	4.63 ± 0.65	19.26 ± 5.22

Table S2. Average thickness of the (a) stratum corneum and (b) epidermis were determined based on histological analysis of three skin tissues per section of the grid drawn on the dorsal side of the mice. Overall, the average thickness of the stratum corneum and epidermis throughout the dorsal side of SKH-1 albino hairless mice was found to be $4.70 \pm 0.88 \mu\text{m}$ and $20.86 \pm 5.52 \mu\text{m}$, respectively.

References.

1. The International Commission on Non-Ionizing Radiation Protection. GUIDELINES ON LIMITS OF EXPOSURE TO ULTRAVIOLET RADIATION OF WAVELENGTHS BETWEEN 180 nm AND 400 nm (INCOHERENT OPTICAL RADIATION). *Health Physics* **87**, 171–86 (2004).
2. Buonanno, M. *et al.* 207-nm UV Light—A Promising Tool for Safe Low-Cost Reduction of Surgical Site Infections. II: In-Vivo Safety Studies. *PLoS One* **11**, e0138418 (2016).