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Supplementary Information for

UV light suppression of EAE (a mouse model of Multiple Sclerosis) is independent of vitamin D and its receptor

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Supplementary Information Text

Daily low dose UV-NB significantly suppresses EAE.

Methods

Animals and diet

All procedures were approved by the Research Animal Resources Committee of the College of Agricultural and Life Sciences at the University of Wisconsin-Madison. All animals were maintained in the Department of Biochemistry vivarium with a 12h:12h light:dark cycle.

EAE induction and scoring

Induction of disease was carried out as reported previously [1]. Briefly, mice were immunized with myelin oligodendrocyte glycoprotein peptide (MOG, Hooke Laboratories, Lawrence, MA), a model of Primary Progressive MS. MOG_{35-55} (MEVGWYRSPFSRVVHLYRNGK) was emulsified in complete Freund's adjuvant and contained inactivated *Mycobacterium tuberculosis* H37Ra. On day zero 20 µl of MOG emulsion was injected subcutaneously, followed by 200 ng of pertussis toxin diluted in sterile PBS given intraperitoneally 2-4 hours later (PTX, List Biological Laboratories, Campbell, CA); 24 hours later a second 200 ng PTX booster injection was given. Mice were scored each weekday for clinical signs of EAE using the following scale: 0, no clinical disease; 1, loss of tail tone; 2, unsteady gait; 3, hind limb paralysis; 4, forelimb paralysis; 5, death.

UVB radiation treatment

Radiation treatment was carried out as reported previously [1]. Briefly, prior to treatment, an electric razor was used to shave the dorsum of each animal. Beginning at immunization, animals were irradiated daily with a bank of UV-NB lamps with an emission spectrum of 300-325nm (Solarc Systems, Minesing, ON). The radiation output was measured by placing a UV radiometer equipped with a UVX-31 sensor with a calibration point of 310 nm and bandpass 280-340 nm (UVP LLC, Upland, CA) at five locations within the cage, representing the positions occupied by the animals. An average output was calculated, and the time adjusted to expose mice to either 2 or 5 kJ/m^2 per treatment. These readings were confirmed using a wide band spectroradiometer RPS900 (International Light, Peabody, MA).

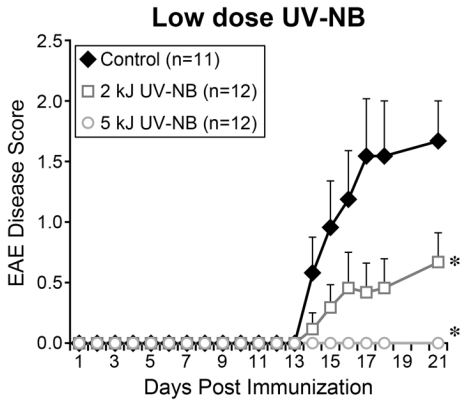

Fig. S1. Daily low dose UV-NB significantly suppresses EAE. Mice exposed each week day to either 2 or 5 kJ UV-NB beginning at immunization each show significant disease suppression compared to control animals. * $p<0.05$ versus control.

References

[1] A. A. Irving, S. J. Marling, L. A. Plum, and H. F. DeLuca, "Suppression of experimental autoimmune encephalomyelitis by ultraviolet light is not mediated by isomerization of urocanic acid," *BMC Neurosci.* **18**, 8 (BioMed Central, 2017).