

## **Supplemental Information**

**Title: LED lights-induced ROS differentially regulates focal adhesion kinase activity in HaCaT cell viability**

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**Running Title: LED lights regulate FAK activity**

**Supplemental Table S1. Illuminance provided under various conditions (from Wikipedia, Lux)**

Illuminance (lux)	Surfaces Illuminated by
0.0001	Moonless, overcast night sky (starlight)
0.002	Moonless clear night sky with airglow
0.05–0.3	Full moon on a clear night
3.4	Dark limit of civil twilight under a clear sky
20–50	Public areas with dark surroundings
50	Family living room lights
80	Office building hallway/toilet lighting
100	Very dark overcast day
150	Train station platforms
320–500	Office lighting
400	Sunrise or sunset on a clear day.
1000	Overcast day; typical TV studio lighting
10,000–25,000	Full daylight (not direct sun)
32,000–100,000	Direct sunlight

Supplemental Figure legends

**Supplemental Figure S1. FAK inhibition reduces LED light-induced MAPKs activation.**

HaCaT cells in a 6-well plate were pretreated with FAK inhibitor (A) for 1 h and then were exposed to LED lights for 10 min. Shown are immunoblots of pY397 FAK, p-IKK $\alpha$ , p-JNK, p-ERK, p-p38 and GAPDH as loading control. (a-f) Fold change of pY397 FAK, p-IKK $\alpha$ , p-JNK, p-ERK, and p-p38 was calculated (n=3,  $\pm$ SD). \*\*  $p < 0.001$  vs. control. LED (Red, Green, or Blue) vs. LED (Red, Green, or Blue) + FAKi, NAC, or DPI, #  $p < 0.001$

**Supplemental Figure S2. ROS scavenger (NAC) reduces LED light-induced MAPKs activation.** HaCaT cells in a 6-well plate were pretreated with NAC (10 mM) (A) for 1 h and then were exposed to LED lights for 10 min. Shown are immunoblots of pY397 FAK, p-IKK $\alpha$ , p-JNK, p-ERK, p-p38 and GAPDH as loading control. (a-f) Fold change of pY397 FAK, p-IKK $\alpha$ , p-JNK, p-ERK, and p-p38 was calculated (n=3,  $\pm$ SD). \*\*  $p < 0.001$  vs. control. LED (Red, Green, or Blue) vs. LED (Red, Green, or Blue) + FAKi, NAC, or DPI, #  $p < 0.001$

**Supplemental Figure S3. ROS scavenger (DPI) reduces LED light-induced MAPKs activation.** HaCaT cells in a 6-well plate were pretreated with DPI (10  $\mu$ M) (A) for 1 h and then were exposed to LED lights for 10 min. Shown are immunoblots of pY397 FAK, p-IKK $\alpha$ , p-JNK, p-ERK, p-p38 and GAPDH as loading control. (a-f) Fold change of pY397 FAK, p-IKK $\alpha$ , p-JNK, p-ERK, and p-p38 was calculated (n=3,  $\pm$ SD). \*\*  $p < 0.001$  vs. control. LED (Red, Green, or Blue) vs. LED (Red, Green, or Blue) + FAKi, NAC, or DPI, #  $p < 0.001$