Supplementary Information
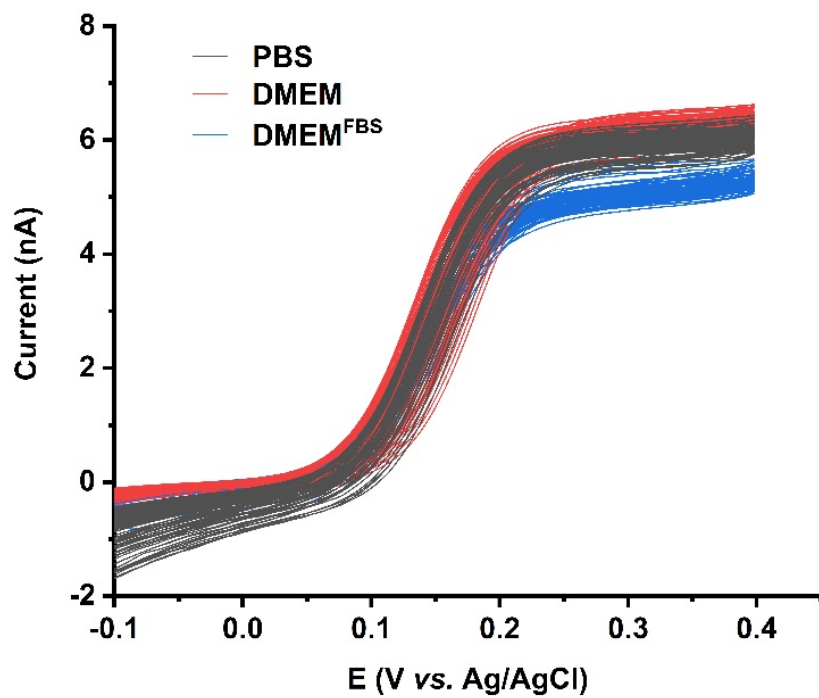
Effects of Media Composition and Light Exposure on the Electrochemical Current Response during Scanning Electrochemical Microscopy Live Cell Imaging

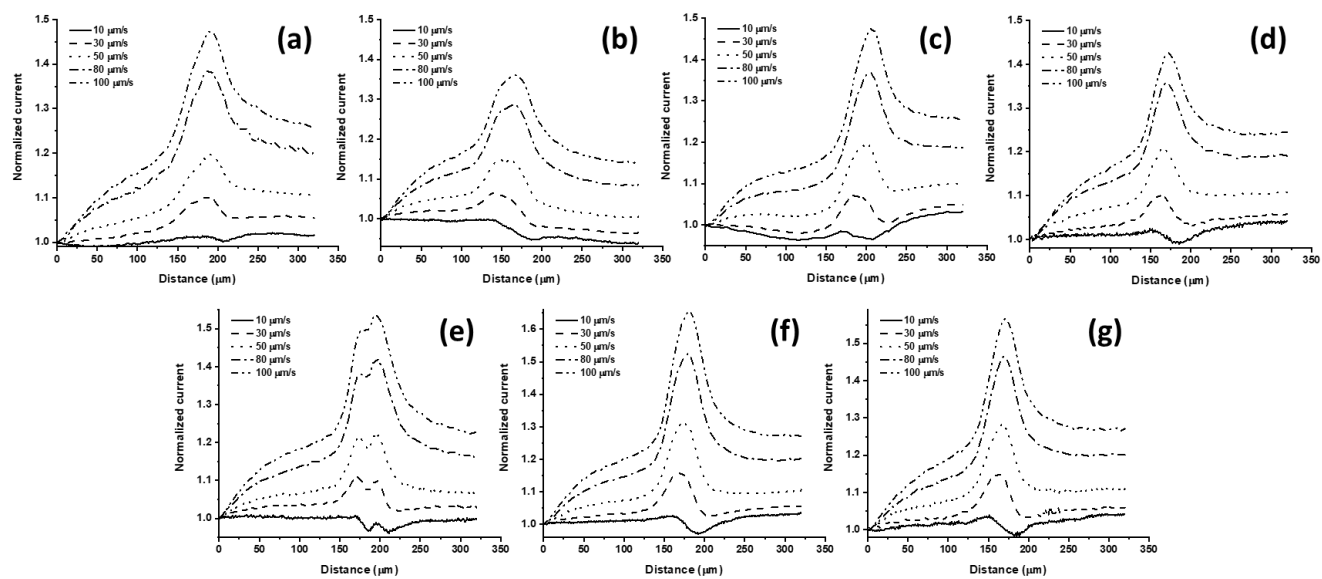Nikita Thomas[a], Mengzhen Lyu[a], Jadon Khouv[a], Dhésmon Lima[b] and Sabine Kuss[a]*

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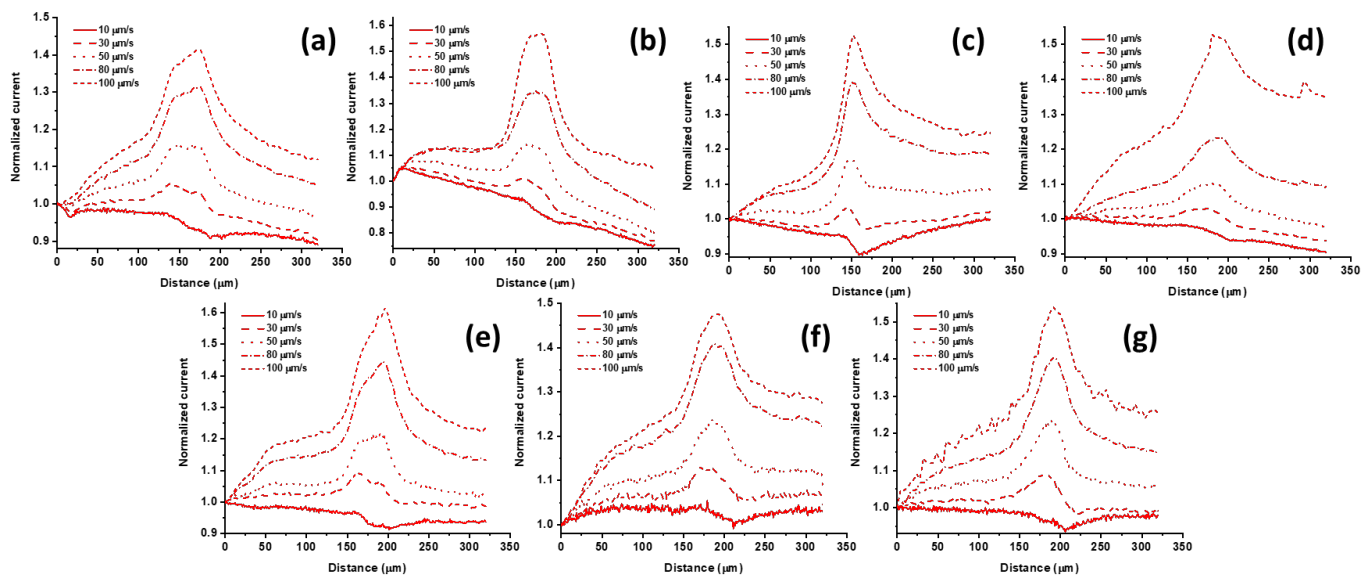[b]Mount Saint Vincent University, Department of Chemistry and Physics, Halifax B3M 2J6, Canada

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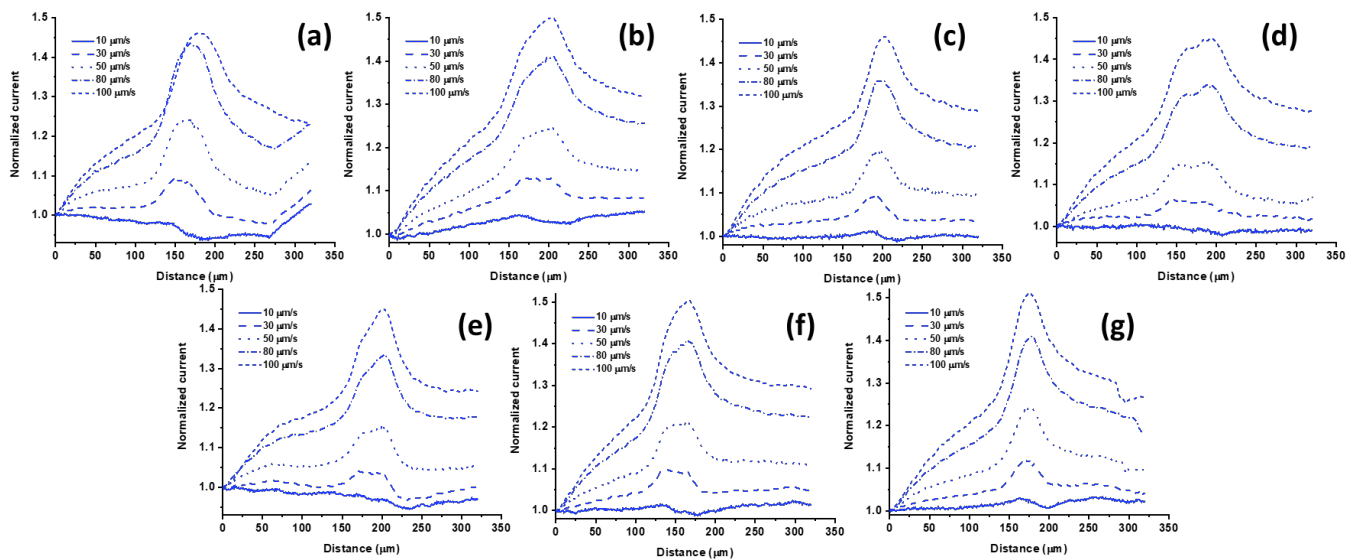**Figure S1.** 50 cyclic voltammetry sweeps in 1 mM $FcCH_2OH$ dissolved in PBS (black), DMEM (red) and DMEM[FBS] (blue) at 50 mV/s.
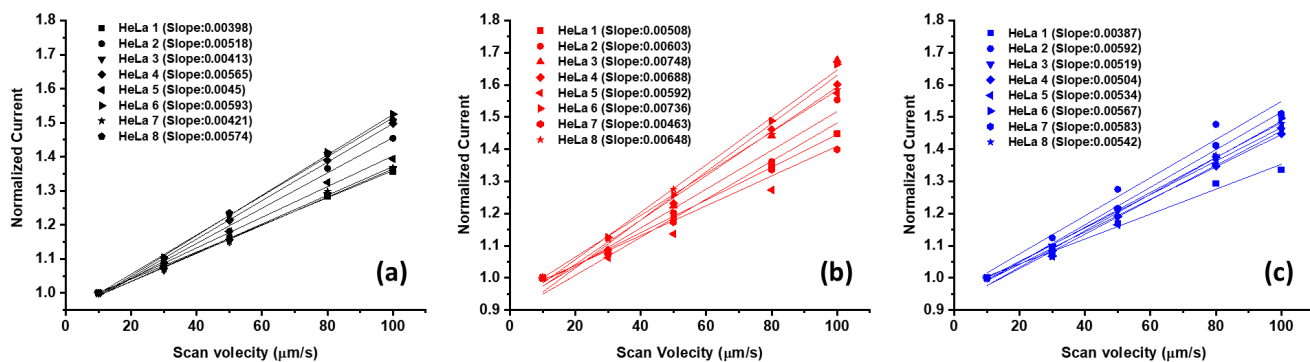
Figure S2. (a-g) Line scans across HeLa cells in PBS solution containing 1 mM $FcCH_2OH$.
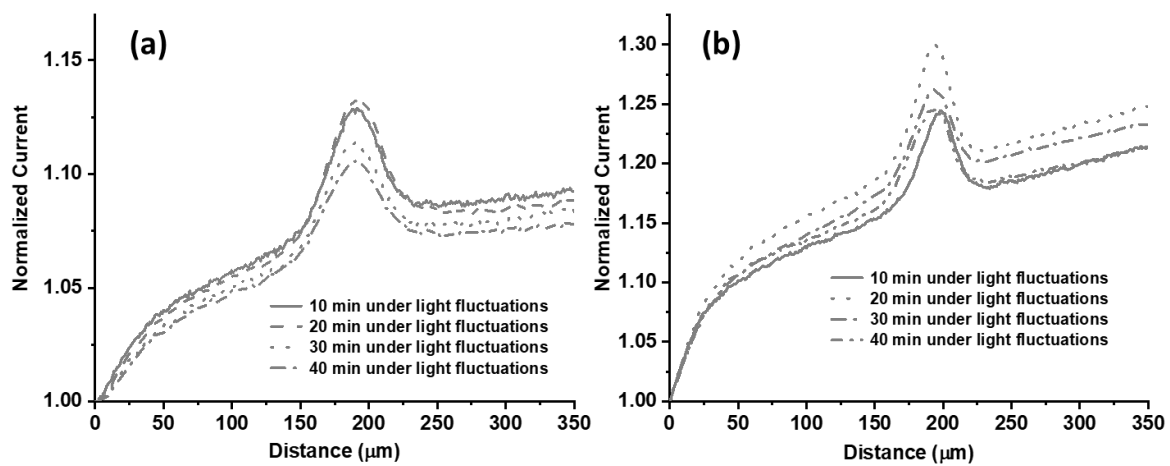
Figure S3. (a-g) Line scans across HeLa cells in 1 mM $FcCH_2OH$ in DMEM .

Figure S4. (a-g) Line scans across HeLa cells in 1 mM FcCH$_2$OH in DMEM with 10% FBS.

(a)

■ HeLa 1 (Slope:0.00398)
● HeLa 2 (Slope:0.00518)
▼ HeLa 3 (Slope:0.00413)
♦ HeLa 4 (Slope:0.00565)
◄ HeLa 5 (Slope:0.0045)
► HeLa 6 (Slope:0.00593)
★ HeLa 7 (Slope:0.00421)
● HeLa 8 (Slope:0.00574)

Normalized Current

Scan volecity (μm/s)

(b)

■ HeLa 1 (Slope:0.00508)
● HeLa 2 (Slope:0.00603)
▲ HeLa 3 (Slope:0.00748)
♦ HeLa 4 (Slope:0.00688)
◄ HeLa 5 (Slope:0.00592)
► HeLa 6 (Slope:0.00736)
● HeLa 7 (Slope:0.00463)
★ HeLa 8 (Slope:0.00648)

Normalized Current

Scan Volecity (μm/s)

(c)

■ HeLa 1 (Slope:0.00387)
● HeLa 2 (Slope:0.00592)
▼ HeLa 3 (Slope:0.00519)
♦ HeLa 4 (Slope:0.00504)
◄ HeLa 5 (Slope:0.00534)
► HeLa 6 (Slope:0.00567)
● HeLa 7 (Slope:0.00583)
★ HeLa 8 (Slope:0.00542)

Normalized Current

Scan volecity (μm/s)

Figure S5. Linear relationships of normalized peak current with scan velocity for HeLa cells in 1 mM $FcCH_2OH$ dissolved in (a) PBS b), DMEM (c) $DMEM^{FBS}$

Figure S6. Additional data. (a-b) 2D line scans across HeLa cells under fluctuating light at 10,20,30,and 40 minute time intervals .
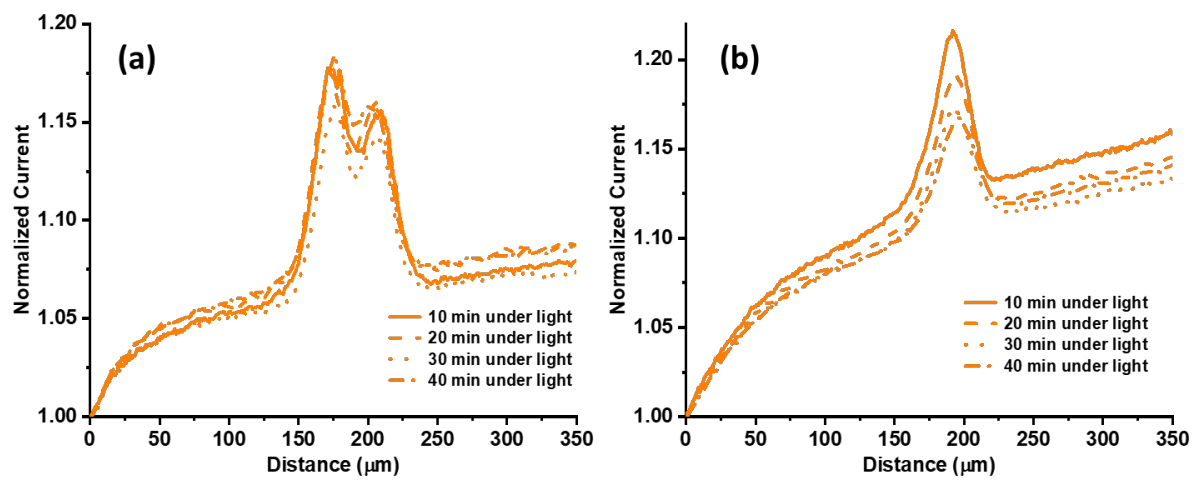
Figure S7. Additional data. (a-b) 2D line scans across HeLa cells in full light at 10,20,30,and 40 minute time intervals

Slope Test

SE: Standard Error

S: Slope

$$x = \sqrt{(SE1)^2 + (SE2)^2}$$

$$y = \frac{S_1 - S_2}{x}$$

	Slope	Error
PBS	0.00464	1.59E-04
DMEM	0.00543	3.75E-04
DMEM FBS	0.00507	1.77E-04

PBS & DMEM	
x	y
0.00041	1.940504535

PBS & DMEM FBS	
x	y
0.00024	1.803003006

DMEM & DMEM FBS	
x	y
0.00041	0.86864141

y < critical value of 2.365 at df=7 and 95% confidence interval for the three combinations.