

SUPPLEMENTARY DATA

## Demonstration of circadian diagnostic capability of SLOCK using electrochemical detection modalities.

Sayali Upasham<sup>a</sup>, Olivia Osborne<sup>a</sup>, and Shalini Prasad<sup>a\*</sup>.

AUTHOR ADDRESS: <sup>a</sup>Department of Bioengineering, University of Texas at Dallas, Richardson, TX-75080

1. COMSOL Multiphysics® schematic for electrode

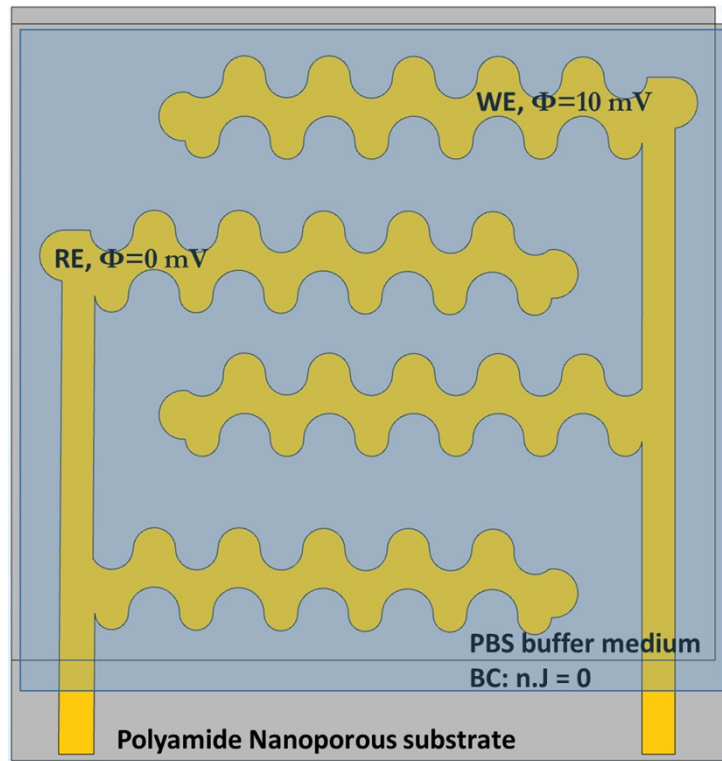
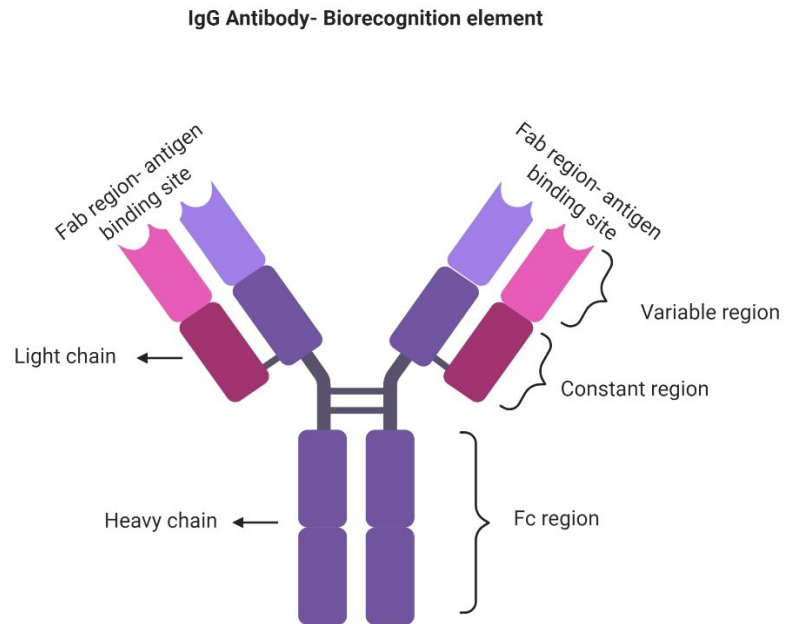


Figure S1: Schematic describing the working (WE) and Reference electrode (RE) for COMSOL wicking simulation

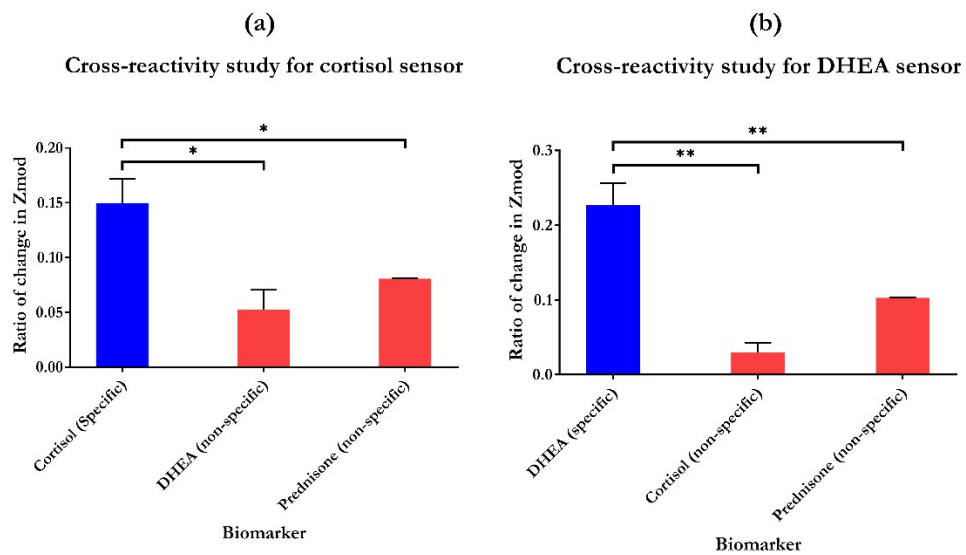
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### 2. Structure of a typical Antibody



**Figure S2: IgG antibody schematic (Created with BioRender.com)**

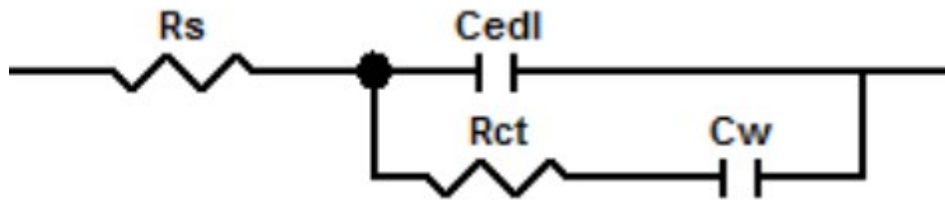
### 3. Cross-reactivity study



**Figure S3: (a) Cross-reactivity study for cortisol sensor with DHEA and Prednisone and (b) Cross-reactivity for DHEA sensor with cortisol and prednisone**

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### 3. Randle's equivalent circuit



*Figure S4: Randle's equivalent circuit for Electrical double layer,  $R_s$ : Solution resistance,  $C_{edl}$ : Capacitance of EDL,  $R_{ct}$ : Charge transfer Resistance,  $C_w$ : Warburg Impedance (diffusion)*