

**SUPPLEMENTARY INFORMATION**

**Development of a Bioactive Paper Sensor for Detection of Neurotoxins Using Piezoelectric Inkjet  
Printing of Sol-Gel Derived Bioinks**

S.M. Zakir Hossain<sup>1</sup>, Roger Luckham<sup>1</sup>, Anne Marie Smith<sup>1</sup>, Julie Lebert<sup>1</sup>, Lauren Davies<sup>2</sup>,  
Carlos D.M. Filipe<sup>2</sup> and John D. Brennan<sup>1\*</sup>

<sup>1</sup>Department of Chemistry, McMaster University, 1280 Main St. West, Hamilton, ON, L8S 4M1

<sup>2</sup>Department of Chemical Engineering, McMaster University, 1280 Main St. West,  
Hamilton, ON, L8S 4L7

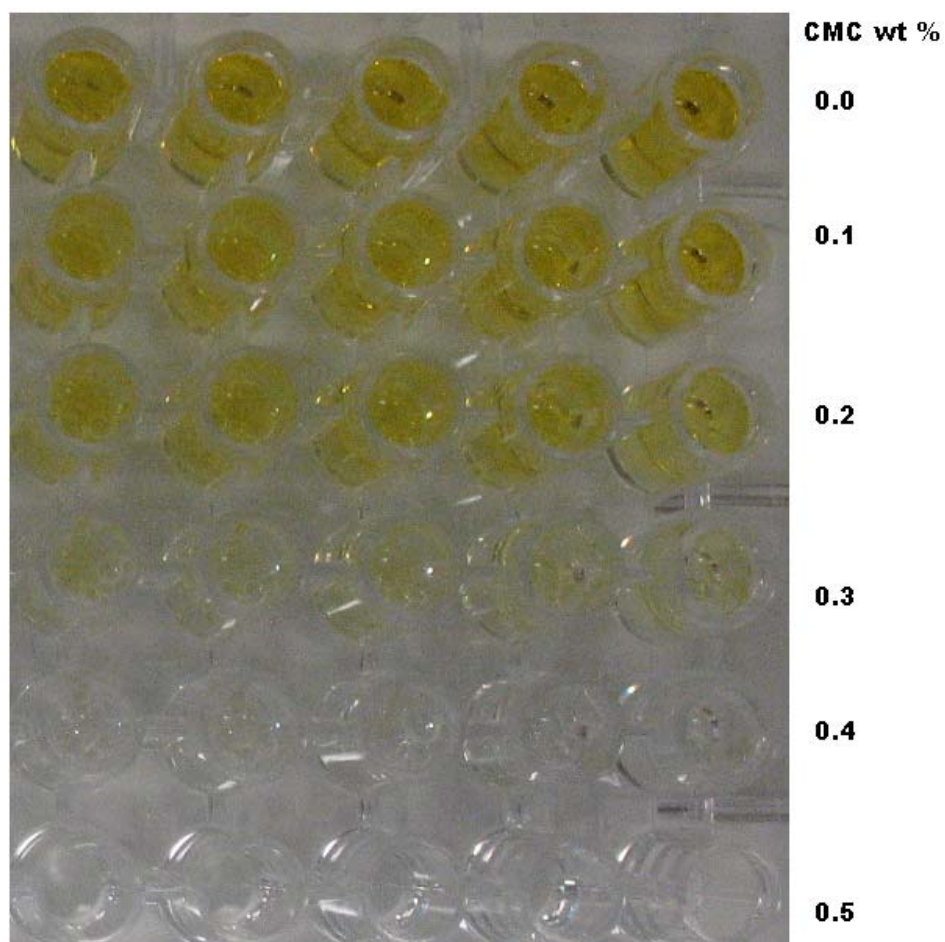
\*Author to whom correspondence should be addressed

Tel: (905) 525-9140 (ext. 27033)

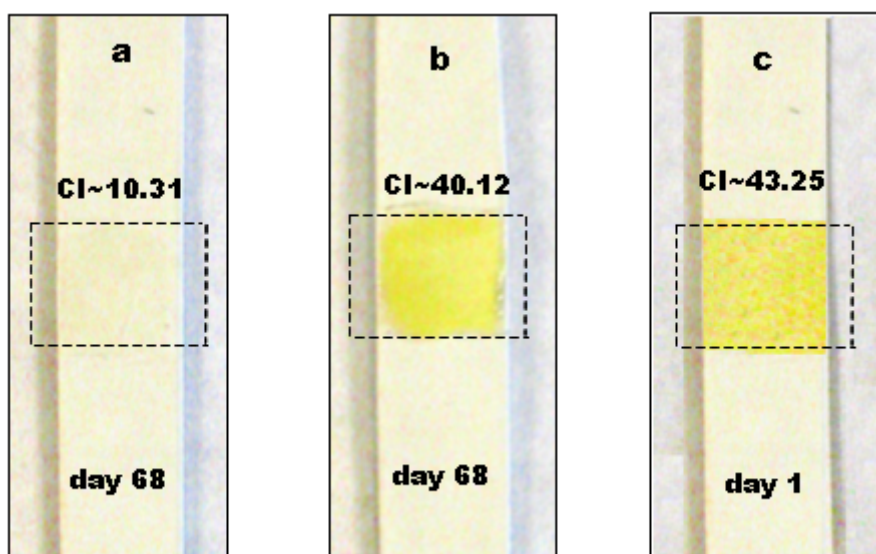
Fax: (905) 527-9950

e-mail: [brennanj@mcmaster.ca](mailto:brennanj@mcmaster.ca)

Internet: <http://www.chemistry.mcmaster.ca/faculty/brennan>



**Supplementary Fig 1** Effects of CMC dosages on AChE activity in Ellman Assay. Different dosages of CMC (0~0.5 wt. %) and AChE (50 U/mL) were mixed (total 80  $\mu$ L) in a 96 well-plate, and then a mixture (20  $\mu$ L) of ATCh (300  $\mu$ M) and DTNB (500  $\mu$ M) were pipetted into each well.



**Supplementary Fig 2** Long-term stability of AChE and DNTB within the layered coating (e.g., PVAm, silica, AChE+DTNB, silica) of the paper-based sensor. The sensor was stored at 4°C for 68 days and overspotted with 10  $\mu$ L ATCh (300  $\mu$ M). (a) When AChE was absent (control), and (b) when AChE was present. (c) Color formation when all bioinks were present and overspotted with 10  $\mu$ L ATCh (300  $\mu$ M) at day 1.