Supporting Information

Microfluidic Electrochemical Sensor for Cerebrospinal Fluid and Blood Dopamine Detection in a Mouse Model of Parkinson's Disease

Mehmet Senel [a]*, Esma Dervisevic [b], Sammy Alhassen [a], Muamer Dervisevic [c,d], Amal Alachkar [a]*, Victor J. Cadarso [b,e], and Nicolas H. Voelcker [c,d,e]

[a] Department of Pharmaceutical Sciences, University of California, Irvine, CA 92697-4625, United States.

[b] Department of Mechanical and Aerospace Engineering, Monash University, Clayton, VIC 3800, Australia.

[c] Monash Institute of Pharmaceutical Sciences, Monash University, Parkville, VIC 3052, Australia.

[d] Commonwealth Scientific and Industrial Research Organization (CSIRO) Manufacturing, Clayton, VIC 3168, Australia.

[e] Victorian Node of the Australian National Fabrication Facility, Melbourne Centre for Nanofabrication (MCN), Clayton, Victoria 3168, Australia.

*Corresponding authors;

Mehmet Senel

Department of Pharmaceutical Sciences, University of California, Irvine, CA 92697-4625, United States, E-mail: msenel@uci.edu, msenel81@gmail.com

Amal Alachkar

Department of Pharmaceutical Sciences, University of California, Irvine, CA 92697-4625, United States, E-mail: aalachka@uci.edu

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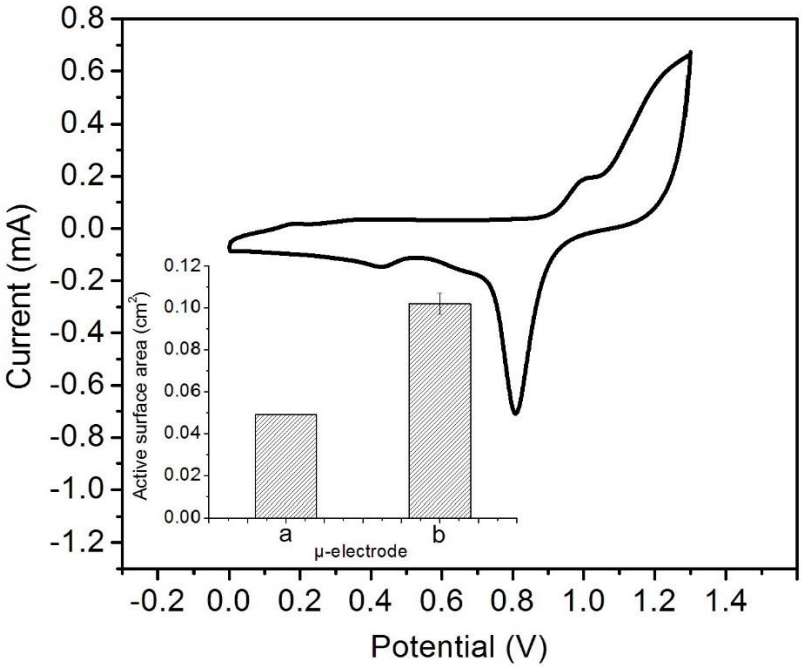

Figure S1. Cyclic voltammogram of microelectrode performed in 0.5 M H_2SO_4 at a scan rate of 100 mVs-1 (inset of the figure shows histogram of measured surface are and electrochemically determined active surface area of the microelectrode (SD, n=3)).

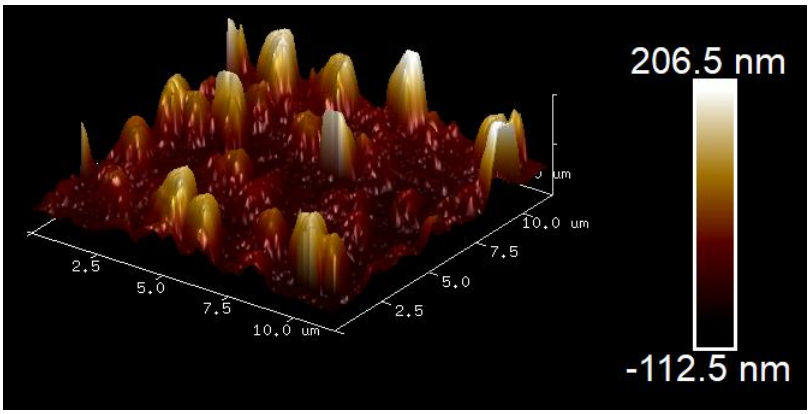

Figure S2. Atomic force microscope height image of Au microelectrode.

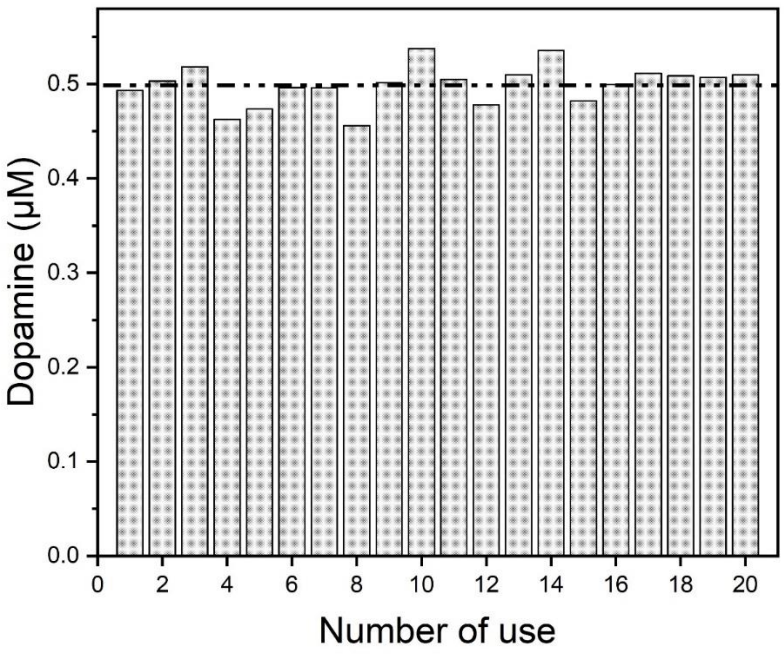

Figure S3: Dopamine concentration detected when using a single microfluidic device for 20 times.

The repeatability of the current response of the microfluidic dopamine-sensing device was tested by using one microfluidic device for 20 times with 500 nM dopamine in 0.1 M PBS. The current obtained varied between -3.31 and -2.80 μA, which corresponds to 456 nM and 539 nM DA with an average of 500.0 nM and a standard deviation of 21.5 nM that is 4.3%.

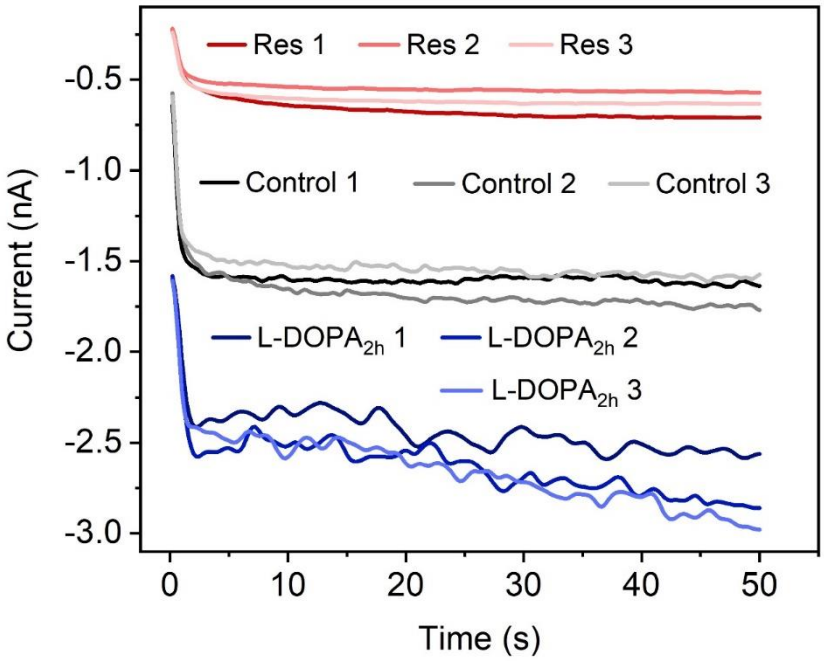

Figure S4: Amperometric response of microfluidic device to the CSF samples taken from three study groups each containing control (vehicle-injected), reserpine-induced, and L-DOPA-treated mice.