Electronic Supplementary Material (ESI) for Polymer Chemistry.
This journal is © The Royal Society of Chemistry 2017

Supplementary Information

Biocompatible polythiophene-*g*-polycaprolactone copolymer as efficient dopamine sensor platform

Brenda G. Molina,[1,2] Anca D. Bendrea,[3] Luminita Cianga,[3] Elaine Armelin,[1,2,*] Luis J. del Valle,[1,2] Ioan Cianga,[3,*] and Carlos Alemán[1,2,*]

[1] Departament d'Enginyeria Química, EEBE, Universitat Politècnica de Catalunya, C/ Eduard Maristany, 10-14, Ed. I2, 08019, Barcelona, Spain

[2] Barcelona Research Center for Multiscale Science and Engineering, Universitat Politècnica de Catalunya, C/ Eduard Maristany, 10-14, Ed. C, 08019, Barcelona, Spain

[3] Petru Poni" Institute of Macromolecular Chemistry, 41A, Grigore–Ghica Voda Alley, 700487, Iasi, Romania

Correspondence to: elaine.armelin@upc.edu, ioanc@icmpp.ro and carlos.aleman@upc.edu

Table S1. Reaction conditions[a] and hydrodynamic characteristics of Th-PCL macromonomer.

Initiator [I] × 10^{-2}(mol/L) [b]	**Molar ratio [I]/[ε-CL]**	**Molar ratio [$Sn(oct)_2$]/[I]**	**Mn_{th}**	**$Mn_{H\text{-}NMR}$ ($DP_{n\ H\text{-}NMR}$)**	**Mn_{GPC}**	**PDI_{GPC}**
61	1/20	1/200	2400	2511 (21)	3120	1.46

[a] In bulk at 110°C for 24h, [b]I=3-thiophene methanol

The relative molecular weight and molecular weight distribution (PDI) were determined by gel permeation chromatography (GPC) using WGE SEC-3010 multidetection system, consisting of a pump, two PL gel columns (PLgel 5micro Mixed C Agilent and PLgel 5micro Mixed D Agilent), dual detector RI/VI (Refractometer/Viscometer) WGE SEC-3010, with chloroform ($CHCl_3$), and flow rate of 1.0 ml/min at 30°C. The RI/VI detector was calibrated with PS standards (580-467,000 DA) having narrow molecular weight distribution. The system was also equipped with a UV detector WGE SEC-3010 and Bi-MwA Brookhaven multi-angle SLS detector. Data were analyzed using PARSEC Chromatography software.

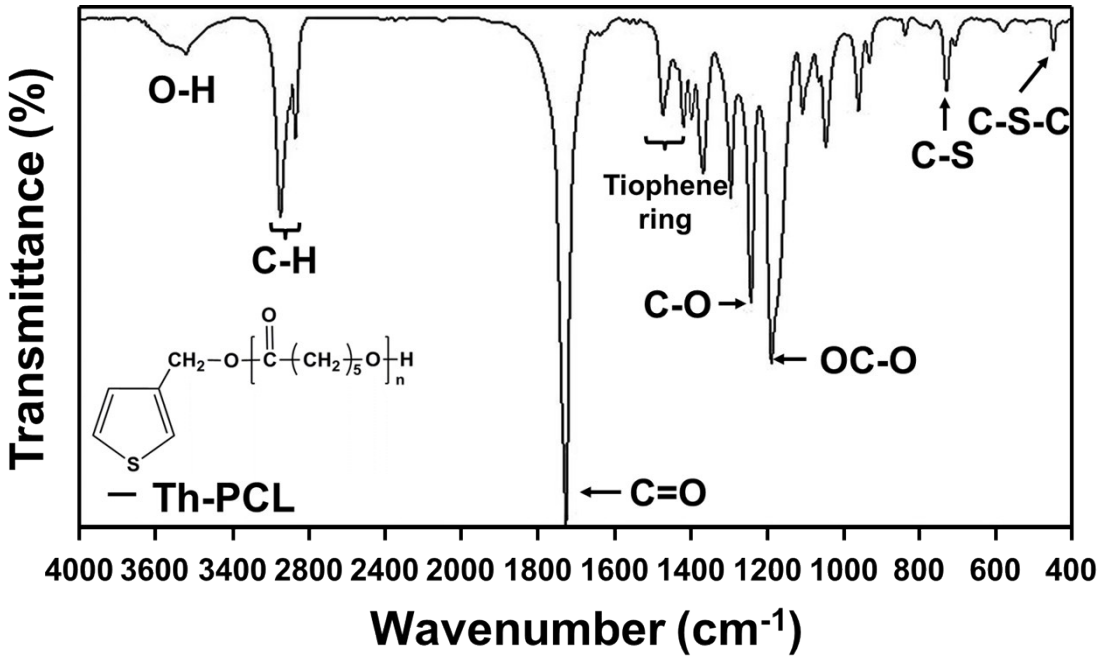

Figure S1. FTIR spectrum of Th-PCL macromonomer.

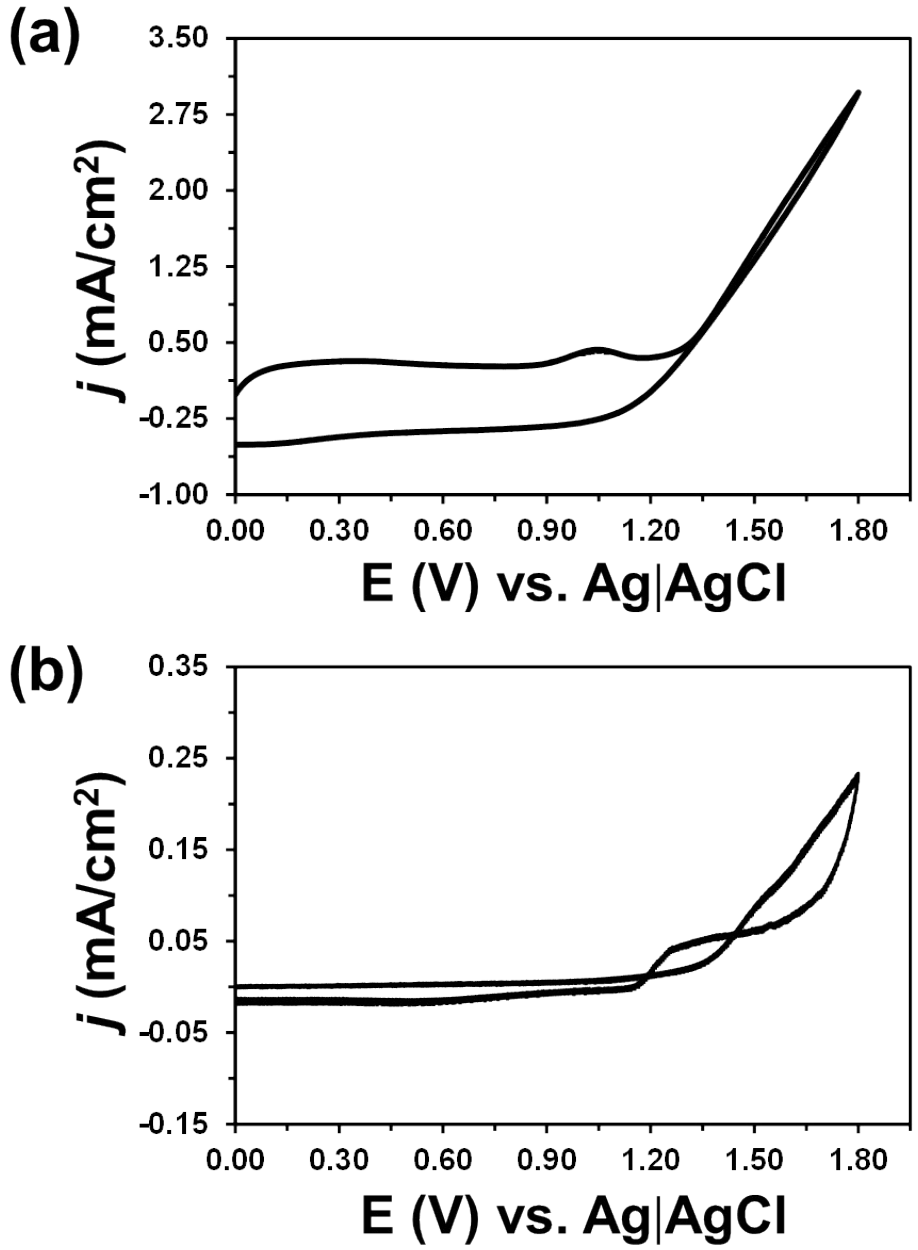

Figure S2. Control voltammogram for the oxidation of (a) HMeEDOT and (b) Th-PCL in acetonitrile with 0.1 M TBATFB). Voltammograms were recorded using a 0.5×0.5 cm^2 steel AISI 316 substrate as working electrode with an initial and final potential of 0.00 V, and + 1.80 V as reversal potential. The scan rate was 50 mV/s.

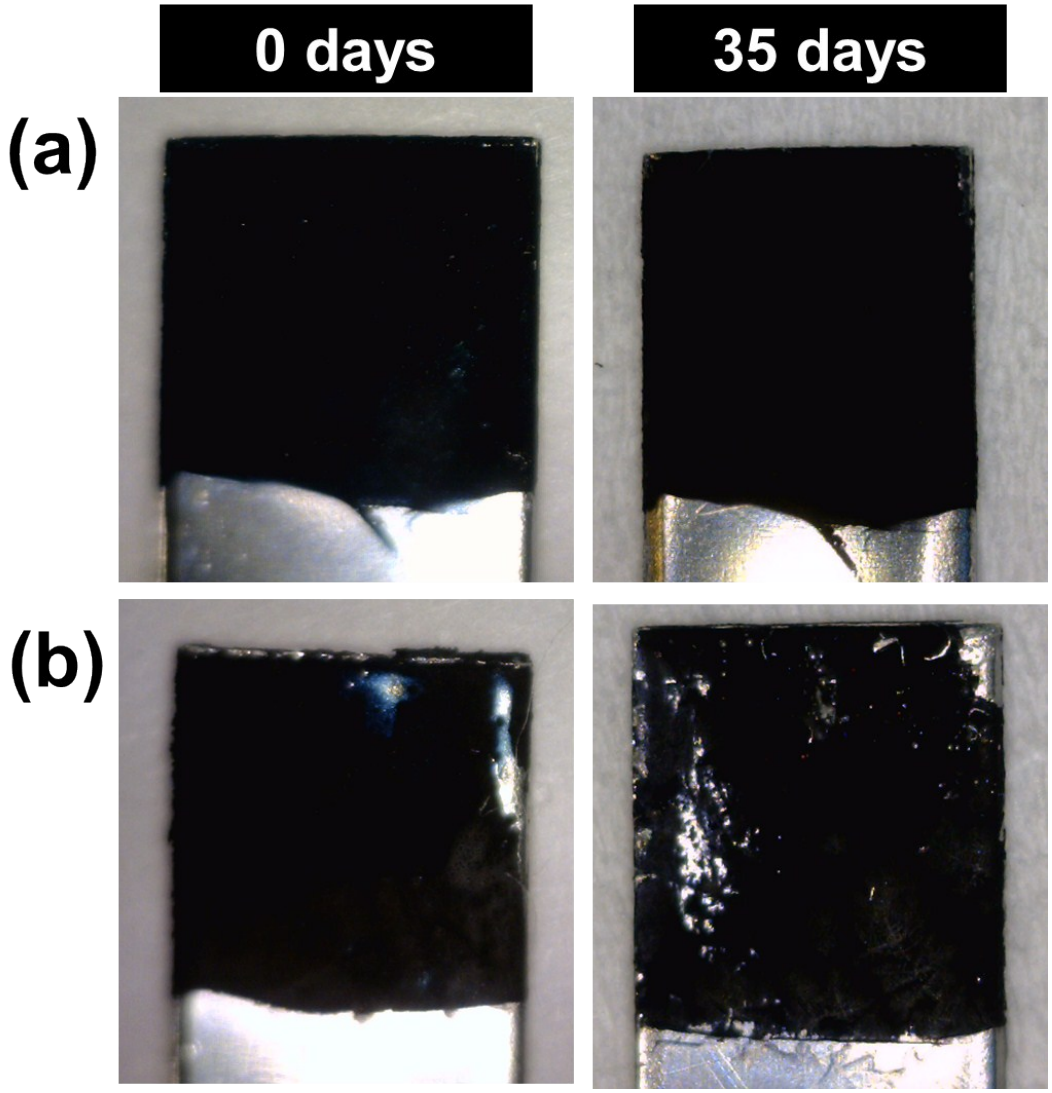

Figure S3. Photographs displaying (a) 80:20 PTh-*g*-PCL and (b) 60:40 PTh-*g*-PCL films before and after degradation assays (35 days in PBS, pH= 7.4, at 37 ºC).

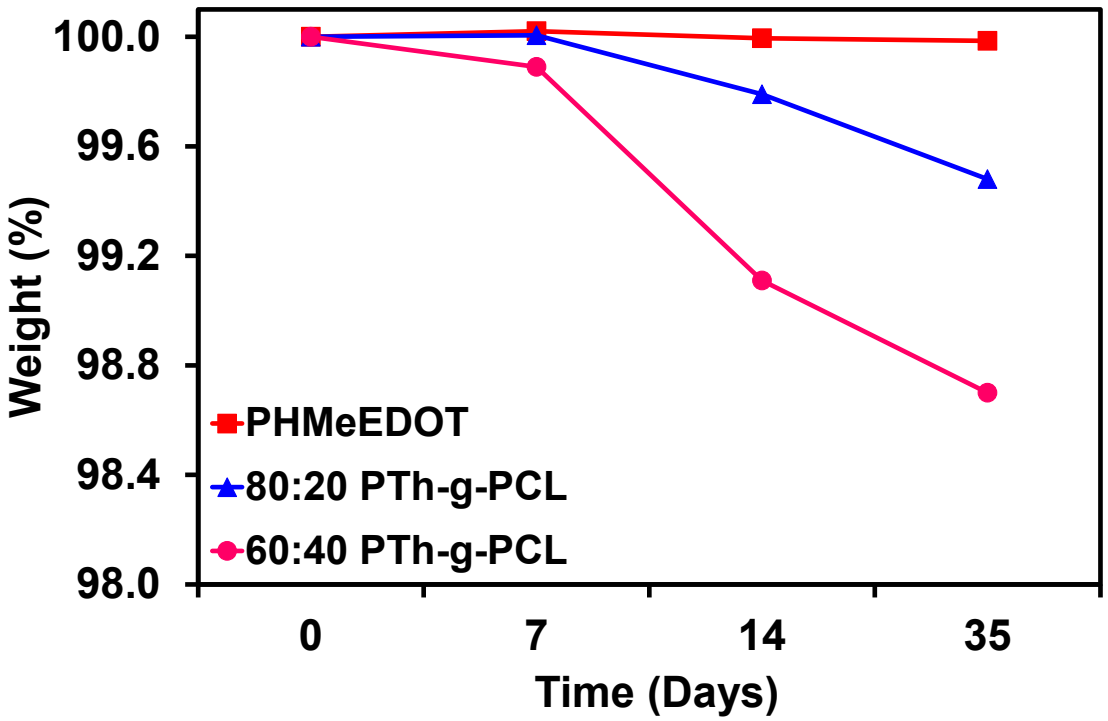

Figure S4. Degradation curves (PBS, pH= 7.4, at 37 ºC) of PHMeDOT, copolymer 80HMeDOT:20Th-PCL and 60HMeDOT:40Th-PCL.