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Electronic Supplementary Information

Human Skin Interactive Self-powered Wearable Piezoelectric Bio-*e*-skin by Electrospun Poly-L-lactic Acid Nanofibers for Non-invasive Physiological Signal Monitoring

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Table S1. Vibrational bands assignment of PLLA nanofibers based on FT-IR spectra

Number	Wavenumber (cm^{-1})	Vibrational bands
1	1756	$\nu(C=O)$
2	1453	$\delta_{as}(CH_3)$
3	1383	$\delta_s(CH_3)$
4	1360	$\delta(CH)$
5	1300	$\nu(C–H)$
6	1266	$\nu(C–H)+ \nu(C–O–C)$
7	1209	$\nu_{as}(C–O–C)+r_{as}(CH_3)$
8	1184	$\nu_{as}(C–O–C)$
9	1129	$r_s(CH_3)$
10	1089	$\nu_s(C–O–C)$
11	1047	$\nu_s(C–CH_3)$

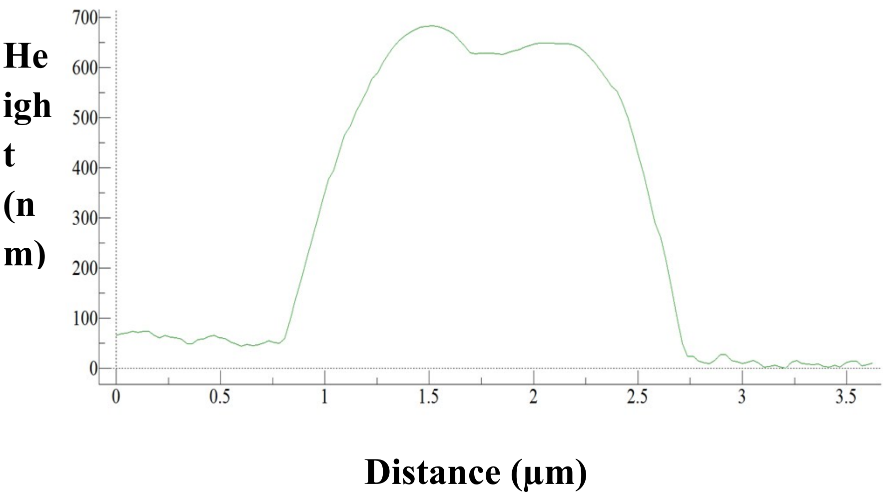

Figure S1. Height profile of AFM topographical image.

Table S2. Comparison of PBio-e-skin with the previously reported sensors

Transduction mechanisms	Active materials	Maximum sensitivity	Lower Limit of detection	Pressure range	Reference
Capacitance	PDMS/SWCNTs	2.3×10^{-4} kPa^{-1}	~50 Pa	< 1 MPa	[1]
Capacitance	Ecoflex	1.62 kPa^{-1}		500 kPa	[2]
Capacitance	PDMS/SWCNTs	1.5 kPa^{-1}	2.5 Pa	< 1 kPa	[3]
Capacitance/OFET	PDMS	0.55 kPa^{-1}	3 Pa	0.2 kPa	[4]
Capacitance/OFET	PDPP3T	192 kPa^{-1}	< 0.3 Pa	5 kPa	[5]
OFET/Piezoresistivity	Ge/Si NWs	11.5 kPa^{-1}		15 kPa	[6]
Piezoresistivity	rGO foam	15.2 kPa^{-1}	163 Pa	49 kPa	[7]
Piezoresistivity	PPy	133.1 kPa^{-1}	0.8 Pa	20 kPa	[8]
Piezoresistivity	PDMS	1.8 kPa^{-1}	0.6 Pa	1.2 kPa	[9]
Piezoresistivity	PDMS/PtNWs	1.5 kPa^{-1}	3 Pa	1.5 kPa	[10]
Piezoresistivity	SBS elastomer	10.7 MHz kPa^{-1}	13.3 Pa	13 kPa	[11]

Piezoresistivity/ Triboelectricity	AgNWs/PDMS/ CNT-PDMS	204.4 kPa^{-1}	0.2 Pa	4.5 kPa	[12]
Triboelectricity	PDMS/Ag NWs	0.31 kPa^{-1}	2.1 Pa	10 kPa	[13]
Triboelectricity	micropyramid structures PDMS film	0.29 $VkPa^{-1}$	0.4 kPa		[14]
Piezoelectricity	ZnOnanorod	2.1 µS kPa^{-1}	3.5 kPa	31.5 kPa	[15]
Piezoelectricity	P(VDF-TrFE) nanofiber	1.1 V kPa^{-1}	0.1 Pa	2 kPa	[16]
Piezoelectricity	P(VDF-TrFE)	0.75 mV kPa^{-1}		40 kPa	[17]
Piezoelectricity	P(VDF-TrFE) nanowires	458.2mV/N	0.1 N	-----	[18]
Piezoelectricity	P(VDF-TrFE) microfiber array	269.4 mV/N	4 N	------	[19]
Piezoelectricity	P(VDF TrFE)/$BaTiO_3$ nanocomposite micropillars	257.9 mV/N	5 N	-------	[20]
Piezoelectricity	P(VDF-TrFE)/ $BrTiO_3$ -FET	------	0.1 MPa		[21]
Piezoelectricity	P(VDF- TrFE)/$BrTiO_3$ microstructured – FET	0.001 V/Pa	20 Pa		[22]
Piezoelectricity	P(VDF-TrFE)/ $PbTiO_3$ -FET	-----	2 MPa	----	[23]
Piezoelectricity	PVDF	1 kPa	------		[24]
Ferroelectret TFT	Cellular PP/α-Si:H	0.1 V kPa^{-1}	2 Pa	1 MPa	[25]
Piezoelectret	PDMS/PTFE	10 V kPa^{-1}		50 kPa	[26]
Piezoelectret	PTFE/porous PTFE	1.5 V kPa^{-1}		15 kPa	[27]
Piezoelectricity	**PLLA nanofibers**	**0.003 V/Pa (22 V/N)**	**18 Pa**	**0.3 MPa**	**This work**

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