

ARTICLE

Supporting Information

Molecular and Histological Evidence for the Biocompatibility of PEDOT-Coated Microneedles in Human Skin

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Figure S1. The sectional areas of the MN: (a) bulk, (b) neck, and (c) tip. Only the PEDOT-coated tip is implanted within the skin during incubation.

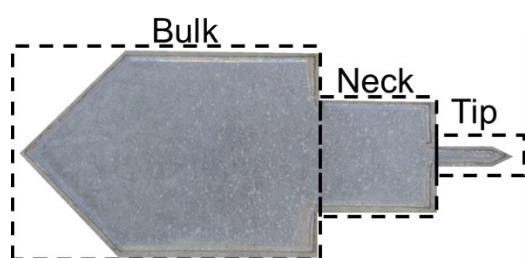


Figure S2. Actual setup for skin incubation. PT represents PEDOT:Tos, PS represent PEDOT:PSS while PM represents uncoated PMMA MN.

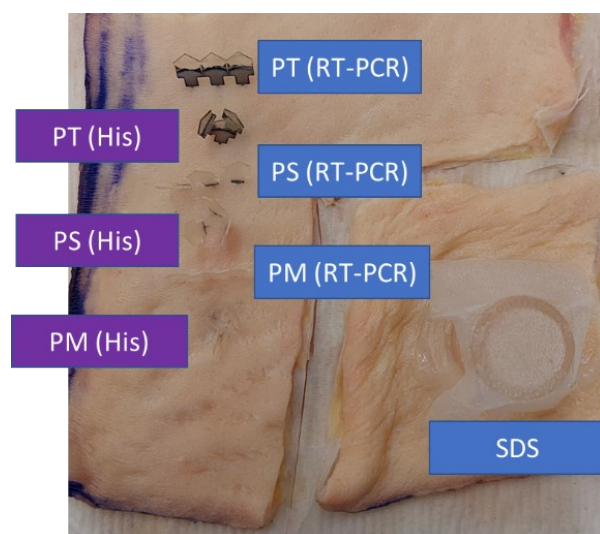


Table S1. List of Taqman Gene Assay

Gene (HGNC)	Product name	Assay ID	Pathway/Biological Function 1
CASP3	Caspase 3	Hs00234387_m1	Apoptosis
AKT2	AKT Serine/Threonine Kinase	Hs01086099_m1	Apoptosis
TP53	Tumour protein P53	Hs01034249_m1	DNA damage
PARP1	Poly(ADP-Ribose) Polymerase 1	Hs00242302_m1	DNA damage
PCNA	Proliferating Cell Nuclear Antigen	Hs00427214_g1	DNA damage
ATM	ATM Serine/Threonine Kinase	Hs00175892_m1	DNA damage
IL-18	Interleukin 18	Hs01038788_m1	Inflammation
NF-KB1	Nuclear Factor Kappa B Subunit 1	Hs00765730_m1	Inflammation
NFE2L2	Nuclear Factor, Erythroid 2 Like 2	Hs00975961_g1	Oxidative Stress
GAPDH	glyceraldehyde-3-phosphate dehydrogenase	Hs02786624_g1	Housekeeping
RPLP0	60S acidic ribosomal protein P0	Hs00420895_gH	Housekeeping
ACTB	Actin beta	Hs01060665_g1	Housekeeping

Data availability for Figure 3.

PEDOT:TOS MN				PEDOT:PSS MN				PMMA MN				SDS 20%			
Slide	Assessor 1	Assessor 2	Assessor 3	Slide	Assessor 1	Assessor 2	Assessor 3	Slide	Assessor 1	Assessor 2	Assessor 3	Slide	Assessor 1	Assessor 2	Assessor 3
1	0.00	0.00	0.00	1	0.00	0.00	0.00	1	0.00	0.00	0.00	1	2.00	2.00	2.00
2	0.00	0.00	0.00	2	0.00	0.00	0.00	2	0.00	0.00	0.00	2	2.00	2.00	2.00
3	0.00	0.00	0.00	3	0.00	0.00	0.00	3	0.00	0.00	0.00	3	2.00	2.00	2.00
4	0.00	0.00	0.00	4	0.00	0.00	0.00	4	0.00	0.00	0.00	4	2.00	2.00	2.00
5	0.00	0.00	0.00	5	0.00	0.00	0.00	5	0.00	0.00	0.00	5	2.00	2.00	2.00
6	0.00	1.00	0.00	6	0.00	0.00	0.00	6	0.00	0.00	0.00	6	2.00	2.00	2.00
7	0.00	0.00	0.00	7	0.00	0.00	0.00	7	0.00	0.00	0.00	7	2.00	2.00	2.00
8	0.00	0.00	0.00	8	0.00	0.00	0.00	8	0.00	0.00	0.00	8	2.00	2.00	2.00
9	0.00	0.00	0.00	9	0.00	0.00	0.00	9	0.00	0.00	0.00	9	2.00	2.00	2.00
10	0.00	0.00	0.00	10	0.00	0.00	0.00	10	0.00	0.00	0.00	10	2.00	2.00	2.00
mean	0.00	0.00	0.00	mean	0.00	0.00	0.00	mean	0.00	0.00	0.00	mean	2.00	2.00	2.00
SD	0.31	0.31	0.00	SD	0.00	0.00	0.22	SD	0.00	0.00	0.00	SD	0.00	0.00	0.00

	Mean				Std			
	PEDO T:TOS MN	PEDO T:PSS MN	PM MA MN	S D S 20 %	PEDO T:TOS MN	PEDO T:PSS MN	PM MA MN	SDS 20%
Ass esor 1	0.10	0.00	0.00	2. 00	0.31	0.00	0.00	0.00
Ass esor 2	0.10	0.00	0.00	2. 00	0.31	0.00	0.00	0.00
Ass esor 3	0.00	0.05	0.00	2. 00	0.00	0.22	0.00	0.00