

	Rhodium mg/kg	Palladium mg/kg	Platinum mg/kg	Total neurons /PDMS type
PDMS Extracted	< 0.02	< 0.4	1.5	139
PDMS (Aut.) Autoclaved	< 0.02	< 0.4	4.8	57
PDMS Native	< 0.02	< 0.4	5.1	1

Table S1 Metals content in PDMS samples was determined by Inductively Coupled Plasma-Mass Spectrometry (ICP-MS). Yttrium and bismuth were used as internal standards. Extracting PDMS with solvents that reduce platinum levels significantly improves biocompatibility. Closed-channel devices fabricated of extracted PDMS, which removes low molecular weight, uncross-linked fractions, solvents and residues of the platinum catalyst, show increased neuronal numbers with enhanced survival to ≥ 7 days.

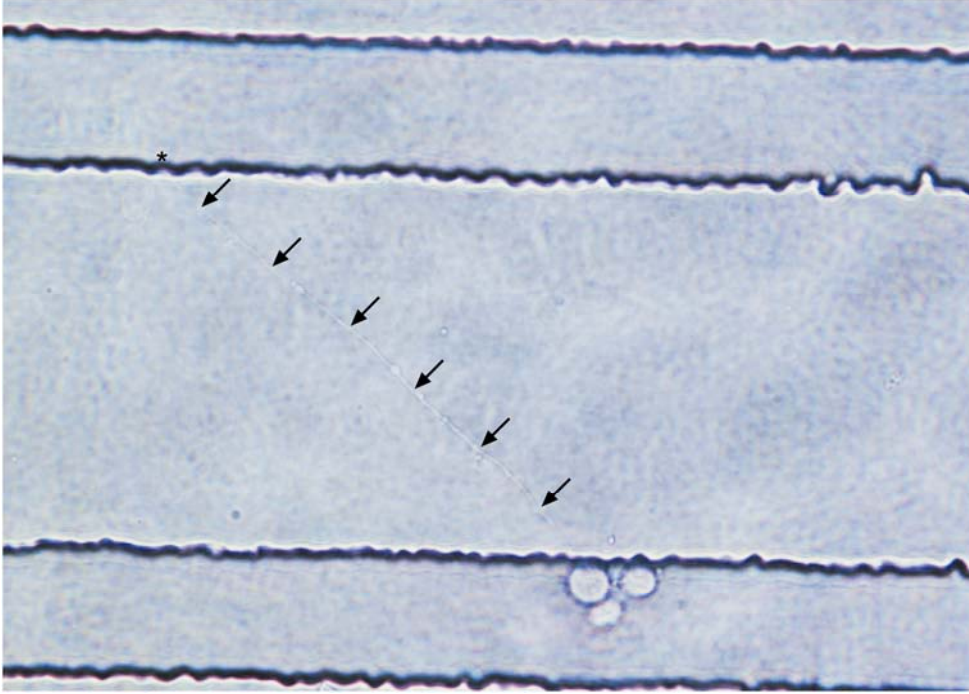


Fig. S1 Top view of a neuron in an open-channel PDMS device with its axonal process (arrows) emerging out of the channel, crossing the PDMS surface between channels where it entered the adjacent channel (asterisk).