Culturing and patch clamping of Jurkat T cells and neurons on Al$_2$O$_3$ coated nanowire arrays of altered morphology

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Fig. S1 Exemplary confocal microscope overview images of life/membrane (green/red) stained Jurkat cells on a) Petri dish, b) planar Al$_2$O$_3$, c) ordered and d) random NWs. The majority of the cells is viable. Insets: close-ups of dead Jurkat cells. Scale bar: 50 µm.

Fig. S2 Exemplary confocal microscope images of life/membrane (green/red) stained neurons on a) Petri dish and b) planar Al$_2$O$_3$. Scale bar: 25 µm.
Fig. S3 Exemplary SEM image of Jurkat cells on a) planar Al₂O₃, b) ordered and c) random NWs. Scale bars: 10 µm.

Fig. S4 Exemplary SEM image of neuronal outgrowth on a) planar Al₂O₃, b) ordered and c) random NWs. Scale bars: 10 µm.
|                  | NWs/Petri dish | NWs/Planar Al₂O₃ | Planar Al₂O₃/Petri dish |
|------------------|----------------|------------------|-------------------------|
|                  | Ordered NWs    | Random NWs       | Ordered NWs             | Random NWs       | t value | 95% CI   | T value | 95% CI |
| V_{rest}         | 0.04           | 2.45             | -1.23                   | 2.36             | 0.14    | 2.36     | -0.82   | 2.45   | -0.14   | 2.36   |
| C_{mem}          | 1.69           | 2.36             | 1.92                    | 2.36             | -0.37   | 2.36     | 0.11    | 2.45   | 0.60    | 2.57   |
| t_{mem}          | 0.21           | 2.36             | 0.36                    | 2.36             | -0.15   | 2.36     | -0.03   | 2.36   | 0.47    | 2.31   |

Table S1 Welch’s t-test results regarding electrophysiological properties of Jurkat cells cultured on each substrate with 95% confidence interval (CI).

|                  | NWs/Petri dish | NWs/Planar Al₂O₃ | Planar Al₂O₃/Petri dish |
|------------------|----------------|------------------|-------------------------|
|                  | Ordered NWs    | Random NWs       | Ordered NWs             | Random NWs       | t value | 95% CI   | T value | 95% CI |
| V_{rest}         | -0.65          | 2.31             | -0.35                   | 2.36             | 0.00    | 2.31     | 0.20    | 2.31   | -0.54   | 2.36   |
| C_{mem}          | 1.26           | 2.31             | 1.10                    | 2.36             | 1.98    | 2.31     | 1.75    | 2.31   | -0.84   | 2.31   |
| t_{mem}          | -1.38          | 2.31             | -1.79                   | 2.57             | -0.62   | 2.45     | -1.23   | 2.31   | -0.11   | 2.57   |

Table S2 Welch’s t-test results regarding electrophysiological properties of Neurons cultured on each substrate with 95% confidence interval (CI).