

CLAIMS

What is claimed is:

1. A device, comprising:
 - a) a membrane located between a first microchannel and a second microchannel;
 - b) a top layer comprising at least one transendothelial electrical resistance electrode over said first microchannel, said at least one transendothelial electrical resistance electrode comprising a sonicated platinum black coating; and
 - c) a platform under said second microchannel, said platform comprising a multi-electrode array.
2. The device of claim 1, further comprising a first plurality of cells between said at least one transendothelial electrical resistance electrode and said membrane.
3. The device of claim 1, further comprising a second plurality of cells between said multi-electrode array and said membrane.
4. The device of claim 1, wherein said at least one transendothelial electrical resistance electrode is on a top surface of said first microchannel and said membrane.
5. The device of claim 1, wherein said at least one transendothelial electrical resistance electrode is on a bottom surface of said second microchannel and said platform.
6. The device of claim 2, wherein said at least one transendothelial electrical resistance electrode is on said first plurality of cells.
7. The device of claim 1, wherein said first microchannel is a coated first microchannel.
8. The device of claim 1, wherein said second microchannel is a coated second microchannel.
9. The device of claim 7, wherein said coated first microchannel comprises fibronectin.

10. The device of claim 3, wherein said second plurality of cells are on said multi-electrode array.