

Title: High Definition Patch Clamp on a Chip.

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Electrical recordings of ion channels provide detailed insight into channel function and effects of candidate drug compounds. A planar patch-clamp system - IonWorks APC - based on a silicon substrate enables fast and reliable voltage-clamp recordings from ion channels. Cells are positioned in a few seconds, providing seal resistances of up to several hundred GOhm. Standard sample volumes are in the range of 10-50 microliter, strongly reducing the consumption of sample compounds.

Using this approach, we have been able to measure ion channel activities on different cell lines in both cell-attached and whole cell configuration. The patch on a chip technique will open the door for a new dimension of pharmacological ion channel screening.

Keywords: Patch-clamp, Electrophysiology, Planar technology, Ion channels