TRP channels exhibit a large variety of functional properties and play diverse cellular and physiological roles. Due to their presence in the plasma membrane of cells from various tissues and even organelles, new biophysical properties and mechanisms of regulation are constantly discovered by academic laboratories over the years. Also, because of their relevance linked to disease and pain, TRP channels are important targets in the pharmaceutical industry.

Extensive functional studies of ion channels are often compromised by technical limitations of the electrophysiological assay. Nanion’s Port-A-Patch, Patchliner, and SyncroPatch 384PE are specifically designed to marry the required experimental flexibility with high-throughput and high-data quality.

In order to demonstrate reliable pharmacology combined with high-throughput electrophysiology we show data of TRPA1 activated by the agonist SuperficialMechanoreceptor and blocked by A-FX707 in a concentration-dependent manner across a whole cell HEK 293 activated by SCMA.

Abstract

TRPA1 and TRPM1 – Port-a-Patch

Features:
- Experimental flexibility
- Single channel
- Whole organelle
- Whole cell

Add-ons:
- Internal perfusion
- External perfusion
- Temperature control
- Fluorescence readout

Fabrication:
- Single channel recording (≤10 nA)
- Pulsed and reconstituted organelles

Recording in PatchControl Software

- Activated by SCMA
- Blocked by A-FX707
- Continuous recording across the 384 chip

Analysis in DataControl Software

- Define QC parameters during experiment
- Include or reject wells
- Manual or automatic analysis
- Configurable export of raw and analyzed data
- Batch processing

SyncroPatch 384PE

Features:
- Stable gigascale recording
- Flexible pharmacology
- Experimental flexibility
- Internal exchange
- Temperature control
- Whole cell
- Whole organelle, single channel
- Low/Medium - High-throughput

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