### Qube is bridging the gap between primary screening and high fidelity ion channel data

With its 384 format and full automation, it is possible to screen large compound libraries without sacrificing the in-depth information content that is so important when selecting the best ion channel modulators.



The hallmark of Sophion automation is cell handling, which has been designed for >8 hours of unattended operation.



The integrated liquid handler with its 1,536 precision, linear motors and gripper ensures accuracy and speed.



384 individual amplifiers handling the same number of experiments with high fidelity ion channel recording via individual electrode pairs.

### **Drive your drug discovery efficiently!**

We let the Qube run our large screening campaigns unattended during the night so we can run and develop other assays on the same instrument during the day

> Juha Kammonen, Group Leader Charles River Laboratories

> > It was true that it's really up and running after two days of training. We are very pleased

> > > Maija Ivaska, Research Assistant Orion Pharma

#### Fully integrated system

Liquid handler, stacker and amplifier systems talk to each other

One access point and intuitive software makes it easy to use

The barcode reader ensures minimal risk of human error

Scanning of plates ensures traceability of all compounds

#### Automatic cell preparation unit

At least 8 hours cell storage

Patented centrifuge for spin-down and preparation of cells for giga-sealing, delivered just in time

Validated for cell lines recombinantly expressing ion channels, iPSC cells and primary cells

# Sophion amplifiers for high fidelity recordings

The ion channel is exposed to the correct and stable voltage with leak-, capacitance- and 100% R-series compensation

Adaptive protocols on all assay sites give cell-specific stimulation and more predictive pharmacology

Current clamp to record action potentials and other physiological behavior

# Powerful internal PCs for system control and data collection

16 TB of storage suited for data-heavy ion channel recordingsAutomatic backup providing increased data securityData reduction capability for intelligent use of storage capacity



#### Integrated temperature control

Stable cell temperature independent of ambient temperature

Cool or heat the cells to investigate temperaturedependent effects on pharmacology and biophysics

Temperature sensor at recording site with feedback and readout for analysis

#### Ergonomic work environment

Liquid management system in 5L units to ensure good ergonomy

Intelligent control allows filling and emptying of liquid containers during operation

Opening height of door can be adjusted individually

## Overnight unattended operation

The workplane can hold up to 8 compound plates

Washing station for re-use of pipette tips

Automatic exchange of worn out tips via pneumatically controlled slots

## Stacker, autofill and dilution on the fly

More than 8 hours true walk-away operation

Autofill reservoir enables long-term screening

Just-in-time dilution to mitigate compound adherence to surfaces



Viewpoint software to set up experiments and give a graphical overview.



Recordings of hERG cardiac ion channel with 99.5% success rate after application of all quality control criteria. Green color coding of QC passed experiments and a blow-up of a single site.



384 individually adapted protocols. Left shows the natural distribution of biophysical characteristics and right shows how Qube tightens up behavior with cell-specific adaptation.



High fidelity recording enables primary screening for even very subtle compound effects on e.g.  $Na_V 1.1$ . Here more than 7 hours unattended in the quest for effects comparable to the reference compound AA43279.

# **Qube 384** is

#### AMBITIOUS

- Brings high fidelity electrophysiology into drug discovery
- Providing exact answers in primary screening, removes the need for hit confirmation
- More and better drugs faster

### EFFICIENT

- Overnight unattended operation
- Automated data analysis and reporting
- Data available for third party software and reporting

### VERSATILE

- Primary screening and compound profiling on recombinant cell lines, iPSCs and native cells
- Up to 16 different clones or cell lines tested concurrently
- Voltage-, current- and "ligand" clamp in the same experiment

### USER-FRIENDLY

- Learn to operate Qube quickly; all it takes is the training during installation
- Simple user interface eliminates human errors

### STANDARDIZED

- Automatic cell handling ensures unbiased selection of cells
- Integrated system and temperature control ensure reproducibility and repeatability
- Consumables with built-in electrodes and flow channels ensure stable recordings

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# Qube 384 AUTOMATED PATCH CLAMP SYSTEM



