metrion biosciences

Ion Channel and HTS Services

Specialist ion channel screening to accelerate early-stage screening and lead optimisation

Accelerate early-stage screening and lead optimisation

Our specialist team of ion channel scientists are experts in their field. They specialise in developing, optimising and validating high-quality screening assays using a range of electrophysiology and fluorescence-based platforms.

Make well-informed decisions with our fully customised ion channel assays

We understand the importance of robust, reliable assays in enabling you to make timely, well-informed decisions. Using innovative solutions tailored to your specific target, we focus on rapid delivery of high-quality data to accelerate your early-stage compound screening and lead optimisation programmes.

We fully customise ion channel assays at different stages of the screening cascade, from high-throughput screening (HTS) and structure-activity relationship (SAR) studies, through to specialised biophysical and mechanism-of-action studies for lead compounds.

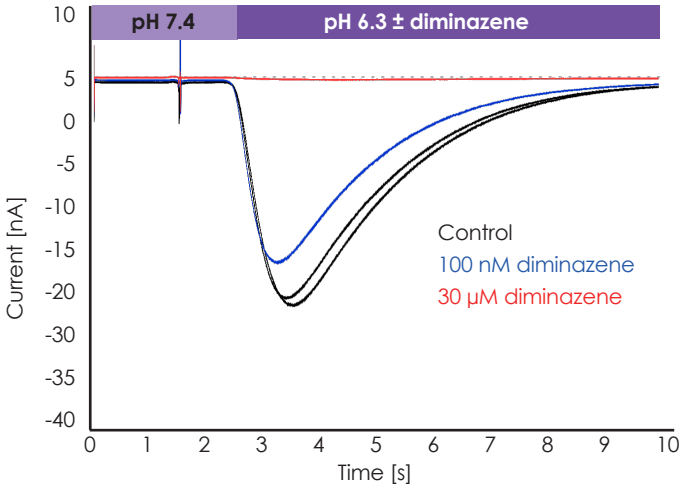

Figure 1. Example recording of hASIC1a inward current recorded on the Sophion Qube automated electrophysiology platform activated by extracellular solution buffered to pH 6.3 (black traces). The effect of inhibitor, diminazene, at 100 nM and 30 µM on the inward current is displayed in the blue and red traces, respectively.

Cost-efficient and timely high-throughput assays

HTS of vast numbers of compounds is pivotal to the drug discovery process. It is often an expensive, timely process which can return false positive results. What sets us apart is our specific high-throughput screening knowledge and experience across multiple ion channel targets.

Our HTS assays are cost-efficient and timely. They support hit identification, hit-to-lead, lead optimisation and selectivity profiling.

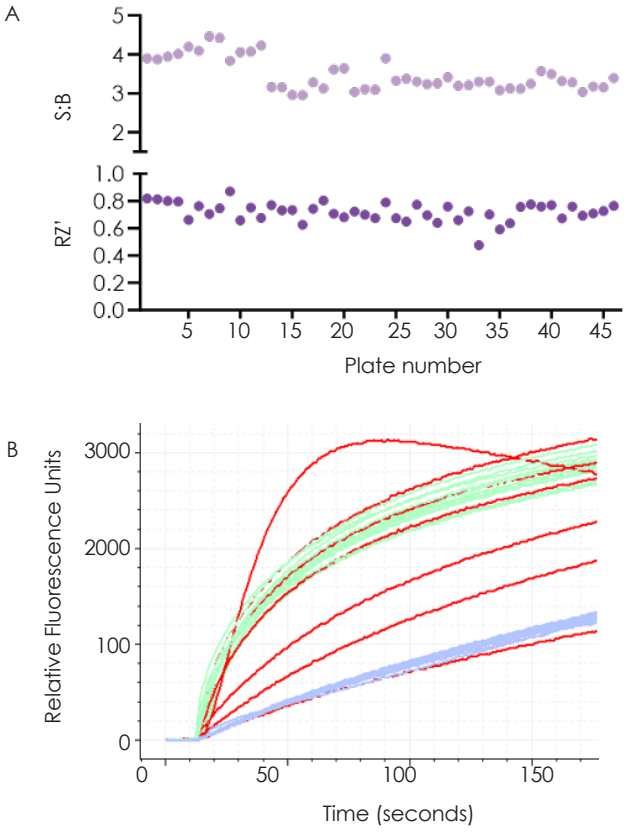

Figure 2.
A. Summary of plate statistics for the 46 screening plates, robust Z' = 0.72 ± 0.07, signal-to-background = 3.48 ± 0.42 (mean ± SD).
B. Kinetic trace showing example of compound profiles (red) relative to 0% inhibition (green) and 100% inhibition (blue) control wells.

Ready-to-go and customised cell line generation

As well as having an extensive range of ready-to-go ion channel cell lines for your ion channel screening, high-throughput screening, cardiac safety screening or neuroscience project, we can also generate custom cell lines, including complex multi-subunit cell lines to meet the specific requirements of customer projects.

Metrion scientists have over 30 year's experience in molecular biology and stable cell line generation for high-throughput screening and compound profiling. You can trust Metrion to develop robust cell lines, giving consistent, reproducible, and biologically relevant data, which significantly enhances the efficiency, reliability, and success rate of identifying new therapeutic agents.

Investing in generation of high-quality cell lines saves costs in the long run by reducing the need for repeated experiments and minimizing the risk of failed drug candidates due to unreliable data.

Increase diversity and efficiencies in screening and target identification

Access to high quality compound libraries enables greater flexibility and increases diversity and enables us to maximise customer R&D budgets even more effectively.

The combination of our specialist ion channel expertise with substantial high-throughput screening (HTS) and hit-finding experience gives customers access to a dedicated team of drug discovery scientists, ensuring the correct strategic choices are made in compounds selected for screening. We also provide a Structured Data File (SDF) of all libraries to compare against existing libraries, further increasing efficiency.

Case Study: Multi-assay high-throughput repurposing screen for rare epilepsy mutation in KCNC1 gene

Eliana is a two-year-old from Canada with a *de novo* V434L mutation in her KCNC1 gene, which encodes the Kv3.1 channel in central nervous system neurons. This mutation can cause various neurological disorders, including myoclonic epilepsy, ataxia, and developmental epileptic encephalopathy (DEE). While Eliana does not exhibit typical DEE, she suffers from hypotonia, cortical-visual impairment, vertical nystagmus, and global delays. Her parents founded the KCNC1 Foundation, which has registered 14 genetic variants from 36 patients, with 25% sharing the A421V variant, 12.5% the R320H variant, and others showing rare variants like V432M.

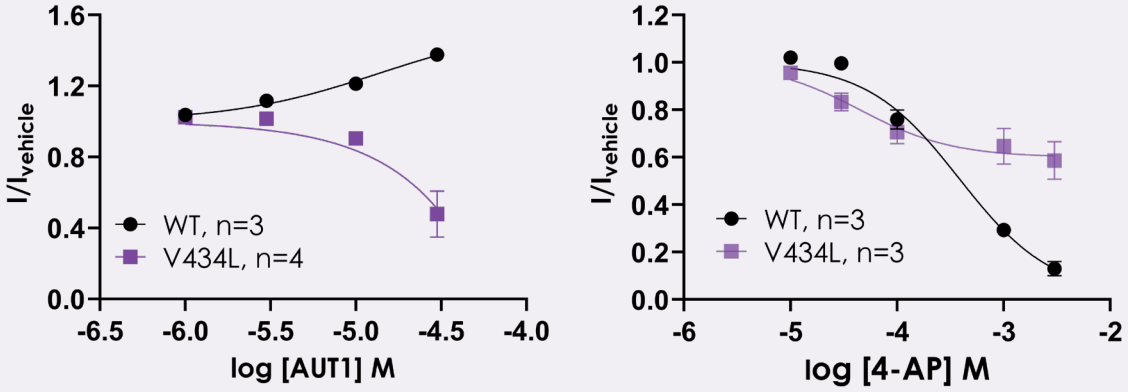

Figure 3. Evaluating the mutant Kv3.1 channel pharmacology.

Specialist Preclinical Drug Discovery CRO

Metrion is a sector-leading CRO specialising in preclinical ion channel drug discovery, cardiac safety and neuroscience research services.

We deliver comprehensive drug discovery outsourcing solutions to pharmaceutical and bioscience customers worldwide; all from our state-of-the art research hub.

Priding ourselves on delivering high quality data, our team use their extensive experience to:

- Complete laboratory studies on time and on budget.
- Carefully interpret the experimental findings.
- Communicate the results.
- Provide strategic recommendations.
- Support your decision making to best inform your screening strategy.

1,000+ projects completed across almost 20 countries and 5 continents

Over 51% staff trained to PhD level and over 75% of team trained to Master's degree level and above

250 years combined experience managing ion channel research programmes

130 different customers worked with in the last 4 years

Testimonials

"We recognize this type of study is very difficult and the cells we provided posed technical challenges. We also appreciate the timeliness of the study execution and the detailed report you provided."

Top 10 pharma
Global

"Attention to detail with executing the study and the quality of reports is the best we have ever seen. By far the most accurate and well interpreted data. Explanations clear for a non-expert to understand."

Biotech
USA

"Aligos values the consistency and convenience of working with Metrion. The data is always correct and in a format that imports directly into our systems, making it so quick and easy for our team to review across individual projects.
Metrion are always on top of the regulations as they change - they were incredibly helpful in supporting us navigate the ICH changes."

Dr Dinah Misner, VP,
Aligos Therapeutics, USA

"I've been pleased with the efficiency of the Metrion team, especially with their scientific expertise / practical ion channel knowledge.

It's not every ephys CRO that can make intellectual contributions towards the assay design and troubleshooting, and I've definitely appreciated that."

Dr John Gilchrist, Principal Scientist,
Latigo Biotherapeutics Inc., USA

info@metrionbiosciences.com **www.metrionbiosciences.com** LinkedIn

2025-6