ION BIOSCIENCES

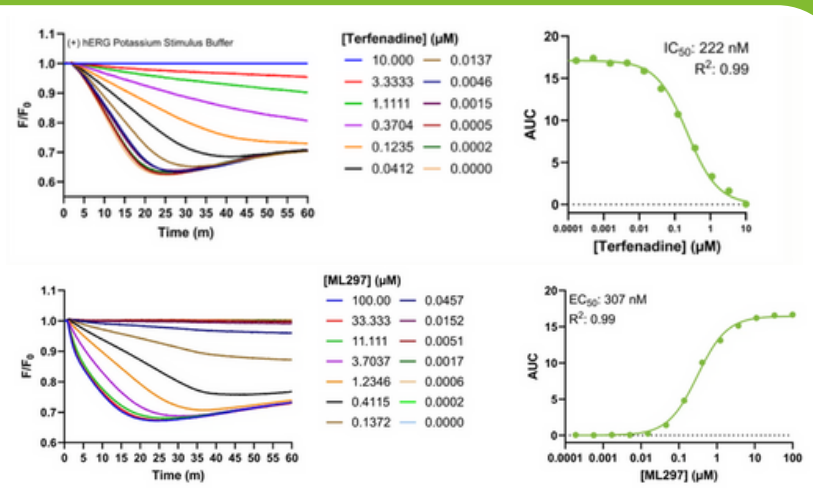
Thallium-Free Potassium Channel Assays

Direct, real-time K+ flux without thallium or radiolabeling for high-throughput drug discovery

Transition your potassium channel screens to a safer, greener, and better-performing solution.

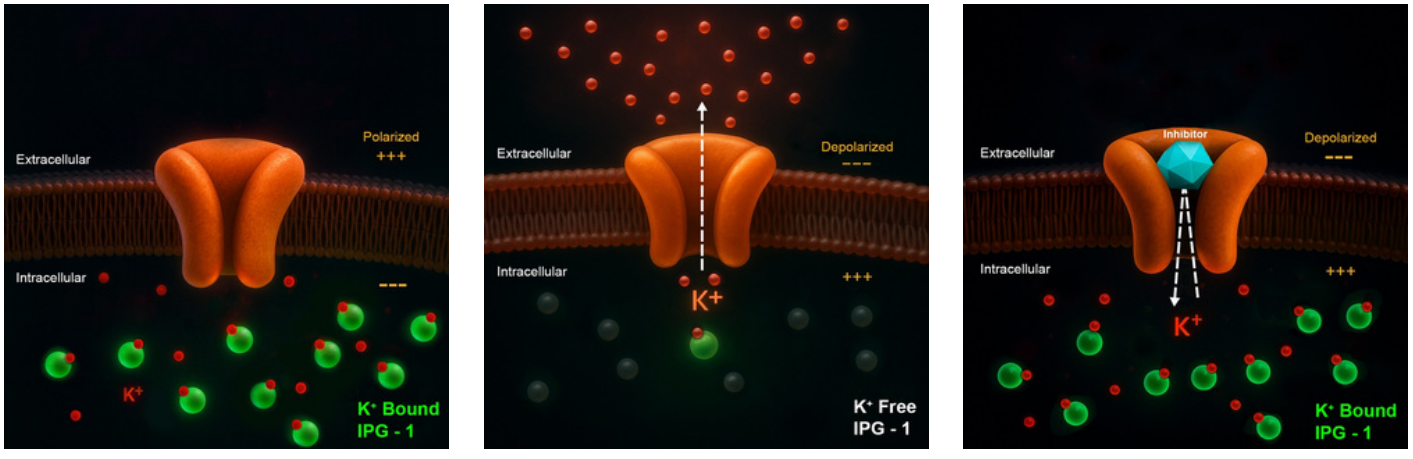
Key Advantages

- **Safer and greener:** Direct potassium ion detection eliminates the use of hazardous surrogate ions or radioactive tracers.
- **HTS-ready:** Robust assay performance with Z' > 0.85 for validated targets in **96- and 384-well** formats.
- **Pharmacology-ready:** Generates reliable hit identification and potencies for activators and inhibitors of select potassium channels.



How our Thallium-free Potassium Channel Assays Work

Ready-to-run, fluorescence-based assays that directly measure changes in intracellular potassium concentrations using **IPG-1 AM (ION Potassium Green-1 AM)**—ION's lowest-affinity potassium indicator—so you can discover modulators of **hERG (Kv11.1), GIRK (Kir3.x),** and more potassium channels in **96- and 384-well formats.**

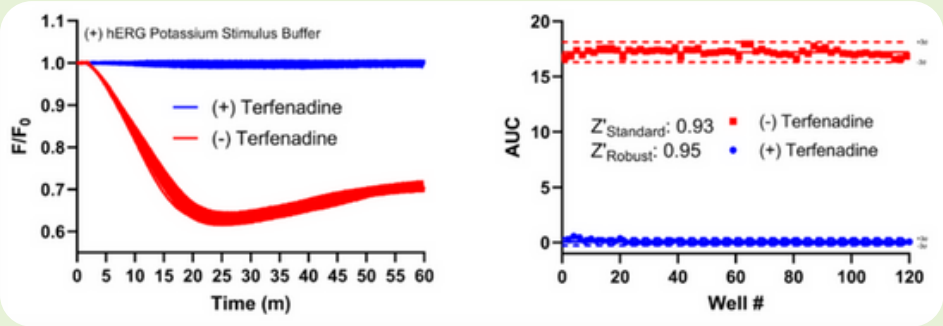


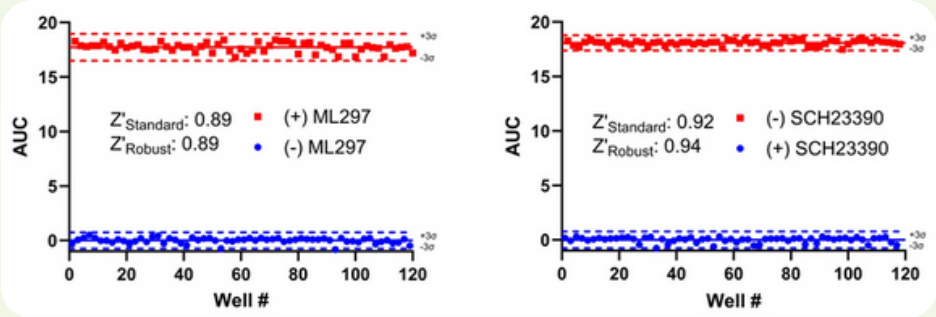
Channel activation (or membrane depolarization) opens potassium channels, triggering potassium efflux and a real-time decline in IPG-1 fluorescence, serving as a direct readout of channel activity. When channel activity is not perturbed, no change in intracellular fluorescence in observed.

Data Highlights

hERG (Kv11.1)

- **Z' > 0.9** in inhibitor mode (384-well) enables unmatched inhibitor identification
- **Inhibitor example:** Terfenadine prevents potassium efflux after membrane depolarization
- **Cell model:** Stable HEK293 hERG cell line.





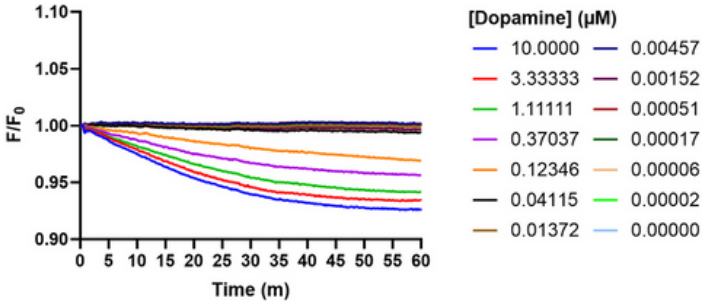
GIRK (Kir3.1/3.2)

- **Z' ~ 0.9** in activator **and** inhibitor modes for reliable hit-finding.
- **Activator example: ML297** activates GIRK channels resulting in potassium efflux.
- **Inhibitor example: SCH23390** blocks potassium efflux caused by the addition of a potent activator.
- **Cell model:** Stable **HEK293 huKir3.1/3.2** cell line.

Applications

- **Safety pharmacology & cardiotoxicity risk profiling** (hERG).
- **Hit ID & lead optimization** with high throughput screening compatibility
- **Mechanistic studies** of GIRK potentiators including Gi/o-coupled GPCRs.
- Discover modulators of additional potassium channels with a **physiologically relevant readout**.

D2 Dopamine Receptor + GIRK (Kir3.1/3.2)



GIRK

hERG

Ready to talk?

Explore more at: **www.ionbiosciences.com** Contact: **sales@ionbiosciences.com**