

Ion Channel Selectivity Profiling Panels

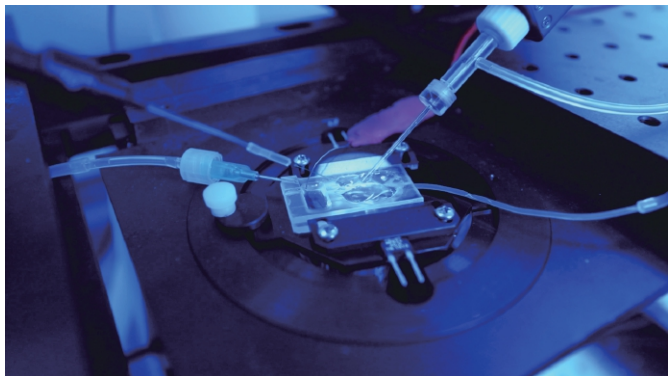
Ion channels are essential for the electrical activity of excitable cells and play critical roles in non-excitabile tissues as well. They are key targets for treating a variety of medical conditions, including heart rhythm disorders, high blood pressure, the effects of local anesthetics, pain relief, stroke mitigation, epilepsy, mood disorders like depression and bipolar disorder, chronic obstructive pulmonary disease (COPD), autoimmune conditions, and diabetes. Their importance extends to drug development, where they serve not only as targets for new medications but also as essential biomarkers for evaluating drug safety.

In the drug discovery process, pinpointing a compound's target specificity through selectivity profiling and conducting safety assessments are vital steps. Many drugs withdrawn from the market due to cardiac-related adverse effects have been shown to block the human ether-a-go-go (hERG) ion channel.

ICE Bioscience boasts an extensive array of validated assays for profiling the selectivity of ion channels. Our comprehensive ion channel suite encompasses more than 100 stable cell lines, meticulously categorized into different portfolios in alignment with the latest scientific insights. We are equipped to deliver a spectrum of ion channel screening services, ranging from manual patch clamp to automated patch clamp and FLIPR assays, tailored to therapeutic areas for profiling, risk assessment, and mechanism of action (MoA) research.

ICE Bioscience Ion Channel Profiling:

- Cardiac Channel Panel
- Cardiovascular Channel Panel
- Pain-Inflammation Channel Panel
- Seizure-Convulsion Channel Panel
- Cancer Channel Panel
- Metabolic GI Channel Panel
- Neurodegeneration/Stroke Channel Panel
- Pulmonary-Respiratory Channel Panel
- Psychiatric Disorder Channel Panel
- Genitourinary Channel Panel
- Depression Panel



Cardiac Channel Panel

Unless otherwise specified, the techniques used are manual patch clamp, targeting human genes. Both agonist and antagonist modes are supported.

Ion Channel	Target
Voltage-Gated Potassium Channel	Kv1.5
	hERG (Kv11.1)
	Kv4.2
	Kv4.3
	Iks (Kv7.1)

Ion Channel	Target
Voltage-Gated Sodium Channel	Nav1.5
Potassium Channel, Inward Rectifier	Kir2.1
	Kir3.1/3.4 (KAch, GIRK)
	Kir6.2/Sur2A

Ion Channel	Target
Voltage-Gated Calcium Channel	Cav1.2
	Cav3.2
Hyperpolarization-Activated Channel	HCN2
	HCN4

Unless otherwise specified, the techniques used are manual patch clamp, targeting human genes. Both agonist and antagonist modes are supported.

Cardiovascular Channel Panel

Ion Channel	Target
Voltage-Gated Sodium Channel	Nav1.5
Voltage-Gated Potassium Channel	Kv1.3
	Kv1.5
	hERG (Kv11.1)
	Kv4.3
Potassium Channel, Calcium Activated	BK
	IK
Potassium Channel, Inward Rectifier	Kir2.1
	Kir3.1/3.4 (KAch, GIRK)
	Kir6.2/Sur2A
Voltage-Gated Calcium Channel	Cav1.2
	Cav3.2
Hyperpolarization-Activated Channel	HCN2
	HCN4
Transient Receptor Potential Channel	TRPA1
	TRPV1
	TRPV3
	TRPV4
	TRPM4
	TRPM8
	TRPC5
	TRPC6
	nAChR α 7/RIC3
Ligand-Gated Ion Channel	P2X1
	P2X4
	P2X7
	nAChR α 7/RIC3

Pain-Inflammation Channel panel

Ion Channel	Target
Voltage-Gated Sodium Channel	Nav1.8
	Nav1.7
	Nav1.3
	Nav1.6
Voltage-Gated Potassium Channel	KCNQ 2/3
	KCNQ 2/4
	TREK-1
	Kv3.4
	Kv4.2
	Kv4.3
	Kv1.4
	BK (KCa1.1)
IK (KCa3.1)	
Transient Receptor Potential Channel	TRPA1
	TRPV1
	TRPV3
	TRPV4
	TRPM3
	TRPM8
	TRPC5
TRPC6	
Ligand-Gated Ion Channel	P2X3
	P2X2/3
	P2X4
	P2X7
	nAChR α 7/RIC3
	GABAA α 3 β 3y2
	GABA $_A$ α 4 β 3 δ
	NR1/NR2B
	AMPA
Acid-Sensing Ion Channel*	ASIC1a, ASIC1b, ASIC3
Voltage-Gated Calcium Channel	Cav2.1
	Cav2.2
	Cav3.2
Hyperpolarization-Activated Channel	HCN1
	HCN2

Seizure-Convulsion Channel Panel

Ion Channel	Target
Voltage-Gated Sodium Channel	Nav1.1
	Nav1.2
	Nav1.3
	Nav1.6
	Nav1.7
Voltage-Gated Calcium Channel	Cav2.1
	Cav3.2
Voltage-Gated Potassium Channel	Kv1.2
	Kv2.1
	Kv4.2
	Kv4.3
	KCNQ2/3
Potassium Channel, Calcium Activated	BK
	IK
	SK2
	SK3
Ligand-Gated Ion Channel	GABA α 1 β 2y2
	GABA α 2 β 2y2
	GABA α 6 β 3y2
	nAChR α 4 β 2
	NR1/NR2A
	NR1/NR2B
Hyperpolarization-Activated Channel	HCN1
	HCN2
Transient Receptor Potential Channel	TRPV1
	TRPV4
	TRPC6
	TRPM8

* The human acid-sensing ion channels support only the antagonist mode.

Unless otherwise specified, the techniques used are manual patch clamp, targeting human genes. Both agonist and antagonist modes are supported.

Cancer Channel Panel

Ion Channel	Target
Voltage-Gated Sodium Channel	Nav1.5
	Nav1.7
Voltage-Gated Potassium Channel	Kv1.5
	hERG (Kv11.1)
	Kv1.3
	Kv4.2
	KV3.1
	KV3.4
Voltage-Gated Calcium Channel	Cav1.2
	Cav3.2
Hyperpolarization-Activated Channel	HCN2
	HCN4
Potassium Channel, Calcium Activated	BK
	IK
	SK2
	SK3
Transient Receptor Potential Channel	TRPA1
	TRPV1
	TRPV3
	TRPV4
	TRPM4
	TRPM8
	TRPC5
	TRPC6

Metabolic GI Channel Panel

Ion Channel	Target
Chloride Channel	CFTR
	ANO1
Voltage-Gated Potassium Channel	Kv1.3
	KCNQ5
Potassium Channel, Inward Rectifier	Kir6.2/Sur1
Voltage-Gated Calcium Channel	Cav1.2
Hyperpolarization-Activated Channel	HCN2
	HCN4
Potassium Channel, Calcium Activated	BK
	IK
	SK2
	SK3
Ligand-Gated Ion Channel	5-HT3A
	TRPV1
	P2X3
	nAChR α7/RIC3

Neurodegeneration/Stroke Panel

Ion Channel	Target
Voltage-Gated Sodium Channel	Nav1.1
	Nav1.2
	Nav1.3
	Nav1.6
Voltage-Gated Potassium Channel	Kv1.1
	Kv1.2
	Kv1.3
	Kv1.5
	Kv2.1
	Kv3.4
	KCNQ2/3
Potassium Channel, Calcium Activated	IK
	SK1
	SK2
Ligand-Gated Ion Channel	NR1/NR2A
	NR1/NR2B
	NR1/NR2C
	NR1/NR2D
	nAChR α7/RIC3
Chloride Channel	CFTR
Acid-Sensing Ion Channel*	ASIC1a
Potassium Channel, Inward Rectifier	Kir6.2/Sur1

* The human ASIC1a supports only the antagonist mode.

Unless otherwise specified, the techniques used are manual patch clamp, targeting human genes. Both agonist and antagonist modes are supported.

Pulmonary-Respiratory Panel

Ion Channel	Target
Chloride Channel	CFTR
Voltage-Gated Potassium Channel	Kv1.3
	Kv1.5
Potassium Channel, Calcium Activated	BK
	IK
Potassium Channel, Inward Rectifier	Kir6.2/Sur1
Transient Receptor Potential Channel	TRPV1
	TRPV4
	TRPC6
Ligand-Gated Ion Channel	P2X4
	GABA α 5 β 3 γ 2
	GABA α 1 β 2 γ 2
	nAChR α 7/RIC3

Psychiatric Disorder Panel

Ion Channel	Target
Voltage-Gated Potassium Channel	KCNQ2/3
Potassium Channel, Calcium Activated	SK1
	SK2
Ligand-Gated ion channel	NR1/NR2A
	NR1/NR2B
	NR1/NR2C
	NR1/NR2D
	TRPV1
	TRPC4
	TRPC5
	P2X4
	P2X7
	nAChR α 7/RIC3
	nAChR α 4 β 2
	GABA α (α 1 β 2 γ 2)
	GABA α (α 2 β 3 γ 2)
GABA α (α 3 β 3 γ 2)	
GABA α (α 4 β 3 γ 2)	
GABA α (α 5 β 3 γ 2)	

Genitourinary Channel Panel

Ion Channel	Target
Potassium Channel, Calcium Activated	BK
	IK
Ligand-Gated Ion Channel	P2X1
	P2X3
	TRPV1
	TRPV4
	TRPM8

Depression Panel

Ion Channel	Target
Voltage-Gated Potassium Channel	KCNQ2/3
	KCNQ3/5
Two-Pore Domain Potassium Channel	TREK-1
Voltage-Gated Calcium Channel	L type calcium channel
	N type calcium channel
Ligand-Gated Ion Channel	NR1/NR2A
	NR1/NR2B
	nAChR α 7/RIC3
	nAChR α 4 β 2
	AMPA receptor
	GABA α (α 2 β 3 γ 2)
	GABA α (α 3 β 3 γ 2)
	GABA α (α 4 β 3 γ 2)
	GABA α (α 4 β 3 δ)
	GABA α (α 5 β 3 γ 2)