



Ion Channel Selectivity Profiling: Psychiatric Disorder

Ion Channel Families:

- Calcium, voltage-gated (Cav1.3/ $\beta_3/\alpha_2\delta$)
- Ligand-gated (GABA ($\alpha_1\beta_3\gamma_2$, $\alpha_2\beta_3\gamma_2$, $\alpha_3\beta_3\gamma_2$, $\alpha_4\beta_3\gamma_2$ and $\alpha_5\beta_3\gamma_2$), nAChR (α_4/β_2 , α_7 , $\alpha_3\beta_4\alpha_5$, $\alpha_6/\beta_2\beta_3$) and NMDA (NR1/NR2A, NR1/NR2B, NR1/NR2C and NR1/NR2D))
- Potassium, voltage-gated (KCNQ2/3 and KCNQ3/5)
- Potassium, calcium-activated (SK1, SK2 and SK3)

The Charles River ion channel portfolio includes over 120 targets which have been organized into Channel Panels[®] based on current scientific findings, proving a useful tool in guiding early screening and selectivity profiling. Our Psychiatric Disorder Channel Panel[®] includes neurotransmitter receptor channels that are important in anxiety and schizophrenia.

Selectivity Profiling

Identification of a compound's target specificity and potential for off-target effects is a critical step in the drug discovery process and often includes assessments against specific target class families, critical safety targets or by therapeutic area. In addition to our therapeutic area-specific Channel Panels[®], we offer screening on a number of electrophysiology platforms. When required, our scientists can design customized panels to meet a client's needs. As pioneers in the field of ion channels, we are able to provide expert consultation to facilitate interpretation of results.

Ion Channels and Psychiatric Disorders

Antipsychotic and anti-anxiety drugs that include ion channel targets are generally thought to modulate synaptic transmission in specific brain regions (e.g., the limbic system in schizophrenia, and both the limbic and brainstem reticular activating systems in anxiety). Our Psychiatric Disorder Channel Panel[®] includes neurotransmitter receptor channels that are important in anxiety (GABA) and schizophrenia (NMDA and nAChR α_7). Voltage-gated potassium channels (KCNQ) that regulate excitability and are potential therapeutic targets for anxiety and schizophrenia also are included.

EVERY STEP OF THE WAY