

Circuit-based approaches to the drug development for neurological disorders

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Neurological disorders result from various etiologies. Conventional approaches focus on the specific cause of diseases, which demands a lot of time and effort to develop drugs. Our research group has studied the common neural circuit mechanisms and molecular targets for the drug development of neurological disorders. First, we found that chronic stress increases muscle tension problems through the serotonin circuits in the cerebellum, and a drug bound to 5HT2A receptors can reduce dystonia. Second, CaV3.1 T-type Ca²⁺ channels involve Parkinson's disease, essential tremor, depression, etc., as a common molecular target, and thus, we developed antisense-oligo nucleotides (ASO) drugs for these neurological disorders.