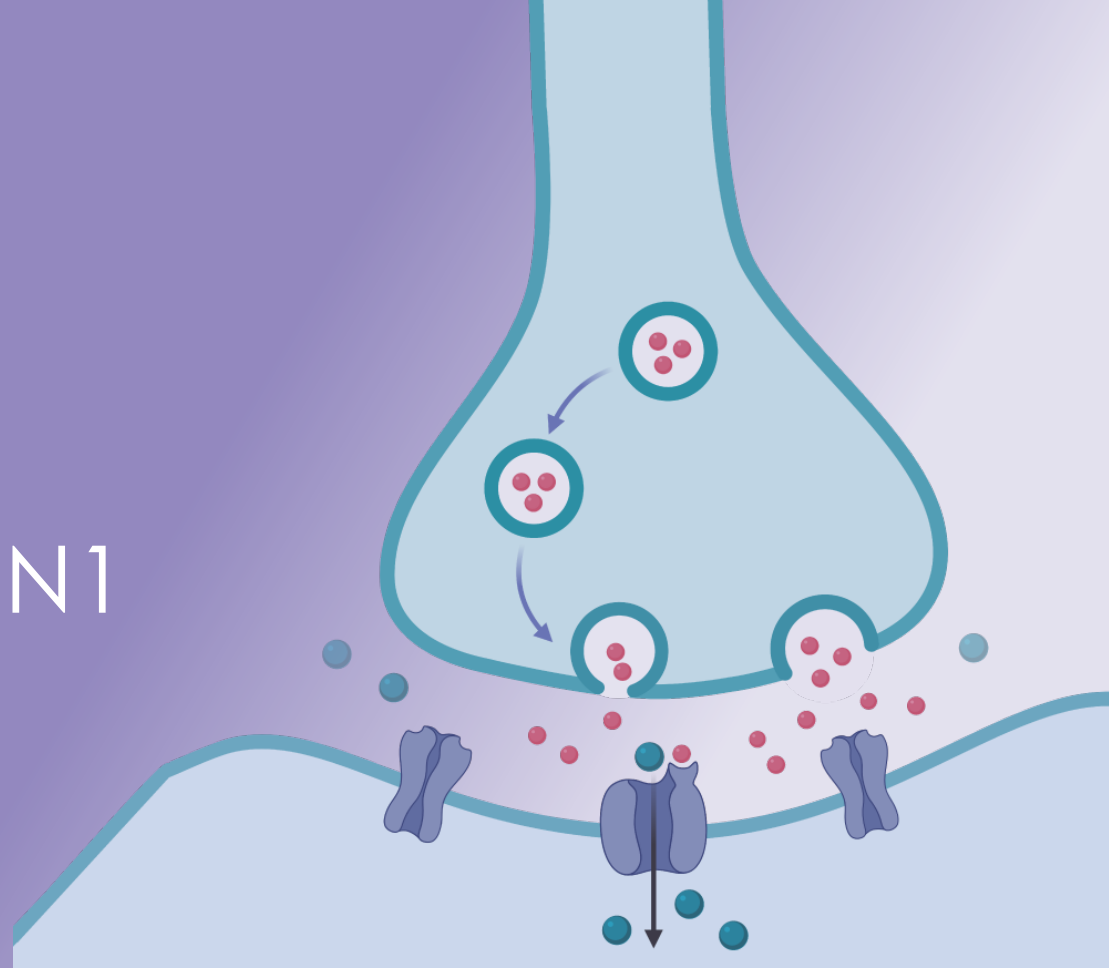


# GAT1

## SURFE<sup>2</sup>R N1



## Investigating GAT1 with the SURFE<sup>2</sup>R N1

The GABA transporter 1 (GAT1) is essential for maintaining  $\gamma$ -aminobutyric acid (GABA) balance in the central nervous system. GAT1 helps regulate neurotransmission by reabsorbing GABA, the brain's primary inhibitory neurotransmitter, from the synaptic cleft back into presynaptic neurons. This process is powered by the sodium ( $\text{Na}^+$ ) electrochemical gradient, as GAT1 operates as a secondary active transporter. Its transport stoichiometry is  $\text{Na}^+:\text{Cl}^-:\text{GABA} = 2:1:1$ , with a high affinity for GABA in the micromolar range.

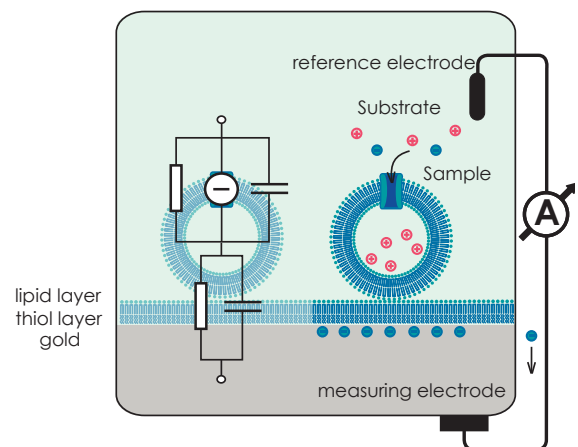
GAT1 belongs to the SLC6 family of  $\text{Na}^+/\text{Cl}^-$ -dependent neurotransmitter transporters and is predominantly expressed in GABAergic neurons and astrocytes. Its role is significant in neurological disorders like epilepsy, anxiety, and sleep disturbances.

Studying GAT1's biophysical and pharmacological properties offers potential for developing targeted treatments for these conditions.

Nanon's SURFE<sup>2</sup>R N1 platform provides a precise and efficient method to measure GABA transport stoichiometry. It also enables high-throughput screening of compounds that can influence GAT1's function. This platform advances research on GAT1 and offers a robust tool for investigating potential treatments for neurodegenerative and psychiatric diseases.

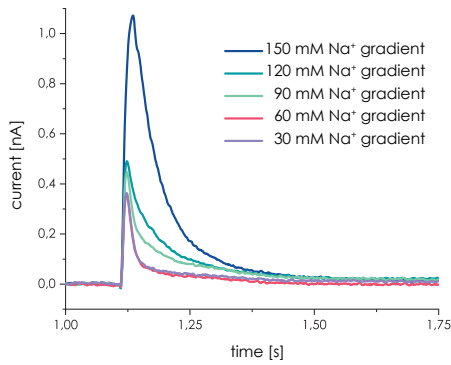


**Contact us today!**



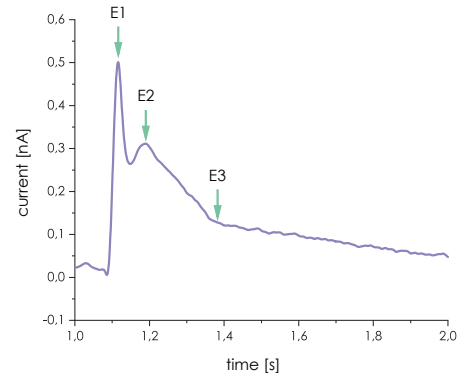
# SURFE<sup>2</sup>R N1

## In-Depth Transporter Research



### Effect of Na<sup>+</sup> gradient on GABA-induced currents

Effect of reducing Na<sup>+</sup> driving force on GABA-induced currents by controlling vesicle inner media



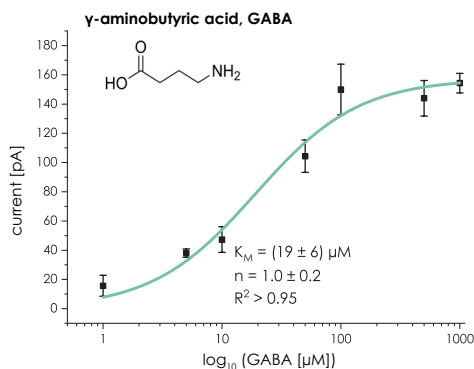
### Revealing multiple electrogenic steps in hGAT1 cycle

GABA-induced currents can be dissected into three different electrogenic events



### GABA transport kinetics

The GABA concentration to reach half-maximal transport rate in good agreement with literature data



### Stoichiometry Na<sup>+</sup>: GABA

For each GABA molecule transported, two Na<sup>+</sup> ions are also cotransported

