Levetiracetam is a clinically useful non-classical anticonvulsant.\(^1\) It has no effect on voltage-dependent Na\(^+\) channels, GABAergic transmission, or affinity for either GABAergic or glutaminergic receptors.\(^2,3\) Levetiracetam is believed to act via binding to the synaptic vesicle protein SV2A.\(^4\) Levetiracetam reduced intra-neuronal Ca\(^{2+}\) levels by inhibition of ryanodine and IP3 receptor-dependent Ca\(^{2+}\) release from the endoplasmic reticulum.\(^5\) It was also observed to lower the pH of neocortical pyramidal cells via weakening of the transmembrane HCO3\(^-\)-mediated acid-extrusion.\(^6\)

1) Wright et al. (2013) Clinical Pharmacology and Pharmacokinetics of Levetiracetam; Front. Neurol. 4 192  
3) Klitgaard and Verdru (2007) Levetiracetam: the first SV2A ligand for the treatment of epilepsy; Drug Discov. 2 1537  
4) Lynch et al. (2004) The synaptic vesicle protein SV2A is the binding site for the antiepileptic drug levetiracetam; Proc. Natl. Acad. Sci. USA 101 9861  
5) Nagaratti et al. (2008) Levetiracetam inhibits both ryanodine and IP3 receptor activated calcium induced calcium release in hippocampal neurons in culture; Neurosci. Lett. 436 289  
6) Bonnet et al. (2019) Levetiracetam mediates subtle pH-shifts in adult human pyramidal cells via an inhibition of the bicarbonate-driven neuronal pH-regulation – Implications for excitability and plasticity modulation; Brain Res. 1710 146

**PHYSICAL DATA**

- **Molecular Weight:** 170.21  
- **Molecular Formula:** C\(_{29}\)H\(_{14}\)N\(_2\)O\(_2\)  
- **Purity:** >98% by HPLC  
  NMR: (Conforms)  
- **Solubility:** DMSO (>25 mg/ml)  
- **Physical Description:** White solid  
- **Storage and Stability:** Store as supplied at -20°C for up to 1 year from the date of purchase. Solutions in DMSO may be stored at -20°C for up to 1 month.

Materials provided by Focus Biomolecules are for laboratory research use only and are not intended for human or veterinary applications.

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