WEBVTT

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Nerve cells or neurons constantly work to maintain an electrical charge on their surface by pumping ions out of the cell,

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creating a polarized state, meaning there’s a different charge on the outside versus the inside of the cell.

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Neuron impulses, called action potentials, take place when an electrical impulse causes voltage-activated sodium or calcium channels to open, depolarizing the membrane.

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These voltage-gated ion channels are critical to the propagation of action potentials, and therefore are an important target for the development of therapeutics that modulate overactive signaling in the brain.

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The wave of depolarization travels down the axon to its terminus where it triggers the release of neurotransmitters which enable neurons to communicate with one another.

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Dysfunction in voltage-gated channels can cause serious malfunction leading to hyperexcitability in these nerve channels responsible for several forms of epilepsy, movement disorders, and pain syndromes.

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SCN8A Developmental and Epileptic Encephalopathy is a rare,

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severe pediatric syndrome linked to mutations in the Nav1.6 sodium channel that

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make brain cells more excitable thus lowering the triggering threshold for seizures.

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Patients with SCN8A-DEE experience severe epilepsy, with seizures beginning around 4 months of age.

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These seizures are highly variable, often occurring multiple times a day.

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Patients also experience early onset developmental delay, cognitive impairment and decline, with greater than ninety percent unable to speak, and motor abnormalities with about fifty percent of patients unable to walk.

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This condition is rare, with less than 1,000 patients estimated to be diagnosed with the disorder worldwide.

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Up to ten percent of these children may die from sudden unexpected death in epilepsy, or SUDEP.

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While genetic testing is available, it is still not widely used.

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There are no currently approved therapies for SCN8A-DEE, and seizures associated with this syndrome are highly resistant to currently available anti-seizure medications.

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Neurocrine Biosciences is currently conducting a Phase 2 study of NBI-921352 as an adjunctive therapy in children and young adults living with SCN8A-DEE