The Trigeminal Nerve (CN V) is the largest cranial nerve, supplying sensation to the face and motor to the muscles of mastication and the palate.

Trigeminal Nucleus in the brainstem has direct changes in cortical structures associated with seizures, mood, and attention.

Functional neuroimaging studies have demonstrated significant metabolic alterations in brain regions associated with seizures and mood in subjects receiving eTNS™.

- Phase I and II clinical trials of external TNS (eTNS™) for the treatment of drug resistant epilepsy (DRE) and major depressive disorder (MDD) have been completed with favorable results.
  - A Phase II double-blind randomized control trial of eTNS™ for the treatment of drug resistant epilepsy demonstrated that 40.5% of patients in the treatment group had a ≥50% reduction in seizure frequency after 18 weeks.
  - A Phase I open-label pilot study of eTNS™ for MDD demonstrated a mean reduction in depression severity of 51.5% after 8 weeks. Results of a Phase II double-blind RCT are expected in Q1 2012.
- Phase I studies of eTNS™ for ADHD and PTSD are ongoing with results expected in early 2012.