

# Serological Markers as Rapid Diagnostic Tools for Epilepsy

**Malvika Sharma, Abishek Arora, Unnati Singh and Nahid M. Siddiqui**

*Amity Institute of Biotechnology, Amity University, Uttar Pradesh, Noida- 201303*

---

**Abstract**—Epilepsy is a neurological disorder afflicting approximately 10 million people in India, with an overall prevalence rate of 5.59–10 per 1000 persons. Epidemiological data suggests that genetic alterations leading to epileptogenesis account for only one-third of the cases, while majority of the cases have idiopathic origin. Glutamate transporter genes and associated transcription factors have also been implicated as the putative factors responsible for circuit excitability. In spite of epilepsy being one of India's most common neurological disorders, public understanding of epilepsy is very limited. This may be attributed to the lack of easy access to the required tools for the differential diagnosis of epileptic syndromes from allied conditions. Migraine, depression, anxiety and sleep-related disorders like insomnia are the comorbidities associated with the onset of epilepsy, which are often initially neglected and not reported by patients thereby increasing the burden of the disease. Lack of sturdy biomarkers, facilitating the rapid and early detection of epileptic disorders, significantly contribute to poor patient prognosis. The conventionally utilized tools for epilepsy diagnosis include EEG (Electroencephalography), MRI (Magnetic Resonance Imaging), SPECT (Single-Photon Emission Computed Tomography) and now recently PET/CT (Positron Emission Tomography–Computed Tomography). The identification and establishment of circulating epileptic biomarkers in blood, urine and cerebrospinal fluid will help in paving the way for the development of rapid and cost effective diagnostic modalities. The availability of such diagnostic tools shall contribute to an improvement in disease prognosis and overall patient well being.

**Keywords:** Epilepsy, Diagnosis, Biomarkers