

Magnetic nanobead-based lateral flow assay for early detection of traumatic brain injury

Based on circulatory biomarkers, a novel immunomagnetic nanobead-based lateral flow test strip was created for the early identification of traumatic brain injury. Carboxyl-modified magnetic nanobeads with strong saturation magnetization were successfully synthesized using this nanoscale technique. The magnetic nanobeads were covalently bioconjugated with the antibody of a chosen biomarker in order to produce the immunomagnetic probes. Using this LFA, one can look into the existence of serum biomarkers that represent the traumatic brain injury severity scale. Treatment techniques heavily depend on biofluid-based, trustworthy indicators for quick triage in the prognosis of traumatic brain injury. Neuronal bodies, dendrites, and axons, as well as astroglial cells and myelin-forming oligodendrocytes, are major targets of TBI. As a result, the majority of current research focuses on glial markers. In addition to offering a quick, simple, and simultaneous quantitative detection method for the early identification of traumatic brain damage, this lateral flow test strip may also prove useful in automated and portable diagnostic applications.