SerpinA3N

SerpinA3N is mainly associated with the acute phase response and inflammatory response. In our current study, transcriptomics analysis, proteomics analysis, and Western blotting showed that the expression level of Serpin clade A member 3N (SerpinA3N) is significantly increased in the hippocampus of mice with kainic acid (KA)-induced temporal lobe epilepsy, and this molecule is mainly expressed in astrocytes. Notably, in vivo studies using gain- and loss-of-function approaches revealed that SerpinA3N in astrocytes promoted the release of proinflammatory factors and aggravated seizures. Mechanistically, RNA sequencing and Western blotting showed that SerpinA3N promoted KA-induced neuroinflammation by activating the NF-κB signaling pathway. In addition, co-immunoprecipitation revealed that SerpinA3N interacts with ryanodine receptor type 2 (RYR2) and promotes RYR2 phosphorylation. Overall, our study reveals a novel SerpinA3N-mediated mechanism in seizure-induced neuroinflammation and provides a new target for developing neuroinflammation-based strategies to reduce seizure-induced brain injury [1)]

1)
Liu C, Zhao XM, Wang Q, Du TT, Zhang MX, Wang HZ, Li RP, Liang K, Gao Y, Zhou SY, Xue T, Zhang JG, Han CL, Shi L, Zhang LW, Meng FG. Astrocyte-derived SerpinA3N promotes neuroinflammation and epileptic seizures by activating the NF-κB signaling pathway in mice with temporal lobe epilepsy. J Neuroinflammation. 2023 Jul 8;20(1):161. doi: 10.1186/s12974-023-02840-8. PMID: 37422673.