**ABSTRACT**

In this paper, the issue of global exponential stability for a neutral type single neuron system with stochastic effects is investigated. Based on the linear matrix inequality (LMI) approach together with a novel Lyapunov-Krasovskii functional and stochastic analysis theory, sufficient conditions are derived to ensure that the considered system with time-varying delays is globally exponentially stable. Numerical examples are provided to demonstrate the efficiency and less conservatism of the derived theoretical results