ABSTRACT

Provided are an RE1/NRSE element as a target for transdifferentiation of non-neuronal cells into neuronal cells, and the use of an RE1/NRSE blocker in the prevention and/or treatment of diseases associated with loss of function or death of neurons. Also provided is a method for blocking an RE1/NRSE element so as to regulate the expression of a neuron-associated gene in non-neuronal cells. The method comprises reducing binding of REST to an RE1/NRSE element or reducing the amount or activity of REST. Also provided is an RE1/NRSE element blocker, particularly a binding structural domain of an endogenous RE1/NRSE binding protein and a variant thereof, which can be used for the prevention and/or treatment of diseases associated with loss of function or death of neurons.