ABSTRACT

CELL-BASED CLOSTRIDIAL NEUROTOXIN ASSAYS

The present invention is directed to a method for identifying a gene that regulates clostridial neurotoxin activity, the method comprising: a. providing a sample of human neuronal cells expressing a polypeptide that comprises a C-terminal detectable label, wherein the polypeptide is cleavable by a clostridial neurotoxin; b. altering expression of a target gene of the cells; c. contacting the cells with the clostridial neurotoxin; d. measuring an amount of C-terminal detectable label, thereby quantifying clostridial neurotoxin activity; and e. identifying the target gene as a regulator of clostridial neurotoxin activity when the quantified clostridial neurotoxin activity is different to the quantified clostridial neurotoxin activity when expression of the target gene is unaltered; or f. identifying that the target gene is not a regulator of clostridial neurotoxin activity when the quantified clostridial neurotoxin activity is equivalent to the quantified clostridial neurotoxin activity when expression of the target gene is unaltered. Also provided are related methods for identifying an agent that regulates clostridial neurotoxin activity, as well as human neuronal cells, nucleotides, vectors, polypeptides, kits, and compositions suitable for use in the methods of the invention.

[Figure 3]