

NMDA Receptor Potentiation and Severe Acute Respiratory Syndrome Treatment

Blaise Costa¹

¹Virginia–Maryland College of Veterinary Medicine

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Abstract

An experimental compound (CNS004), reported to have various biological activities including antiviral, antimalarial, antiprotozoal and immunomodulatory effects, has been identified to potentiate NMDA subtype of glutamate receptors that are expressed in human lungs and central nervous system. We hypothesize that potentiating NMDA receptors will increase calcium ion influx and promote downstream signaling mechanisms associated with cellular contractions which is disrupted in severe acute respiratory syndrome. Pharmacological effects generated by triggering central nervous system glutamate receptor function, coupled with concurrent stimulation of the respiratory tract, may produce a synergetic effect in improving the airway smooth muscle function. Further, an antiviral activity combined with immunomodulatory effect of this experimental compound may improve the symptoms of viral diseases. This novel multipronged intervention to simultaneously inhibit viral proteins and promote host cell functions would be helpful to develop clinically useful compounds for the treatment of emerging viral diseases that deteriorate peripheral and central nervous system function before causing death in human beings.

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