Letter to the Editor
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Herbal Viruses as a Carrier for Nervous System Drugs

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Letter to the Editor

Dear Sir,

The aim of this survey is to introduce the best way to overcome the blood-brain barrier and targeted the drugs in order to reduce the negative effects of them on the body. Unlike animal viruses, plant viruses do not cause disease in humans. This is an important feature that allows us to use these viruses for drug treatment [1]. The blood-brain barrier is composed of special capillaries that unlike the normal structure in capillaries, do not have the usual pores and their intercellular connection is of the strong connection type. The blood-brain barrier is made up of high-density cells, and the restriction of exchange between these cells is much more severe than other capillary endothelial cells elsewhere in the body [1,2]. Infection in the brain is very rare. However, since antibodies and antibiotics are not able to cross the blood-brain barrier, it can be very serious and difficult to treat if a brain infection occurs. Transferring the drugs to the brain is very different from other organs. In general, drugs do not enter the brain easily from the bloodstream. It is difficult to access the brain, especially for new biotherapiotics. More than 99% of efforts to develop drugs into the central nervous system lead to discover drugs for CNS and Less than one percent is useable for CNS diseases. This imbalance is a major barrier to future advances in CNS drug delivery. Cerebral hemorrhage is an insurmountable barrier for most drugs. Therefore, 100% of large molecular neurotropic drugs and more than 98% of small molecules of molecules are never marketed due to their inherent inability to cross this barrier. This blood-brain barrier is one of the main barriers to the treatment of brain diseases such as Parkinson's. It is also a good treatment for malignant brain tumors. Due to the presence of a blood-brain barrier, we are unable to deliver the drug to tumors. In fact, the blood-brain barrier is the most important barrier in the treatment of patients with brain tumors. The use of harmless herbal viruses to pack drugs in their capsids and pass them through the blood-brain barrier to reach the target area is a completely non-invasive and useful method in the medical industry that makes the drug easily infected by the plant virus. Cross the blood-brain barrier and reach our target area with great precision and minimize side effects to other parts of the body. Here are some of the various herbal viruses used in nanotechnology to send as carriers.

Keywords: Herbal viruses; Nervous system; Drugs delivery

CCMV

Cowpea Chlorotic Mattle Virus is a member of the Bromoviridae family of 20-species plant viruses. Yeast-based expression systems can produce the virus's coated protein in the form of VLP free of genetic material that has self-mutating properties. The main purpose of this virus is to have a dynamic structure. This virus based on the pH and ionic power of the environment can show the property of opening apart and self-assembling in glass conditions. This virus is external. It carries a lot of positive charge, which has led to the virus being used specifically to encapsulate negatively charged species [3].

CPMV

The Cowpea Mosaic Virus is a 20-species virus from the comoviridae family that is stable over a wide range of temperatures (more than 60 degrees Celsius) as well as pH ranges between 3 and 9 and in the presence of organic solvents. It has become a suitable carrier for nanotechnology studies and drug delivery [3,4].

RCNMV

Red Clover Necrotic Mosaic Virus is a virus of the Tombusviridae family. This virus can appear as a temporary structure as a result of the formation of surface holes that must spread throughout the capsid. Different Ca^{+2} and Mg^{+2} are formed, which is useful in packing materials inside the capsid

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[3,5].

MS2

A RNA-containing bacteriophage. The capsid of this virus consists of 180 identical protein subunits that can be expressed independently of the bacterium by recombination methods and then assembled to form the bodies. A yield of 30 mg/L has been reported for pure *E. coli* grown bodies. The empty capsule contains 32 holes, each 1.8 mm in diameter, allowing for internal changes in the capsid. The capsid under conditions of variable heat conditions. The pH is also stable between 3 and 10 [3,6].

QB

This bacteriophage is a member of the Leviviridae family. It creates chemical attachments with the subunits that make up the coating protein [3,6].

M13

This bacteriophage is a rod-like virus that specifically infects bacteria and is made up of single-stranded circular DNA. Identify a specific goal. The variety of this technique makes the M13 a good element for making duty hybrids in nanotechnology. It also facilitates the imaging of cancers [3,6,7].

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