

Vaccines for Human Viral Diseases As Well As For Oncogenic Non-Viral Antigens

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The Variola major, the virus that causes the smallpox, lethal virus in the 30% of the cases, was eraticated in 1979 in the human species, thanks to a capillary vaccination on global scale [1].

Recently the World Health Organization declared that India and Southeast Asia are polio-free, really a great achievement since the vaccine for polio, an infectious disease that can cause paralisis, was certificated safe and useful only 60 years ago [2,3].

Last year over 800 million doses of combination vaccines are going to be used to vaccinate Chinese children whereas more than 20 million children worldwide do not receive one or more important vaccinations that would protect them from at least one preventable disease.

Research is badly needed to develop strategies to communicate the importance of vaccinations to uncertain parents. The 2008 San Diego measles outbreak costed over 10.000 dollars for each infection in comparisons to the total cost to contain the outbreak (approximately 124.000 dollars).

Even if there are rare cases of vaccine damage, the research to facilitate vaccination must be done to prevent diseases. The vaccine for HBV virus, responsible for Hepatitis B infection, is able to prevent 50% of all liver cancers. Human Papilloma Viruses (HPV) have been correlated with the cervical cancer (genotypes 16 and 18 particularly oncogenic in humans): the USA Food and Drug Administration in 2006 released the first vaccine against HPV [1,4].

The history of flu viruses teaches that influence originates from birds, usually aquatic, and then it is transferred to man through

the leap into pigs. The promiscuity of the herds facilitates this transition and then the spread. Three pandemics caused by influenza A viruses, which occurred in the 20th century, have all had this origin: the 'Spanish flu' (1918, H1N1), the 'Asian flu' (1957, H2N2) and the 'Hong Kong flu' (1968, H3N2). The 2009 H1N1 influenza virus acted during the winter in Australia and New Zealand yielding a pattern effect for the treatment of patients during the winter in the Northern Hemisphere. The performance of rapid diagnostic test for the detection of novel influenza A (H1N1) virus was evaluated by the Centers for Disease Control and Prevention.

The findings of severe respiratory disease concurrent with the circulation of H1N1 influenza was proved by the aforementioned test. Even the potential impact of pandemic influenza during the Hajj pilgrimage was taken in account to reduce the substantial effect on the crowd to spread the infection [5,6].

Long years of research where required for busting a new system to fight cancer. Research is going to obtain the complete sequence by proteomics approaches, in order to achieve adequate antigen preparations that might be used to generate assays for a specific anticancer vaccine [7].

Finally, the ability of the immune system to recognize a tumor-associated antigen, thus enabling development of a vaccine approach for therapeutic application, represents a main target of this field of research.

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