Abstract

Since the middle of the 20th century the number of people infected by the dengue virus (DENV) has been constantly increasing. Specific antiviral drugs are not available, so the objective for eliminating transmission has become the construction of an effective and safe vaccine with an emphasis on inducing a balanced immune reaction against all of the DENV serotypes. Momenteraly, the only licenced vaccine is CYD-TDV (*Chimeric Yellow* Fever-*Dengue*, Live-Attenuated, *Tetravalent Dengue* Vaccine). This vaccine uses the structure of the effective and safe vaccine against the yellow fever virus (YFV) from which surface protein sequences are substituted for corresponding DENV sequences. While preclinical studies displayed promising results, complications have arised during clinical studies, thus creating limiting criteria for their use. For this reason the search for new vaccines that could ensure better safety from DENV for a wider range of people and replace CYD-TDV is ongoing. In the III. phase of the clinical studies there are two live-attenuated vaccines (TetraVax-DV and DENVax). The subunite vaccine (V180), DNA vaccine (TVDV) or inactivated vaccine (TDENV PIV) was forwarded into the I. phase. The combination of several vaccine schedules is also being used (tetravalent live-attenuated vaccine-tetravalent purified inactivated vaccine, TLAV-TPIV). The tetravalent vaccine composed of virus-like particles mimicking the authentic virion is the most intriguing vaccine in the experimental phase.

Key words

Dengue virus (DENV), Flavivirus, CYD-TDV, live-attenuated vaccine, antibody dependent enhancement (ADE)