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The rabies virus invades the central nervous system of most mammals and is usually fatal in the absence of treatment. As the rabies vaccine must be repeatedly administered in relatively large doses as post-exposure treatment to prevent the onset of disease, non-viral components, such as host cell membrane proteins, present in the cell-culture vaccine may be recognized as foreign antigens and elicit undesirable immune responses. It is still unknown whether the current cell-culture rabies vaccine indeed affords a satisfactory degree of quality assurance.

We investigated the minor host-derived components incorporated into rabies virions to elucidate their roles in the viral replication process. In our previous studies, we identified several minor host-derived components, such as actin, actin-binding proteins, Hsc73, fibronectin and integrin, in the rabies virions. Among these minor components, we focused on a cellular 21-kDa transmembrane protein VAP21. Using monoclonal antibodies we prepared against VAP21, we isolated cDNA clones encoding a full-length sequence of the VAP21 antigen and defined a possible amino acid sequence. The predicted protein structure indicated that the VAP21 antigen is a cellular CD99-related transmembrane protein.

Possible roles of VAP21 in the viral replicative process will be discussed.

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