

HIV-2 gag

HIV-2 gag Recombinant

VAG0346

Product Overview

Name

HIV-2 gag

Description

HIV-2 gag Recombinant

Background

Human Immunodeficiency Virus type 2 (HIV-2) is a closely related retrovirus to HIV-1, and it also causes AIDS. However, HIV-2 exhibits distinct clinical and virological characteristics, including a lower transmission rate and slower disease progression. Despite its relative lower prevalence compared to HIV-1, HIV-2 remains a significant public health concern, particularly in West Africa and parts of India. Understanding the molecular mechanisms underlying HIV-2 replication is crucial for developing effective antiviral strategies against this virus. The HIV-2 Gag protein plays a central role in the assembly and maturation of viral particles. Gag is a polyprotein precursor that undergoes a series of proteolytic cleavages to yield the mature structural proteins essential for viral assembly and infectivity. Research on HIV-2 Gag has been limited compared to HIV-1, and a comprehensive characterization of HIV-2 Gag recombinant is necessary to shed light on its role in viral replication. The primary objective of this study is to express and purify recombinant HIV-2 Gag protein using various expression systems. Recombinant DNA techniques will be employed to construct expression vectors harboring the HIV-2 gag gene, followed by expression in bacterial, yeast, or mammalian cell-based systems. The recombinant Gag protein will be purified using affinity chromatography or other suitable methods, allowing for subsequent biochemical and biophysical characterization. The second objective is to investigate the assembly and maturation processes of HIV-2 Gag protein. In vitro assays will be conducted to analyze the ability of the purified Gag protein to self-assemble into virus-like particles (VLPs). The formation and morphology of VLPs will be characterized using techniques such as electron microscopy and dynamic light scattering. Additionally, the effect of potential inhibitors or small molecules on Gag assembly and maturation will be evaluated. The third objective is to determine the three-dimensional structure of HIV-2 Gag recombinant through X-ray crystallography or cryo-electron microscopy. Structural information will provide crucial insights into the molecular interactions involved in Gag assembly and maturation, offering a basis for rational drug design targeting HIV-2 Gag. By characterizing the HIV-2 Gag recombinant, this research aims to enhance our understanding of the assembly and maturation processes underlying HIV-2 replication. The findings from this study may contribute to the development of novel antiretroviral strategies specifically targeting HIV-2, thereby improving the treatment options available for individuals infected with this virus.