Retrovirology

Poster presentation

The Objective of Inducing Broadly Cross-reactive Neutralizing Antibodies Against HIV-1

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The objective of inducing broadly cross-reactive neutralizing antibodies against HIV-1 is promatic because of the high sequence variability of the viral envelope protins and the general resistance of primary isolates to neutralizating. The gP120 glycoprotein elicits both virus-neutralizing and non-neutralizing antibodies during natural infection. Non-neutralizing antibodies are often directed against the gP120 regions that are occlude on the assembled trimer which are exposed only upon shedding. Neutralizing antibodies must access the functional envelope glycoprotein complex and typically recognize conserved or variable epitopes near the receptor-binding regions. HIV envelope glycoproteins that are conserved among diverseviral strains are poorly expose to the humoral immune system. The conserved gP120 surfaces involved in binding to its three minimally polymorphic ligands, gP41, CD4 and chemokine receptors, each exhibit particular problems with respect to the elicitation of or sensitive to neutralizing antibodies. The moieties involved in gP120-gP41 association are buried in the interior or of the functional envelope glycoprotein spike. The CD4 binding site is recessed, flanked by variable regions exhibiting considerable glycosylation. The chemokine receptor-binding site is masked by varial loops-V3 and V2. The relatively conserved HIV-1 gp120 core has been structurally analyzed, the outer domain exhibits a variable, heavily glycosylated surface. This concentrated glycosylation may reduce the potential of a large portion of the gP120 surface to serve as an immunogenic target.