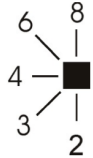


## Supplemental Materials

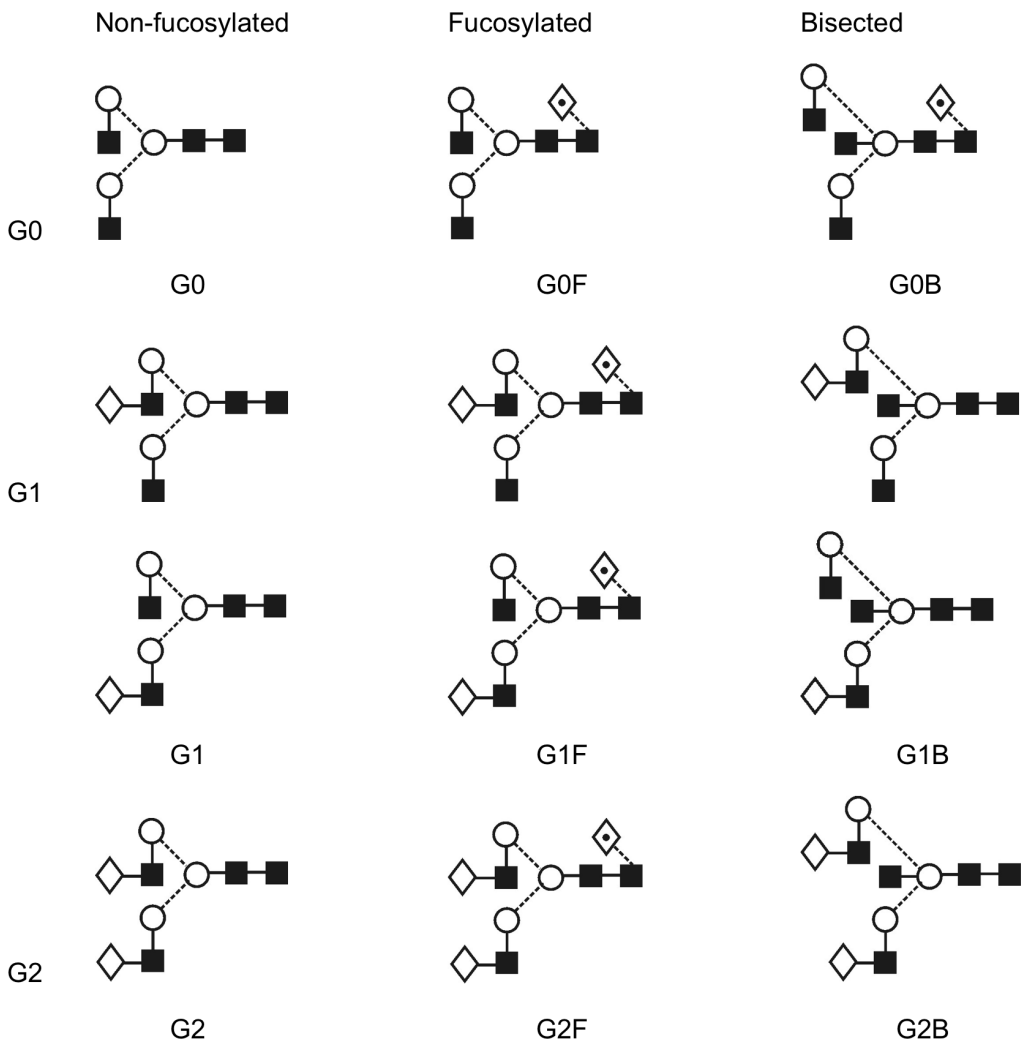
### Supplemental Figures and Legends

#### Supplemental Figure 1: Structural diagrams of the glycans.

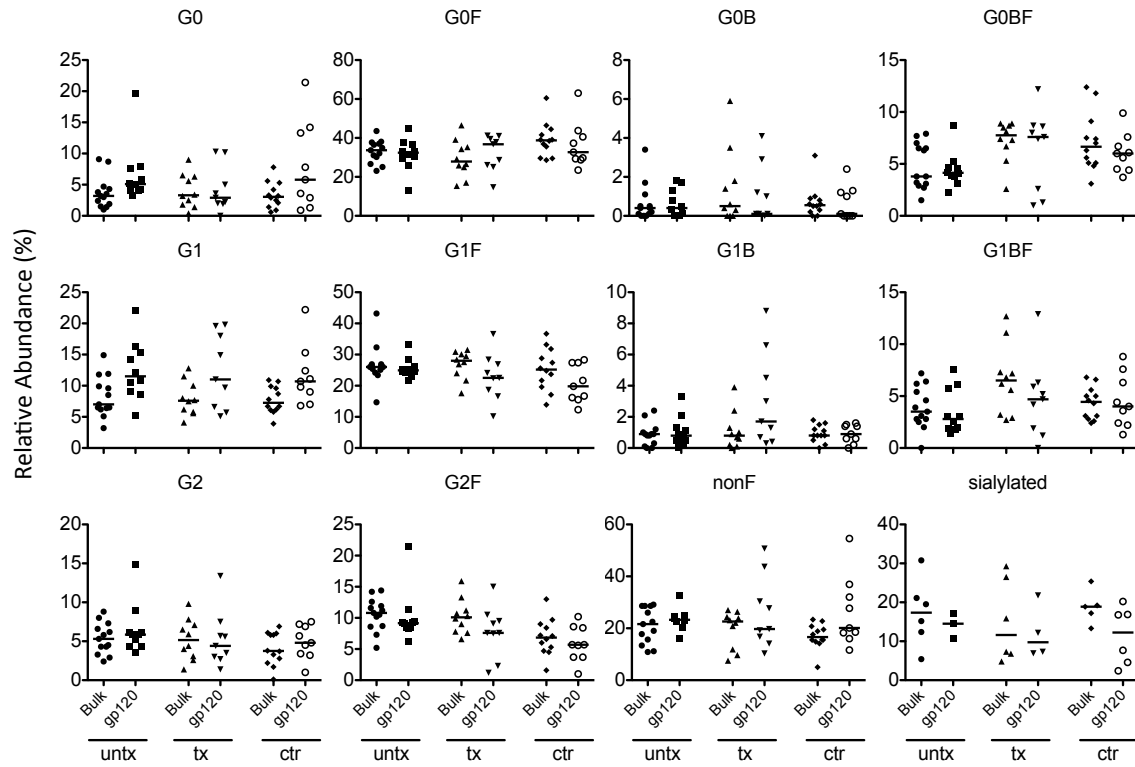
The angle of the lines linking the symbols shows the linkage with a full line ( $\nearrow$ ) showing a  $\beta$ -linkage and a broken line ( $\searrow$ ) showing an  $\alpha$ -linkage.



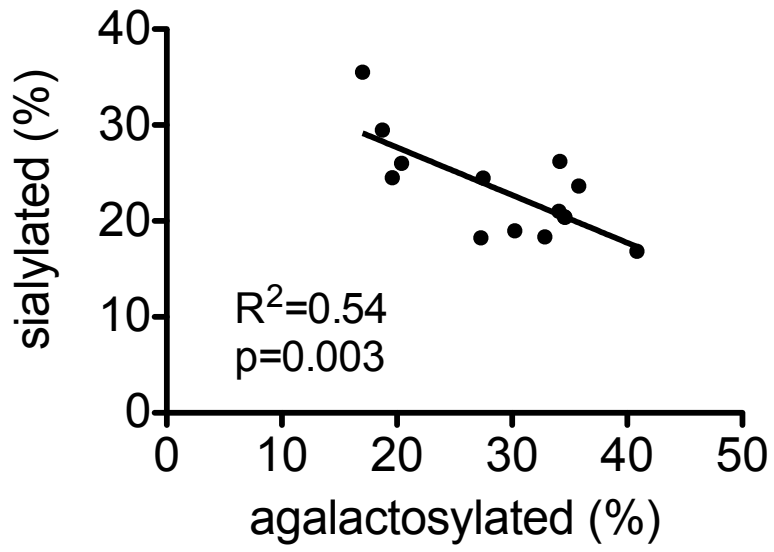
#### Glycans:



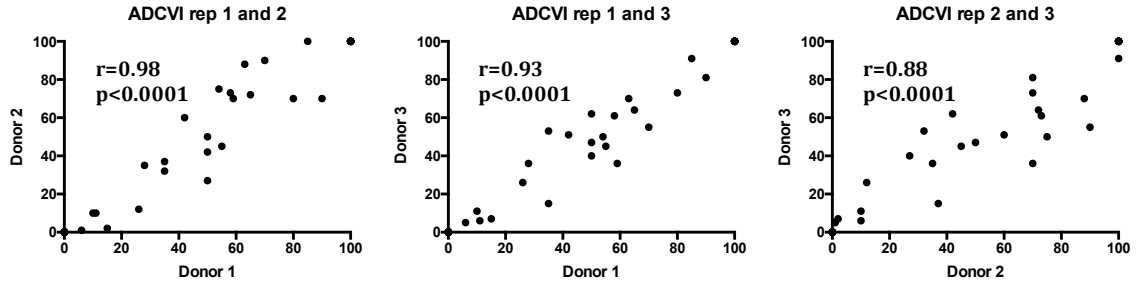
Supplemental Figure 2: Complete glycan prevalence data for HIV-specific IgG.



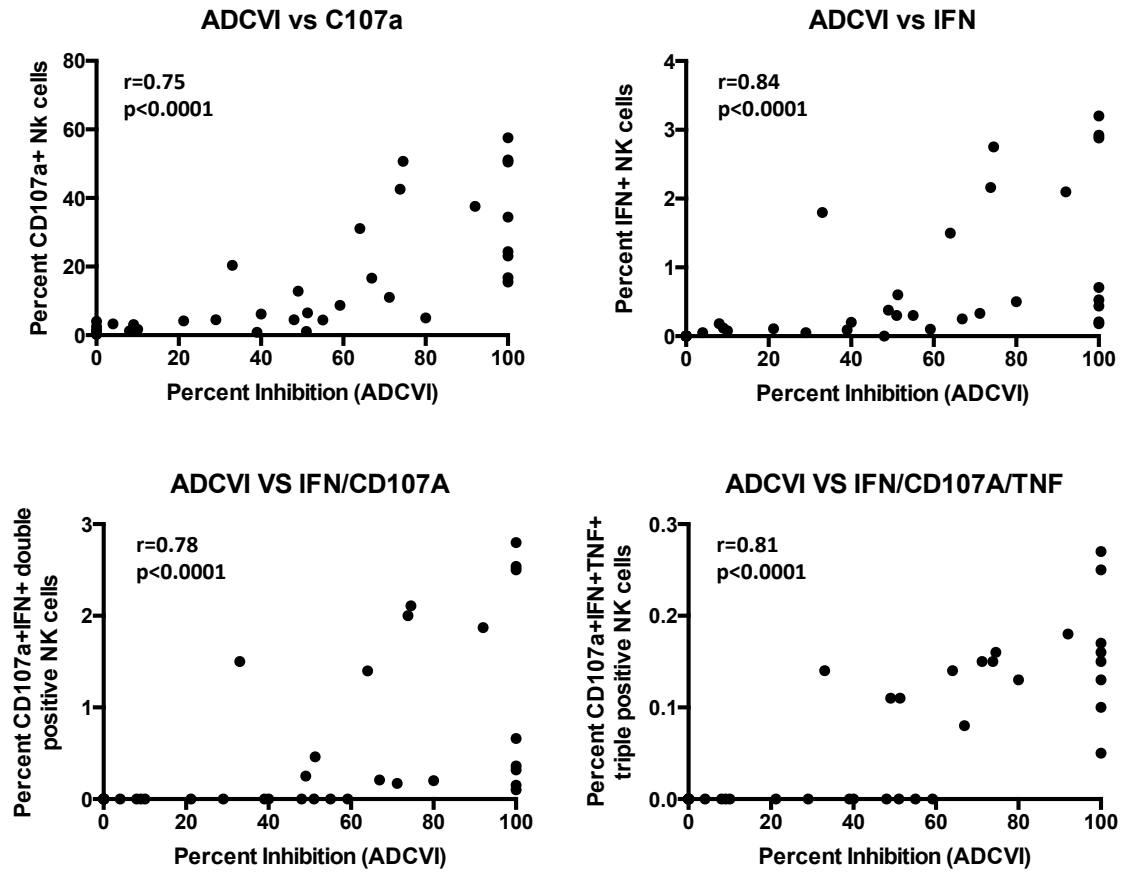
Supplemental Figure 3: Relationship between galactose and sialic acid content.



Supplemental Figure 4: Reproducibility of the ADCVI assays across multiple donors assessed on different days.



Supplemental Figure 5: Correlation of ADCVI assays results with NK cell degranulation and cytokine secretion.



Supplemental Tables

Supplemental Table 1: Subject Characteristics

	<b>Number</b>	<b>Viral Load</b>		<b>CD4 Count</b>	
<b>Antibody Analysis</b>		<b>Mean</b>	<b>Range</b>	<b>Mean</b>	<b>Range</b>
Negative	10				
Acute	10	130,000	16,000-460,000	751	434-937
Untreated	24	72,000	4,800-650,000	445	65-973
Treated	24	<50	<50-<400	1000	416-1,674
Controller	22	<50	0.2-233	874	739-1,841
	<b>Number</b>	<b>Viral Load</b>		<b>CD4 Count</b>	
<b>GT Expression</b>		<b>Mean</b>	<b>Range</b>	<b>Mean</b>	<b>Range</b>
Negative	13				
Untreated	15	120,000	1,500-710,000	670	6-1,212
Treated	13	<50	<50-2,100	515	331-1,600
Controller	20	<400	<50-2,100	815	436-1,970

Supplemental Table 2: Genes considered in glycosyltransferase expression analysis. HGNC gene symbols are used.

Gene	Activity
ALG2	Mannosylates Man(2)GlcNAc(2)-dolichol diphosphate and Man(1)GlcNAc(2)-dolichol diphosphate to form Man(3)GlcNAc(2)-dolichol diphosphate
B4GALT1	Transfers galactose in a beta1,4 linkage to similar acceptor sugars: GlcNAc, Glc, and Xyl.
B4GALT2	Transfers galactose in a beta1,4 linkage to similar acceptor sugars: GlcNAc, Glc, and Xyl.
B4GALT3	Transfers galactose in a beta1,4 linkage to similar acceptor sugars: GlcNAc, Glc, and Xyl.
B4GALT4	Transfers galactose in a beta1,4 linkage to similar acceptor sugars: GlcNAc, Glc, and Xyl.
FUT8	Catalyzes the addition of fucose in alpha 1-6 linkage to the first GlcNAc residue, next to the peptide chains in N-glycans.
MGAT1	Initiates complex N-linked carbohydrate formation. Essential for the conversion of high-mannose to hybrid and complex N-glycans
MGAT2	Catalyzes an essential step in the conversion of oligo-mannose to complex N-glycans
MGAT3	Transfers a GlcNAc residue to the beta-linked mannose of the trimannosyl core of N-linked oligosaccharides and produces a bisecting GlcNAc.
MGAT4A	Glycosyltransferase that participates in the transfer of N-acetylglucosamine (GlcNAc) to the core mannose residues of N-linked glycans.

MGAT4B	Glycosyltransferase that participates in the transfer of N-acetylglucosamine (GlcNAc) to the core mannose residues of N-linked glycans.
MGAT4C	Glycosyltransferase that participates in the transfer of N-acetylglucosamine (GlcNAc) to the core mannose residues of N-linked glycans.
MGAT5	Catalyzes the addition of N-acetylglucosamine in beta 1-6 linkage to the alpha-linked mannose of biantennary N-linked oligosaccharides.
MGAT5B	Glycosyltransferase that acts on alpha-linked mannose of N-glycans
ST6GAL1	Catalyzes the transfer of sialic acid from CMP-sialic acid to galactose-containing substrates.
FUCA2	Catalyzes the hydrolysis of the alpha-1,6-linked fucose joined to the reducing-end N-acetylglucosamine of the carbohydrate moieties of glycoproteins.