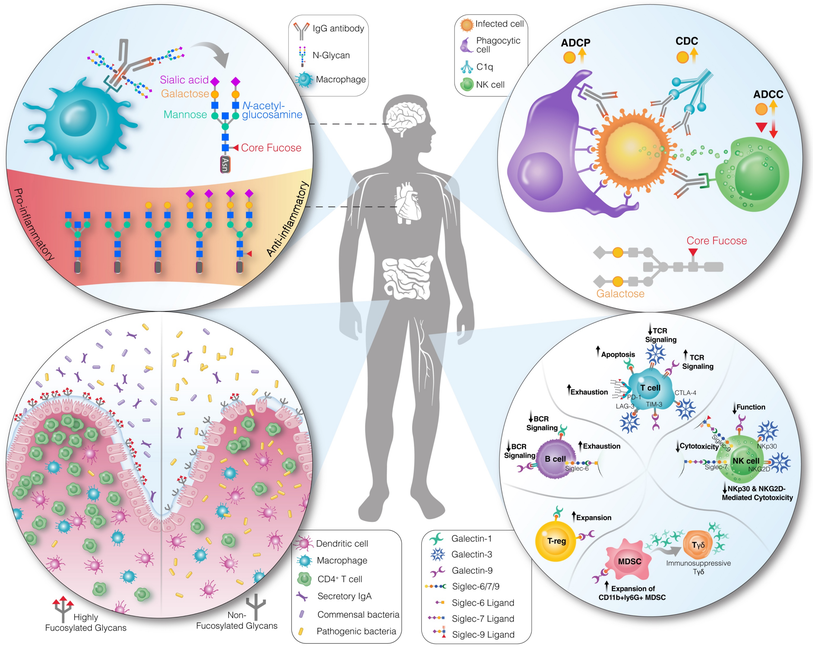
Host Glycomic Determinants of Interferon-α-Mediated Reduction of HIV Persistence *in vivo*

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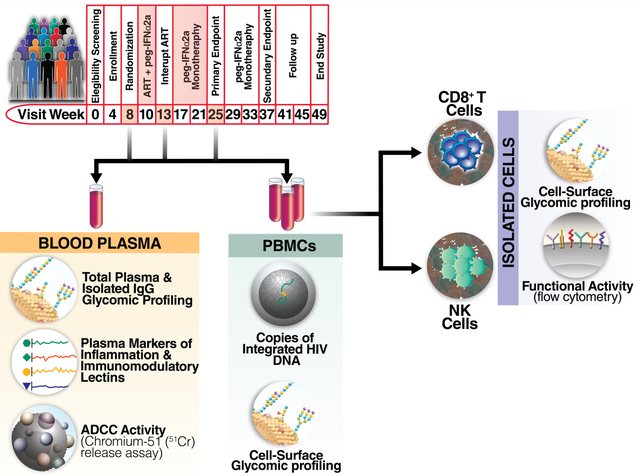
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BACKGROUND

- Interferon-α (IFNα) therapy was associated with significant suppression of HIV viremia and reduction in levels of HIV DNA during suppressive antiretroviral therapy (ART).
- Cytokines modulate host glycosylation, and glycosylation plays a critical role in mediating several cellular processes and immunological functions including antibody-dependent cell-mediated cytotoxicity (ADCC), and anti-inflammatory activities.

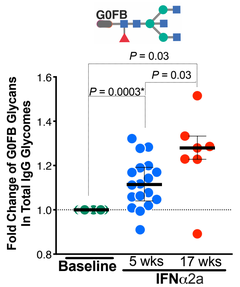


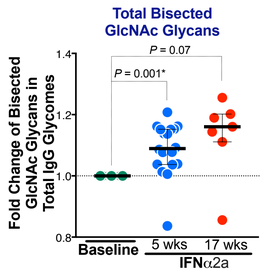
- Nevertheless, the impact of IFNα on host glycosylation machinery remains unknown.



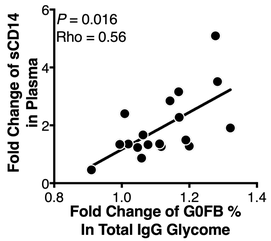
RESULTS

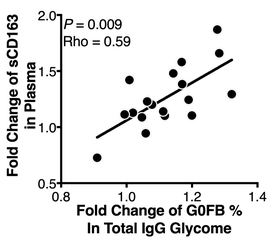
1) IFNα Induces Levels of the Pro-Inflammatory Bisected GlcNAc Glycans (including G0FB) on IgG Glycomes. Wilcoxon Signed-rank test (Medain ±Interquartile range). * = Bonferroni Corrected *P* value < 0.05.



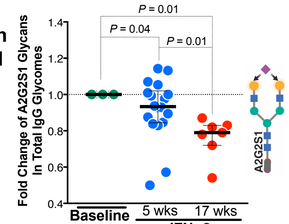


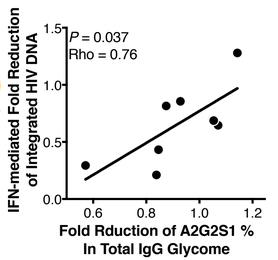
2) IFNα-mediated Induction of G0FB Glycan Levels Correlates with IFN-mediated Inflammation. IFN-mediated fold induction of G0FB correlates with IFN-mediated induction of the plasma inflammatory markers sCD14 **(A)** and sCD163 **(B).** Spearman's rank correlation.



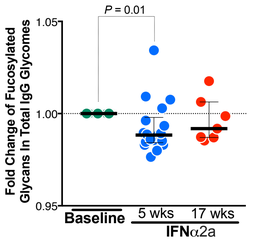


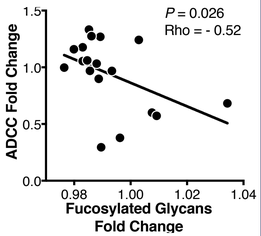
3) IFNα-mediated Reduction of the Anti-ADCC Sialylated Glycans Correlates with IFN-mediated Reduction of Integrated HIV DNA. Wilcoxon Signed-rank test (Medain ±Interquartile range) and Spearman's rank correlation.



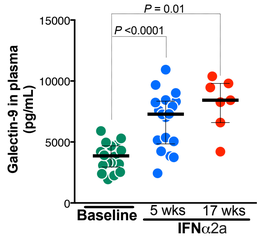


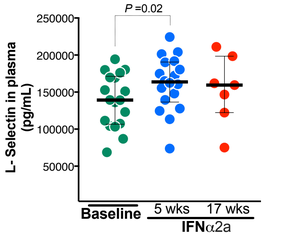
4) IFNα-mediated Reduction of the Anti-ADCC Fucosylated Glycans Correlates with ADCC Activity. Wilcoxon Signed-rank test (Medain ±Interquartile range) and Spearman's rank correlation.





5) IFNα Induces The Levels of Several Soluble Immuno-Modulatory Lectins. Wilcoxon Signed-rank test (Medain ±Interquartile range) and Spearman's rank correlation.





CONCLUSIONS

- **IFNα immunotherapy in HIV-infected individuals on suppressive ART is associated with glycomic alterations, that are known to mediate higher inflammatory responses and ADCC activity.**
- **Our data suggest that host glycan-lectin interactions may mediate signals that inform and/or determine host immune responses to HIV persistence during IFN-α treatment.**
- **We are currently examining the impact of IFNα immunotherapy on cell-surface glycosylation and glycan-lectin interactions.**