<table>
<thead>
<tr>
<th>Assay Category</th>
<th>Assay Description</th>
<th>Blood Cells/Plasma/Serum (B)</th>
<th>Mucosal Secretions (MS)</th>
<th>Mucosal Biopsy/Lysate (MB)</th>
<th>Lymph Node Aspirates (LN)</th>
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</thead>
<tbody>
<tr>
<td>Antibody</td>
<td>Ab binding to Env and specific epitopes</td>
<td>IgG and IgA isotype by Binding Ab Multiplex Assay (BAMA)</td>
<td>V</td>
<td>Q</td>
<td>S</td>
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<td>Ig subclass by Binding Ab Multiplex Assay (BAMA)</td>
<td>Peptide microarray (mapping of linear epitopes)</td>
<td>Q</td>
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<td>FnAb precursor binding/stabilized Env trimer</td>
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<td>Ab binding to viral Env</td>
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<td>Avidity index for IgG1-4, IgA1-2 by BAMA</td>
<td>Polyclonal on-rate (K_a) and off-rate (K_d) dissociation phase area under the curve (AUC) by BLI</td>
<td>Q</td>
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<td>nAb and HIV-1 inhibition</td>
<td>Tier 2 neutralization by TZM-bl</td>
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<td>FcR-binding interactions</td>
<td>FcR engagement: FcyR1, FcyRllab, FcyRllla, FcRa, FcRn (binding by BAMA; avidity by BLI)</td>
<td>S</td>
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<td>ADCC</td>
<td>Infected cell assay (Luc) with NK cells</td>
<td>Q</td>
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<td>Infused mAb</td>
<td>mAb PK levels <em>in vivo</em></td>
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<td>Anti-drug Ab detection</td>
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<td>mAb distribution/localization by IHC</td>
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<td>Antigen-specific by flow cytometry</td>
<td>T-cell frequency based on IL-2/IFN-γ expression by intracellular cytokine staining (ICS)</td>
<td>V</td>
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<td>T-cell polyfunctionality and phenotype including memory, Thf, Treg, exhaustion, NKT &amp; γδ T cells</td>
<td>Q</td>
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<td>Antigen- and epitope-specific B-cell phenotyping by flow cytometry</td>
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<td>Activation induced marker (AIM) assay</td>
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<td>Epitope-specific T-cell characterization and MHC restriction analysis by ICS</td>
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<td>Antigen-specific by ELISpot</td>
<td>T-cell frequency based on IFN-γ expression by ELISpot</td>
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<td>B-cell frequency by ELISpot</td>
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<td>Soluble proteins</td>
<td>Interferon Gamma Release Assay (IGRA): QuantifERON for TB sensitization</td>
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<td>Antigen-specific cytokine expression: Multiplex Protein Detection Assay (MPDA) on MSD platform</td>
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<td>Concentration of soluble factors (e.g., cytokines, antimicrobials, hemoglobin) by MSD or ELISA</td>
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<td>Phenotyping by flow cytometry</td>
<td>Cell population frequencies and concentrations by Trucount</td>
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<td>T, B, NK, DC, myeloid and other cells and markers of interest (e.g., innate, maturation, activation)</td>
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<td>Functional</td>
<td>CD8+ T-cell mediated HIV suppression (VIA), cytotoxicity and avidity</td>
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<td>Proliferative capacity of T cells using CFSE by flow cytometry</td>
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<td>Innate effector cell function (cytokine, degranulation, NK cell cytotoxicity)</td>
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<td>DNA/RNA</td>
<td>Transcriptional profiling of bulk populations or single cells</td>
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<td>T and B cell receptor sequence analysis</td>
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<td>IHC/Histology</td>
<td>Leukocytes, HIV-infected cells, inflammation</td>
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<td>Host genetics</td>
<td>HLA class I &amp; II, KIR, FcR, Ig, etc.</td>
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Sample types: Blood cells/plasma/serum (B) Mucosal secretions (MS) Mucosal biopsy/lysate (MB) Lymph node aspirates (LN)

Validation status: V=validated, Q=qualified, S=standardized * standardization in progress for biopsy lysates