Since HIV was discovered as the causative agent of AIDS almost 30 years ago, HIV infection has become a devastating pandemic, with millions of individuals becoming infected and dying from HIV-related disease every year. A global research effort over the past three decades has discovered more about HIV than perhaps any other pathogen. Immunologists continue to be intrigued by the capacity of HIV to effectively knock out an essential component of the adaptive immune system — CD4+ helper cells. This poster summarizes how HIV establishes infection at mucosal surfaces, the ensuing immune response to the virus involving DCs, B cells and T cells, and how HIV subverts this response to establish a chronic infection. Based on a clearer understanding of HIV infection and the response to it, the field has now entered an era of renewed optimism for the development of a successful vaccine.

**Immunology**

**Breaching the mucosal barrier**

**The DC response to HIV**

- **HIV infection of DC**
- **DC migration**
- **DC activation**
- **DC呈vetation**
- **DC presentation**
- **DC trafficking**
- **DC survival**

**The T cell response to HIV**

- **T cell activation**
- **T cell proliferation**
- **T cell differentiation**
- **T cell exhaustion**
- **T cell apoptosis**

**Amplification in draining lymph nodes**

- **T cell migration**
- **T cell proliferation**
- **T cell differentiation**
- **T cell exhaustion**

**The B cell response to HIV**

- **B cell activation**
- **B cell proliferation**
- **B cell differentiation**
- **B cell exhaustion**

**Broadly neutralizing HIV-specific antibodies**

<table>
<thead>
<tr>
<th>Name of antibody</th>
<th>Source</th>
<th>Target on HIV</th>
<th>Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>2G12</td>
<td>Mouse</td>
<td>Envelope glycoprotein gp120</td>
<td>Neutralizing</td>
</tr>
<tr>
<td>2G12</td>
<td>Human</td>
<td>Envelope glycoprotein gp120</td>
<td>Neutralizing</td>
</tr>
<tr>
<td>3F6 and 4E10</td>
<td>Mouse</td>
<td>Envelope glycoprotein gp41</td>
<td>Neutralizing</td>
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<tr>
<td>3F6 and 4E10</td>
<td>Human</td>
<td>Envelope glycoprotein gp41</td>
<td>Neutralizing</td>
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<tr>
<td>92F22 and 92F22</td>
<td>Mouse</td>
<td>Envelope glycoprotein gp120</td>
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<tr>
<td>92F22 and 92F22</td>
<td>Human</td>
<td>Envelope glycoprotein gp120</td>
<td>Neutralizing</td>
</tr>
</tbody>
</table>

**Cell isolation solutions for HIV research**

STEMCELL Technologies offers a complete portfolio of fast and easy cell isolation solutions for HIV research, or to request a sample or demonstration, visit www.stemcell.com/hiv-immunology-research.

*N.B. thanks D. Frleta for his review and contributions to the poster.*

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**Supplementary text and further reading available online.**