

## Monoclonal Antibodies to Fusion-Active Conformations of HIV-gp41

### Technology Summary

The human immunodeficiency virus type 1 (HIV-1) gp41 transmembrane subunit plays an important role in facilitating HIV entry into target cells. The gp41 subunit comprises a coiled coil domain that undergoes refolding into a six-helix bundle that promotes fusion between the virus envelope glycoprotein (Env) and host cell membranes. Peptides that target the six-helix bundle conformational state of gp41 can potentially inhibit HIV entry.

**FDA researchers identified three monoclonal antibodies, 2F12, 9C5, and 11B8 that recognize the six-helix bundle conformational state of gp41.** These monoclonals can be used in high-throughput screening (HTS) assays to identify inhibitors of HIV infection. These antibodies can serve as valuable tools to screen for new drugs with robust activity against HIV strains resistant to currently available antiretroviral drugs.

### Potential Commercial Applications

- Use in high-throughput screening assays to identify novel HIV-1 inhibitors

### Competitive Advantages

- Monoclonal antibodies unique target can help identify anti-retrovirals with a unconventional mechanism of action

**Inventors:** Carol Weiss, Russell Vassell

### Publications:

“Human immunodeficiency virus (HIV) gp41 escape mutants: cross-resistance to peptide inhibitors of HIV fusion and altered receptor activation of gp120.” *J. Virol.* 2005 Apr. 79(8): 4774-81 PMID: [15795263](#)

“Selection with a peptide fusion inhibitor corresponding to the first heptad repeat of HIV-1 gp41 identifies two genetic pathways conferring cross-resistance to peptide fusion inhibitors corresponding to the first and second heptad repeats (HR1 and HR2) of gp41.” *J. Virol.* 2011 Dec. 85(24): 12929-38 PMID: [21994458](#)

**Product Area:** Tangible research product; monoclonal antibody; hybridoma

**FDA Reference No:** E-2007-011

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