HIV, the virus responsible for AIDS, is estimated to infect 50,000 people each year in the United States, with approximately 1.2 million individuals currently living with HIV. Although HIV infection can be managed effectively through the long-term administration of a multiple-drug cocktail, drugs that can block infection or inhibit disease progression are still highly desirable. HIV infection proceeds through the interaction of gp120, a protein on the virus’s surface, and CD4, a receptor protein on the surface of T cells of the immune system. This technology provides compounds that can block this interaction, thereby blocking HIV infection of CD4+ T cells without the harmful side effects observed with compounds that work via similar pathways.

Targeting the gp120-CD4 interaction blocks a major route of HIV infection with higher effectiveness and fewer side effects than competing products

Interaction of gp120 with CD4 causes gp120 to change shape, allowing for further interactions with other T cell surface proteins that ultimately allow the virus to invade. During this interaction, the formation of a small pocket around the 43rd residue of CD4 (the “Phe 43 cavity”) is crucial to the tight binding of gp120 and CD4. This technology provides compounds that can target the Phe 43 cavity, effectively blocking an infectious interaction between gp120 and CD4. These compounds can be used for treatments that inhibit both transmission and progression of HIV infection. Additionally, the compounds described by this technology show notable improvements in effectiveness over other known antivirals. Furthermore, in contrast to other compounds that target the gp120-CD4 interaction, these compounds do not activate HIV infection of CD4- T cells, a major deleterious side effect of compounds such as NBD-556.

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Applications:
• Prevention of HIV infection
• Prevention of HIV disease progression
• Treatment of HIV infection

**Advantages:**

• Targeted therapy
• Higher antiviral activity than comparable therapies
• Eliminates harmful side effects associated with comparable therapies

**Patent Information:**


Tech Ventures Reference: IR CU16332

**Related Publications:**

**Inventors**

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