



FUSION AND ATTACHMENT INHIBITORS

NOTE: several fact sheets describe drugs that are being tested against HIV:

- Fact sheet 410: nucleoside analog reverse transcriptase inhibitors (nukes)
- Fact sheet 430: non-nucleoside analog reverse transcriptase inhibitors (NNRTIs or non-nukes)
- Fact sheet 440: protease inhibitors
- Fact sheet 460: attachment and fusion inhibitors
- Fact sheet 480: immune therapies

These drugs have not been approved by the Food and Drug Administration (FDA) for use against HIV.

ATTACHMENT AND FUSION INHIBITORS

This is a new class of anti-HIV drugs. They are intended to protect cells from infection by HIV by preventing the virus from attaching to a new cell and breaking through the cell membrane. Researchers hope that these drugs can prevent infection of a cell by either free virus (in the blood) or by contact with an infected cell.

Because digestive acids break them down, most of these drugs are given by injections or intravenous infusion.

AK602 is a CCR5 blocker being developed by Kumamoto University in Japan. It is in early human trials.

BMS-663068 is an attachment inhibitor that attaches to the CD4 receptor, the first step in attachment. Good results in Phase IIa trials were reported at CROI 2011.

GSK 706769 by ViiV Healthcare is a new CCR5 antagonist in Phase I trials.

HGS004 by Human Genome Sciences, a monoclonal antibody CCR5 blocker, successfully completed a Phase II trial.

Ibalizumab (TNX-355) by TaiMed Biologics blocks the CD4 receptor. It is a genetically engineered drug, a "monoclonal antibody." It is being studied as an intravenous infusion every two or four weeks. It is administered along with antiretroviral medications. No significant side effects have shown up yet. It is in Phase II trials.

INCB9471 by Incyte Corporation has successfully completed Phase II trials in healthy volunteers. It has shown very good tolerability. However, Incyte will not conduct further studies. It will license the drug to another company and will stop working in HIV.

PF-232798 by ViiV Healthcare is a CCR5 blocker. It is in Phase II trials.

PRO 140 by Progenics is now in Phase II trials. It blocks fusion by binding to a receptor protein on the surface of CD4 cells. PRO 140 has been granted fast-track status by the FDA. It is being studied as an intravenous infusion and by subcutaneous injections.

SCH532706 by Schering is in Phase I studies. It is best used as part of a regimen that includes ritonavir where it can be administered once daily.

SP01A by Samaritan Pharmaceuticals is an HIV entry inhibitor in a Phase III trial.

Genicriviroc (TBR-652) by Tobira Therapeutics (formerly TAK-652 by Takeda) is a CCR5 blocker. It is in Phase II trials.

VCH-286 by ViroChem Pharma is a CCR5 antagonist. A Phase II trial has received regulatory approval.

VIR-576 by Viro Pharmaceuticals showed good results in a Phase I trial. It is very expensive to produce and the present formulation is administered intravenously.

DRUGS NO LONGER IN DEVELOPMENT

The following drugs are no longer being developed for use against HIV:

AMD070 (CXCR4 blocker) by AnorMed

AMD3100 (fusion inhibitor) by AnorMed

Aplaviroc (GW873140) by GlaxoSmithKline. Development was suspended due to liver toxicity.

BMS488043 and BMS806 (attachment inhibitors by Bristol-Myers Squibb, replaced by BMS378806

FP21399 (CCR5 blockers) by Fuji Pharmaceuticals

PRO542 by Progenics is no longer being developed. Instead, Progenics is focusing on PRO140.

T-1249 (fusion inhibitor) by Roche and Trimeris – development was halted in early 2004.

TAK-652 by Takeda is now being developed by Tobira Therapeutics as TBR-652.

Vicriviroc (SCH 417690, formerly called Schering D) was discontinued in 2010.

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