Cyanovirin-N

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Drug Description

Cyanovirin-N (CV-N) is an 11-kDa protein from the cyanobacterium Nostoc ellipsosporum (blue-green algae). The protein exists as either a quasi-symmetric two-domain monomer or a domain-swapped dimer. [1]

HIV/AIDS-Related Uses

CV-N is an HIV fusion inhibitor with activity against both HIV-1 and HIV-2 in vitro and in animal models. It is being studied as a microbicide to prevent the sexual transmission of HIV.[2]

Non-HIV/AIDS-Related Uses

CV-N has potent in vitro activity against almost all strains of influenza A and B virus. CV-N is moderately active in vitro against some herpes viruses and is potentially active against hepatitis C virus.[3]

In vitro and in mouse models, CV-N was active against the Zaire strain of the Ebola virus.[4]

Pharmacology

CV-N binds to certain high-mannose oligosaccharides (oligomannose-8 and oligomannose-9) on gp120. This unique and effectively irreversible interaction renders gp120 incapable of mediating virus-to-cell or cell-to-cell fusion.

CV-N's anti-HIV effects are expressed within the general timescale of initial binding and/or fusion process. Studies suggest that CV-N's antiviral effects against intact virus manifest after the initial virus-to-cell attachment phase, but prior to the completion of viral entry.[5] [6]

Clinical Trials

For information on clinical trials that involve Cyanovirin-N, visit the ClinicalTrials.gov web site at http://www.clinicaltrials.gov. In the Search box, enter: Cyanovirin-N AND HIV Infections.

Chemistry

CAS Number: 184539-38-6[7]

Other Names

CV-N Protein[8]

CV-N[9]

Further Reading

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Giomarelli B, Provvedi R, Meacci F, Maggi T, Medaglini D, Pozzi G, Mori T, McMahon JB, Gardella R, Boyd MR. The microbicide cyanovirin-N expressed on the surface of commensal bacterium Streptococcus gordonii captures HIV-1. AIDS. 2002 Jul 5;16(10):1351-6.

Chang LC, Bewley CA. Potent inhibition of HIV-1 fusion by cyanovirin-N requires only a single high affinity carbohydrate binding site: characterization of low affinity carbohydrate binding site knockout mutants. J Mol Biol. 2002 Apr 19;318(1):1-8.

Manufacturer Information

Cyanovirin-N
Biosyn, Inc.
1800 Byberry Road, Building 13
Huntingdon Valley, PA 19006-3525

For More Information

Contact your doctor or an AIDSinfo Health Information Specialist:

Cyanovirin-N

For More Information (cont.)

• Via Phone: 1-800-448-0440 Monday - Friday, 12:00 p.m. (Noon) - 5:00 p.m. ET

• Via Live Help: http://aidsinfo.nih.gov/live_help Monday - Friday, 12:00 p.m. (Noon) - 4:00 p.m. ET

References

1. Cell Mol Life Sci - 2003 Feb;60(2):277-87.

2. Biosyn, Inc - Available at http://www.biosyn-inc.com/. Accessed 10/21/03.

3. Antimicrob Agents Chemother - 2003 Aug;47(8):2518-25.

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8. ChemIDplus. - Available at: http://chem.sis.nlm.nih.gov/chemidplus/. Accessed 10/21/03.

9. Biosyn, Inc - Available at: http://www.biosyn-inc.com. Accessed 10/21/03.