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HIV-1进攻靶细胞的机制及相应环节抑制剂

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HIV-1是导致获得性免疫缺陷综合症(AIDS)的流行最广、破坏力最强的病毒。HIV-1分两个步骤特异性地进攻$CD4^+$细胞:一是利用表面糖蛋白gp120和靶细胞膜上的受体结合;二是通过跨膜糖蛋白gp41使病毒的包膜和靶细胞的质膜发生融合。经过上述步骤,病毒的核心蛋白和遗传物质得以进入人体细胞,在其中进行复制,同时,细胞膜的稳定性被破坏,细胞的内外环境失去平衡,最终导致细胞死亡。HIV-1进攻靶细胞的机制研究所取得的成就为研制安全有效的抗HIV/AIDS药物提供了新的思路和方向。

ADVANCES IN MECHANISMS OF HIV-1 ATTACKING HOST CELLS AND INHIBITORS IN RELATED STEPS

HIV-1 is the most popular and destructive virus that causes Acquired Immunodeficiency Syndrome (AIDS). HIV-1 attacks $CD4^+$ cells specifically by two steps: 1. binding to the receptors on the target cell membranes by viral surface glycoprotein gp120; 2. fusing with the plasma membrane through the transmembrane glycoprotein gp41. After these two steps, the viral nucleoproteins and genetic materials are injected into the target cell and replicated in it. The cell membrane stability is disrupted. The inner and outer environments of cells lose balance, and lead to the death of cells. These acquired achievements of studying the mechanism of HIV-1 attacking target cells provide us with new ideas for exploiting effective anti-HIV/AIDS drugs.

关键词

HIV-1; 进攻机制(Mechanism of viral attacking); 抑制剂(Inhibitor)