

3D structure of HIV is discovered

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Scientists say the 3D structure of the human immunodeficiency virus, which causes AIDS, has been determined for the first time.

The variable size and shape of HIV has made it hard to map, so the British-German research team took hundreds of images of virus, which is 60 times smaller than red blood cells, and then used a computer program to combine them.

Oxford University Professor Stephen Fuller told the BBC: "You say can you show me the structure of the HIV virus and the question is which one. HIV is very variable. It varied in diameter by a factor of three."

Despite the variability, the team found some consistent features, including the finding the core of virus spans the width of the viral membrane. But there are spikes on the outside that bind to human immune cells and allow the virus to invade them.

The scientists told the BBC whereas most viruses have internal structures that define their size, in the HIV virus it's the membrane that defines the size. They say that fact might lead to more effective therapeutic approaches.

The study is described in the journal *Structure*.

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