

## **AZT Blocks Reverse Transcriptase**

Transcript HHMI BioInteractive

So if you look at reverse transcriptase you see that HIV RNA is reverse transcribed into a growing strand of DNA. You have the purple nucleotides coming in, building on the DNA and the yellow molecules are RNA that's being degraded. So what happens when reverse transcriptase is inhibited by AZT? So here you have reverse transcriptase, and you have the HIV RNA coming in, the nucleotides getting built on so that you have the growing DNA strand, but then you see these green molecules. So the green molecule is AZT and here we can compare it side to side with thymidine. So again you're seeing an azide side chain on the AZT and a hydroxyl side chain on the thymidine. And of note, both are triphosphorated before they're incorporated. So here you see AZT coming in and reverse transcriptase thinks it's a nucleotide. It incorporates, chain termination ensues, and the life cycle is disrupted.