

# I'm a Virus!

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Glenn Wolkenfeld © 2012

I'm a virus, an infectious particle,  
a nano-thug, a pirate, the genuine article  
Ebola, chickenpox, west Nile, influenza,  
Yellow fever, AIDS, herpes, SARS, I'm comin' right at ya

I'm not a cell, not an independent organism,  
I don't even have my own metabolism,  
I only reproduce myself by taking over cells,  
Then I bust 'em apart, no wonder you don't feel well!

My structure is simple, mostly proteins and genes,  
Packaged as a sub-micron killing machine,  
My capsid's made of capsomeres that self assemble,  
Whenever cells see me they start to tremble,

Inside my capsid is where my genes reside,  
I got DNA or RNA on the inside,  
And the rest of me is various proteins whose role,  
Is assisting in assaulting cells and taking control.

## CHORUS

I'm a virus! Gonna use your cells to replicate me  
I'm a virus! The death of your cells is the life of me

The lytic cycle shows one method of attack,  
I attach to the cell surface, and pierce it like a tack  
Inject my genes inside, use my victim's machinery,  
to make my genes and proteins for reproducing more of me.

Step 1, tail fibers grab the membrane or the wall  
2: inject my genes, this cell is gonna fall.  
3: use the victim's polymerase and ribosomes,  
To synthesize my proteins and replicate my genome.

4: tail piece and capsid self assembly,  
5: I'm all together now, look at all my progeny  
6 is lysis, I burst that cell apart,  
Now I'm looking for more victims I can dearly depart.

## CHORUS

Sometimes instead of lysing I lysogenize  
Which happens after I inject my genes inside  
I slip into your chromosome a thief inside your room  
A menacing and silent presence bringer of doom

Integrated in you, your DNA's my home,  
And see what happens when you replicate your chromosomes  
Each copy that you copy copies me as well as you,  
You might make a million copies, there's nothin' you can do

My lurking hiding being's called a prophage or provirus,  
And if you got another name just call us or wire us,  
Or write it on papyrus 'til the moment that I emerge,  
from your DNA I'm lytic now a cell destroying scourge.

And suddenly your cells are dying watch me as I lyse them,  
I'm a pirate so forget your plans my program now denies them,  
Your cells are virus factories they're making millions more of me  
I leave your cells and now I'm free Infecting you's my destiny

## CHORUS

Now meet my associate the virus HIV  
Who's helpless target is the cell called "T"  
HIV causes immunodeficiency,  
Raising cancer and infection vulnerability

Remember that the T's an essential cell  
In the immune system army it's the general  
So knocking out the T-cell sets the stage  
For cancers, germs and viruses like me to invade!

HIV's genes are made of RNA,  
Outside its capsid's a phospholipid membrane,  
A skin stolen from the cell it last dispatched,  
studded with proteins that let it attach,

To a protein on the T-cell called CD4  
Inducing that cell to open up its door,  
Inviting in HIV's enzymes and core,  
That T-cells already done for.

HIV's a retrovirus it's next routine,  
has to do with transforming its RNA genes  
Reverse transcriptase takes its RNA  
And reverse transcribes it into DNA

Then this DNA integrates into your chromosomes,  
Like a lysogenic prophage in your genome.  
This proviral DNA's transcribed and translated  
As new virus genes and proteins get created

And like any virus all those parts will self assemble,  
Into new viruses which of course resemble,  
the original particle which started the infection,  
Acquired by sex, or a needle injection

## CHORUS