The private nuclear rooms of herpesviruses

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Researchers from Princeton University have discovered why, despite being bombarded by many different herpesviruses, infected cells produce only a limited number of those viruses. They report their findings in the current issue of the online journal *mBio*.

Herpes viruses are very effective at deploying a host's cellular machinery to do their bidding. Once they infect a cell they begin to replicate their DNA inside distinct foci within the cell's nucleus known as replication compartments.

In the study the researchers explain that it's because replication compartments are like little private rooms: each one only contains one kind of viral genome. Using mixtures of isogenic pseudorabies viruses that express three different fluorescent proteins, the authors determined that each replication compartment probably initiates from a single incoming viral genome. Only a few types of viruses come out of a lysed cell because only a few viruses create replication compartments.

"Previously we described a method to estimate the average number of virus genomes expressed in an infected cell," write the researchers. "We found that fewer than seven herpesvirus genomes can be expressed and replicated. Here we have expanded and improved upon our method and demonstrated that the phenomenon of limited genome expression is independent of the recombinants used. We correlated the small number of genomes expressed to the limited number of replication compartments by demonstrating that most replication compartments originate with a single genome."

More information: mbio.asm.org/content/2/6/e00278-11

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