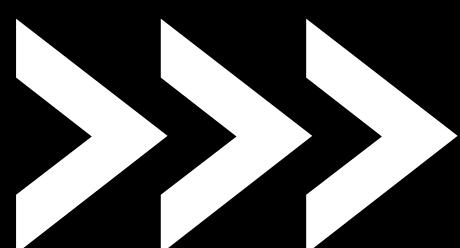




Viral Genomes

Aryss, Claire, and Yumna



viruses.csv

Thank you to the National Center for Biotechnology Information (NCBI)!

The data contains information about virus names, groups, genome size, number of genes, hosts, and GC%.



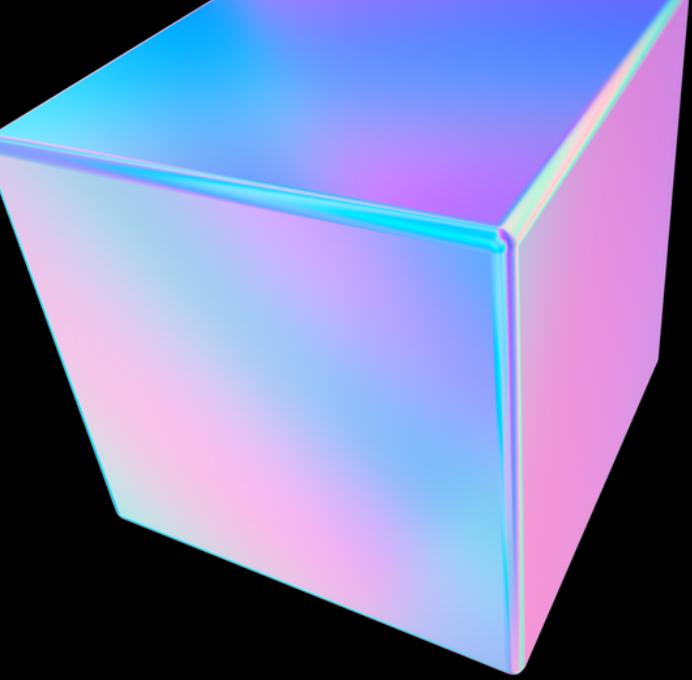
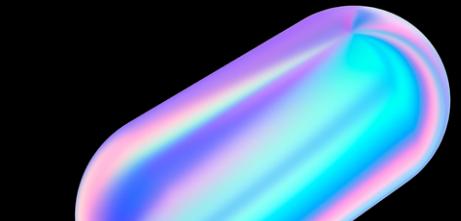
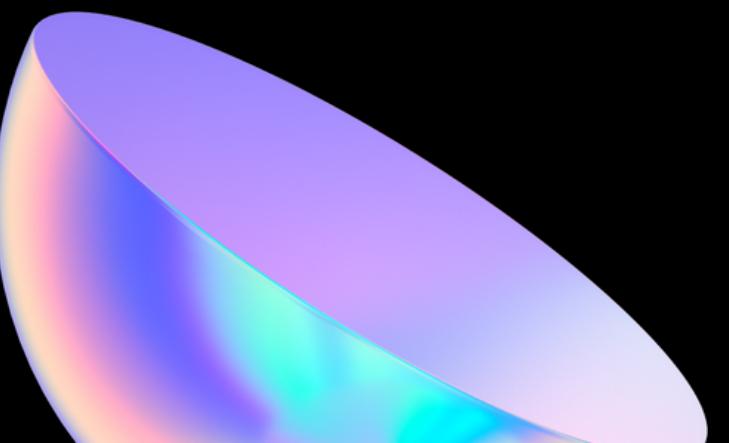
Genome Size and Hosts

QUESTION:

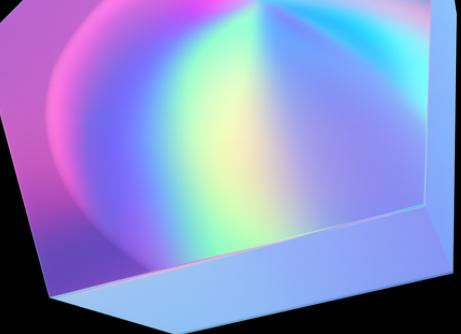
Is there a relationship between a virus' genome size and the number of hosts it can infect, and the types of host?

HYPOTHESIS:

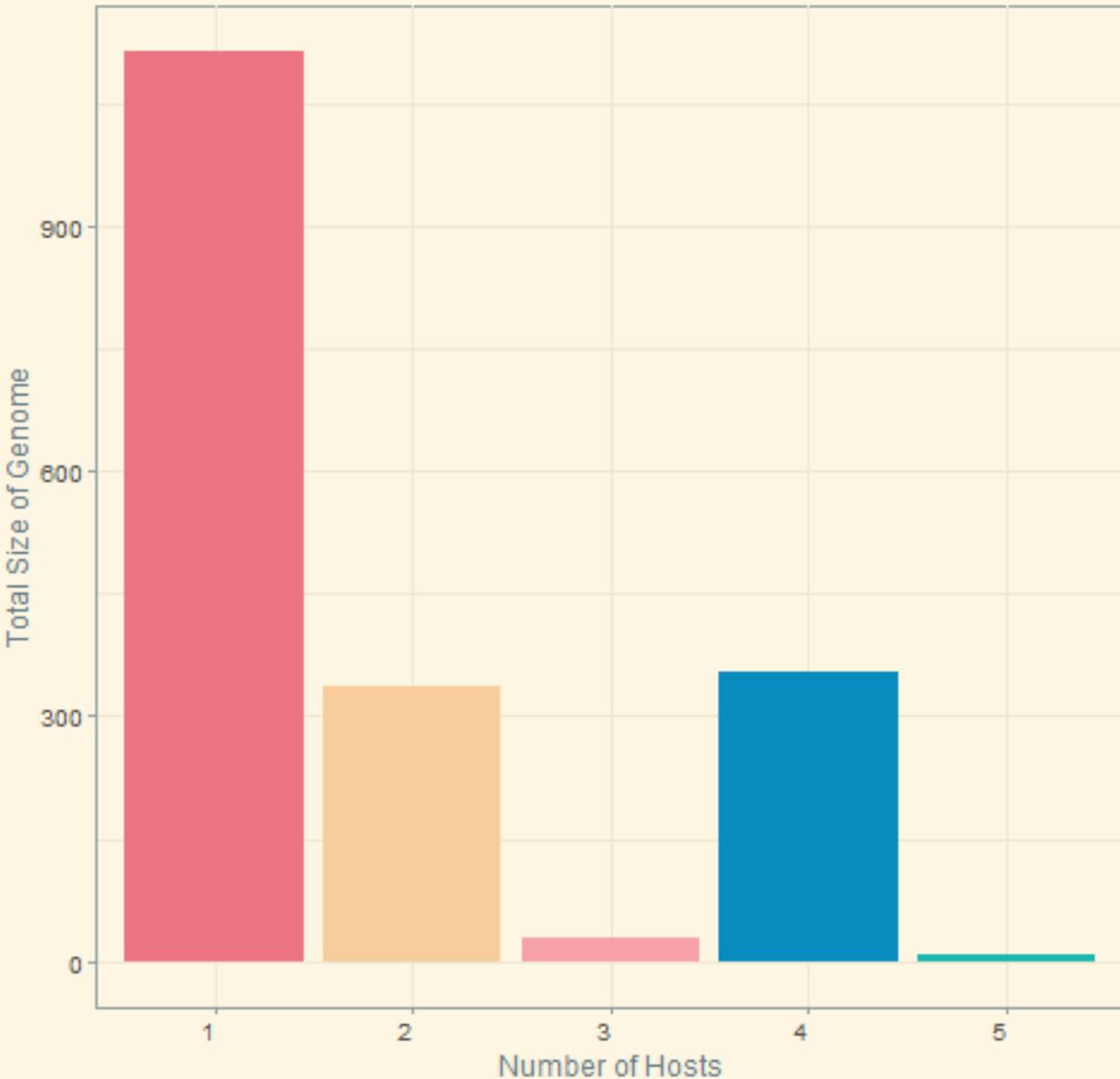
As the number and average size of genes increase, the number of hosts a virus can infect increase.



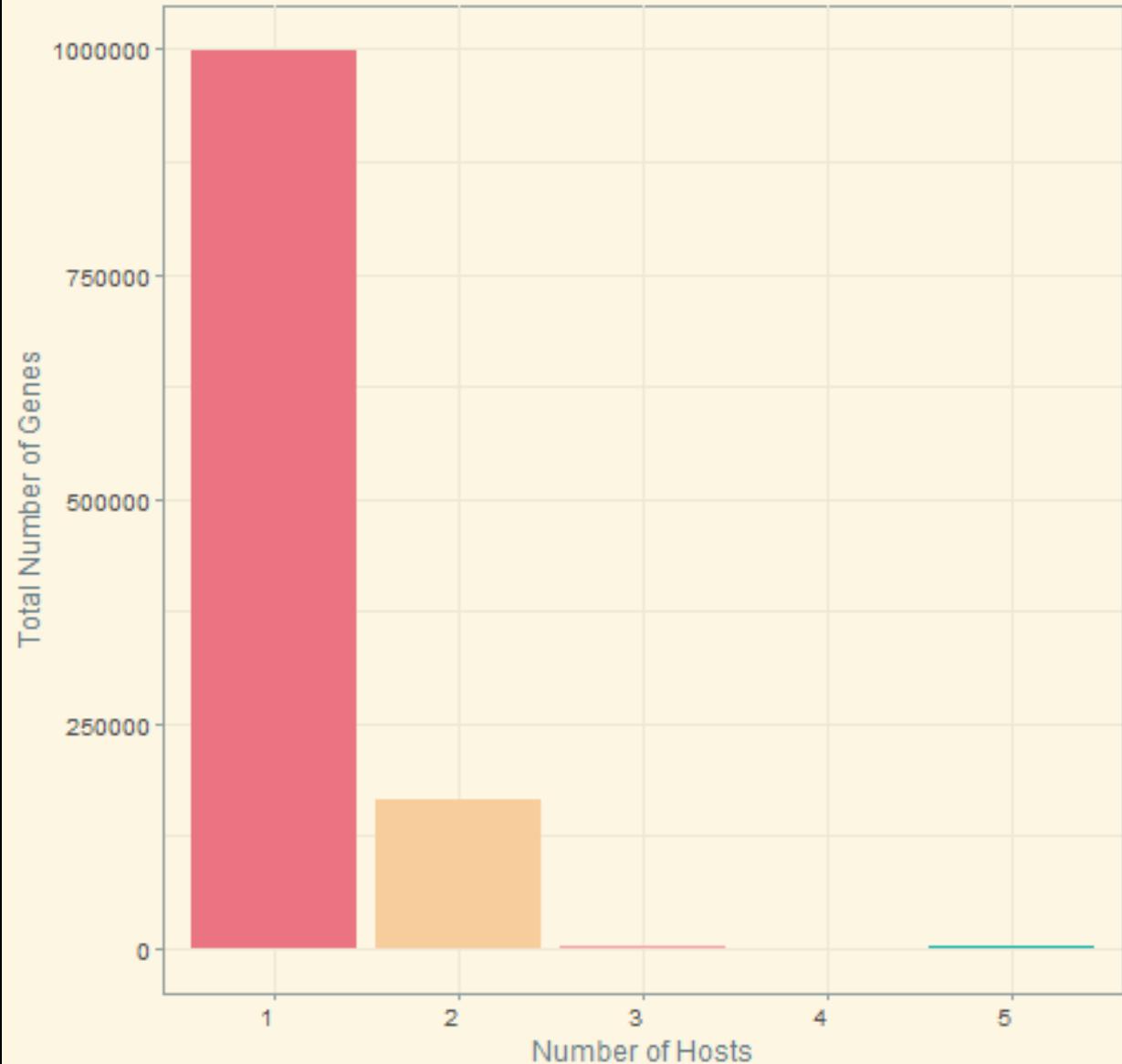
Genome Size and Hosts



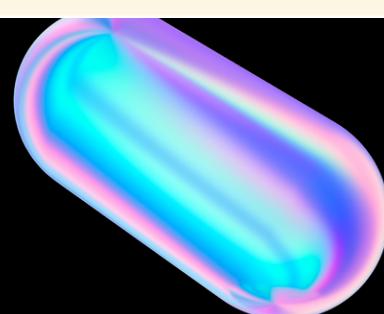
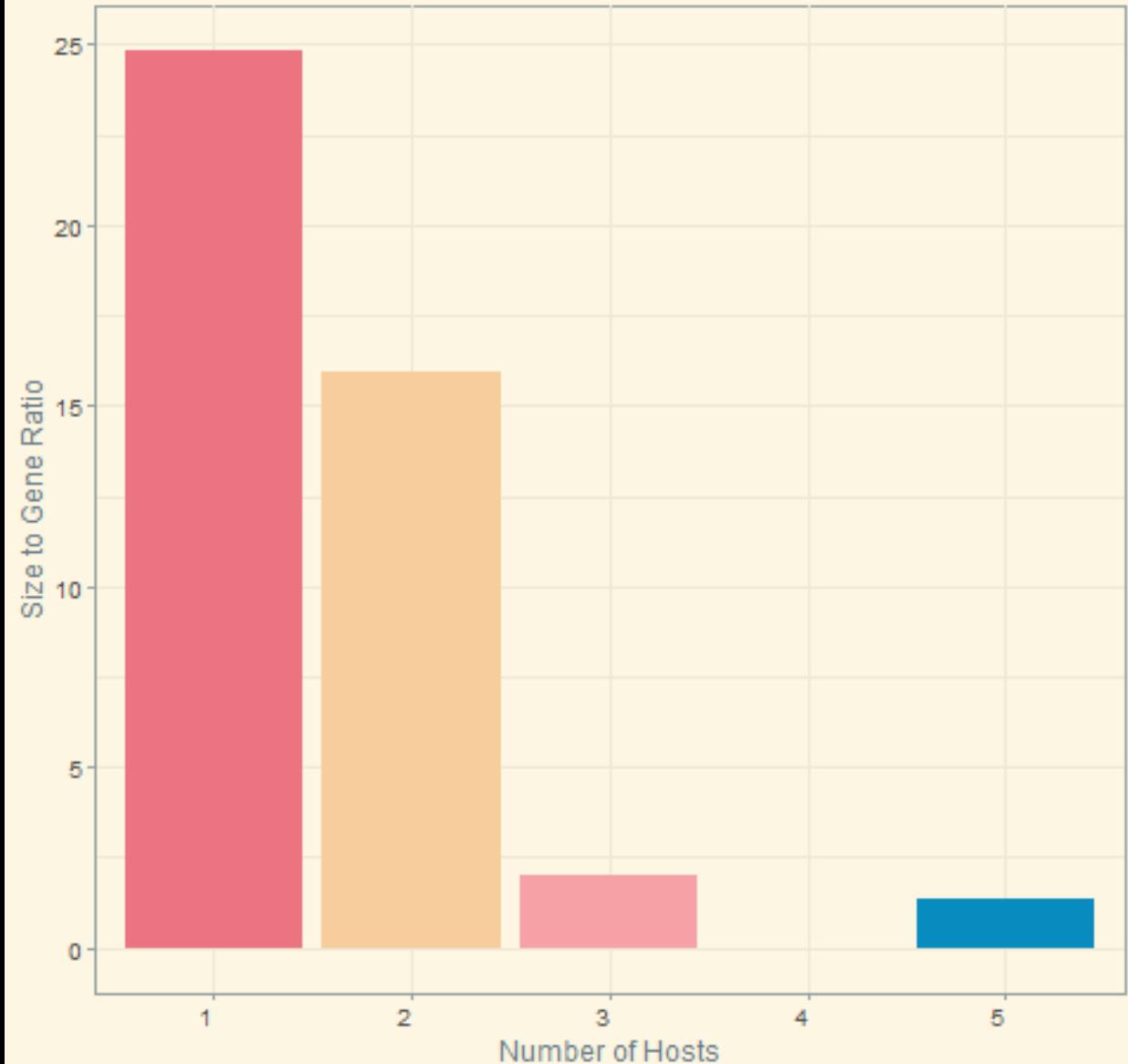
Number of Hosts vs Total Size of Genome



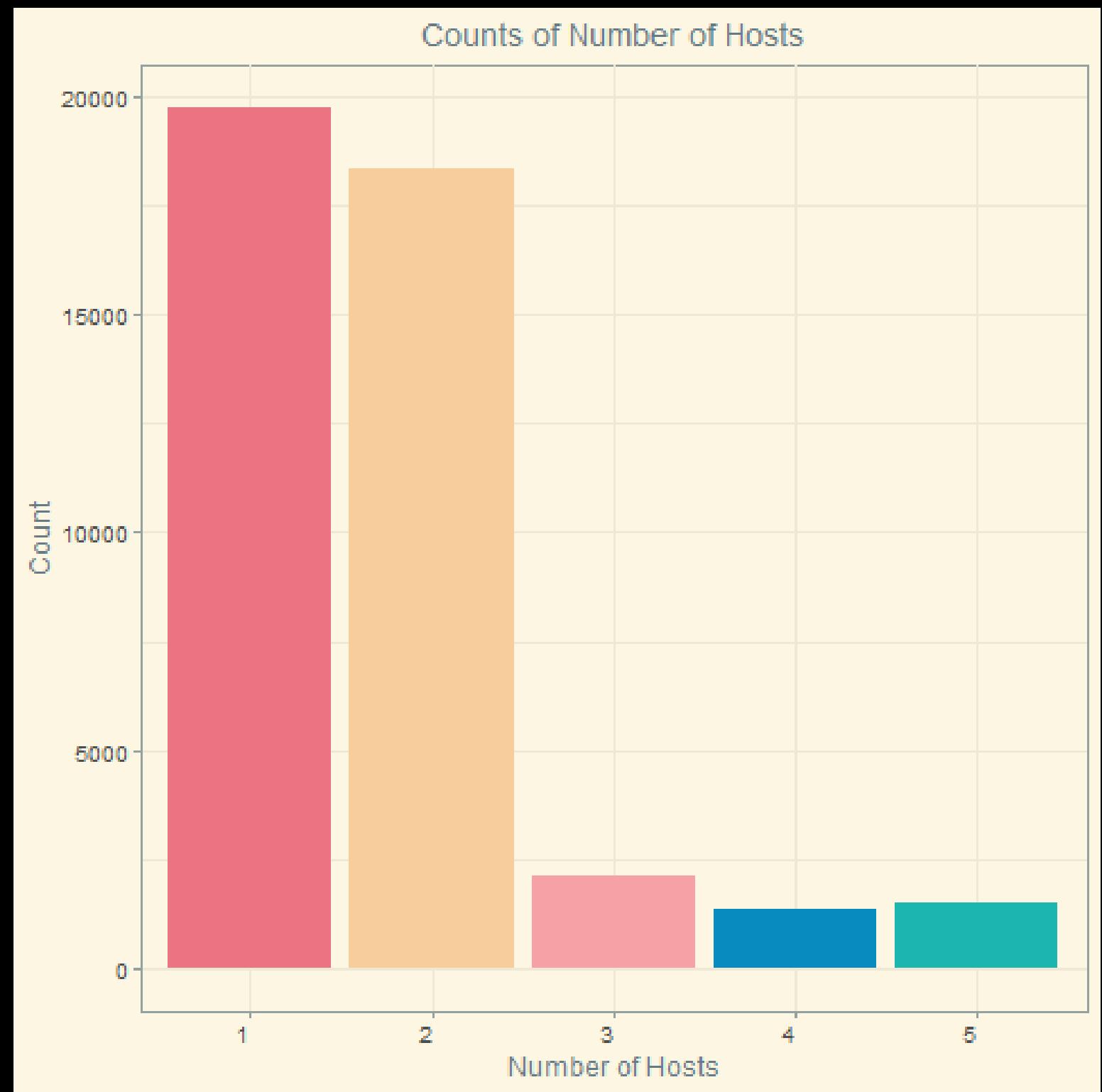
Number of Hosts vs Total Number of Genes



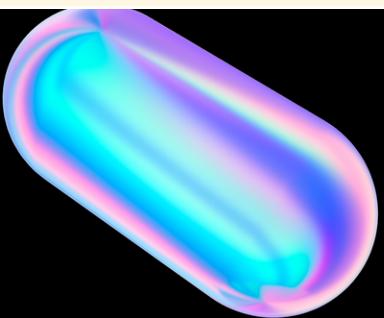
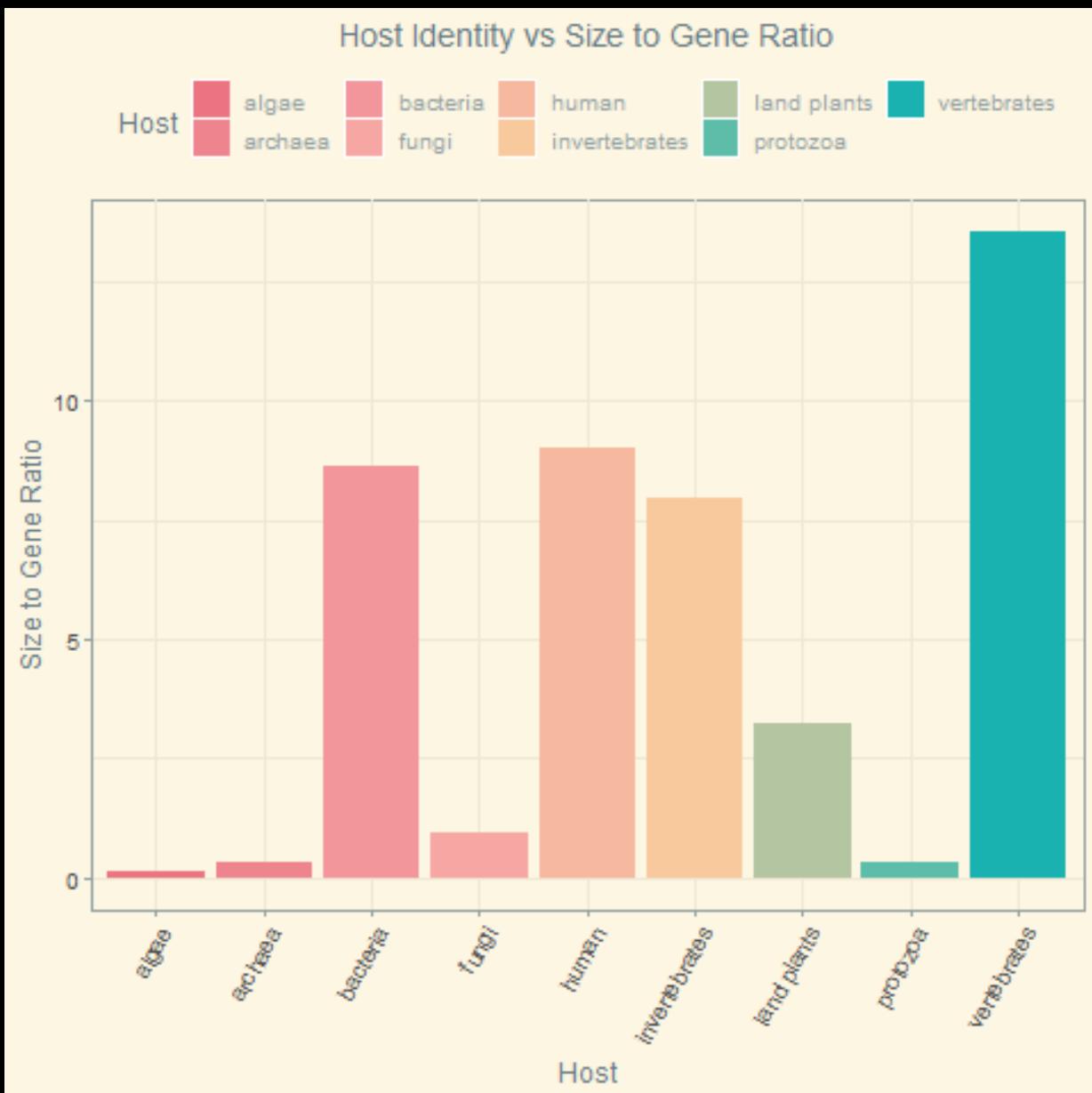
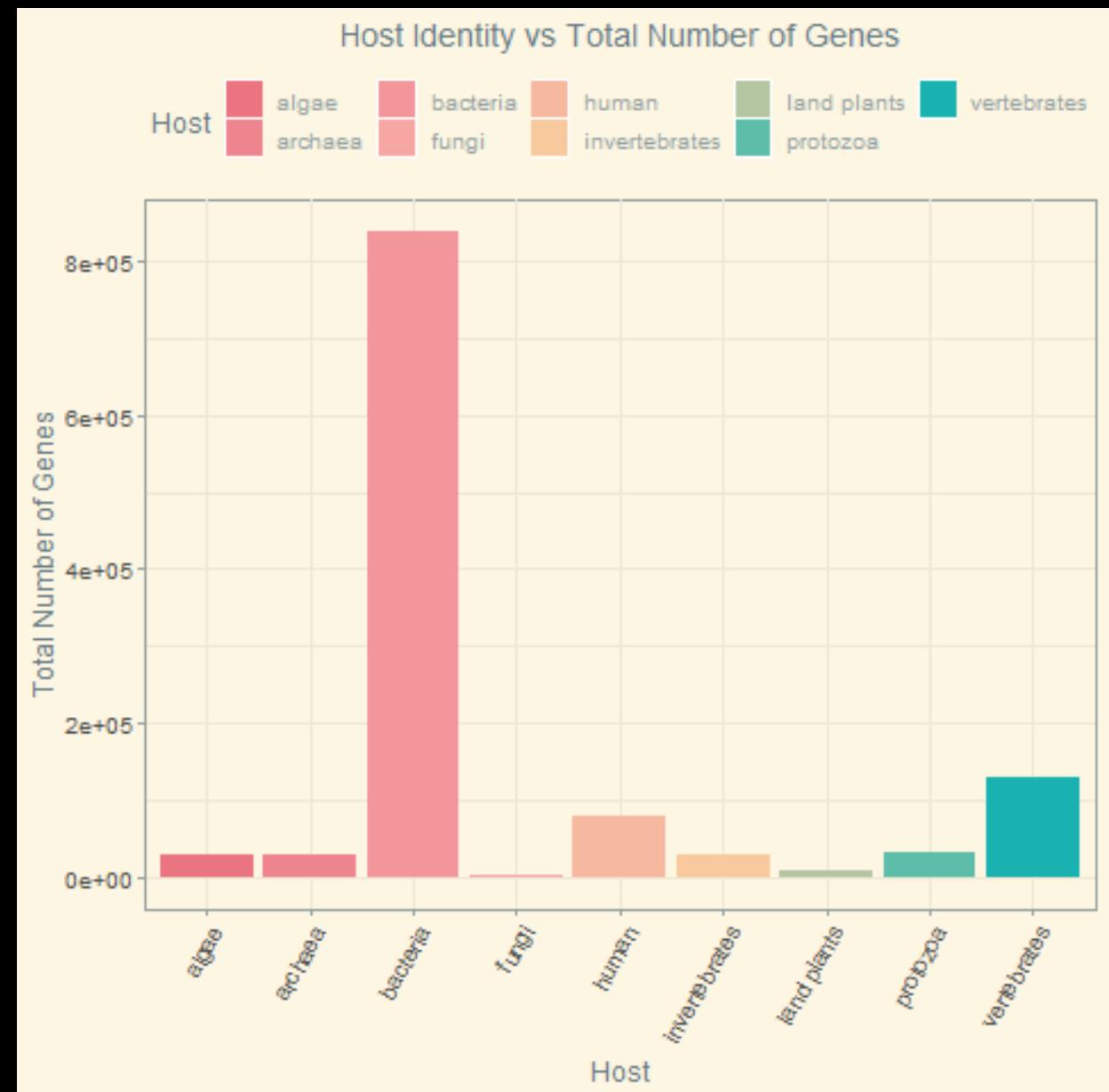
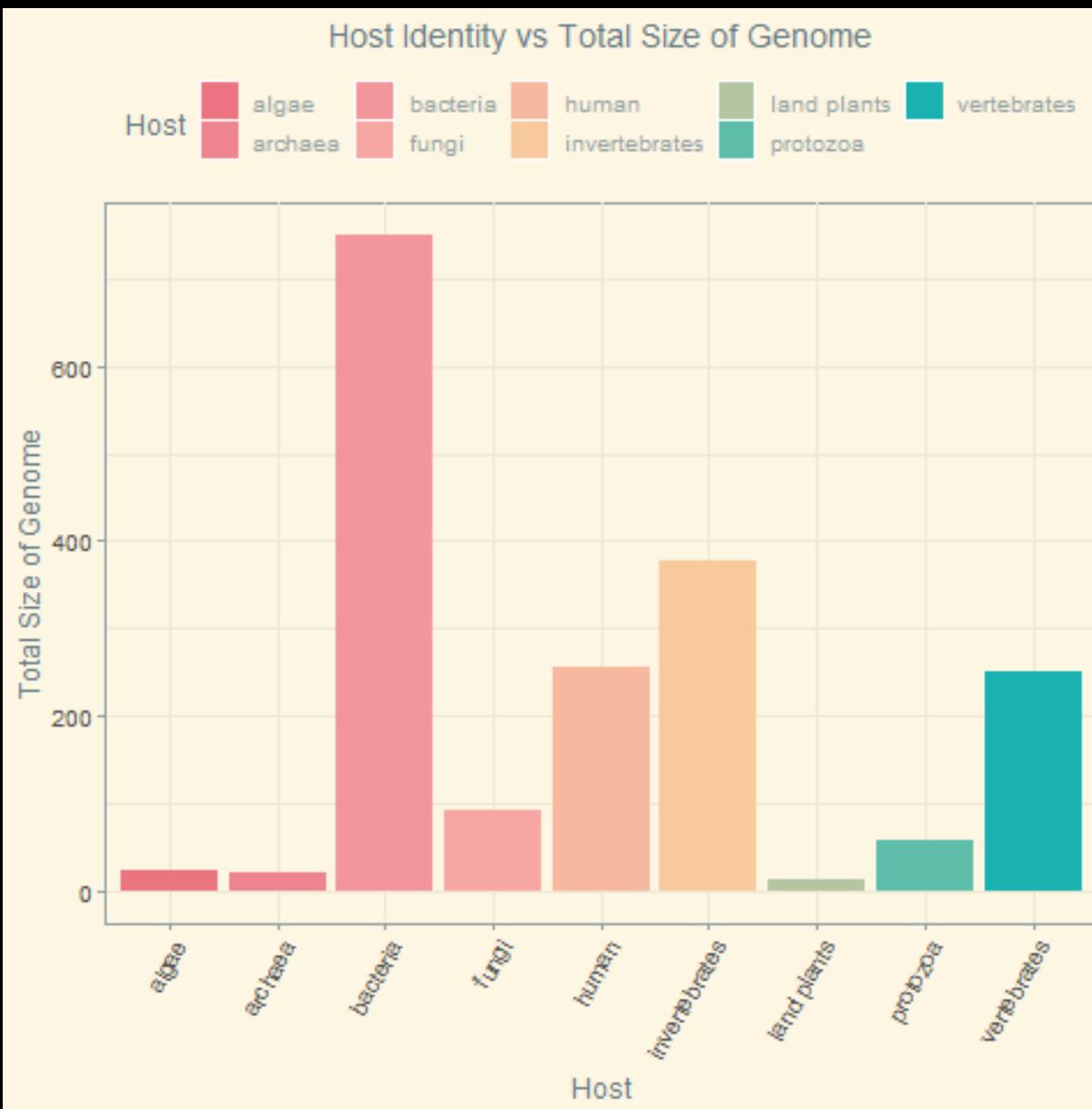
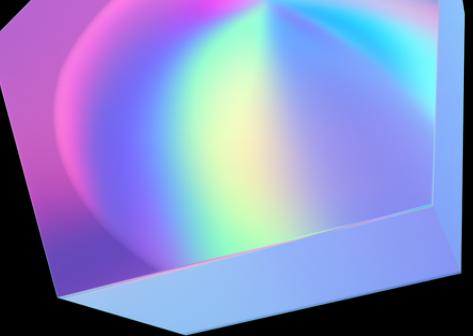
Number of Hosts vs Size to Gene Ratio



Genome Size and Hosts

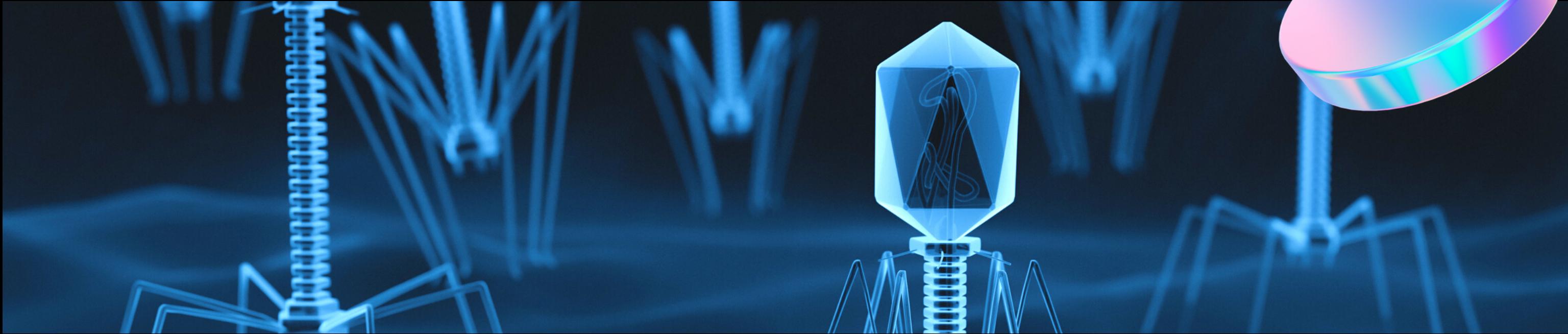


Genome Size and Hosts

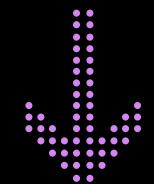


QUESTION

Do (land) plant-invading viruses have a larger genome than human invading-viruses?



Hypothesis:
Yes (?)

Because... 

What?	Stage Name	Genome Size	Edible?
HUMANS	<i>H. SAPIENS</i>	3100 MBP	0/10 NOPE
CORN	<i>Z. MAYS</i>	2.3 GBB	10/10
SUNFLOWER	<i>H. ANNUS</i>	2.6 GBB	5/10 NEED H2O
PERSIMMON	<i>D. OLEIFERA</i>	849.53MB	10/10 BEST FRUIT FIGHTME
WATERMELON	<i>C. LANATUS</i>	425 MBP	10/10 CRUNCHY WATER
HEMP	<i>C. SATIVA</i>	820 MBP	10/10 IN THIS ECONOMY!?
LETTUCE	<i>L. SATIVA</i>	2.5 GBB	10/10 CRUNCHY WATER PT 2
NIGHTSHADE	<i>S. COMMERSONII</i>	838 MBP	0/10 NOPENOPE NOPE

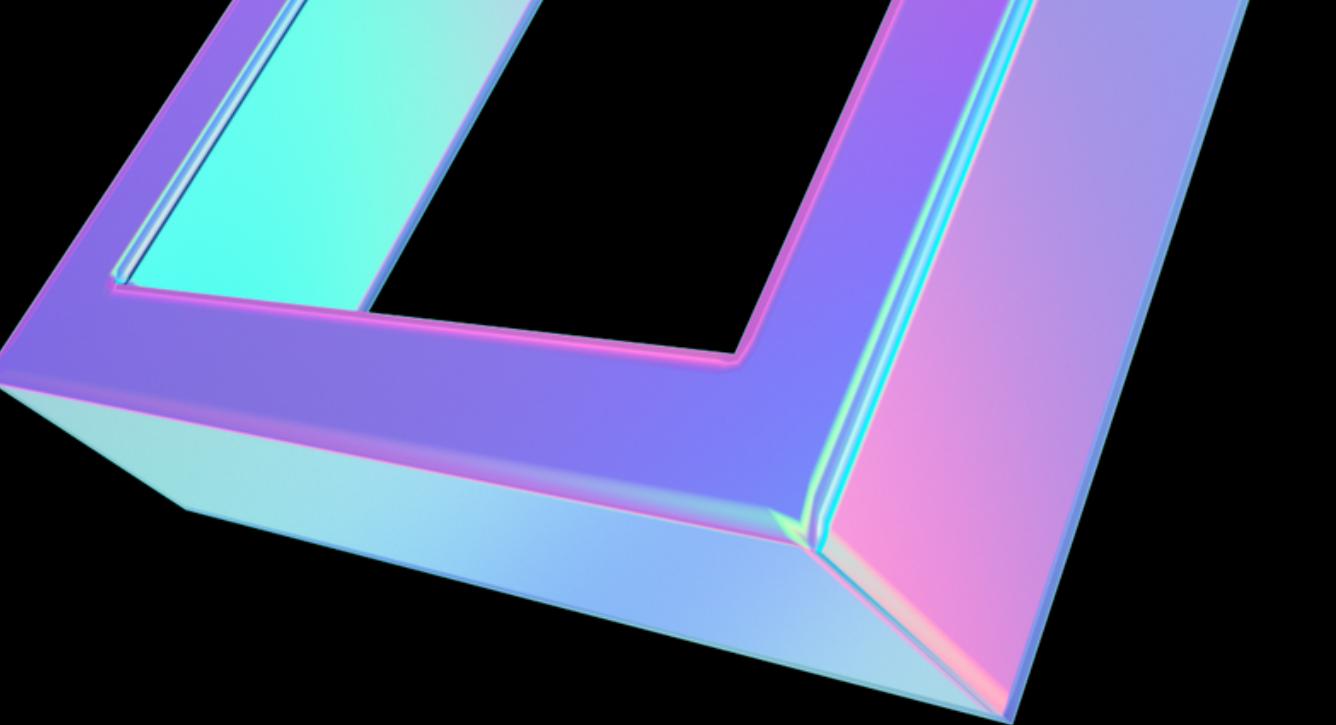
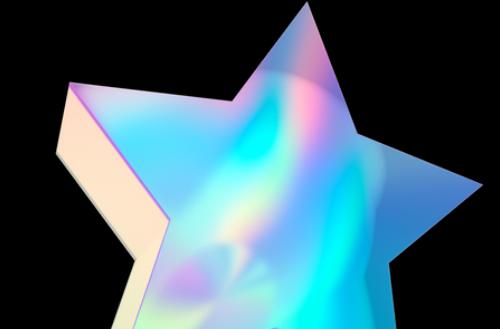
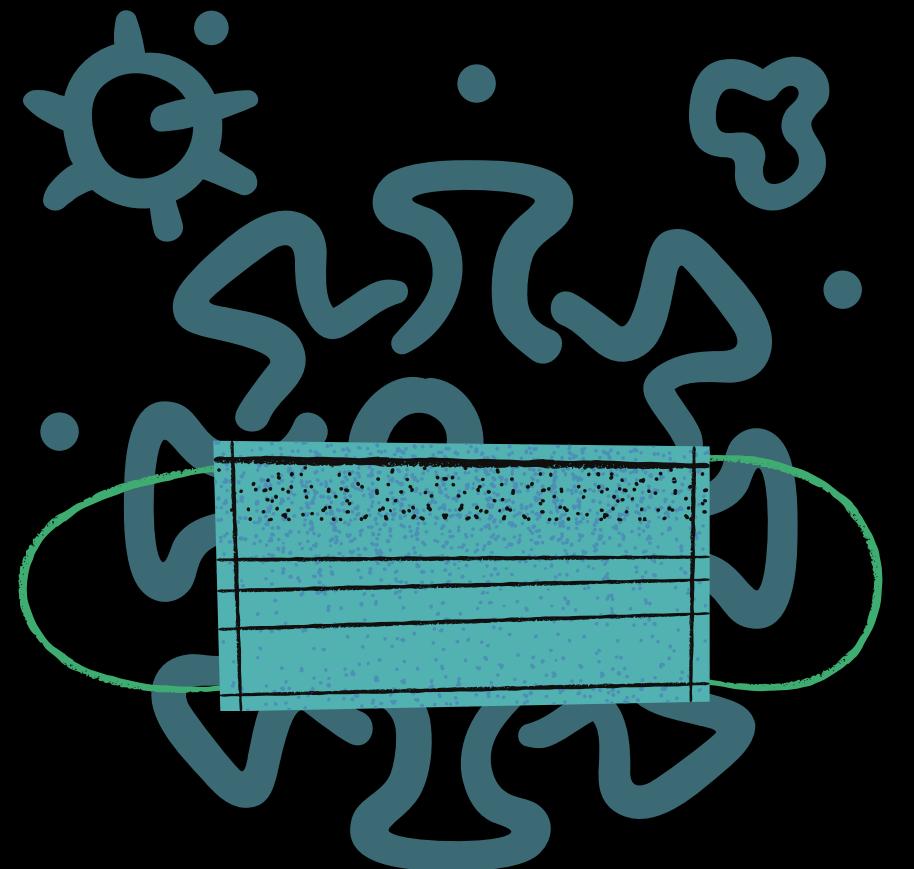
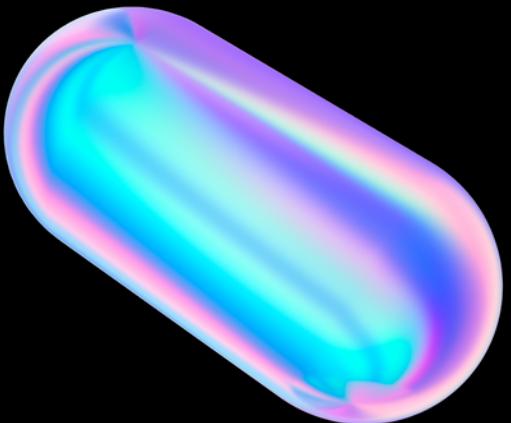
Bacteria vs Archaea

QUESTION:

Are there any differences in the genomes of viruses that target bacteria versus those that target archaea?

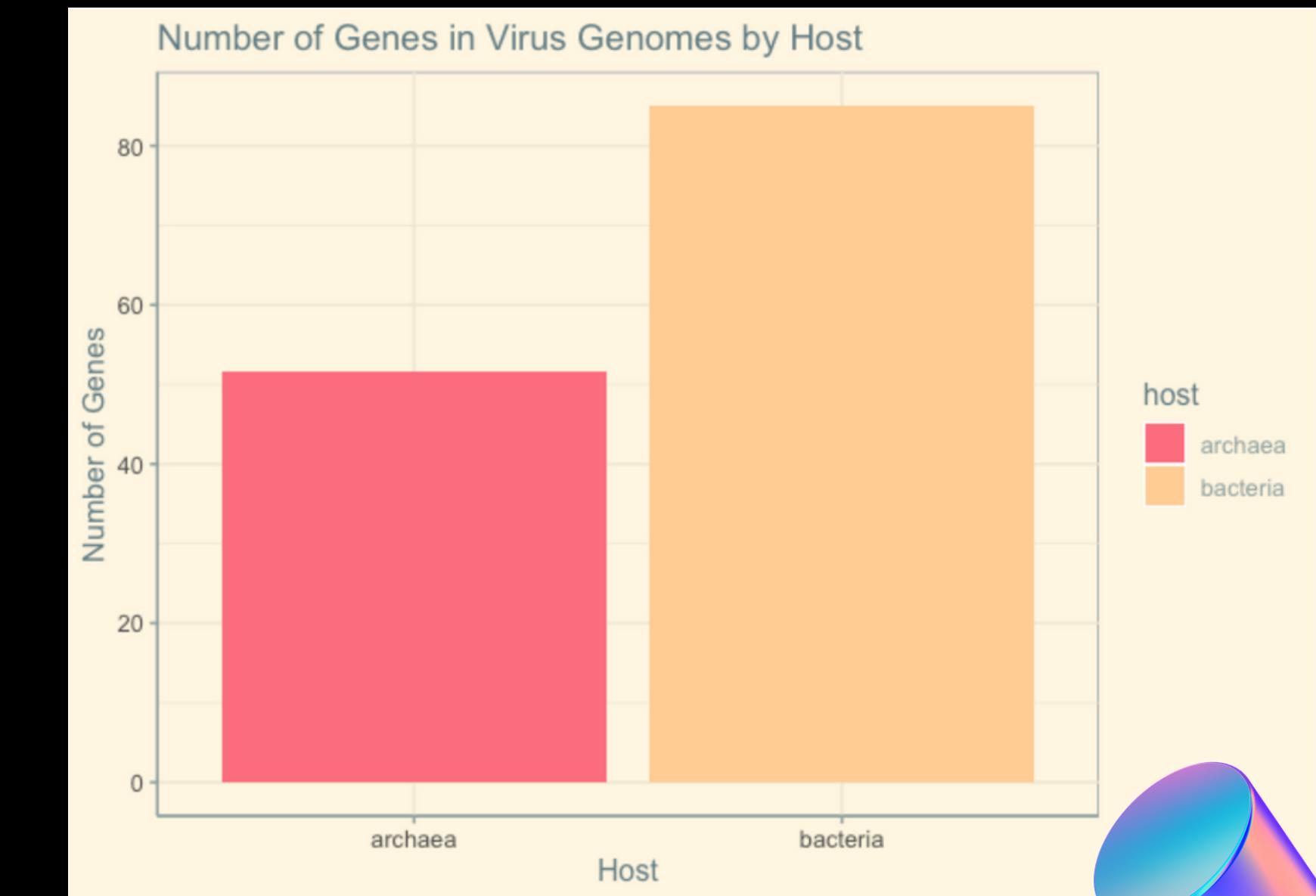
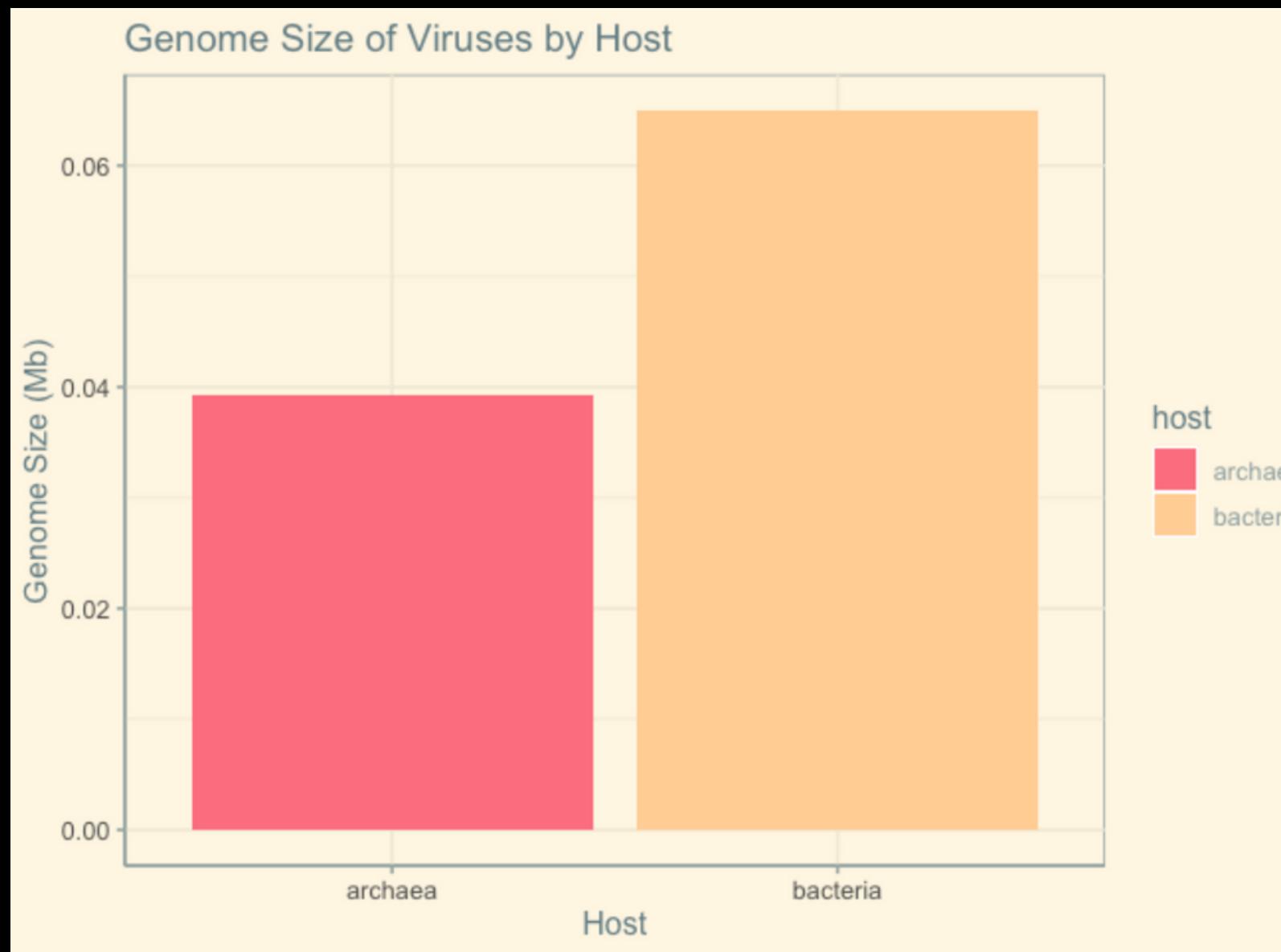
HYPOTHESIS:

Genome size and the number of genes should be about the same in these two groups of viruses. Archaea and bacteria, while diverse, are similar in shape and size. They are so similar in fact, that up until the late 1970s, scientists classified archaea as bacteria.



Bacteria vs Archaea (contd.)

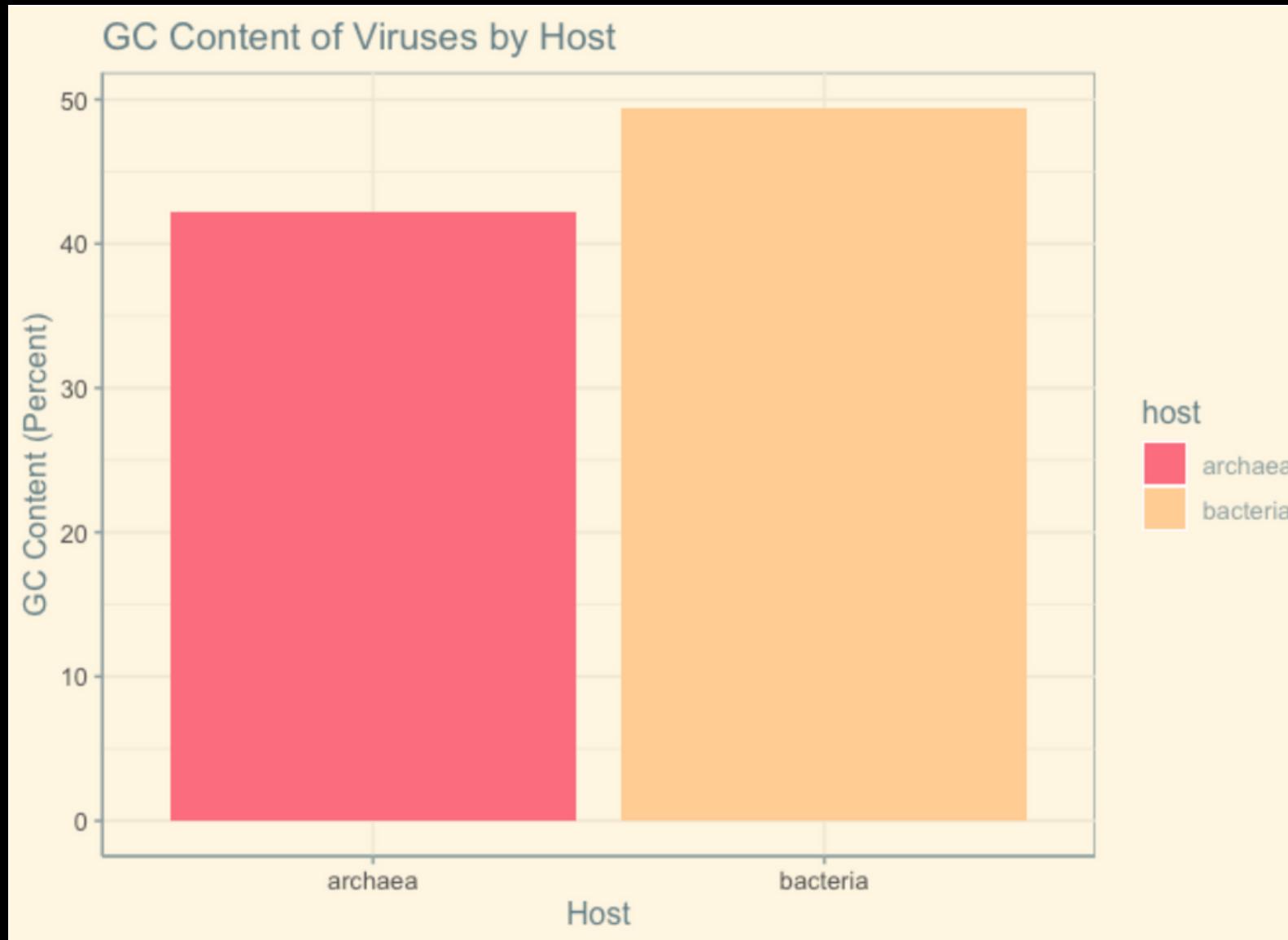
Genome size and number of genes



Bacteria vs Archaea (contd.)

Genes to genome size ratio





CONCLUSIONS:

Viruses whose hosts are bacteria, compared to those whose hosts are archaea, tend to have:

- larger genomes
- more genes
- slightly higher GC content

Both types of virus, however, have a similar number of genes per Mb, which could suggest something intrinsic to viral genetic material.

Bacteria vs Archaea (contd.)

Thank You!

