

Question 1:

What is the relationship of the new Coronavirus to the 2002/3 SARS virus ?

Comparing time to a common ancestor, we can see that the 2002/3 SARS virus is highly relative to Coronavirus. the new Coronavirus is the outgroup of 2002/3 virus as well as Bat_SARS_coronavirus_HKU3, Bat_SARS_CoV_Rp3/2004 and Bat_CoV_279/2005.

Question 2:

What about MERS (Middle Eastern Respiratory Syndrome)?

MERS (Middle Eastern Respiratory Syndrome) and Betacoronavirus_England_1 are sister groups. Comparing time to a common ancestor, MERS (Middle Eastern Respiratory Syndrome) is less close to the new Coronavirus than the 2002/3 SARS virus.

Question 3:

What about diseases in other species like bats, or pigs, or birds?

From the Phylogenetic Tree, we can learn that the diseases in bat is mostly related to the new Coronavirus among all species, especially, the Bat_SARS_coronavirus_HKU3, Bat_SARS_CoV_Rp3/2004 and Bat_CoV_279/2005.

Then, the diseases in other species like dogs and birds, and pigs (partial) are close to the new Coronavirus but less than the disease in bats.

The next specie which is a little close to the new Coronavirus is the diseases in mice. And the last one is the diseases in cows.

Question 4:

If you were to guess which other (non-human) species the new Coronavirus came from based on this tree, what would you say?

Based on the tree, it can be seen that many species could be the origin of the new Coronavirus. However, among all the species, the most likely origin could be the bats.