Evolution of sarbecoviruses

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Nine coronaviruses are now known to infect humans

Two new ones since SARS-CoV-2

SARS-CoV-2 is in the betacoronavirus genus and the sarbecovirus subgenus
Does Cross-Neutralization of SARS-CoV-2 Only Relate to High Pathogenic Coronaviruses?

Zhongren Ma, Pengfei Li, Aqsa Ikram, and Qiuwei Pan
SARS-CoV-2 related to first SARS virus (SARS-CoV)

MacLean/Lytras et al., 2021, PloS Biol

Rhinolophus spp. (horseshoe bats)
Evolutionary origins of the SARS-CoV-2 sarbecovirus lineage responsible for the COVID-19 pandemic

Maciej F. Boni, Philippe Lemey, Xiaowei Jiang, Tommy Tsan-Yuk Lam, Blair W. Perry, Todd A. Castoe, Andrew Rambaut and David L. Robertson
Coronaviruses with a SARS-CoV-2-like receptor-binding domain allowing ACE2-mediated entry into human cells isolated from bats of Indochinese peninsula

Sarah Temmam, Khamsing Vongphayloth, Eduard Baquero Salazar, Sandie Munier, Max Bonomi, Béatrice Régnauld, Bounsavane Douangboubpha, Yasaman Karami, Delphine Chretien, Daoavanh Sanamay, Vilakhan Xaysaphet, Phetphoumin Paphaphanh, Vincent Lacoste, Somphavanh Somlor, Khaihong Lakeomany, Nithasiri Phommavanh, Philippe Pérot, Flora Donati, Thomas Bigot, Michael Nilges, Félix Rey, Sylvie van der Werf, Paul Brey, Merc Eloit

DOI: 10.21203/rs.3.rs-871965/v1   Download PDF

A comprehensive survey of bat sarbecoviruses across China for the origin tracing of SARS-CoV and SARS-CoV-2

Zhiqiang Wu, Yelin Han, Yuyang Wang, Bo Liu, Lamei Zhao, Junpeng Zhang, Hao-Xiang Su, Wenhong Zhao, Liguang Liu, Shibin Bai, Jie Dong, Lillian Sun, Yafang Zhu, Siyu Zhou, Yiping Song, Hongtao Sui, Jian Yang, Jianwei Wang, Shuyi Zhang, Zhaohui Qian, Qi Jin

DOI: 10.21203/rs.3.rs-885194/v1   Download PDF
1st wave/B.1

2nd wave/B.1.177

3rd wave/Alpha

4th wave/Delta

5th wave/Omicron

https://coronavirus.data.gov.uk/details/cases
The ‘variants of concern’ / VOCs

Rambaut et al., 2020, 
https://virological.org/t/563

Oct 2020 to 17th Jan 2022

https://nextstrain.org/ncov
Influenza A virus: Protection across HA subtypes is possible, but antigenic imprinting is an issue

Worobey et al, PNAS 2014
Potent protection against H5N1 and H7N9 influenza via childhood hemagglutinin imprinting

Katelyn M. Gostic, Monique Ambrose, Michael Worobey, James O. Lloyd-Smith
H7N9 cases, corrected for demography
Pan-Sarbecovirus Neutralizing Antibodies in BNT162b2-Immunized SARS-CoV-1 Survivors

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Thanks.