

Influenza A virus in swine in Brazil

- Rejane Schaefer
- Researcher at Embrapa Swine and Poultry
- Brazil

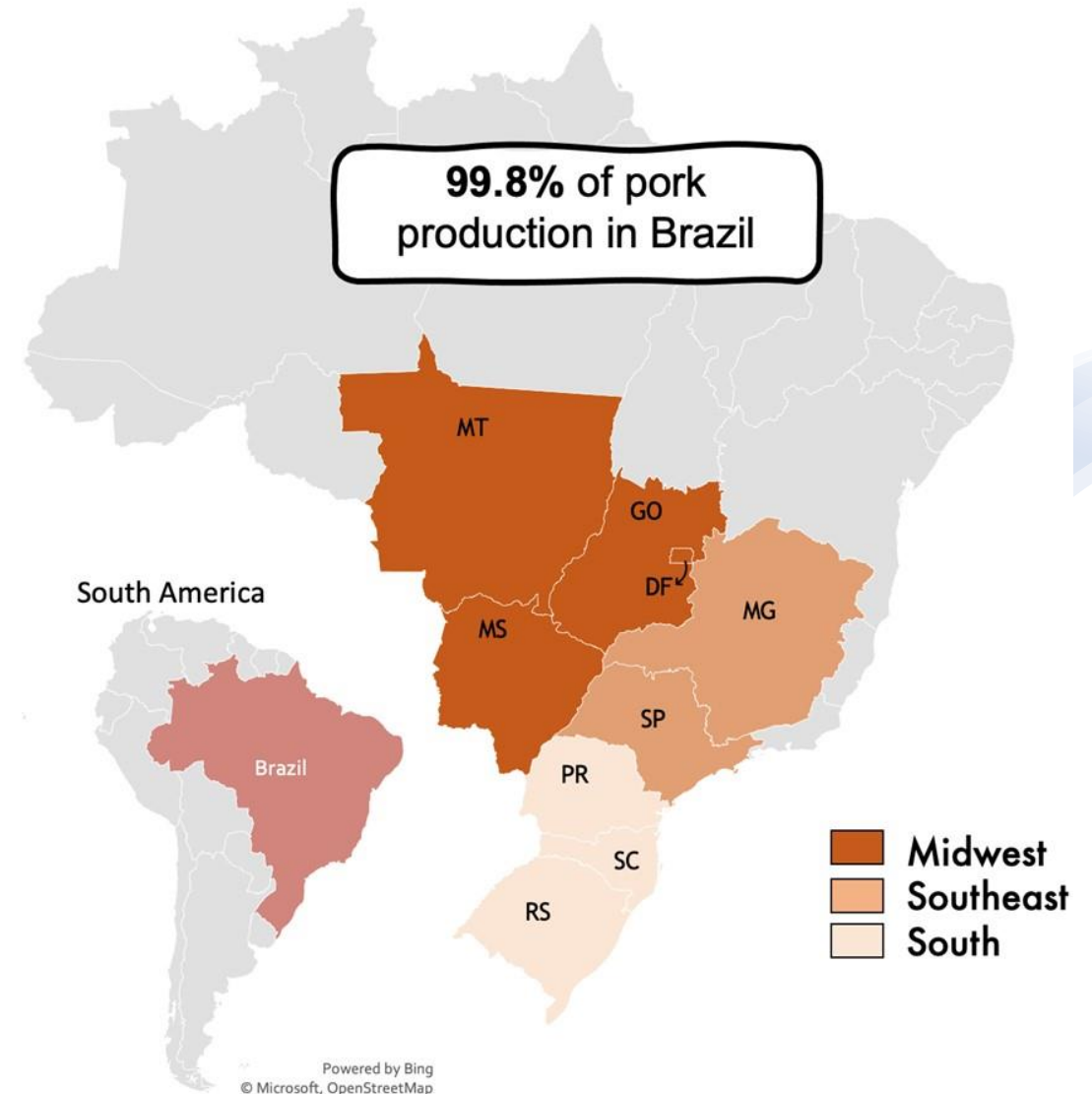


3 - 4 April 2024

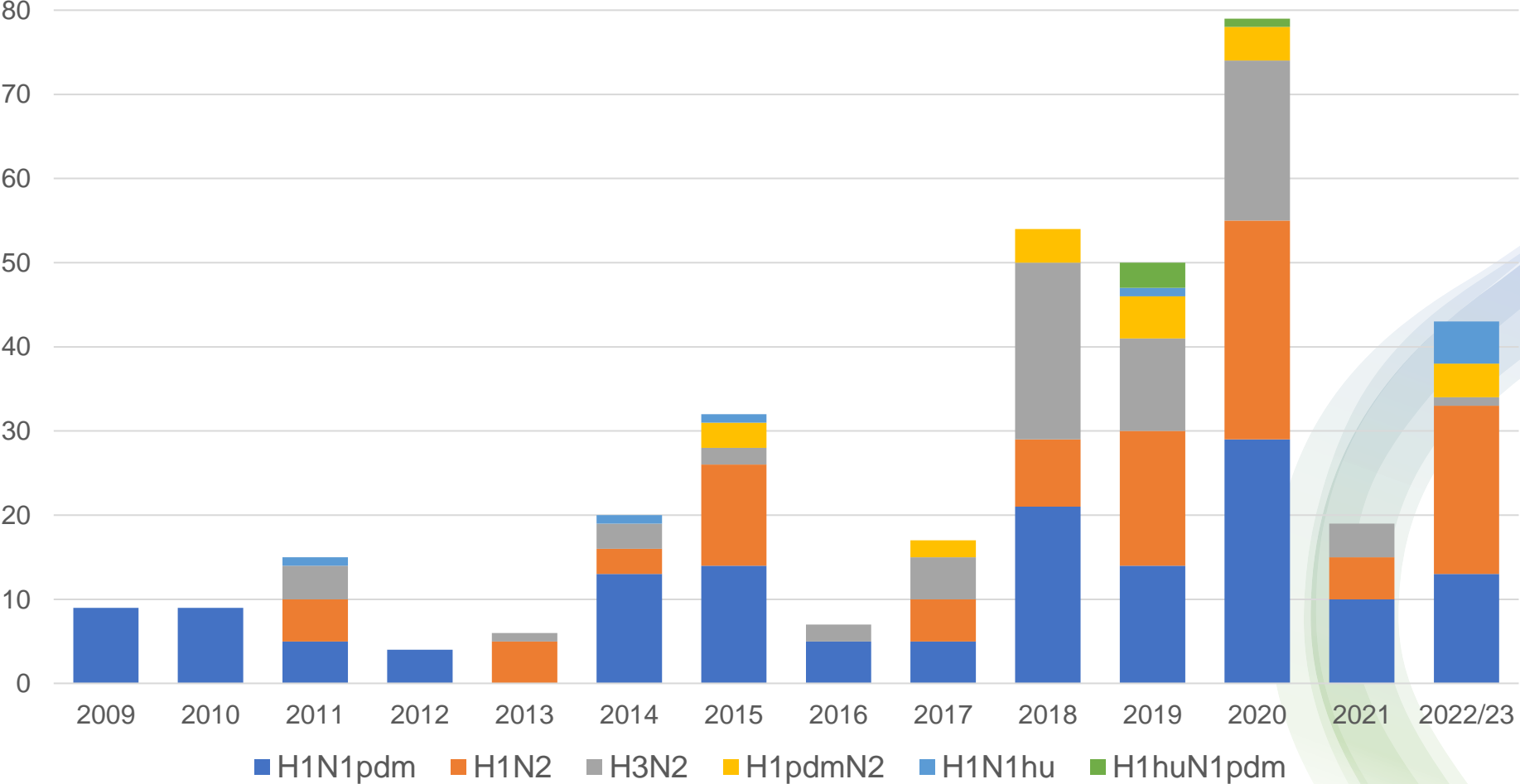
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- Passive surveillance since late 2009
- Nine states in South, Southeast and Midwest Brazil.



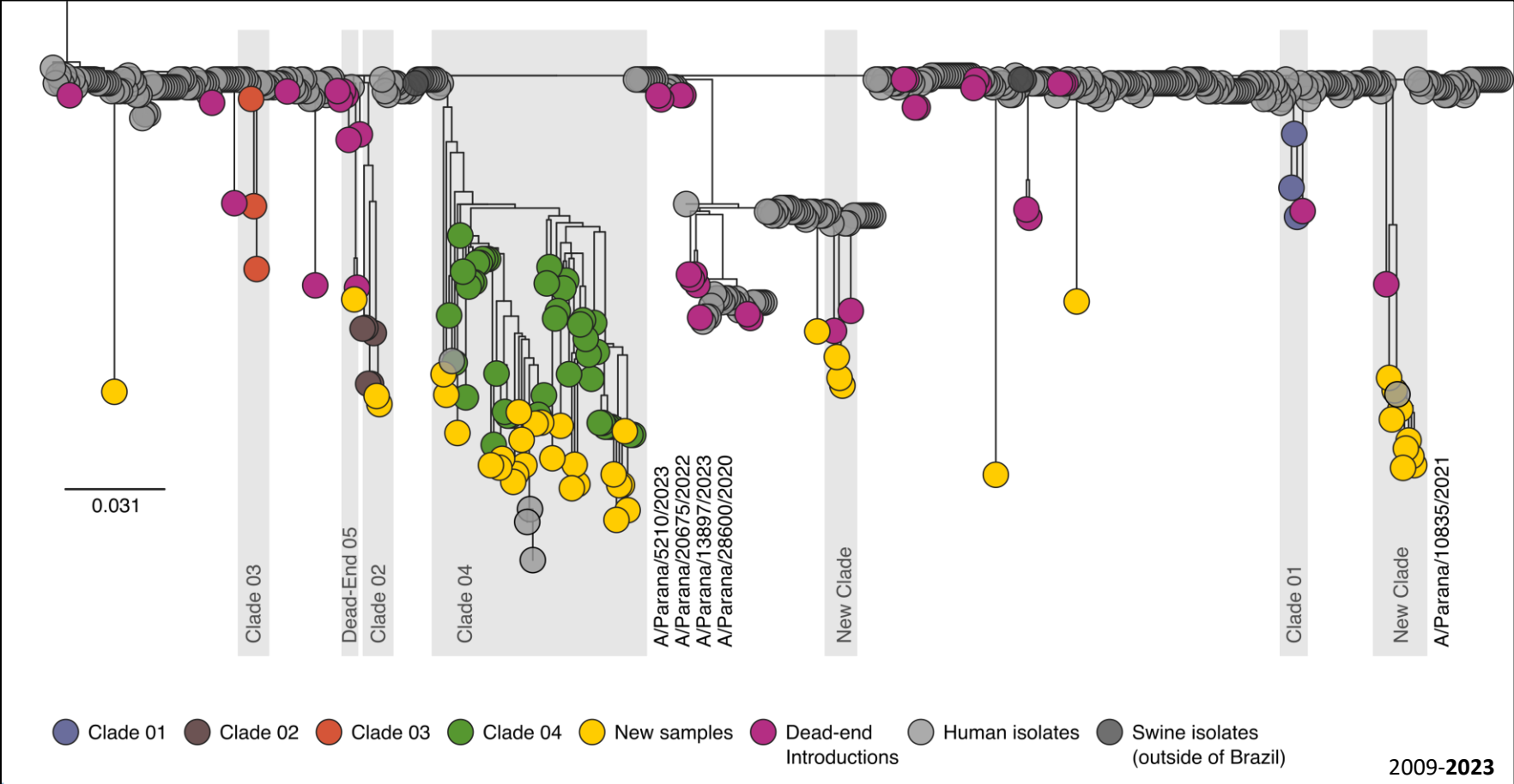
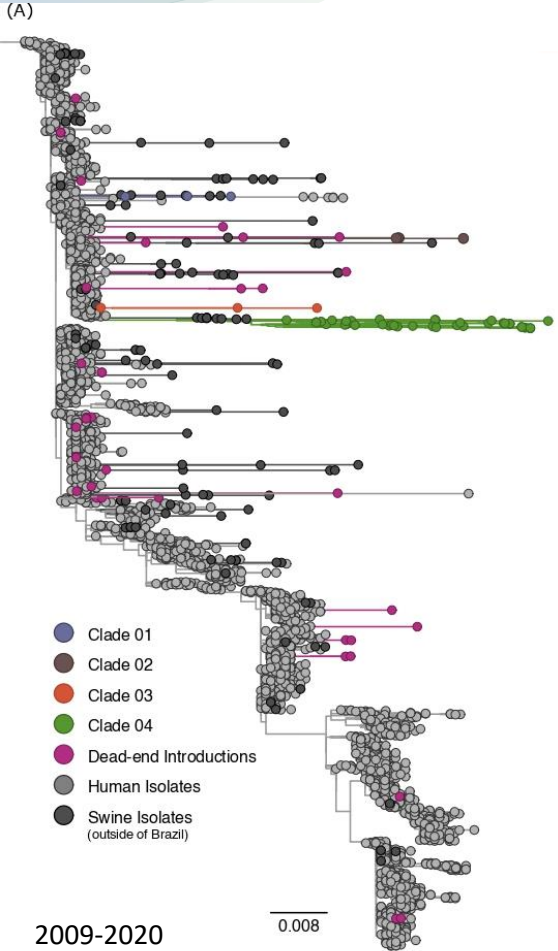
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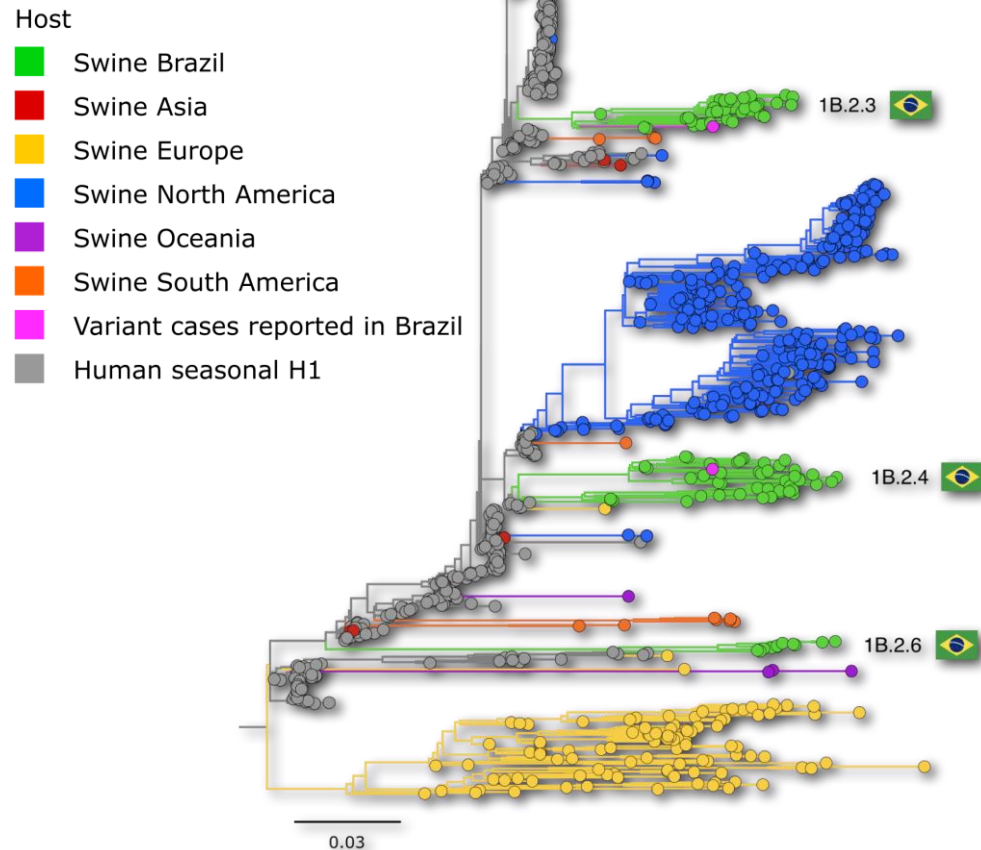
H1 1A 1.3.3.2 (pdm09)

Resende et al., 2024. unpublished data



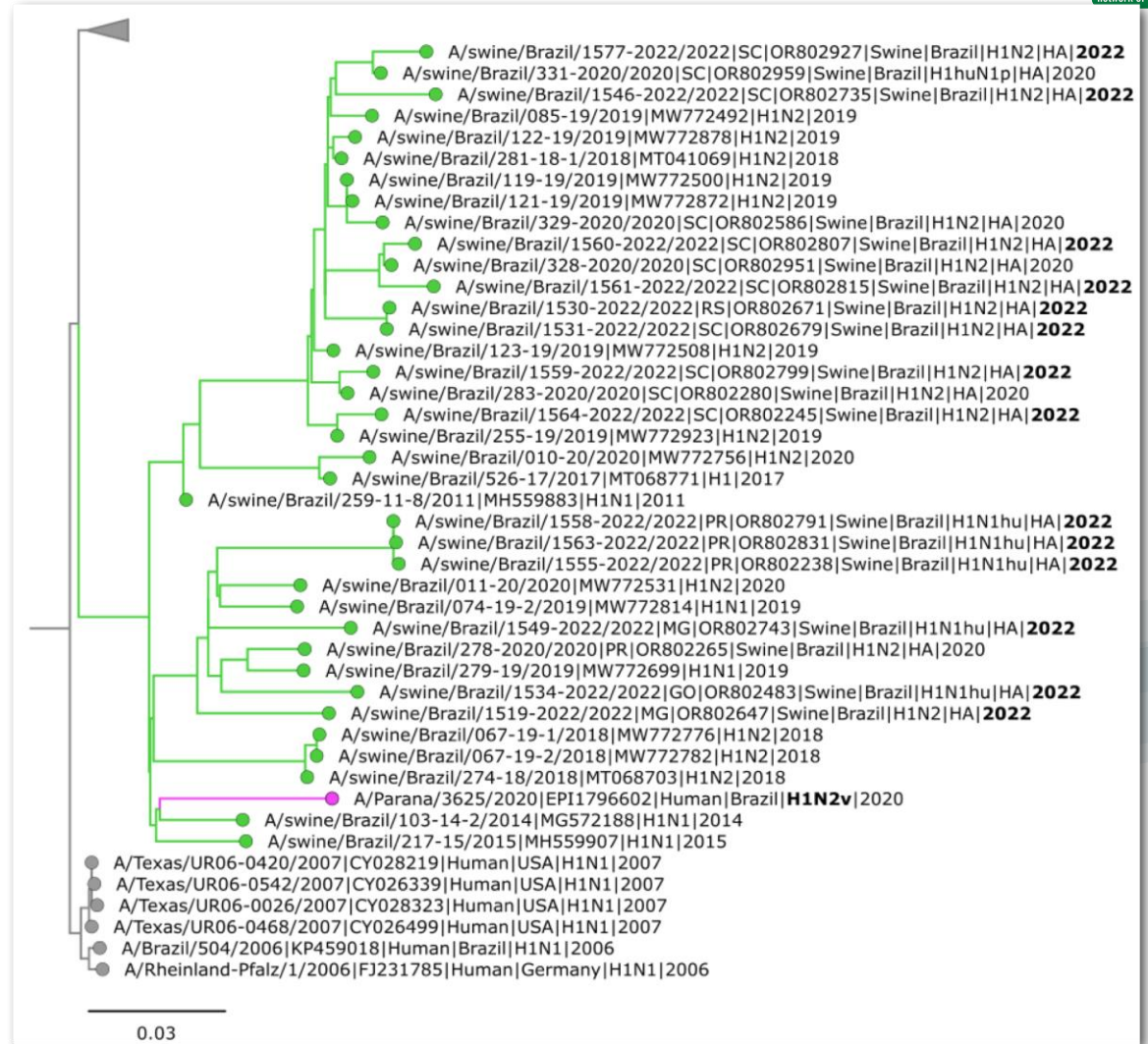
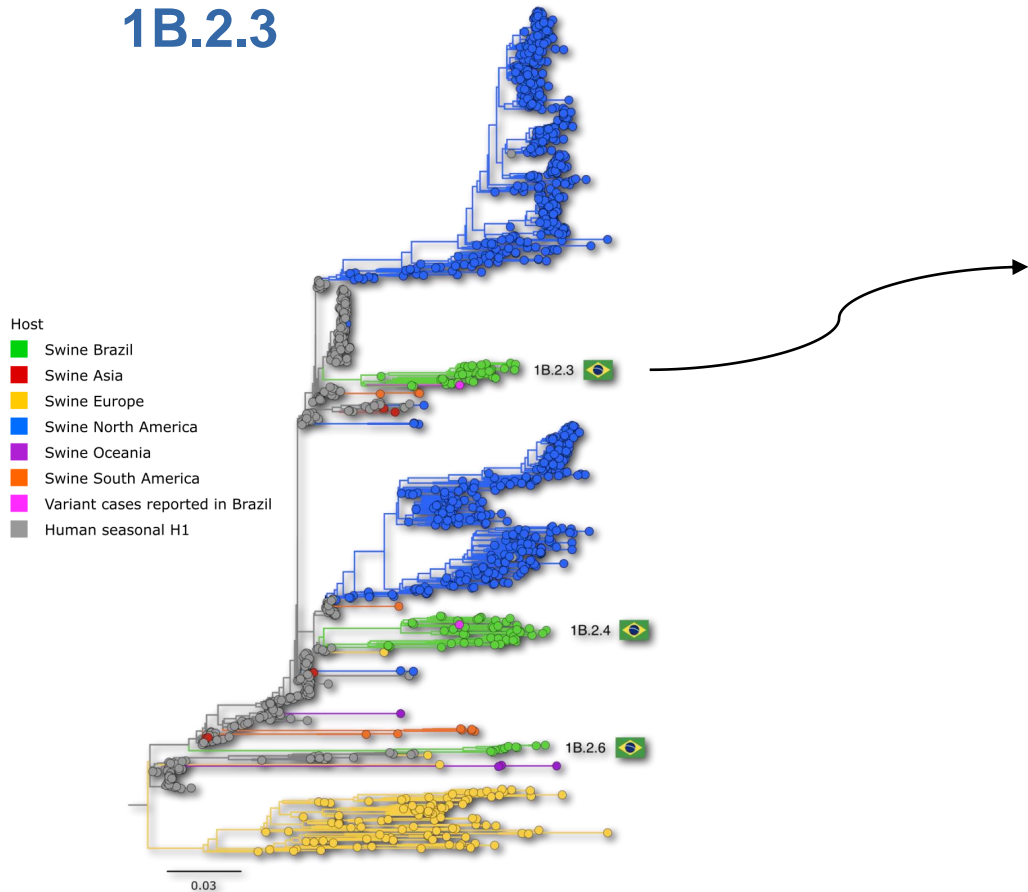
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H1 1B human seasonal



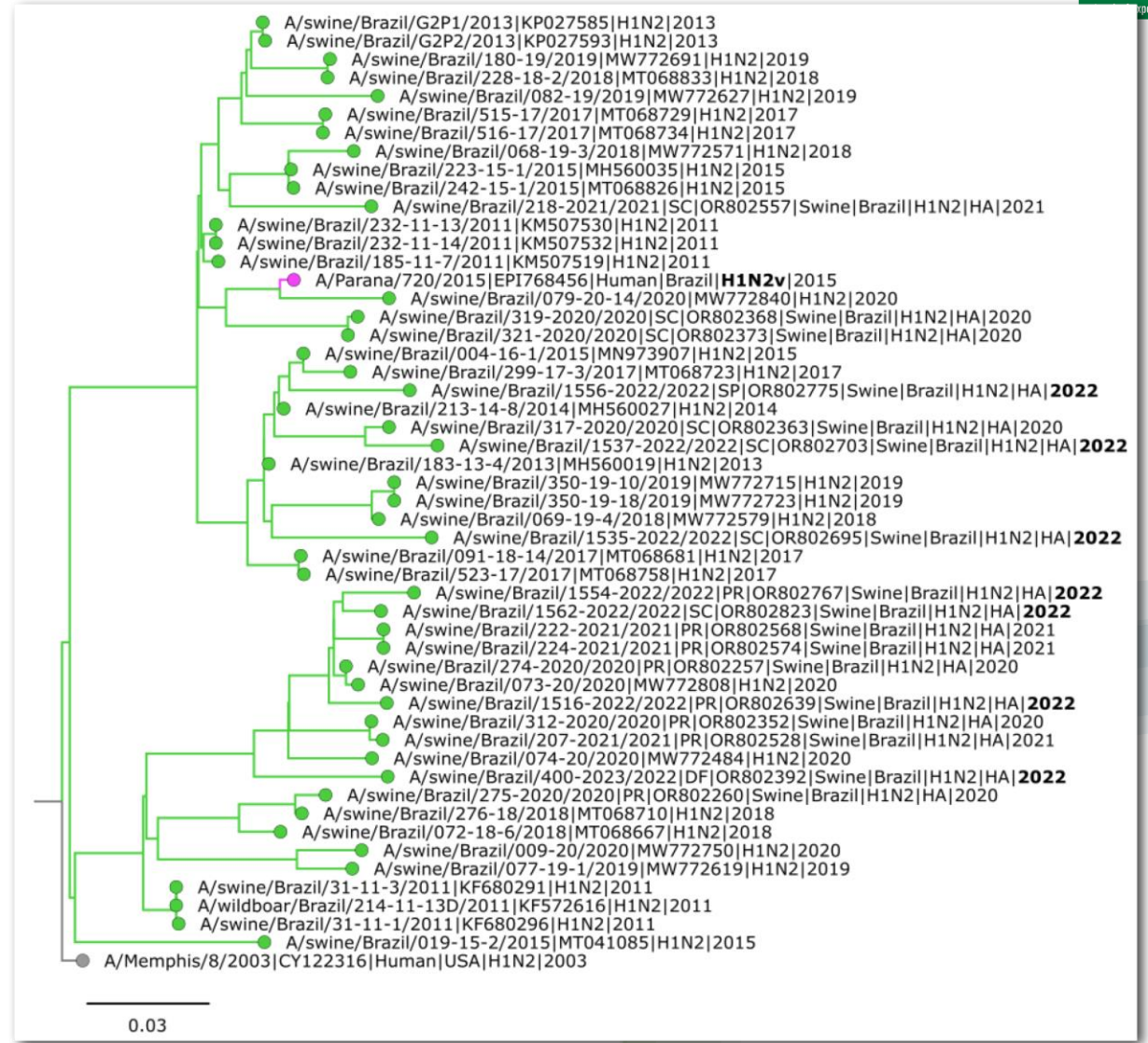
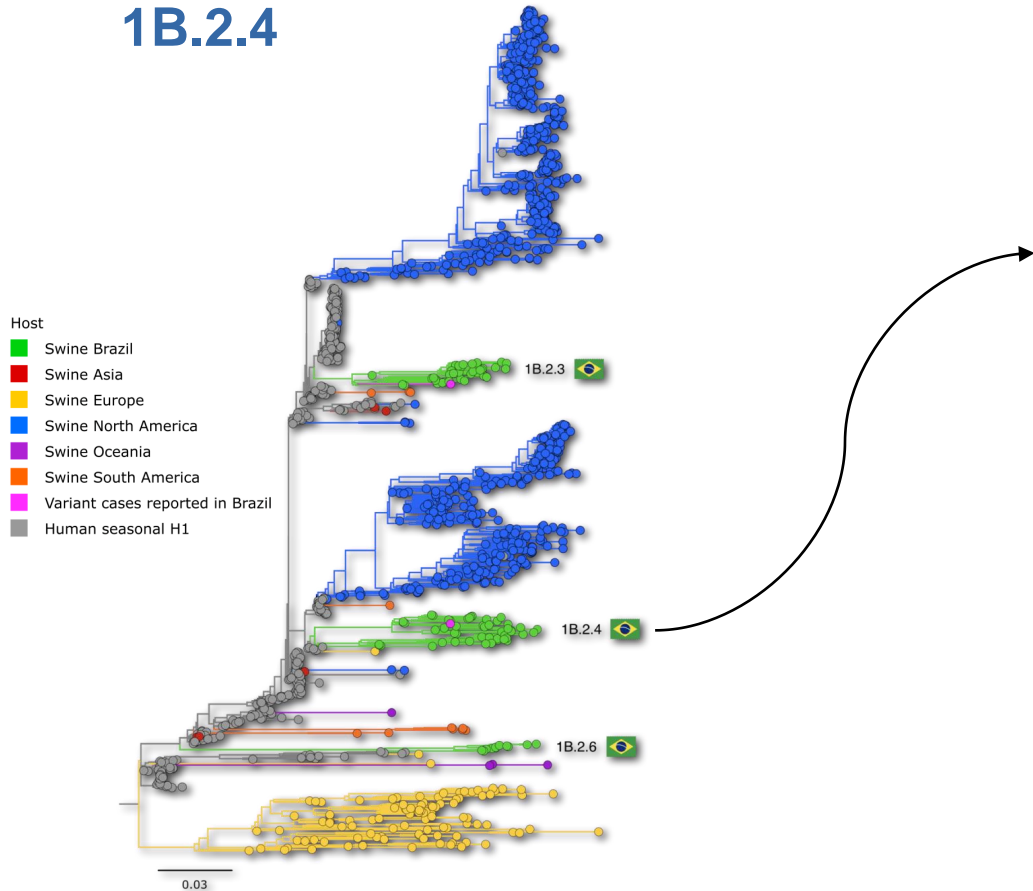
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H1 1B human seasonal 1B.2.3



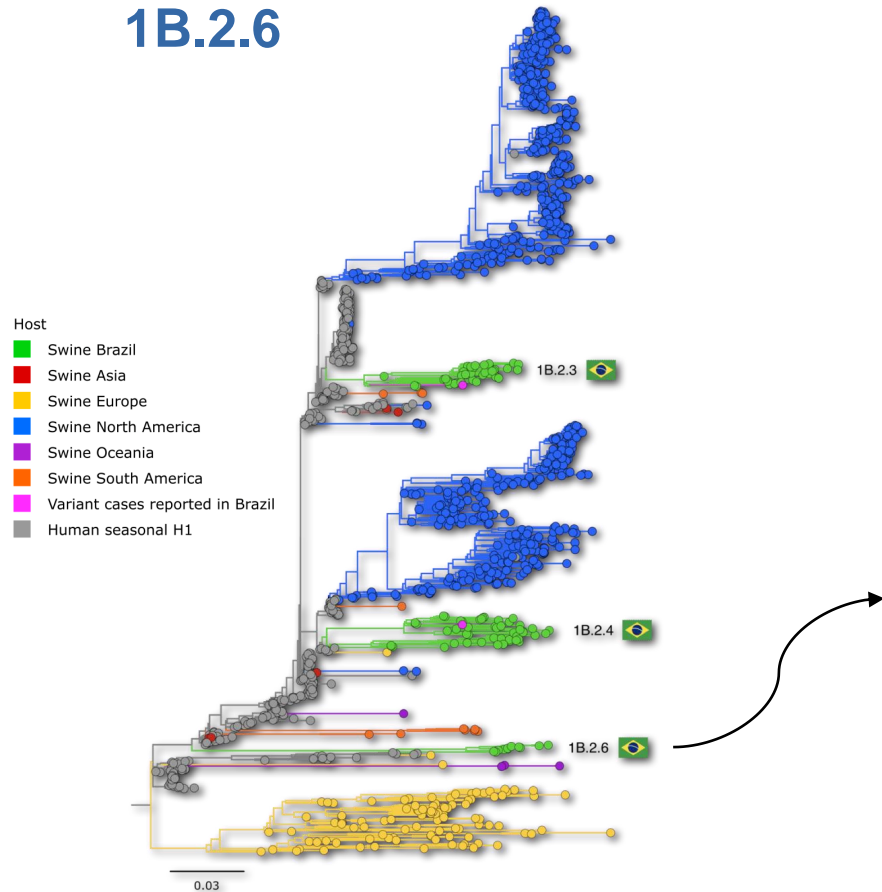
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H1 1B human seasonal 1B.2.4



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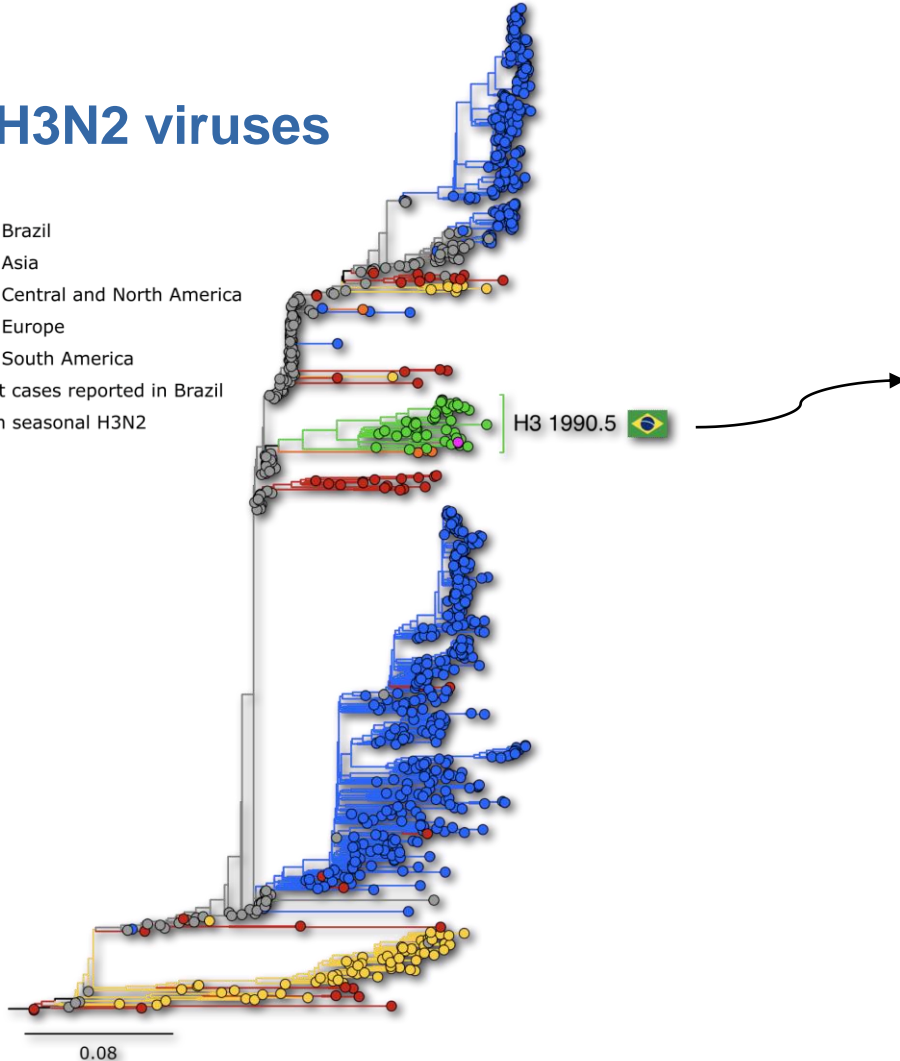
H1 1B human seasonal 1B.2.6



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H3N2 viruses

- Swine Brazil
- Swine Asia
- Swine Central and North America
- Swine Europe
- Swine South America
- Variant cases reported in Brazil
- Human seasonal H3N2



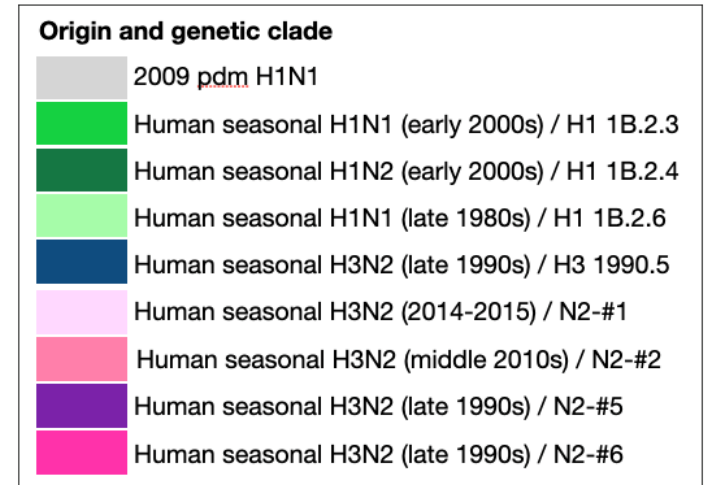
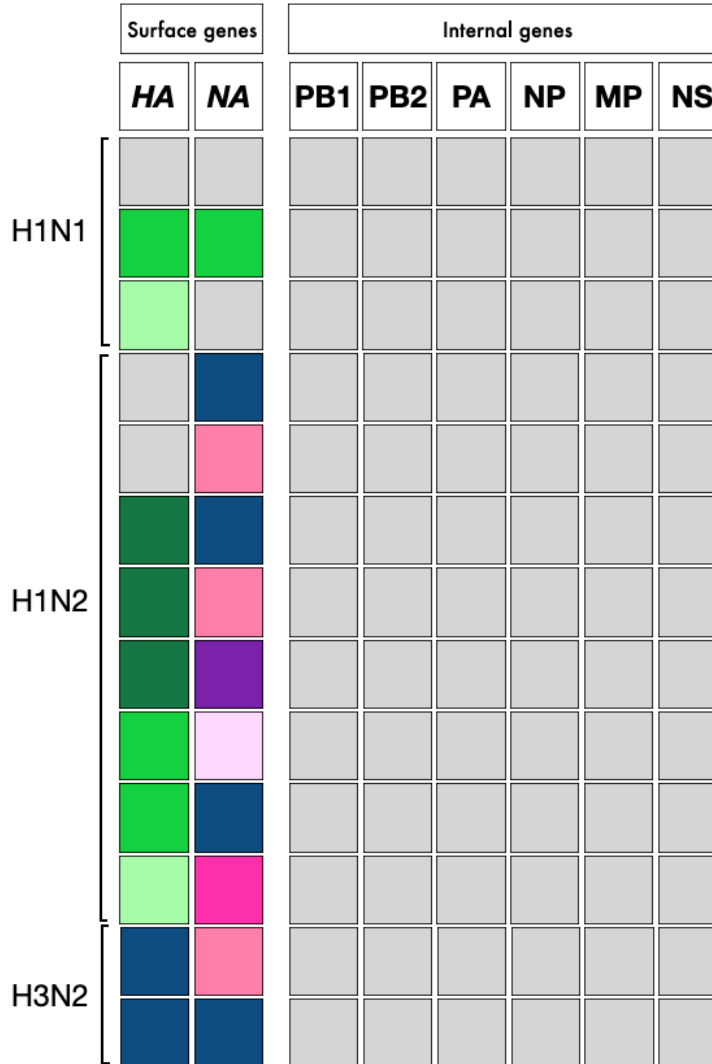
- A/swine/Brazil/246-18-200/2018|SC|MT068698|Swine|Brazil|H3|2018
- A/swine/Brazil/246-18-315/2018|SC|MT068794|Swine|Brazil|H3|2018
- A/swine/Brazil/246-18-25/2018|SC|MT068789|Swine|Brazil|H3|2018
- A/swine/Brazil/079-20-16/2020|SC|MW772847|Swine|Brazil|H3|2020
- A/swine/Brazil/093-18-1/2018|SC|MT041189|Swine|Brazil|H3N2|2018
- A/swine/Brazil/079-20-8/2020|SC|MW772833|Swine|Brazil|H3N2|2020
- A/swine/Brazil/072-19-1/2019|SC|MW772595|Swine|Brazil|H3N2|2019
- A/swine/Brazil/260-2020-SN8/2020|SC|OR802252|Swine|Brazil|H3N2|HA|2020
- A/swine/Brazil/350-19-70/2019|SC|MW772937|Swine|Brazil|H3N2|2019
- A/swine/Brazil/246-18-45/2018|SC|MT041045|Swine|Brazil|H3N2|2018
- A/swine/Brazil/341-20-G1-SN10/2020|SC|OR802610|Swine|Brazil|H3N2|HA|2020
- A/swine/Brazil/094-18/2018|SC|MT041197|Swine|Brazil|H3N2|2018
- A/swine/Brazil/246-18-371/2018|SC|MT068798|Swine|Brazil|H3|2018
- A/swine/Brazil/137-19/2019|PR|MW772890|Swine|Brazil|H3N2|2019
- A/swine/Brazil/139-19/2019|RS|MW772900|Swine|Brazil|H3N2|2019
- A/swine/Brazil/147-19/2019|MG|MW772905|Swine|Brazil|H3N2|2019
- A/swine/Brazil/520-17/2017|SC|MT068739|Swine|Brazil|H3N2|2017
- A/swine/Brazil/138-19/2019|MG|MW772895|Swine|Brazil|H3N2|2019
- A/swine/Brazil/360-17/2017|SC|MN973915|Swine|Brazil|H3N2|2017
- A/swine/Brazil/095-18/2018|PR|MT068690|Swine|Brazil|H3N2|2018
- A/swine/Brazil/246-18-206/2018|SC|MT041101|Swine|Brazil|H3N2|2018
- A/swine/Brazil/061-14-2/2014|SC|MH559995|Swine|Brazil|H3N2|2014
- A/swine/Brazil/068-15/2015|SC|MH559843|Swine|Brazil|H3N2|2015
- A/swine/Brazil/028-15-8/2015|SC|MH559963|Swine|Brazil|H3N2|2015
- A/swine/Brazil/1557-2022/2022|MS|OR802783|Swine|Brazil|H3N2|HA|2022
- A/swine/Brazil/091-18-2/2017|MG|MT068674|Swine|Brazil|H3N2|2017
- A/swine/Brazil/527-17/2017|RS|MN973899|Swine|Brazil|H3N2|2017
- A/swine/Brazil/091-18-50/2017|MG|MT068686|Swine|Brazil|H3|2017
- A/swine/Brazil/524-17/2017|RS|MT068764|Swine|Brazil|H3N2|2017
- A/swine/Brazil/311-2020/2020|GO|OR802347|Swine|Brazil|H3N2|HA|2020
- A/swine/Brazil/365-11-7/2011|MS|KM507511|Swine|Brazil|H3N2|2011
- A/swine/Brazil/154-14-1/2014|RS|MH559859|Swine|Brazil|H3N2|2014
- A/swine/Brazil/332-2020/2020|RS|OR802592|Swine|Brazil|H3N2|HA|2020
- A/swine/Brazil/355-11-6/2011|RS|KM507503|Swine|Brazil|H3N2|2011
- A/swine/Brazil/521-17/2017|RS|MT068745|Swine|Brazil|H3N2|2017
- A/swine/Brazil/045-14-3/2014|SC|MT041133|Swine|Brazil|H3N2|2014
- A/swine/Brazil/161-16-2/2016|MT|MT068659|Swine|Brazil|H3N2|2016
- A/swine/Brazil/316-2020/2020|MS|OR802358|Swine|Brazil|H3N2|HA|2020
- A/swine/Brazil/215-2021/2021|PR|OR802539|Swine|Brazil|H3N2|HA|2021
- A/swine/Brazil/204-2021/2021|PR|OR802523|Swine|Brazil|H3N2|HA|2021
- A/swine/Brazil/148-19/2019|PR|MW772683|Swine|Brazil|H3N2|2019
- A/Parana/51528/2021|PR|EPIISL16157716|Human|Brazil|H3N2v|HA|2021
- A/Parana/44706/2021|PR|EPIISL16157715|Human|Brazil|H3N2v|HA|2021
- A/swine/Brazil/089-2021/2021|SC|OR802436|Swine|Brazil|H3N2|HA|2021
- A/swine/Brazil/043-19/2019|SC|MW772468|Swine|Brazil|H3N2|2019
- A/swine/Brazil/076-20-5/2020|SC|MW772828|Swine|Brazil|H3N2|2020
- A/swine/Brazil/231-11-1/2011|SC|KM507535.2|Swine|Brazil|H3N2|2011
- A/swine/Brazil/037-19/2019|SP|MW772770|Swine|Brazil|H3N2|2019
- A/swine/Brazil/160-16/2016|PR|MT068652|Swine|Brazil|H3N2|2016
- A/swine/Valparaiso/VN1401_3771/2018|MN054199|Swine|Chile|H3N2|2018
- A/swine/Valparaiso/VN1401_3773/2018|MN054344|Swine|Chile|H3N2|2018
- A/swine/Los_Andes/VN1401_3086/2017|MH347124|Swine|Chile|H3N2|2017
- A/New_York/589/1996|CY009732|Human|USA|H3N2|1996

0.08

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Genotypes

H1N1, H1N2 and H3N2



Each genetic clade (N2-#) represents a distinct genetic clade derived from different introductions of human seasonal IAVs into swine in Brazil.

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Antigenic and genetic diversity of H1 and H3 influenza A viruses in swine in Brazil

Sara Lopes,  Tavis K. Anderson,  Rejane Schaefer,  Caroline Tochetto,  Danielle Gava,  Mauricio E. Cantao,  Janice R. Ciacci-Zanella,  Amy L. Vincent Baker, Nicola S. Lewis

doi: <https://doi.org/10.1101/2023.12.01.569635>

Antigenic analysis

- Antigenic characterization of IAVs circulation in Brazilian swine between 2010-2018 was performed.
- Limited cross-reactivity between circulating swine lineages, and significant antigenic variation within lineage.
- No human vaccine strains were antigenically similar enough to provide significant protection against potential zoonotic infections by Brazilian H1 or H3 swine IAV.

Final remarks and ongoing projects

- The genetic diversity of swIAV in Brazil is increasing in the last years;
- Since 2015, nine variant IAVs were detected in humans in Southern Brazil;
- Continue to monitor influenza in pigs through sequencing and antigenic analyses;
- New research partnerships;
- Scientific divulgation (Publications).

Acknowledgements





Thank you

rejane.schaefer@embrapa.br