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Whole-Genome Characterization of a Novel Human Influenza A(H1N2) Virus Variant, Brazil

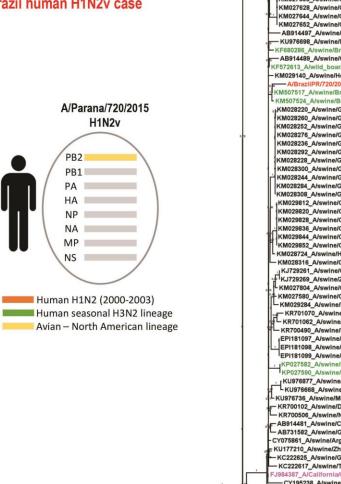
Technical Appendix

Technical Appendix Figure (following pages). Maximum-likelihood (ML) trees of each gene segment (PB2, polymerase basic 2 gene; PB1, polymerase basic gene; PA, polymerase acid gene; HA, hemagglutinin gene; NP, nucleoprotein gene; NA, neuraminidase gene, M, matrix gene; NS, non-structural protein gene) were performed to reconstruct the phylogenetic profile of influenza A/Parana/720/2015 (H1N2)v (Figure, red). The dataset used includes H1N1 (orange) and H3N2 (blue) seasonal and H1N1pdm09 (pink) vaccine strains and all H1N2 whole genomes available in GenBank or the Global Initiative on Sharing All Influenza Data. The H1N2 subtype strains were classified as Brazilian swine H1N2 (green), worldwide swine and avian (black), human H1N2 and swine-origin H1N2v strains (purple). The Hasegawa-Kishino-Yano + gamma distribution among the sites was the best-fitting nucleotide substitution model and was used to reconstruct the trees. ML reliability of branches was evaluated using an approximate likelihood ratio test; the interior support branch cutoff value was ≥0.9.

H1N1pdm09 PB2

PB₂

H1N1pdm09 vaccine strain Swine and avian H1N2 strains Brazil swine H1N2 cases Brazil human H1N2v case



KR700498_A/swine/Netherlands/Asten-263/2011_H1N2_05 JQ277166 A/swine/Henan/4/2010 H1N2 12 KU218712_A/swine/Henan/PL01/2012_H1N2_10 JQ806060 A/swine/Henan/YIL/2010 H1N2 12 CY158408_A/swine/North_Carolina/SG1357/2010_H1N2_01 CY086877_A/swine/Indiana/24-0218/2010_H1N2_02 KM028868_A/swine/Hong_Kong/4027/2011_H1N2_10 KM028996_A/swine/Hong_Kong/4125/2011_H1N2_10 KM028892_A/swine/Hong_Kong/4055/2011_H1N2_10 KM028900_A/swine/Hong_Kong/4063/2011_H1N2_10 KM028924_A/swine/Hong_Kong/4081/2011_H1N2_10 KM028940_A/swine/Hong_Kong/4084/2011_H1N2_10 KM028964_A/swine/Hong_Kong/4094/2011_H1N2_10 KM028980_A/swine/Hong_Kong/4099/2011_H1N2_10 KM029004_A/swine/Hong_Kong/4128/2011_H1N2_10 KM029028_A/swine/Hong_Kong/4190/2011_H1N2_10 KM029036_A/swine/Hong_Kong/4194/2011_H1N2_10 KM028844_A/swine/Hong_Kong/NS3963/2011_H1N2_10 | KM028844_A/swine/Hong_Kong/NS3983/2011_H1N2_10 | KM028876_A/swine/Hong_Kong/N4046/2011_H1N2_10 | KM028852_A/swine/Hong_Kong/NS3984/2011_H1N2_10 | KM022895_A/swine/Hong_Kong/NS3954/2011_H1N2_10 | KM027836_A/swine/Hong_Kong/NS3954/2011_H1N2_10 | KM027836_A/swine/Guangdong/3584/2011_H1N2_10 | KM027836_A/swine/Guangdong/3584/2011_H1N2_10 | KM027836_A/swine/Guangdong/3584/2011_H1N2_10 | KM027836_A/swine/Guangdong/3584/2011_H1N2_11 | AB914497_A/swine/Guangdong/3584/2011_H1N2_11 | AB914497_A/swine/Mexifolia/swine/Mexifolia/swine/Mexifolia/swine/Mexifolia/swine/Mexifolia/swine/Mexifolia/swine/mexifolia/swine/swin KF680286 A/swine/Brazil/31 11 3/2011 H1N2 -AB914489_A/swine/Chiba/107/2012_H1N2_08 KF572613 A/wild_boar/Brazil/214-11-13D/2011_H1N2_07 KR972613_AWIG poaristraturi214-11-130/2011_H1N2_0 - KM029140_MswinelHong_Kong/N926/2012_H1N2_01 - AJBrazIIPR/720/2015_H1N2_PB2 - KM507517_AJswinelBrazil/185-11-7/2011_H1N2_07 - KM507524_AJswinelBrazil/232-11-13/2011_H1N2_08 KM028220_A/swine/Guangxi/3202/2011_H1N2_11 KM028260_A/swine/Guangxi/3234/2011_H1N2_11 KM028252_A/swine/Guangxi/3217/2011_H1N2_11 KM028276_A/swine/Guangxi/NS3256/2011_H1N2_11 KM028236_A/swine/Guangxi/3212/2011_H1N2_11 KM028292_A/swine/Guangxi/NS3267/2011_H1N2_11 KM028228_A/swine/Guangxi/3205/2011_H1N2_11 KM028300_A/swine/Guangxi/NS3269/2011_H1N2_11 KM028244_A/swine/Guangxi/3215/2011_H1N2_11 KM028284_A/swine/Guangxi/NS3257/2011_H1N2_11 KM028308 Aswine/Guangxi/NS327/2011_H1N2_11 KM028012 Aswine/Guangxi/NS3272/2011_H1N2_11 KM029812 Aswine/Guangdong/NS3155/2012_H1N2_09 KM029820_A/swine/Guangdong/NS3156/2012_H1N2_09 KM029828 Aswine/Guangdong/NS3166/2012_H1N2_09 KM029844_A/swine/Guangdong/NS3178/2012_H1N2_09 KM029852_A/swine/Guangdong/NS3179/2012_H1N2_09 - KM028724_A/swine/Hong_Kong/3125/2011_H1N2_08 - KM028316_A/swine/Guangxi/NS3511/2011_H1N2_11 , KJ729261_A/swine/Guangxi/326/2012_H1N2_11 KJ729269_A/swine/Zhejiang/43/2012_H1N2_11 KM027804_A/swine/Guangdong/NS548/2012_H1N2_02 KM027804_AlswinelGuangdong/NS9482/U_F1NK_09

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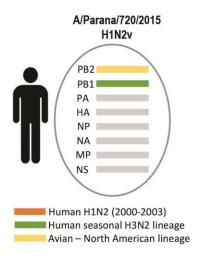
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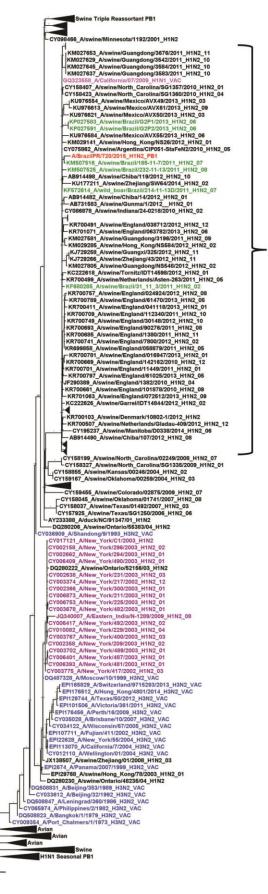
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Swine Triple Reassortant PB2
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PB₁

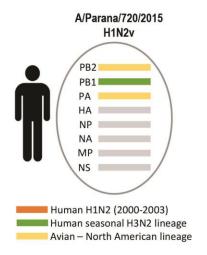
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H1N1pdm09 vaccine strain
Swine and avian H1N2 strains
Brazil swine H1N2 cases
Brazil human H1N2v case
Human H1N2 cases

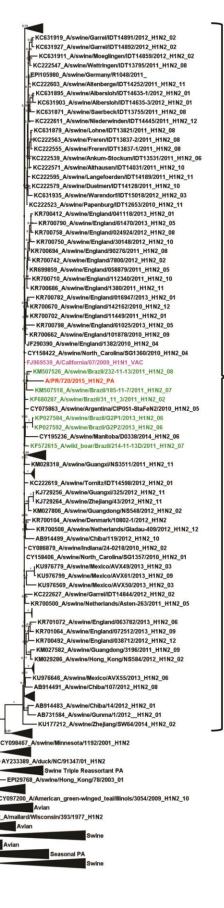


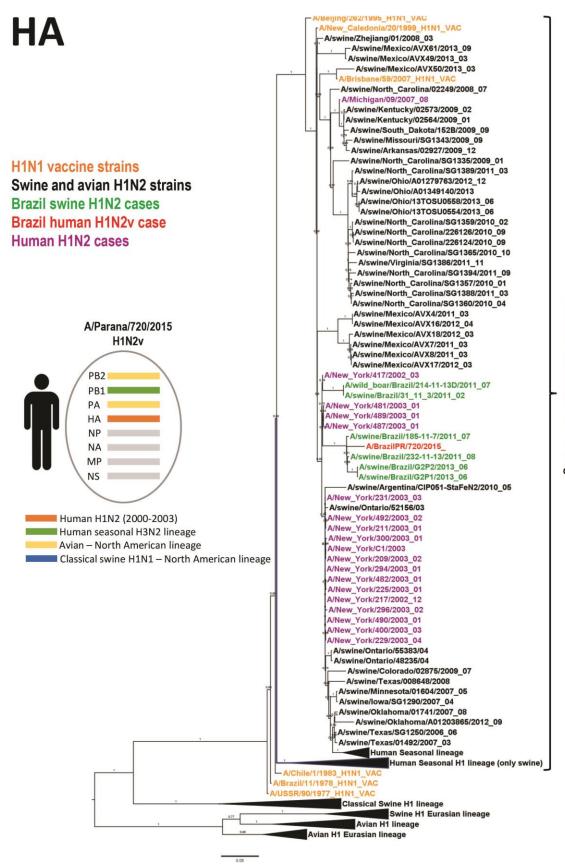


PA

H1N1pdm09 vaccine strain Swine and avian H1N2 strains Brazil swine H1N2 cases Brazil human H1N2v case





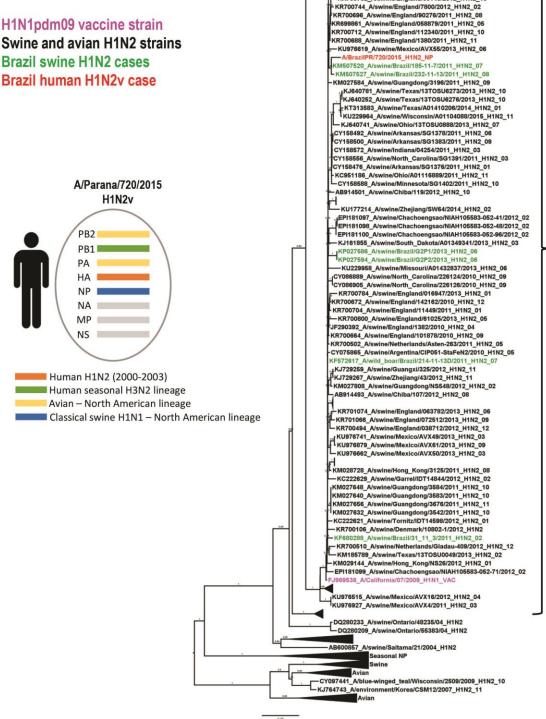


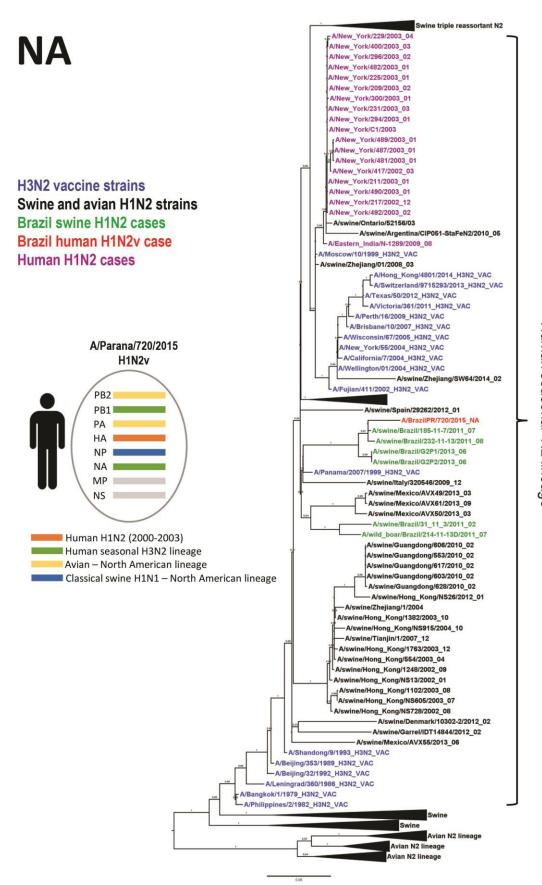
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NP

H1N1pdm09 vaccine strain Swine and avian H1N2 strains Brazil swine H1N2 cases

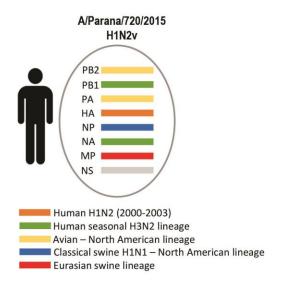


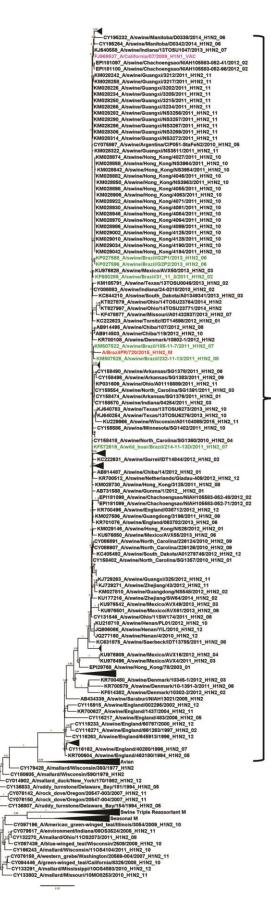


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MP

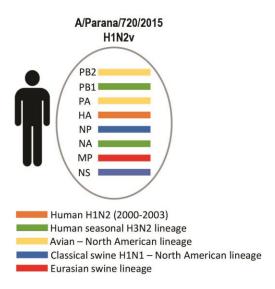
H1N1pdm09 vaccine strain Swine and avian H1N2 strains Brazil swine H1N2 cases Brazil human H1N2v case





NS

H1N1pdm09 vaccine strain Swine and avian H1N2 strains Brazil swine H1N2 cases Brazil human H1N2v case



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0.06