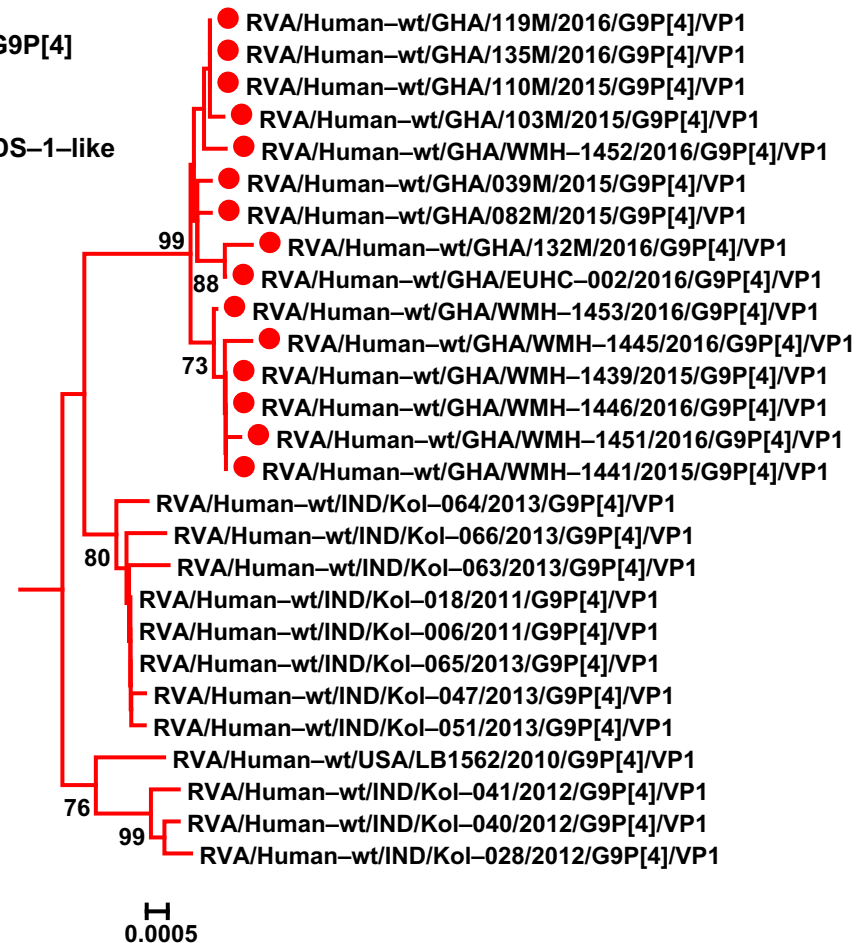
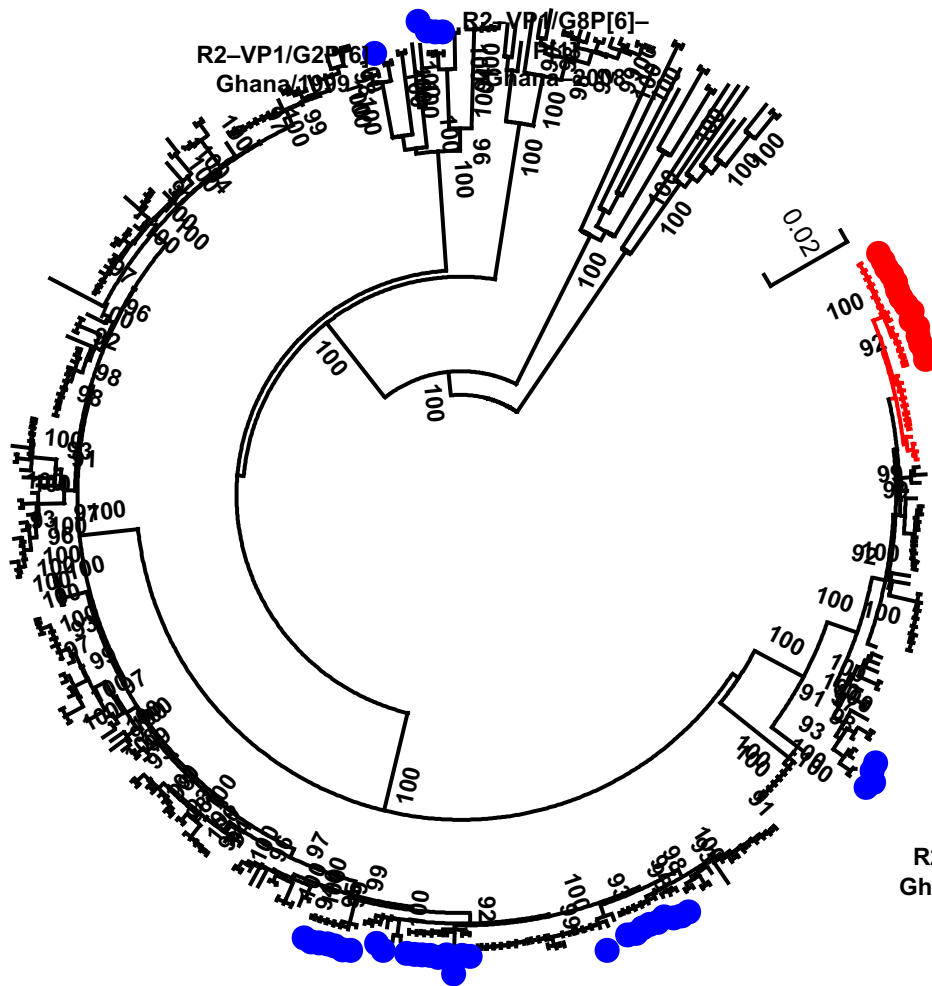


Figure S1: Simplified phylogenetic trees were constructed for 7 genome segments: VP1 (a), VP3 (b), NSP1 (c), NSP2 (d), NSP3 (e), and NSP5 (f). The tree includes the 15 Ghanaian G9P[4] strains from this study (indicated by red dots), as well as additional G9P[4] strains (highlighted by red branch trees). Additionally, two Ghanaian G2P[4] strains from this study, along with Ghanaian strains carrying genotype 2 for these 7 genome segments, were incorporated into the analysis (indicated by blue dots). Global reference RVAs carrying genotype 2 for these genome segments were also integrated into the trees. The trees were generated using the maximum likelihood method within the MEGA software package (version 6), with bootstrap values determined from 1,000 replicate trials. Genetic distances are indicated at the bottom, and percent bootstrap support is displayed at each node when it reaches 70% or higher.

(a) VP1 tree: R2 genotype

- R2-VP1 of Ghanaian G9P[4]
- └─ R2-VP1 of all G9P[4]
- R2-VP1 of Ghanaian DS-1-like



e

● M2-VP3 of Ghanaian G9P[4]
└─ M2-VP3 of all G9P[4]
● M2-VP3 of other Ghanaian DS-1-like

M2-VP3/G8P[6]
Ghana-2008

0.02

M2-VP3/G2P[4]
Ghana/2009

0.002

RVA/Human-wt/GHA/WMH-1453/2016/G9P[4]/VP3
RVA/Human-wt/GHA/WMH-1441/2015/G9P[4]/VP3
RVA/Human-wt/GHA/WMH-1445/2016/G9P[4]/VP3
RVA/Human-wt/GHA/WMH-1451/2016/G9P[4]/VP3
RVA/Human-wt/GHA/WMH-1446/2016/G9P[4]/VP3
RVA/Human-wt/GHA/WMH-1439/2015/G9P[4]/VP3
RVA/Human-wt/GHA/039M/2015/G9P[4]/VP3
RVA/Human-wt/GHA/WMH-1452/2016/G9P[4]/VP3
RVA/Human-wt/GHA/110M/2015/G9P[4]/VP3
RVA/Human-wt/GHA/135M/2016/G9P[4]/VP3
RVA/Human-wt/GHA/103M/2015/G9P[4]/VP3
RVA/Human-wt/GHA/119M/2016/G9P[4]/VP3
RVA/Human-wt/GHA/EUHC-002/2016/G9P[4]/VP3
RVA/Human-wt/GHA/132M/2016/G9P[4]/VP3
RVA/Human-wt/GHA/082M/2015/G9P[4]/VP3
RVA/Human-wt/IND/Kol-047/2013/G9P[4]/VP3
RVA/Human-wt/IND/Kol-051/2013/G9P[4]/VP3
RVA/Human-wt/IND/Kol-066/2013/G9P[4]/VP3
RVA/Human-wt/IND/Kol-063/2013/G9P[4]/VP3
RVA/Human-wt/IND/Kol-065/2013/G9P[4]/VP3
RVA/Human-wt/IND/Kol-064/2013/G9P[4]/VP3
RVA/Human-wt/IND/Kol-006/2011/G9P[4]/VP3
RVA/Human-wt/IND/Kol-018/2011/G9P[4]/VP3
IND/RV11/2011/G9P[4]/VP3
RVA/Human-wt/IND/RV10/2010/G9P[4]/VP3
RVA/Human-wt/USA/LB1562/2010/G9P[4]/VP3
RVA/Human-wt/IND/Kol-041/2012/G9P[4]/VP3
RVA/Human-wt/IND/Kol-040/2012/G9P[4]/VP3
RVA/Human-wt/IND/Kol-028/2012/G9P[4]/VP3
RVA/Human-wt/GHA/GHDC1581/2013/G2P[4]/VP3
RVA/Human-wt/GHA/GHPML1989/2012/G2P[4]/VP3
RVA/Human-wt/GHA/WMH-1447/2016/G2P[4]/VP3
RVA/Human-wt/GHA/WMH-1444/2016/G2P[4]/VP3
RVA/Human-wt/CZE/H187/2018/G9P[4]/VP3
RVA/Human-wt/CZE/H186/2018/G9P[4]/VP3
G2P[4]/2005-2011

M2-VP3 of all G9P[4]

M2–VP3 of other Ghanaian DS–1–like

M2-VP3/G2P[6]
Ghana/1999

M2-VP3/G8P[6]
Ghana-2008

0.02

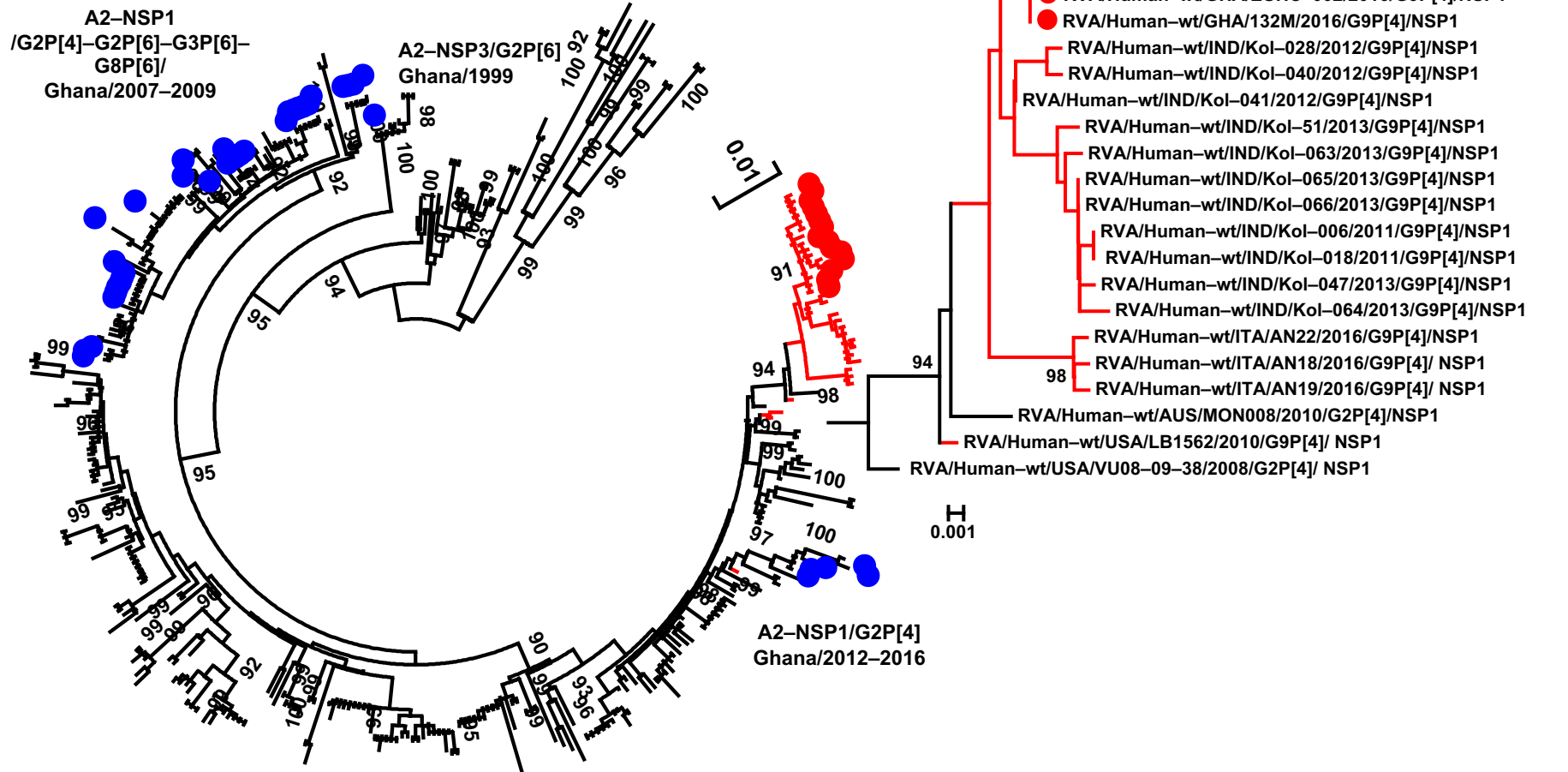
**M2-VP3/G2P[4
Ghana/2009**

0.002

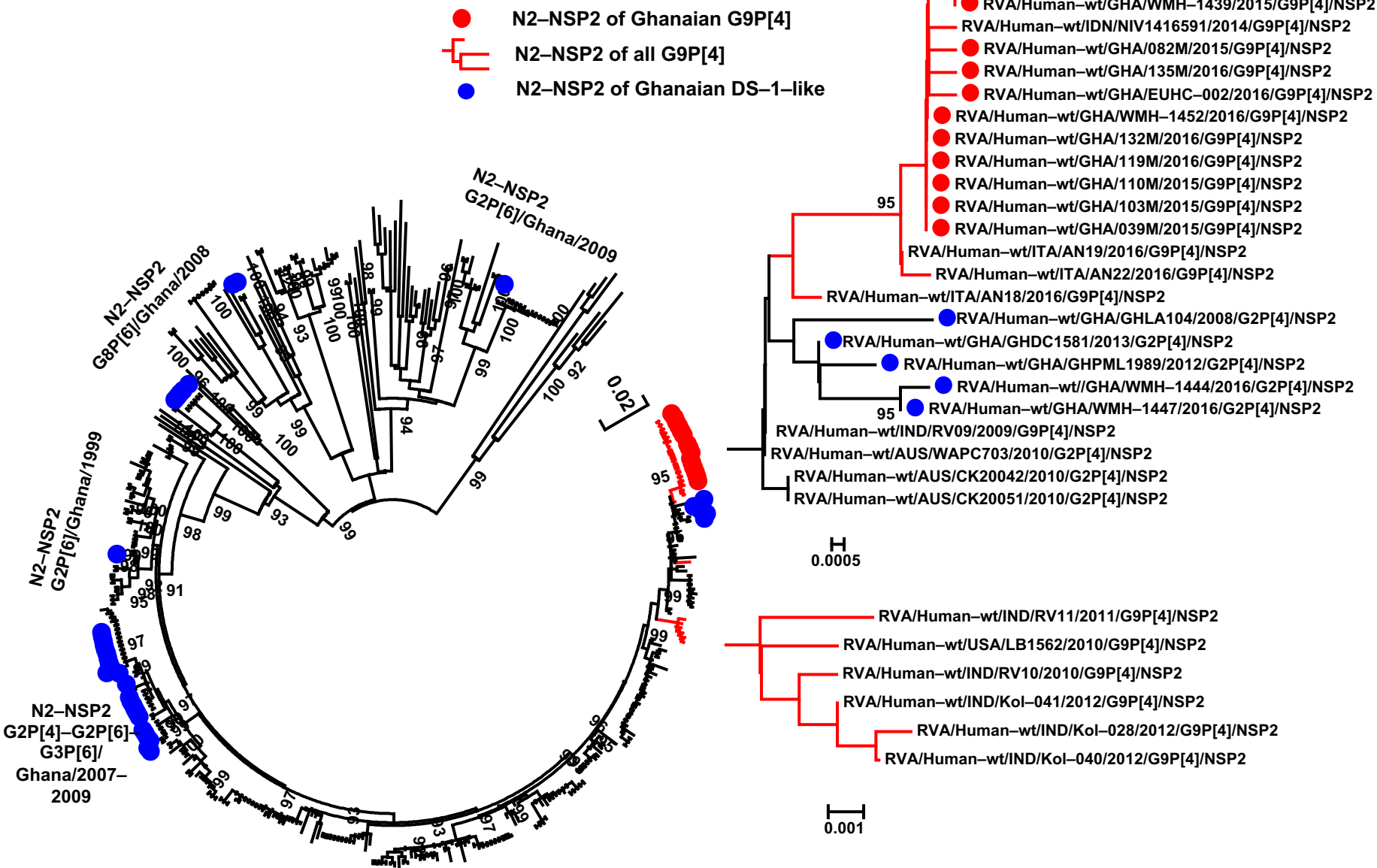
M2-VP3/G2P[4]-G2P[6]-G3P[6]
Ghana/2007-2009

(c) NSP1 tree: A2 genotype

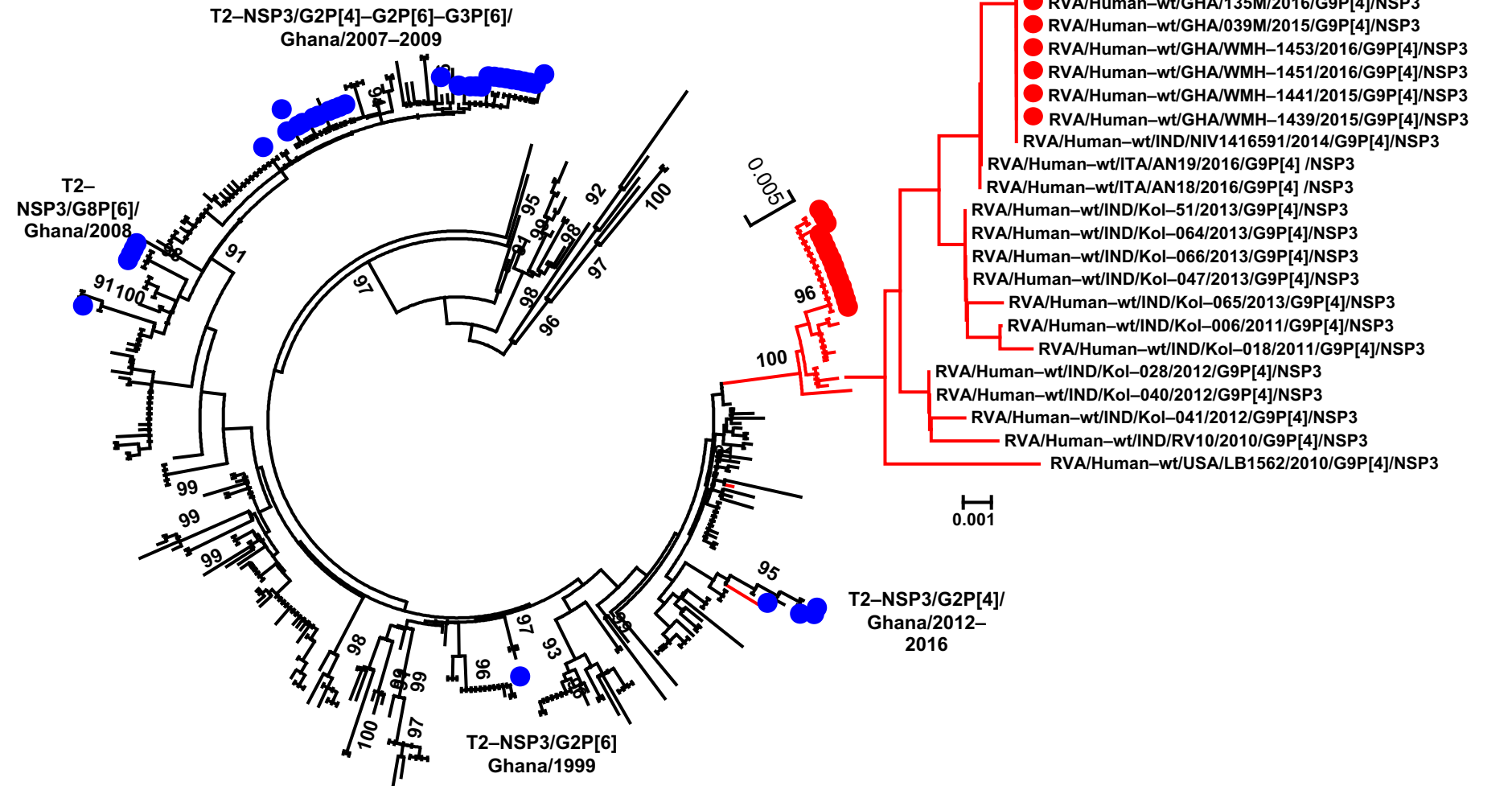
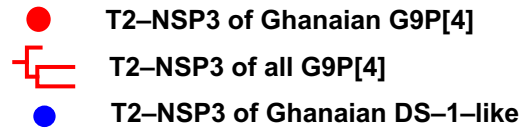
- A2-NSP1 of Ghanaian G9P[4]
- └ A2-NSP1 of all G9P[4]
- A2-NSP1 of Ghanaian DS-1-like



(d) NSP2 tree: N2 genotype



(e) NSP3 tree: T2 genotype



(f) NSP5 tree: H2 genotype

- H2-NSP5 of Ghanaian G9P[4]
- └─ H2-NSP5 of all G9P[4]
- H2-NSP5 of Ghanaian DS-1-like

