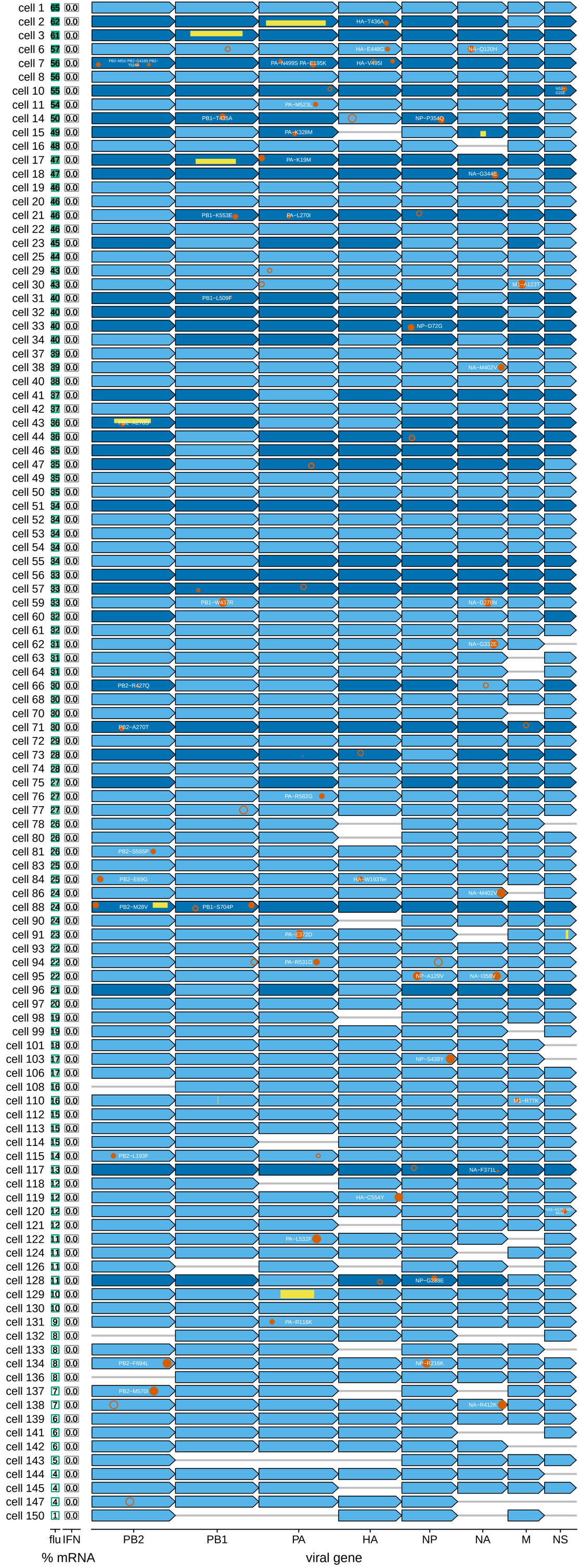
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cell 2 62 0.0
cell 3 61 0.0
cell 6 57 0.0
cell 7 56 0.0
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cell 11 54 0.0
cell 14 50 0.0
cell 15 49 0.0
cell 16 48 0.0
cell 17 47 0.0
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cell 22 46 0.0
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cell 25 44 0.0
cell 29 43 0.0
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cell 31 40 0.0
cell 32 40 0.0
cell 33 40 0.0
cell 34 40 0.0
cell 37 39 0.0
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cell 44 36 0.0
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cell 86 24 0.0
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cell 91 23 0.0
cell 93 22 0.0
cell 94 22 0.0
cell 95 22 0.0
cell 96 21 0.0
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cell 98 19 0.0
cell 99 19 0.0
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cell 108 16 0.0
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cell 114 15 0.0
cell 115 14 0.0
cell 117 13 0.0
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cell 126 11 0.0
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cell 130 10 0.0
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cell 132 8 0.0
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cell 134 8 0.0
cell 136 8 0.0
cell 137 7 0.0
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cell 144 4 0.0
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cell 150 1 0.0
HA−T436A
HA−E448G
NA−Q120H
PB2−M51I PB2−G416S PB2−T524A
PA−N499S PA−E195K
HA−V495I
NS2−G52E
PA−M523L
PB1−T435A
NP−P354Q
PA−K328M
PA−K19M
NA−G344E
PB1−K553E
PA−L270I
M1−A123T
PB1−L509F
NP−D72G
NA−M402V
PB2−A276S
PB1−W437R
NA−D278N
NA−G332E
PB2−R427Q
PB2−A270T
PA−R582G
PB2−S565P
PB2−E69G
HA−W193Ter
NA−M402V
PB2−M28V
PB1−S704P
PA−E372D
PA−R531G
NP−A129V
NA−I358V
NP−S438Y
M1−R77K
PB2−L193F
NA−F371L
HA−C554Y
PA−L532F
NP−G288E
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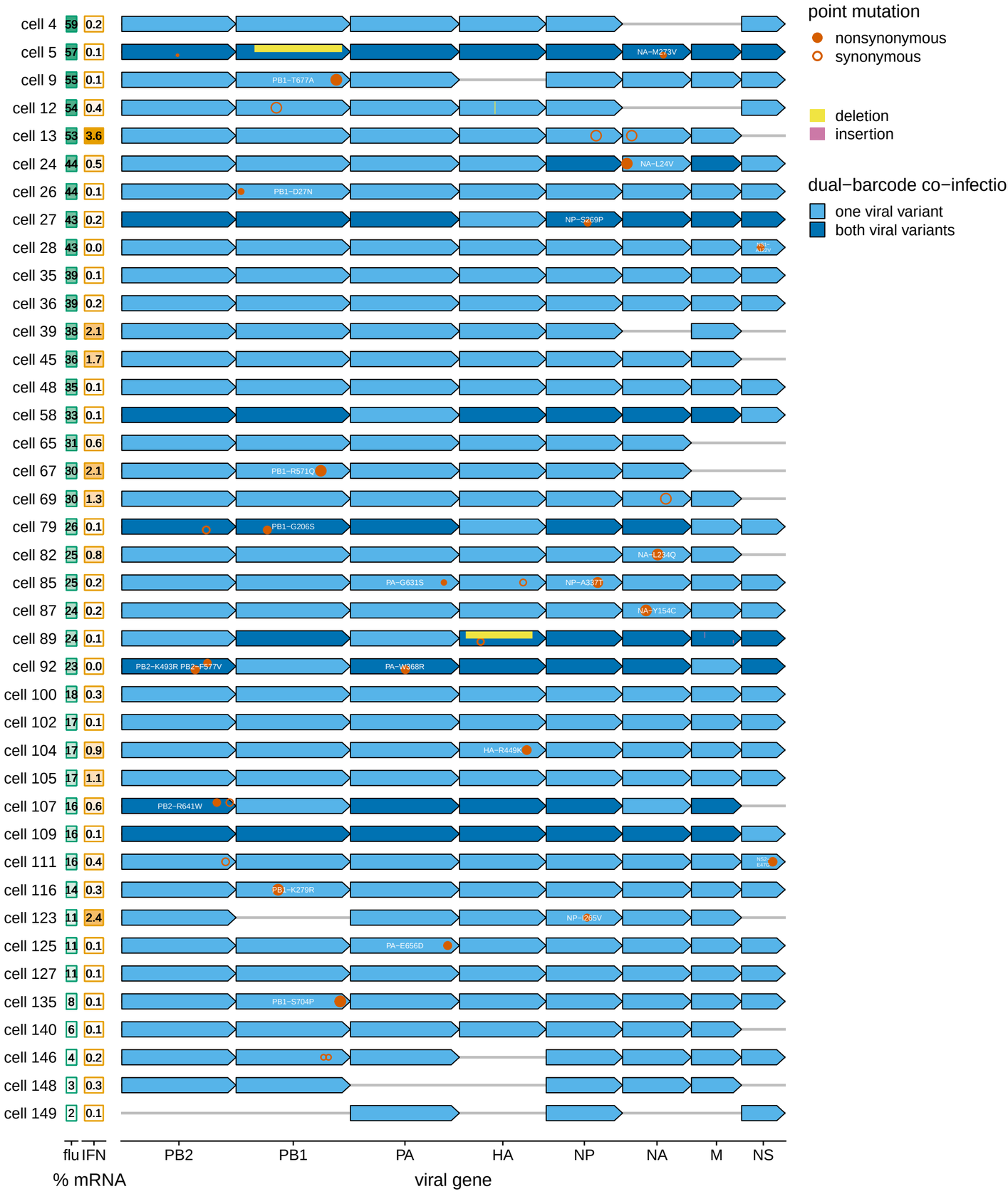
PB2−M570I
NA−R412K
flu IFN PB2 PB1 PA HA NP NA M NS
% mRNA viral gene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cell 5 57 0.1
cell 9 55 0.1
cell 12 54 0.4
cell 13 53 3.6
cell 24 44 0.5
cell 26 44 0.1
cell 27 43 0.2
cell 28 43 0.0
cell 35 39 0.1
cell 36 39 0.2
cell 39 38 2.1
cell 45 36 1.7
cell 48 35 0.1
cell 58 33 0.1
cell 65 31 0.6
cell 67 30 2.1
cell 69 30 1.3
cell 79 26 0.1
cell 82 25 0.8
cell 85 25 0.2
cell 87 24 0.2
cell 89 24 0.1
cell 92 23 0.0
cell 100 18 0.3
cell 102 17 0.1
cell 104 17 0.9
cell 105 17 1.1
cell 107 16 0.6
cell 109 16 0.1
cell 111 16 0.4
cell 116 14 0.3
cell 123 11 2.4
cell 125 11 0.1
cell 127 11 0.1
cell 135 8 0.1
cell 140 6 0.1
cell 146 4 0.2
cell 148 3 0.3
cell 149 2 0.1
NA−M273V
PB1−T677A
NA−L24V
PB1−D27N
NP−S269P
PB1−G206S
NA−L234Q
PA−G631S
NP−A337T
NA−Y154C
PB2−K493R PB2−F577V
PA−W368R
HA−R449K
PB2−R641W
PB1−K279R
NP−I265V
PA−E656D
PB1−S704P
PB1−R571Q
flu IFN PB2 PB1 PA HA NP NA M NS
% mRNA viral gene
point mutation
nonsynonymous
synonymous
deletion
insertion
dual−barcode co−infectio
one viral variant
both viral variants