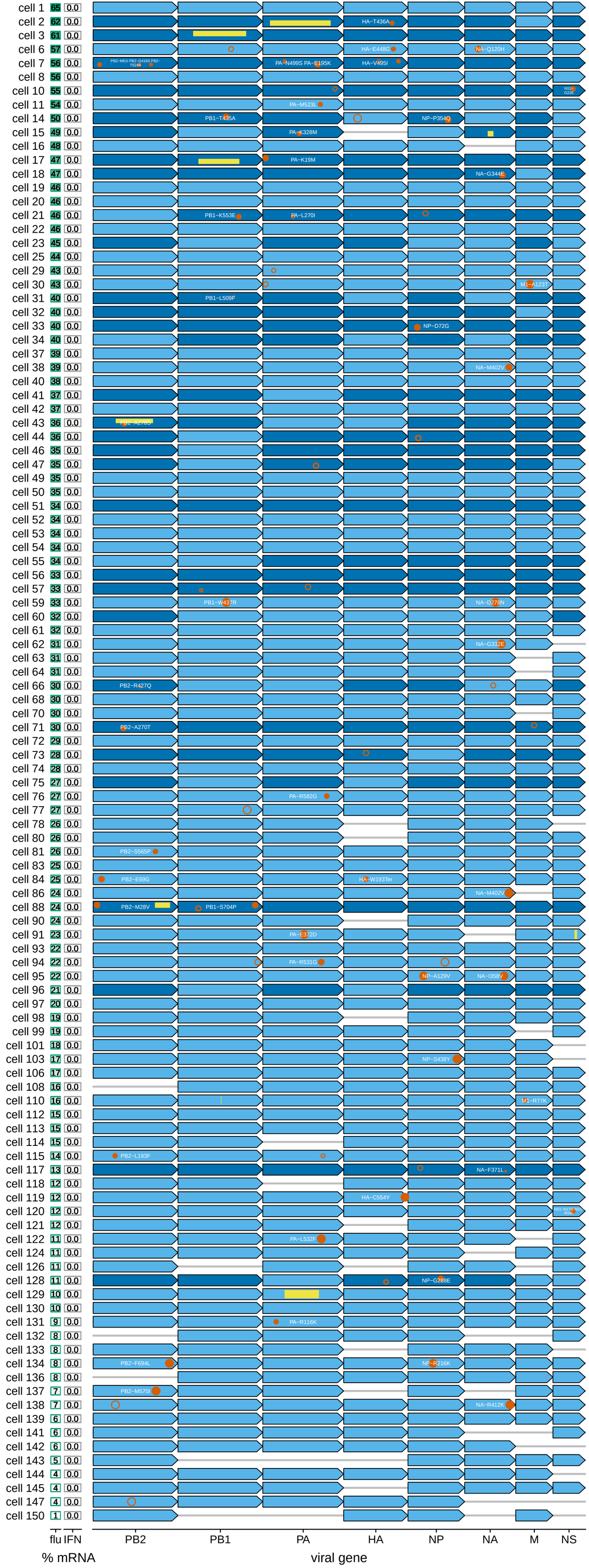

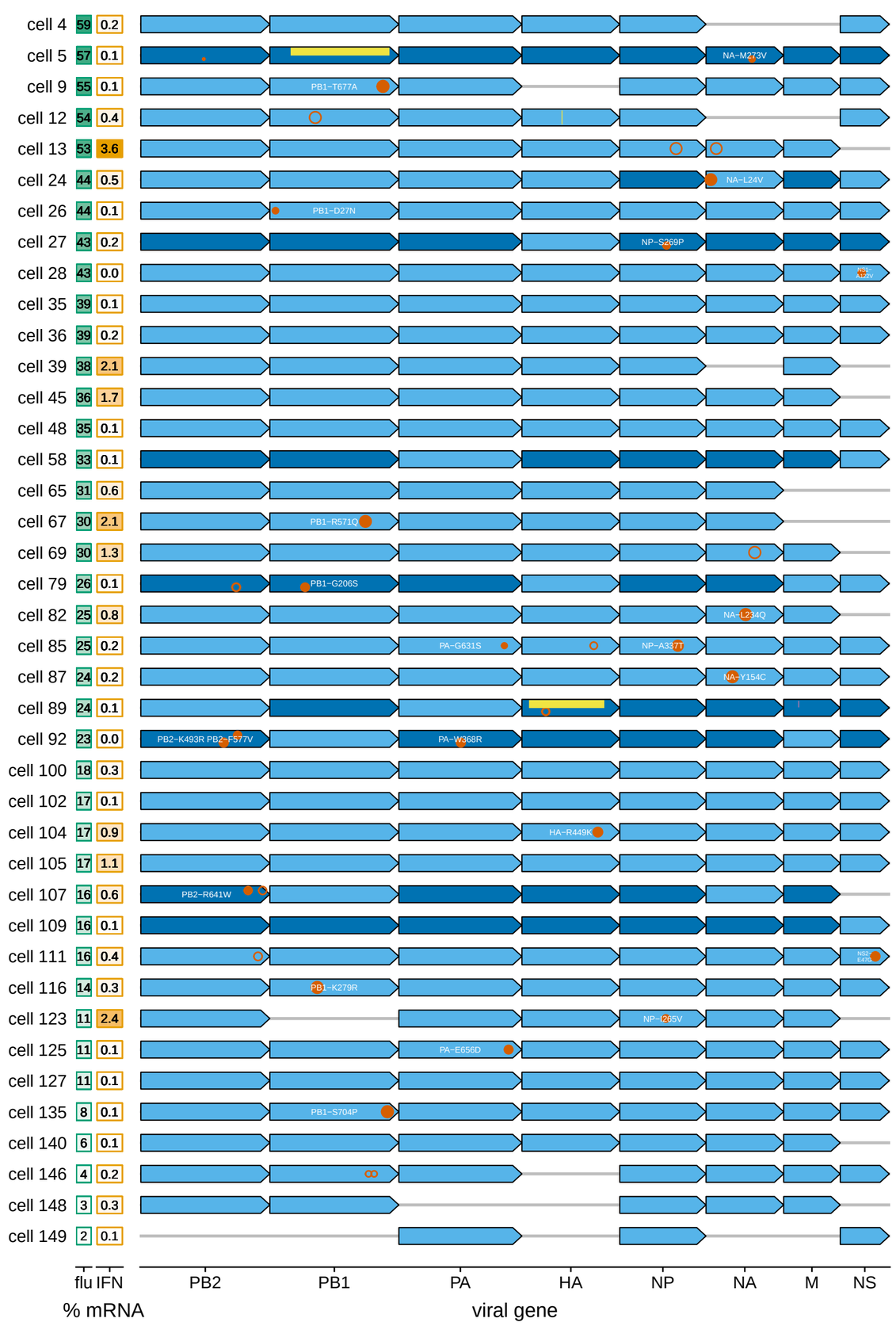

point mutation

- nonsynonymous
- synonymous

- deletion
- insertion

viral barcodes

- 1
- 2