Comparison of Wild type and Omicron variant in plaque reduction neturalization tests: Sera from BNT162b2, CoronaVac and Convalescent sera

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Omicron variant isolated in Vero-TMRSS cells
Sequence identical to original specimen
Has R346
P3 stock used for PRNT

Post vaccine sera
1 month post 2nd dose
Randomly selected

Selected from day 143 – 196 post infection
50% plaque reduction neutralization test titres in BNT162b2 or CoronaVac vaccinees (2 dose) and convalescent sera (20 in each group)

**BNT162b2**

<table>
<thead>
<tr>
<th>GMT</th>
<th>218.6</th>
<th>6.8</th>
</tr>
</thead>
<tbody>
<tr>
<td>95% CI</td>
<td>(155-307)</td>
<td>(9-6)</td>
</tr>
<tr>
<td>Detectable</td>
<td>20/20</td>
<td>7/20</td>
</tr>
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<td>≥ protection</td>
<td>19/20</td>
<td>0/20</td>
</tr>
</tbody>
</table>

Fold reduction GMT 32 fold

≥ 64 fold

Khory et al 2021

56y F
Diagnosed 18/7/2020
Moderate ill
No travel

Fold reduction GMT 32 fold

9.1 fold

≥64 fold

BNT162b2

CoronaVac

Convalescent (143-196 days)

n=14

n=1

n=3

Age 33-69
50% plaque reduction neutralization test titres in BNT162b2 or CoronaVac vaccinees and convalescent sera (20 individuals in each group)

**BNT162b2**
- Fold reduction GMT 32 fold
- GMT: 218.6
- 95% CI: (155-307)
- Detectable: 20/20
- ≥ protection: 19/20
- **CoronaVac**
- GMT: 6.8
- 95% CI: (9-6)
- Detectable: 7/20
- ≥ protection: 0/20

**Titre**
- WT
- Omicron

**Fold reduction GMT 32 fold**

**95% CI**

- (155-307)
- (9-6)

**Detectable**

- 20/20
- 7/20

**≥ protection**

- 19/20
- 0/20

**threshold (1:26) Khoury et al 2021**

- Age: 33-69

**Diagnosed**

- 18/7/2020

**Moderate illness**

- No travel

**Fold reduction GMT 32 fold**

- 9.1 fold
- ≥64 fold
50% plaque reduction neutralization test titres in BNT162b2 or CoronaVac vaccinees and convalescent sera (20 individuals in each group)

**BNT162b2**

- Fold reduction GMT 32 fold
- GMT: 218.6
- 95% CI: (155-307)
- Detectable: 20/20
- ≥ protection: 19/20
- Age: 33-69

**CoronaVac**

- GMT: 37.3
- 95% CI: (25-57)
- Detectable: 7/20
- ≥ protection: 0/20
- Age: 39-61

**Convalescent (143-196 days)**

- GMT: 80
- 95% CI: (6-113)
- Detectable: 8/20
- ≥ protection: 1/20
- Age: 21-70

**Fold reduction GMT**

- BNT162b2: 32 fold
- CoronaVac: 9.1 fold
- Convalescent: 64 fold

Additional details:
- 56y F
- Diagnosed 18/7/2020
- Moderate illness
- No travel
- Wave 3 (B.1.1.63)
Conclusions

• ≥32 fold drop of PRNT in vaccinated sera (2 dose) and none had PRNT$_{50}$ titres meeting estimated threshold for protection of 50% of vaccines (Khoury et al Nature Med 2021)

• ? PRNT drop in convalescent sera may be less, and some individuals retain good neutralization vs. Omicron variant out to 4-6 months?

• NIBSC20/136 has PRNT50 titre of 1:40 which is better that our internal lab control convalescent positive control (to be repeated).

• Data on booster dose for BNT162b2 and CoronaVac groups and more sera from the 2 dose groups will follow.