**Supplementary File 1. Estimated parameters of the three models**

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| --- | --- | --- | --- | --- |
| Parameter Name | Symbol (Unit) | Baseline model | “Eclipse phase” model | “Innate immune response” model |
| Maximum rate constant for viral replication | $γ$(day-1) | $$3.80$$ | $$2.87×10^{6 \&} $$ | $$6.98$$ |
| Rate constant for virus infection | $β$([copies/ml]-1 day-1) | $$7.9×10^{-6}$$ | $$4.8×10^{-6}$$ | $$1.6×10^{-6}$$ |
| Death rate of infected cells | $δ$(day-1) | $$0.68$$ | $$0.84$$ | $$2.10$$ |
| Viral load at symptom onset | $V(0)$ (copies/ml) | $$3.3×10^{4}$$ | $$5.2×10^{4}$$ | $$393×10^{4}$$ |
| Ratio of infected cells | $f\_{I}\left(0\right)$ (unitless) | -- | $$0.1^{\#}$$ | -- |
| Mean length of eclipse phase | $1/k$ (day) | -- | $$1/3^{\*}$$ | -- |
| Concentration of INFs | $F\left(0\right)$ (concentration) | -- | -- | $$8.3×10^{3}$$ |
| Concentration of INFs that produces a half-maximum rate constant for viral replication | $1/η$ (concentration) | -- | -- | $$1.0×10^{4}^{\#}$$ |
| Rate constant which is proportional to secretion of INFs from infected cells | $s$ (day-1) | -- | -- | $$0.01^{\#}$$ |
| Removal rate of IFNs | $α$ (day-1) | -- | -- | $$0.7^{\#}$$ |

&The unit is [copies/ml] day-1. \*Parameter values are fixed based on previous studies (Gonçalves et al., 2020; Néant et al., 2021). #Parameter values are assumed.