

Highly-transmissible variants of SARS-CoV-2 may be more susceptible to drug therapy than wild type strains

Supplementary Information

Table S1 - Simulated within-host viral kinetics at different levels of cellular infectivity (given as multiples of $R_0=3.79$). dpi: days post infection; d: day; min Ct: minimum serial cycle threshold values; AUC: area under the curve; $\Delta AUC\%$: percentage difference in AUC compared to wild-type

Infectivity	Start positivity [dpi]	Duration [d]	Ctmin	AUC [d*log(copies/mL)]	$\Delta AUC\%$
wild type (R_0)	5.4	13.5	28.4	12003	100%
highly transmissible mutation					
$R_0*1.25$	3.7	12.7	27.4	18278	152%
$R_0*1.5$	2.9	12.1	26.5	26648	222%
R_0*2	2.1	11.4	25.2	48197	402%
less transmissible mutation					
$R_0*0.75$	9.1	15.1	29.6	7975	66%

Table S2 - Simulated effects of treatment with ivermectin 600 ug/kg for 3d by infectivity (given as multiples of $R_0=3.79$) and time of treatment initiation. dpi: days post infection; d: day; min Ct: minimum serial cycle threshold values; AUC: area under the curve; $\Delta AUC\%$: percentage difference in AUC compared to wild-type.

Infectivity	Treatment initiation [dpi]	Start positivity [dpi]	Duration [d]	Ctmin	AUC [d*log(copies/mL)]	$\Delta AUC\%$
wild type						
R_0	-2	7	13.1	28.7	10286	86%
	-1	7.4	13	28.8	9897	82%
	0	7.8	12.9	28.8	9618	80%
	1	7.8	13	28.8	9569	80%
	2	7.8	13	28.8	9490	79%
	3	7.7	13.2	28.9	9425	79%
	4	7.4	13.5	28.9	9376	78%
	5	5.9	15.1	29.0	9337	78%
	6	5.4	15.6	29.1	9295	77%
	7	5.4	15.5	29.3	9251	77%
	<i>untreated</i>	5.4	13.5	28.4	12003	100%
highly transmissible mutants						
$R_0*1.25$	-2	5.1	12.3	27.8	14408	79%
	-1	5.5	12.2	27.9	13521	74%
	0	5.8	12.1	28.0	12885	70%
	1	5.7	12.3	28.1	12759	70%
	2	5.5	12.5	28.1	12598	69%
	3	4.6	13.5	28.2	12499	68%
	4	3.7	14.3	28.3	12507	68%
	5	3.7	14.2	28.4	12687	69%

Schöning, Sars2variants (2021)

Infectivity	Treatment initiation [dpi]	Start positivity [dpi]	Duration [d]	Ctmin	AUC [d*log(copies/mL)]	ΔAUC%
	6	3.7	14	28.5	13257	73%
	7	3.7	13.4	27.9	14530	80%
	<i>untreated</i>	3.7	12.7	27.4	18278	100%
R0*1.5						
	-2	4	11.8	27.0	19817	74%
	-1	4.3	11.8	27.2	18239	68%
	0	4.5	11.8	27.3	17118	64%
	1	4.3	12.1	27.4	16921	64%
	2	3.6	12.8	27.4	16733	63%
	3	2.9	13.4	27.6	16772	63%
	4	2.9	13.3	27.7	17305	65%
	5	2.9	12.9	27.4	18947	71%
	6	2.9	12.4	26.9	21771	82%
	7	2.9	12.1	26.5	24258	91%
	<i>untreated</i>	2.9	12.1	26.5	26648	100%
R0*2						
	-2	2.8	11.4	25.8	33795	70%
	-1	3.1	11.3	26.0	30420	63%
	0	3.1	11.5	26.2	28108	58%
	1	2.6	11.9	26.2	28014	58%
	2	2.1	12.3	26.3	28386	59%
	3	2.1	12	26.4	30456	63%
	4	2.1	11.6	25.7	35944	75%
	5	2.1	11.4	25.2	42350	88%
	6	2.1	11.3	25.2	45835	95%
	7	2.1	11.3	25.2	47181	98%
	<i>untreated</i>	2.1	11.4	25.2	48197	100%
less transmissible mutation						
R0*0.75						
	-2	10.9	14.8	29.7	7483	94%
	-1	11.4	14.7	29.7	7374	93%
	0	11.8	14.7	29.7	7296	92%
	1	11.8	14.7	29.7	7290	91%
	2	11.9	14.7	29.7	7271	91%
	3	11.9	14.8	29.7	7254	91%
	4	11.9	14.8	29.7	7241	91%
	5	11.9	14.8	29.7	7229	91%
	6	11.8	15	29.7	7212	91%
	7	11.6	15.2	29.8	7187	90%
	<i>untreated</i>	9.1	15.1	29.6	7969	100%