

Actualización Enero 21

Nestor Sosa MD FACP

Variantes:

B.1.1.7.

UK

N50Y.V2 o B1.35

Sudáfrica

P1.

Brasil

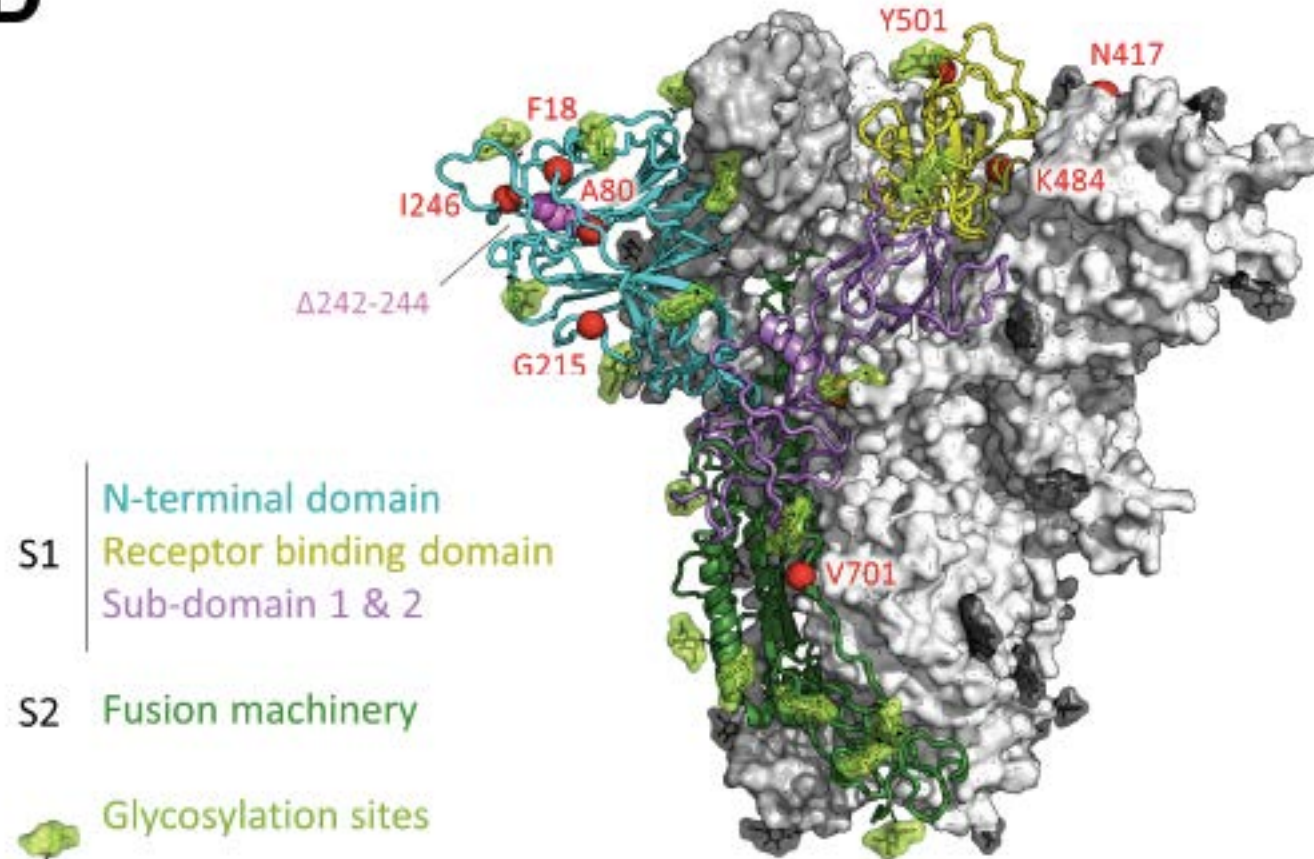
Emergence and rapid spread of a new severe acute respiratory syndrome-related coronavirus 2 (SARS-CoV-2) lineage with multiple spike mutations in South Africa

Houriyyah Tegally^{1*}, Eduan Wilkinson^{1*}, Marta Giovanetti^{2,3*}, Arash Iranzadeh^{4*}, Vagner

medRxiv preprint doi: <https://doi.org/10.1101/2020.12.21.20248640>;

501Y.V2

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Genomic characterisation of an emergent SARS-CoV-2 lineage in Manaus: preliminary findings

SARS-CoV-2 coronavirus | nCoV-2019 Genomic Epidemiology



nuno_faria

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Jan 12

Genomic characterisation of an emergent SARS-CoV-2 lineage in Manaus: preliminary findings

Nuno R. Faria^{1,2,3}, Ingra Morales Claro^{3,4}, Darlan Candido^{2,3}, Lucas A. Moyses Franco^{3,4}, Pamela S. Andrade^{3,4}, Thais M. Coletti^{3,4}, Camila A. M. Silva^{3,4}, Flavia C. Sales^{3,4}, Erika R. Manuli^{3,4}, Renato S. Aguiar⁵, Nelson Gaburo⁶, Cecília da C. Camilo⁷, Nelson A. Fraiji⁸, Myuki A. Esashika Crispim⁸, Maria do Perpétuo S. S. Carvalho⁸, Andrew Rambaut⁹, Nick Loman¹⁰, Oliver G. Pybus², Ester C. Sabino^{3,4}, on behalf of CADDE Genomic Network¹¹

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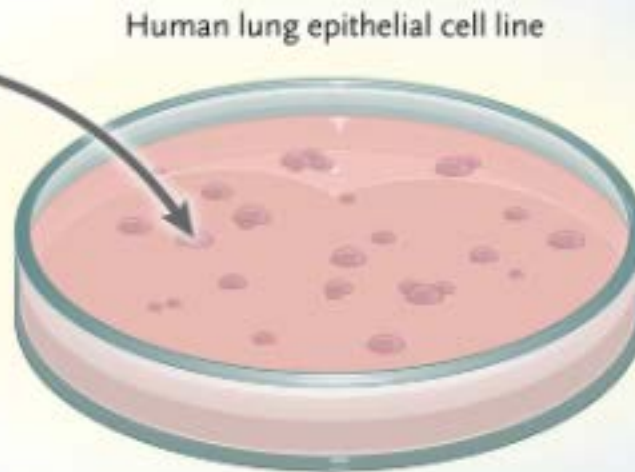
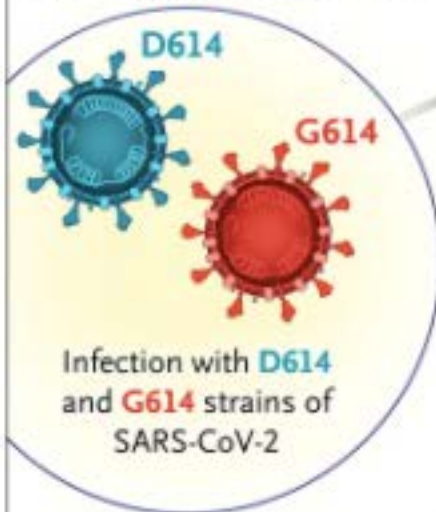
Jan 12

Summary

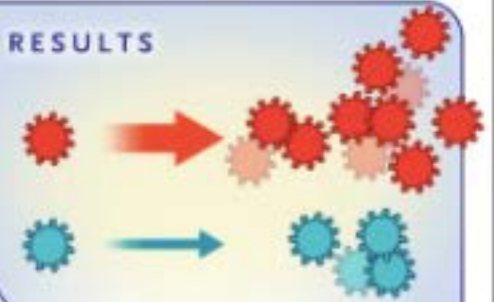
We have detected a new variant circulating in December in Manaus, Amazonas state, north Brazil, where very high attack rates have been estimated previously. The new lineage, named P.1 (descendent of B.1.1.28), contains a unique constellation of lineage defining mutations, including several mutations of known biological importance such as E484K, K417T, and N501Y. Importantly, the P.1 lineage was identified in 42% (13 out of 31) RT-PCR positive samples collected between 15 to 23 December, but it was absent in 26 publicly available genome surveillance samples collected in Manaus between March to November 2020.

¿Cómo evaluar transmisibilidad de las nuevas cepas o variantes?

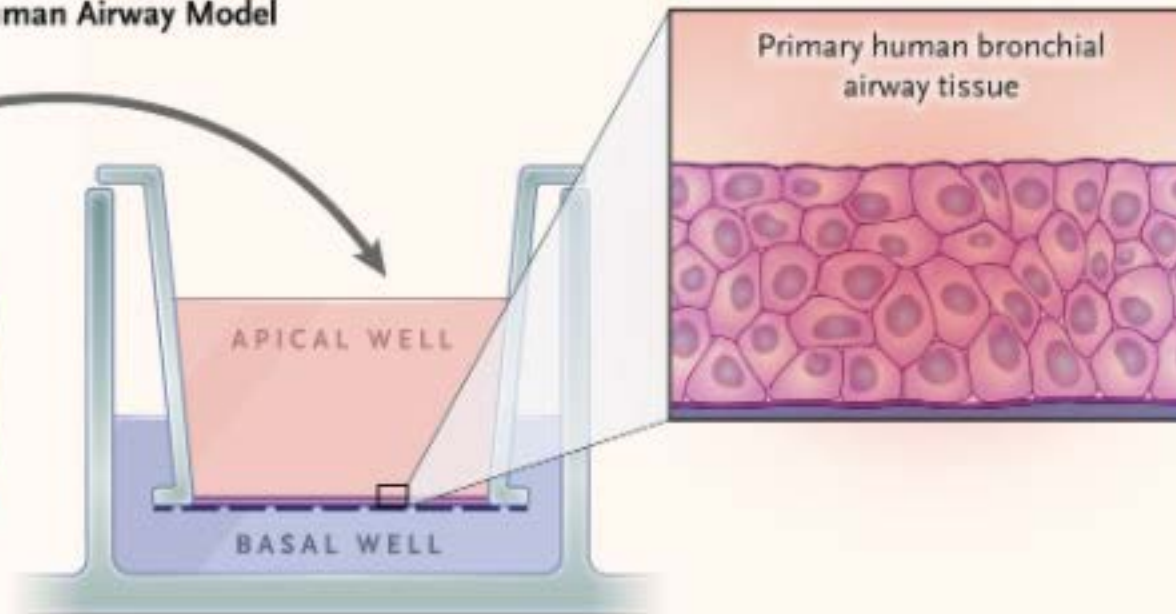
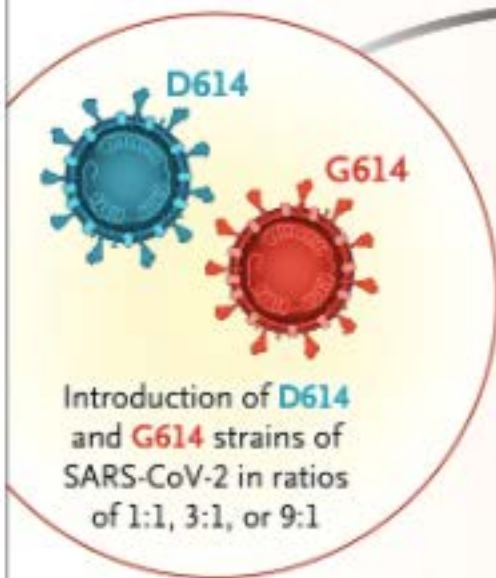
A Viral Infection Tested in Cell Culture



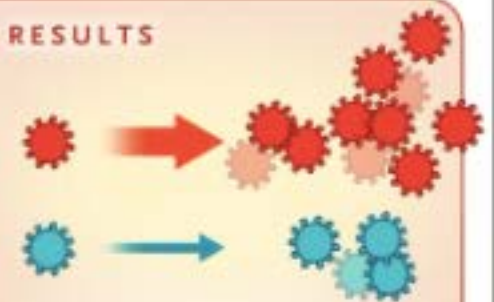
RESULTS



B Viral Infection Tested in Human Airway Model



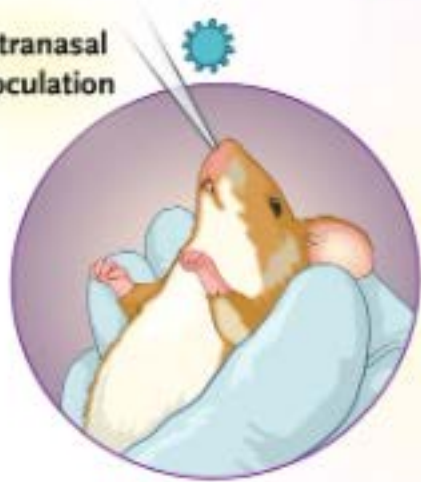
RESULTS



C Viral Fitness Tested in Hamster Model

4-to-5-week-old male golden Syrian hamsters

Intranasal inoculation



D614-infected group, N = 18



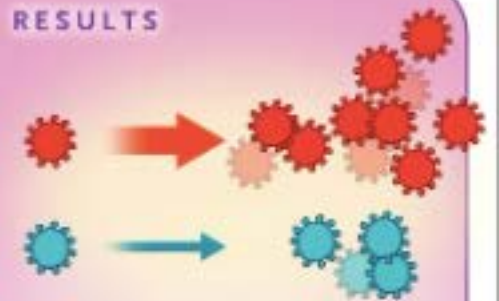
G614-infected group, N = 18



Coinfected group, N = 18

Nasal washes obtained and lobes of lung harvested 2, 4, and 7 days after inoculation

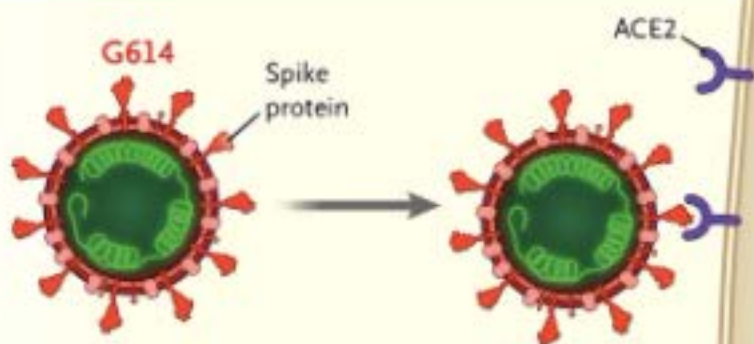
RESULTS



- G614 variant present in higher titers in nasal washes but not lungs
- G614 variant outcompeted D614 strain in coinfecting hamsters

D Neutralization Assay

No serum treatment

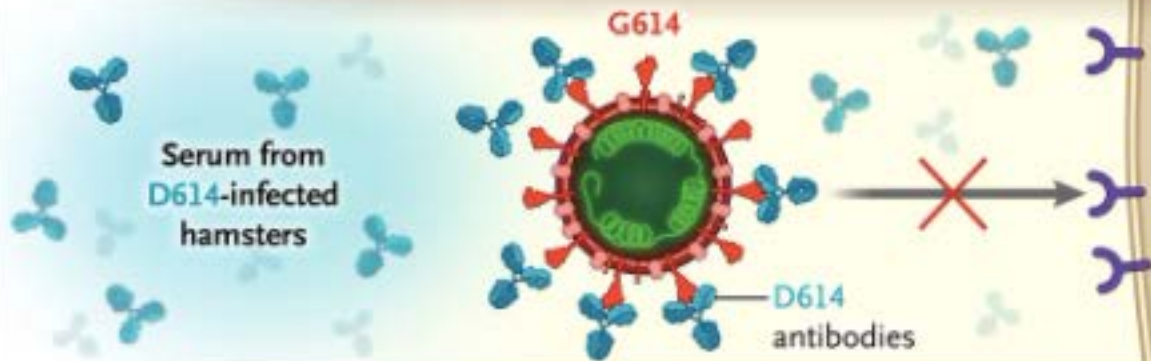


Monkey kidney cell line



Viral replication

Serum from D614-infected hamsters

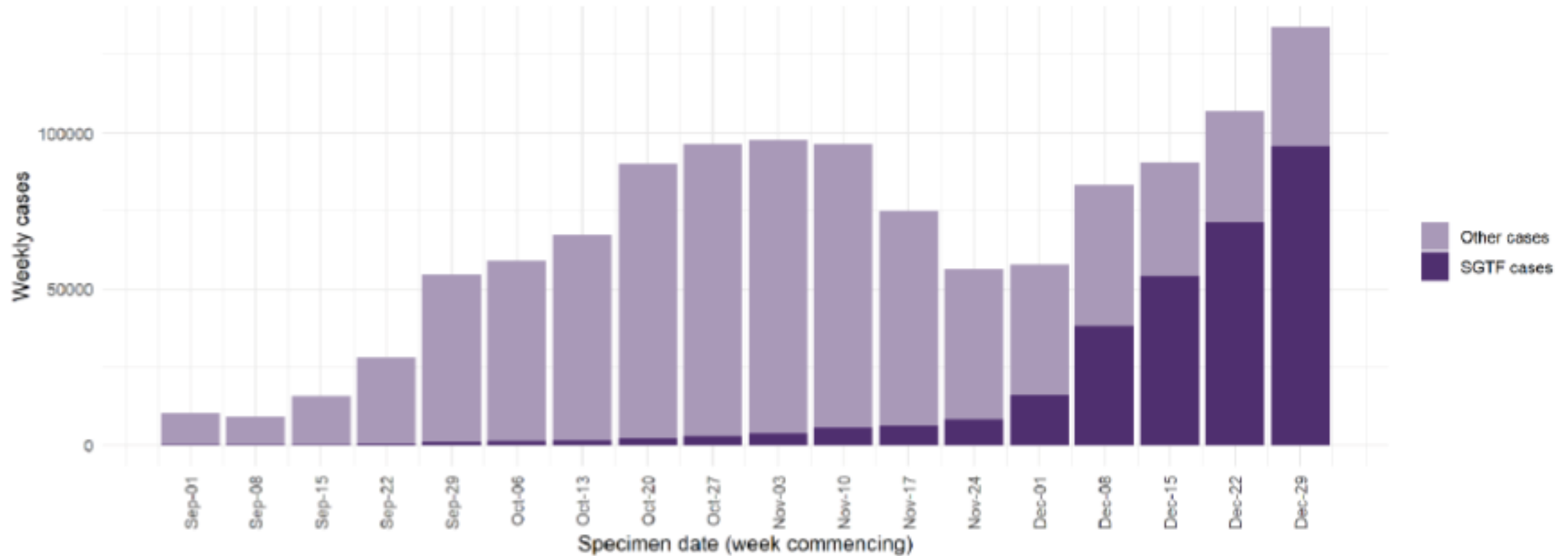


RESULTS

No viral entry or replication.
G614 strain is successfully neutralized

Weekly number of Pillar 2 cases tested by TaqPath labs, by S-gene detection

2020-09-01 to 2021-01-04



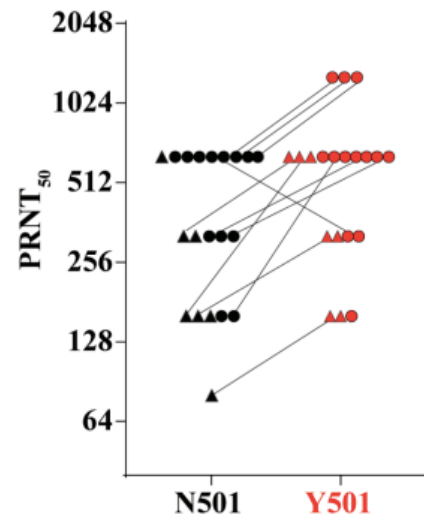
VOC-202012/01 is confirmed through whole genome sequencing. SGTF is a surveillance proxy based on PCR CT values and may include other variants, particularly before December 2020.
 SGTF = Positive test with non-detectable S gene and ≤ 30 CT values for N and ORF1ab genes respectively
 TaqPath labs = Alderley Park, Milton Keynes and Glasgow Lighthouse Labs.
 Cases deduplicated to one positive test per person per week, prioritising SGTF tests. Complete 7-day periods shown with moving start days.
 Data source: SGSS

Figure 4. Weekly number of Pillar 2 cases tested by TaqPath labs, by S-gene detection (1 September 2020 to 4 January 2021)

New Variants and Vaccine Efficacy

Neutralization of N501Y mutant SARS-CoV-2 by BNT162b2 vaccine-elicited sera

Xuping Xie¹, Jing Zou¹, Camila R. Fontes-Garfias¹, Hongjie Xia¹, Kena A. Swanson², Mark Cutler², David Cooper², Vineet D. Menachery^{3,4}, Scott Weaver^{3,4}, Philip R. Dormitzer^{2,#}, Pei-Yong Shi^{1,4,5,6,7,#}

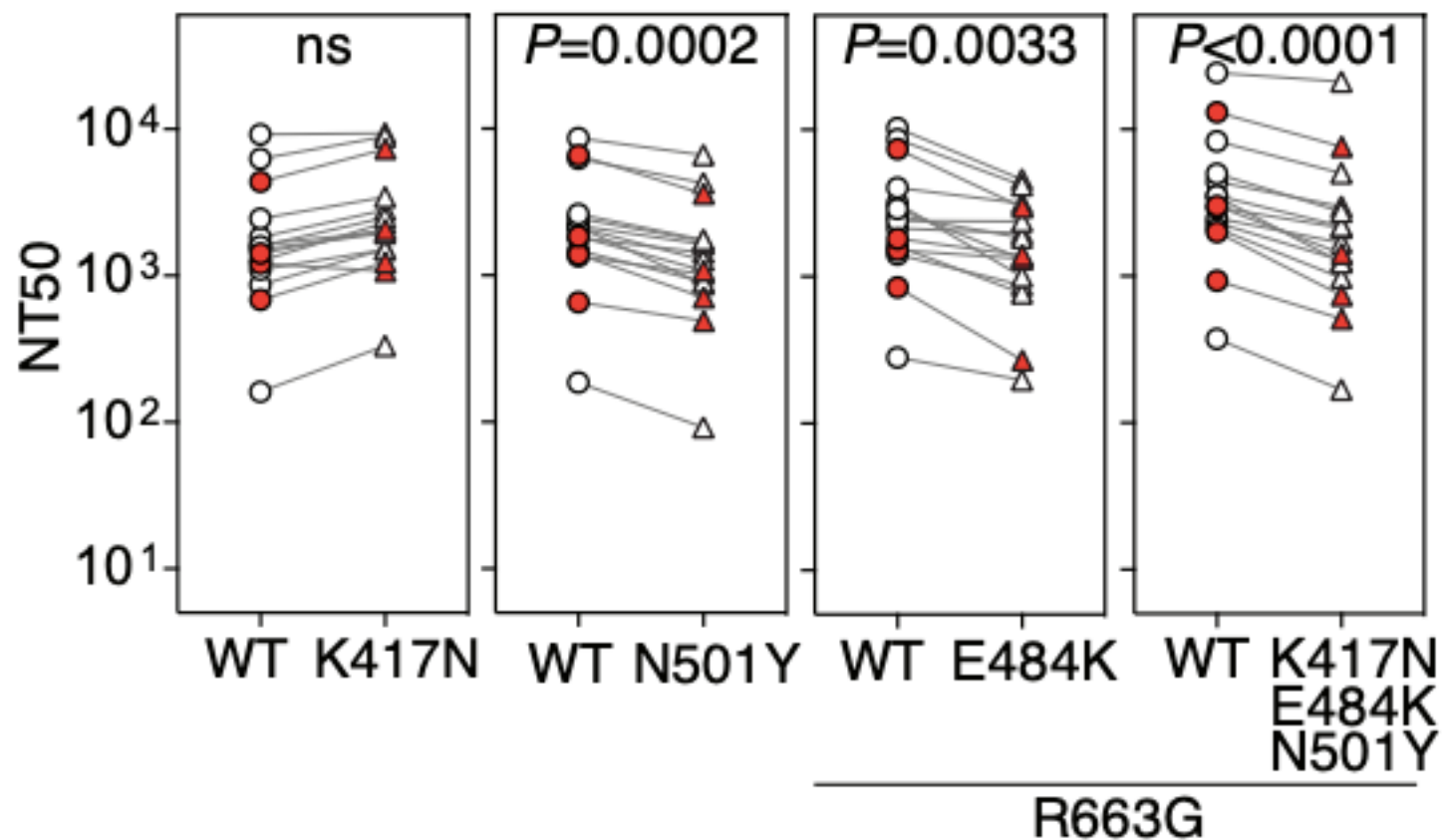


The ratio of the 50% neutralization GMT of the sera against the Y501 virus to that against the N501 virus was 1.46, indicating no reduction in neutralization activity against the virus bearing the Y501 spike

Figure 1. 50% plaque reduction neutralization titers of 20 sera from BNT162b2 vaccine recipients against N501 and Y501 SARS-CoV-2. Seven sera (indicated by triangles) were drawn 2 weeks after the second dose of vaccine; 13 sera (indicated by circles) were drawn 4 weeks after the second dose.

mRNA vaccine-elicited antibodies to SARS-CoV-2 and circulating variants

Zijun Wang, Fabian Schmidt, Yiska Weisblum, Frauke Muecksch, Christopher O Barnes, Shlomo Finkin,

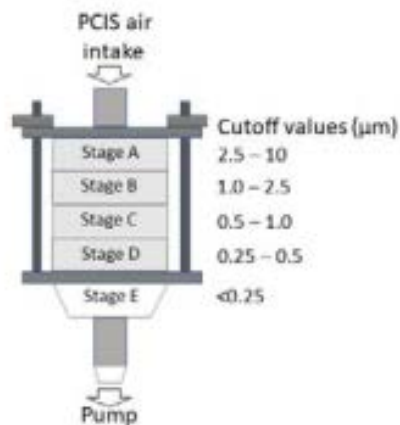


Isolation of SARS-CoV-2 from the air in a car driven by a COVID patient with mild illness

John A. Lednicky,^{1,2} Michael Lauzardo,^{1,3} Md. M. Alam,^{1,2} Maha A. Elbadry,^{1,2} Caroline J. Stephenson,^{1,2} Julia C. Gibson,^{1,2} and J. Glenn Morris, Jr.^{1,3*}

ABSTRACT

We used a Sioutas personal cascade impactor sampler (PCIS) to screen for SARS-CoV-2 in a car driven by a COVID-19 patient. SARS-CoV-2 was detectable at all PCIS stages by PCR and was cultured from the section of the sampler collecting particles in the 0.25 to 0.50 μm size range.



Interim Results of a Phase 1–2a Trial of Ad26.COV2.S Covid-19 Vaccine

Jerald Sadoff, M.D., Mathieu Le Gars, Ph.D., Georgi Shukarev, M.D., Dirk Heerwegh, Ph.D., Carla Truyers, Ph.D., Anne M. de Groot, Ph.D., Jeroen Stoop, Ph.D., Sarah Tete, Ph.D., Wim Van Damme, M.D., Isabel Leroux-Roels, M.D., Pieter-Jan Berghmans, M.D., Murray Kimmel, D.O., [et al.](#)

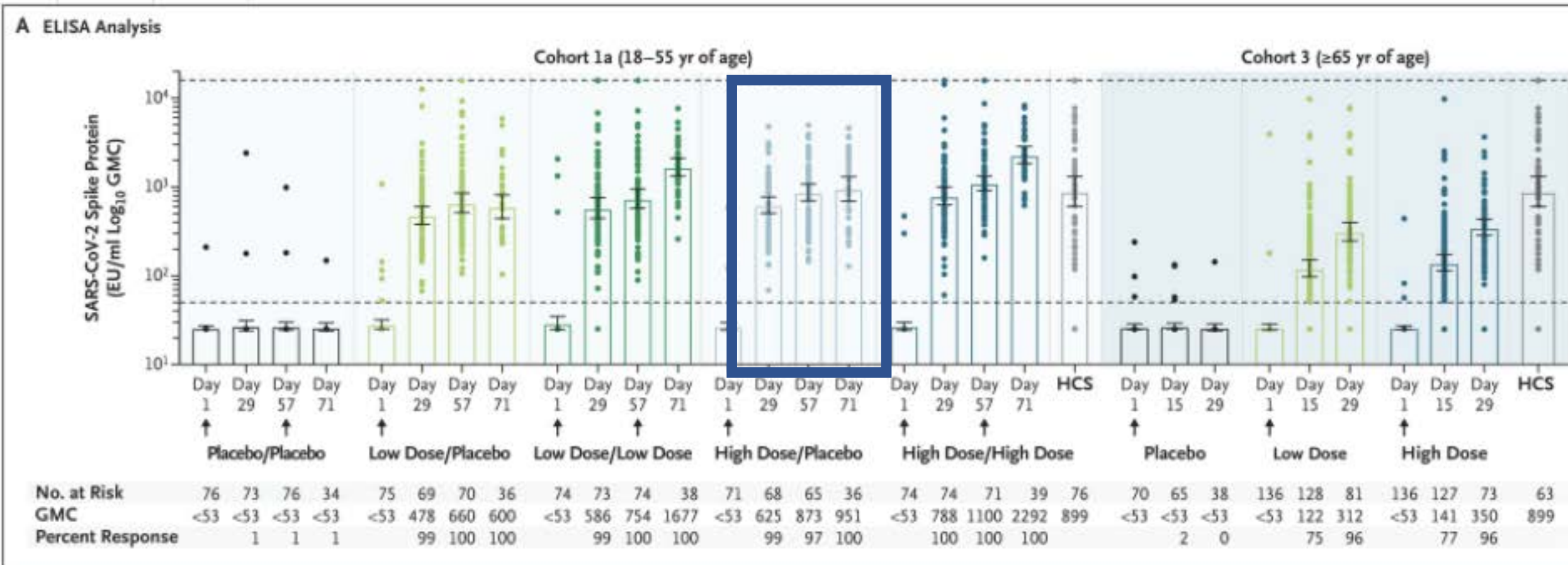
- Ad26.COV2.S recombinant, replication incompetent adenovirus serotype 26(Ad26) vector encoding full length-stabilized S-protein
- Phase 1-2: **Cohort 1 18-55y n=402** and **Cohort 2 $\geq 65y$ n=403**
Randomized to **one or two vaccine doses (56d apart)**,
and two amounts: **Low dose (5×10^{10})** or **High dose (1×10^{11})** or
placebo in a 1:1:1:1:1 (LD-LD. LD-Pbo HD-HD HD-Pbo Pbo-Pbo)
- Primary Endpoint: Safety and Reactogenicity
- Secondary Endpoint: Humoral and Cellular immunity

Summary Results

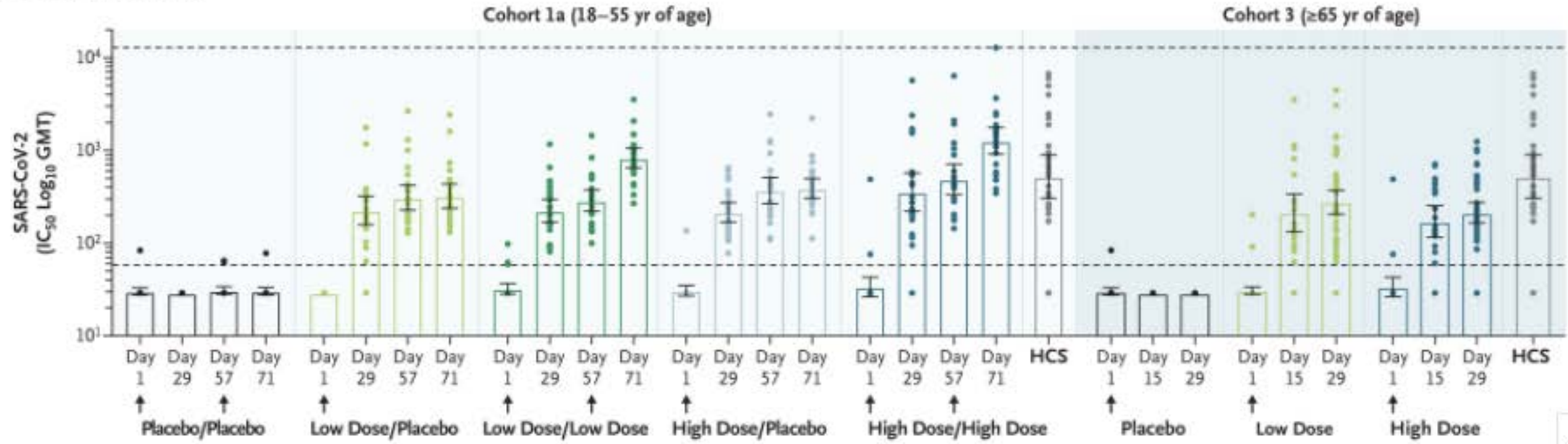
- 90% seroconversion after 1st dose (GMT 288-488)
- Second dose increased GMT by a factor of 2.6-2.9 (GMT 827-1266)
- T cell response 76-83% in Cohort 1
60-67% in Cohort 3
- Th1>>Th2 cytokine profile
- Acceptable Reactogenicity and no safety issues detected

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B Virus Neutralization Assay



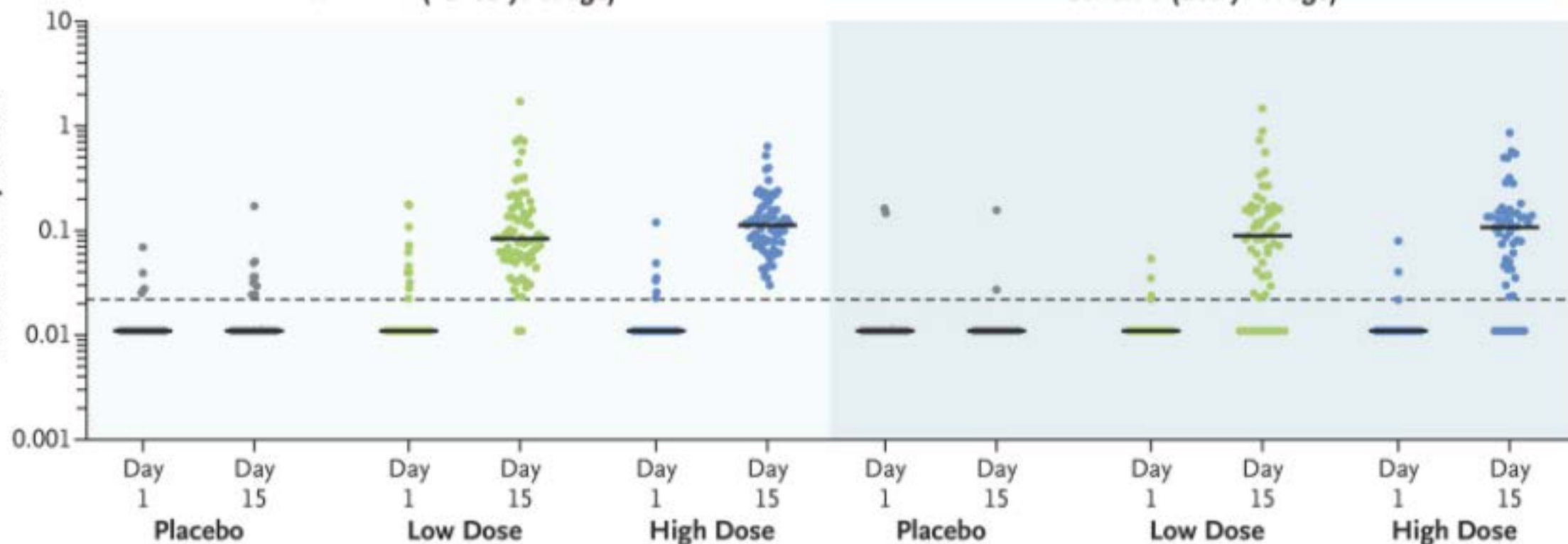
No. at Risk	25	25	24	22	25	24	24	24	25	25	25	24	25	32	25	12	25	49	23	50	25	25	50	32							
GMT	<58	<58	<58	<58	<58	224	310	321	<58	224	288	827	<58	215	370	388	<58	354	488	1266	522	<58	<58	<58	<58	212	277	<58	172	212	522
Percent Response		0	0	0		99	100	100		96	96	100		96	96	100		92	96	100			0	0		91	96		84	88	

A CD4+ Th1 Cells

Cohort 1a (18–55 yr of age)

Cohort 3 (≥65 yr of age)

Percentage of CD4+ T Cells Expressing Interferon- γ , Interleukin-2, or Both without Th2 Cytokines



No. at Risk	37	37	71	72	70	72	30	23	58	53	64	54
Median	<LLOQ	<LLOQ	<LLOQ	0.08	<LLOQ	0.11	<LLOQ	<LLOQ	<LLOQ	0.09	<LLOQ	0.11
Percent Response		0		76		83		0		60		67

Lecturas Recomendadas

NEWS EXPLAINER · 14 JANUARY 2021

COVID's toll on smell and taste: what scientists do and don't know

Researchers are studying the sensory impact of the coronavirus, how long it lasts and what can be done to treat it.

<https://www.nature.com/articles>

References

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