





## **COVID-19 (CV)**

- Wuhan Coronovirus was named SARS-CoV-2, then COVID-19, and then China Virus, according to Mr. Trump.
- The pandemic now claimed 204K deaths in US, and 990K deaths in the world, as of 9/26/2020.



#### **Genbank Downloads**

#### Gene sequences from Genbank:

3/9/2020 51 sequences

3/25/2020 120 sequences

3/30/2020 320 sequences

4/16/2020 785 sequences

6/25/2020 4,058 sequences

7/15/2020 7,021 sequences

· 9/20/2020 16,516 sequences



## COVID-19 (CV)

- I downloaded 16,516 CV sequences from Genbank.
- There are 150,864 point mutations in these sequences.
- There are 9,928 unique point mutations.



#### **Point Mutations**

 The most prevalent 20 point mutations are listed in the following table:

Counts	Address		Virus ID	Location	Date	Point N	/lutations	
13822	23403	cv2	MT270106	Germany:	2020/2/1	241	3037	6446
13791	3037	cv2	MT270106	Germany:	2020/2/1	241	3037	6446
13618	14408	cv2	MT358639	Germany	2020/2/1	241	3037	14408
12942	241	cv2	MT270106	Germany	2020/2/1	241	3037	6446
6356	25563	cv2-1	MT755883	Saudi Arab	2020/2/3	241	826	1218
5666	28883	cv2-2	MT358639	Germany	2020/2/1	241	3037	14408
4574	1059	cv2-3	MT304484	USA: NH	2020/2/29	241	1059	3037
3647	1163	cv2-2	MT745740	Australia:	2020/3/19	241	1163	3037
3385	16647	cv2-2	MT745740	Australia:	2020/3/19	241	1163	3037
3377	7540	cv2-2	MT745740	Australia	2020/3/19	241	1163	3037
3358	22992	cv2-2	MT745740	Australia	2020/3/19	241	1163	3037
3275	18555	cv2-2	MT745740	Australia	2020/3/19	241	1163	3037
1875	28144	cv1	MT291826	China	#######	4946	8782	28144
1866	8782	cv1	MT291826	China	#######	4946	8782	28144
1415	18060	cv1	MT952134	USA	2020/1/19	8782	18060	28144
1396	17858	cv1	MT598633	USA	2020/2/20	8782	17747	17858
1388	17747	cv1	MT598633	USA	2020/2/20	8782	17747	17858
1029	18877	cv2-2	MT755883	Saudi Arab	2020/2/3	241	826	1218
952	19839	cv2-2	MT531537	Italy	2020/3/1	241	3037	14408



#### **Point Mutations**

- As of 9/20/2020, three mutants CV1, CV2 and CV3 are identified.
- The most prevalent point mutations are:

• CV1: T28144C 1,875

• CV2: A23403G 13,822

• CV3: G11083T 642



## **Point Mutations in CV2**

 13,822 point mutations in CV2 are further diversified into:

· CV2-1 at 2556	6,356
<ul> <li>CV2-1 at 2556</li> </ul>	6,356

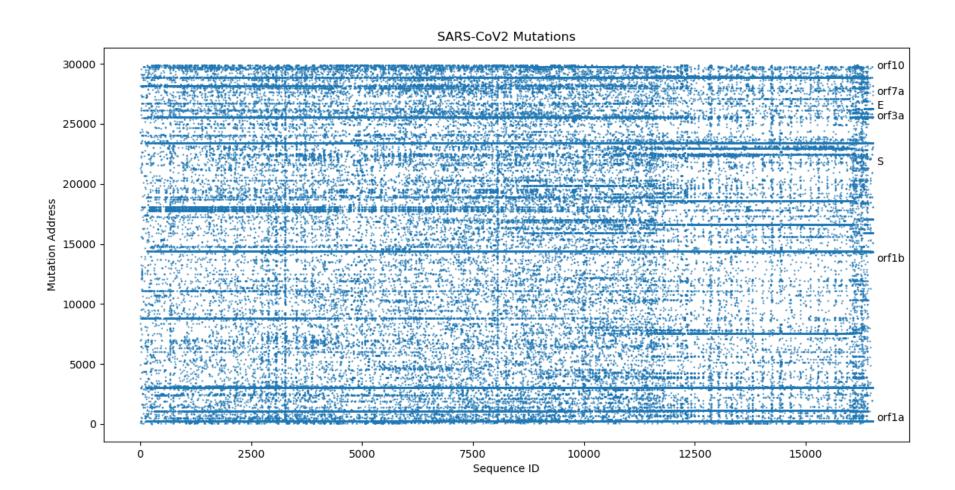
· CV2-4 at 20268 624



## **Point Mutation Graph**

 To summarize: 150,854 point mutations in 16,516 viruses each with 30K nucleotides. I present the following beautiful graph:

## **Point Mutation Graph**





#### Demo

- Point mutations in 16,516 COVID-19 sequences, in an Excel table.
- Point mutations in a Matplotlib pyPlot graph.



## **To Cure COVID-19**

- Infected people can be cured with intravenous infusion of vitamin C.
- Intravenous infusion protocol:
   20 grams of sodium at the beginning of symptoms.



# Take Vitamin C and Go Back to Work!

- Take 10 grams of vitamin C everyday to protect yourself from infection.
- If infected, take 10 grams of vitamin C every 4 hours until diarrhea to suppress the CV virus.



## **Thank You!**