

# **COVID-19 Mutants Update**

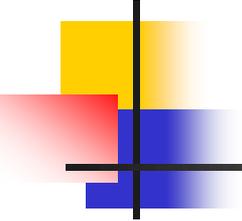
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**Silicon Valley Forth Interest Group**

**Dr. Chen-Hanson Ting**

**[chenhansunding@gmail.com](mailto:chenhansunding@gmail.com)**

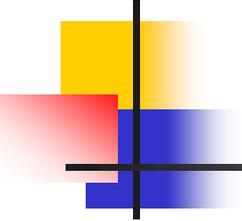
**September 26, 2020**



# COVID-19 (CV)

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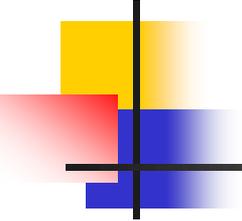
- **Wuhan Coronovirus was named SARS-CoV-2, then COVID-19, and then China Virus, according to Mr. Trump.**
- **The pandemic now claimed 204K deaths in US, and 990K deaths in the world, as of 9/26/2020.**



# Genbank Downloads

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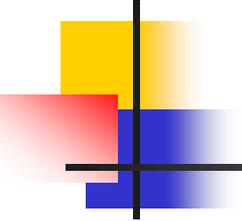
- **Gene sequences from Genbank:**
  - **3/9/2020**            **51 sequences**
  - **3/25/2020**        **120 sequences**
  - **3/30/2020**        **320 sequences**
  - **4/16/2020**        **785 sequences**
  - **6/25/2020**        **4,058 sequences**
  - **7/15/2020**        **7,021 sequences**
  - **9/20/2020**        **16,516 sequences**



# COVID-19 (CV)

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

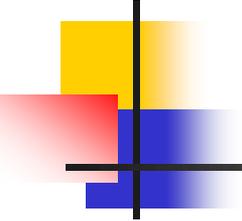


# Point Mutations

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



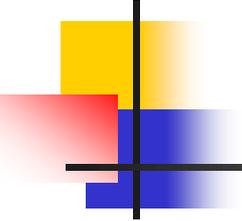


# Point Mutations

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

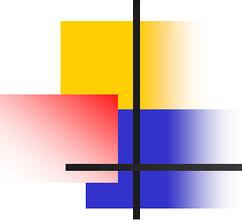
• CV1:	T28144C	1,875
• CV2:	A23403G	13,822
• CV3:	G11083T	642



# Point Mutations in CV2

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- **13,822 point mutations in CV2 are further diversified into:**
  - **CV2-1 at 25563                      6,356**
  - **CV2-2 at 28883                      5,666**
  - **CV2-3 at 1059                      4,574**
  - **CV2-4 at 20268                      624**

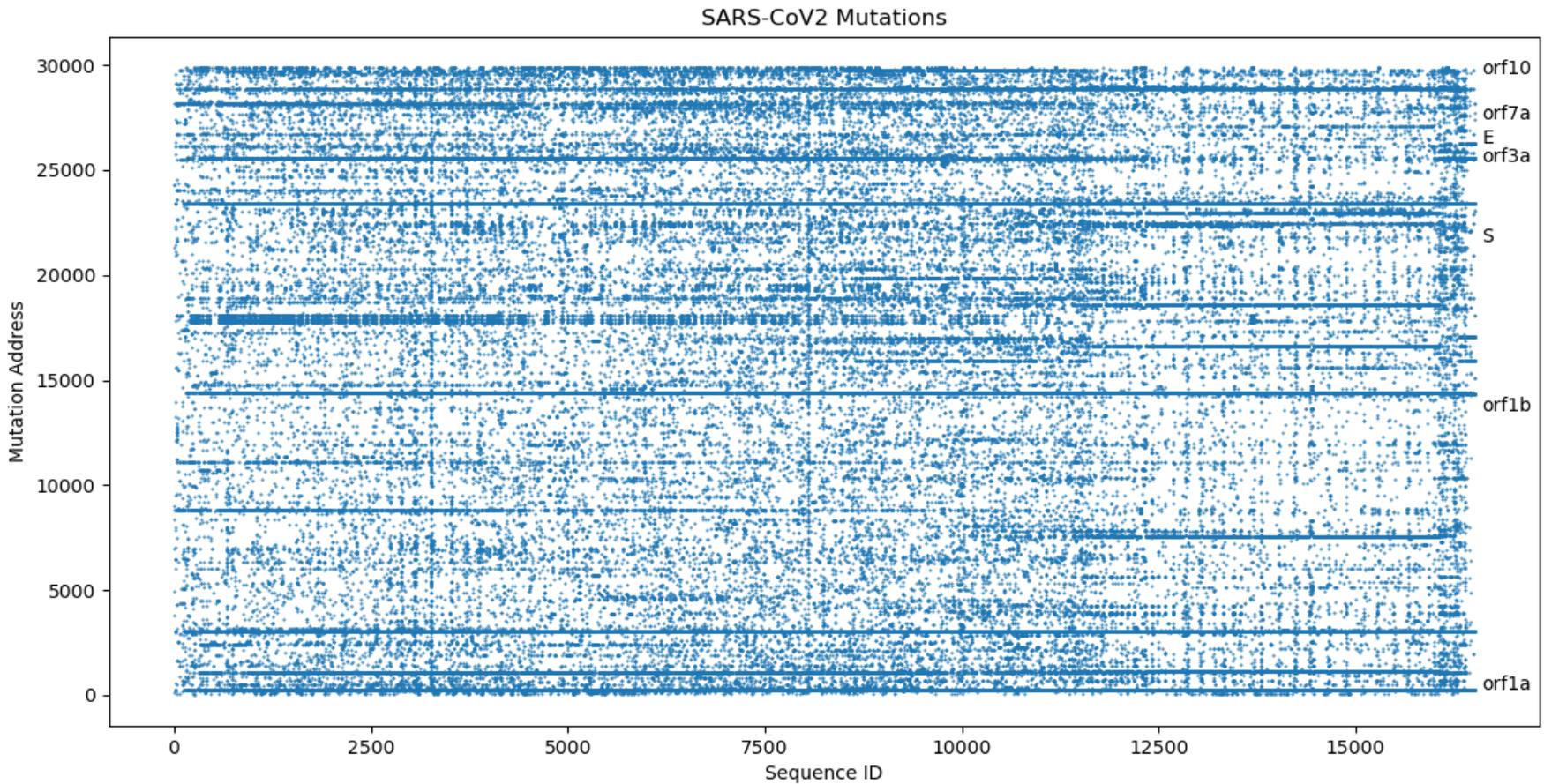


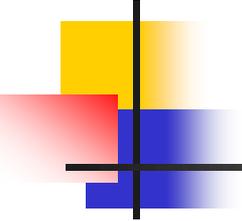
# Point Mutation Graph

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

# Point Mutation Graph

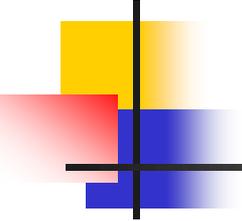




# Demo

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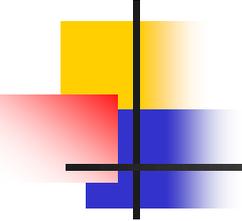
- **Point mutations in 16,516 COVID-19 sequences, in an Excel table.**
- **Point mutations in a Matplotlib pyplot graph.**



# To Cure COVID-19

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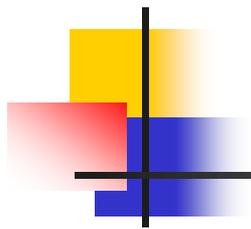
- **Infected people can be cured with intravenous infusion of vitamin C.**
- **Intravenous infusion protocol:  
20 grams of sodium at the beginning of symptoms.**



# **Take Vitamin C and Go Back to Work!**

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- **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.**



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**Thank You!**