

Disclaimer:

This presentation is not linked to any of my activities
as employee at the University of Texas

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utmb

Health

Galveston National Laboratory

GNL

BiomedProtection is becoming ElectronBio

- *About ElectronBio*

We are the first company in the filed of Electronic Biology and world leaders in “Long-Range-Intermolecular Interactions” analysis.

“At ElectronBio, we intend to reinvent drug discovery, screening and design. To increase speed while reducing risk. To power artificial intelligence with electronic biological datasets that currently don’t exist.”

Co-founders: Michael Chambers, John Ballantyne and Slobodan Paessler

Principles for importance of long-range intermolecular interactions

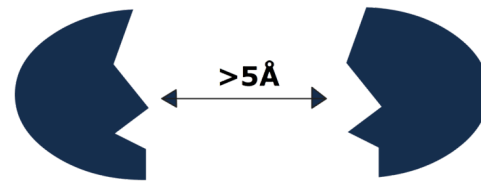
- **General facts:**
- **Proteins in human cell** :Total number of proteins in human cell: **2–4 million** proteins per 1 cubic micron (μm^3).
- Volume of human cell: $\sim 4000 \mu\text{m}^3$.
- Total number of proteins in human cell: **8 – 16 billion** proteins per cell.
- **Cell surface receptors:** Total number of proteins in the plasma membrane of the human cell: 100 – 200 million.

Molecular interactions in biological systems

Ligand	- Receptor
Antibody	- Antigen
Enzyme	- Substrate
Drug	- Target

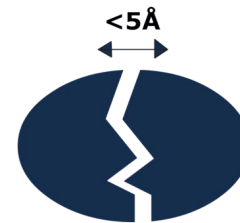
1. Long-range interaction

Recognition and targeting
(5Å - 1000Å)



2. Short-range interactions

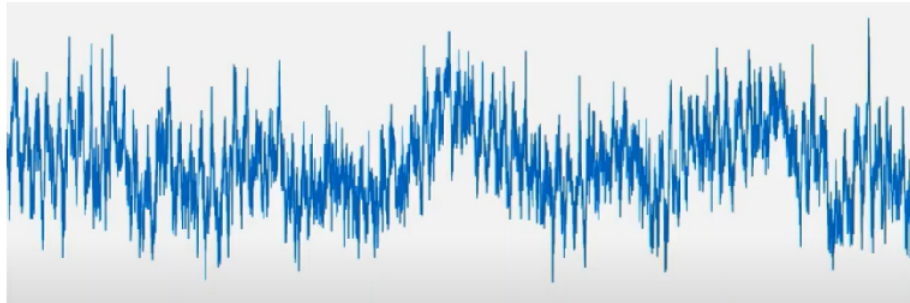
Chemical binding
($< 5\text{\AA}$)



COMMUNICATION BETWEEN PEOPLE

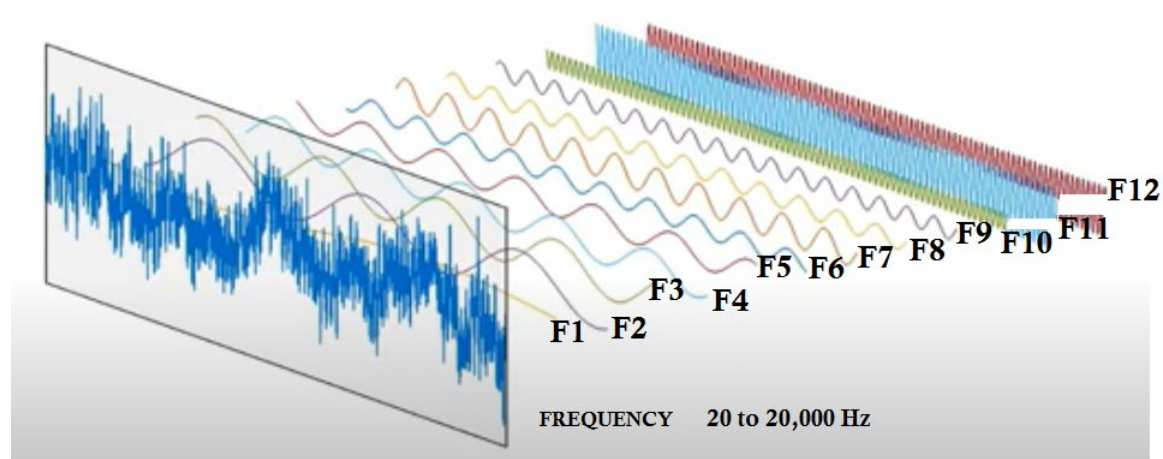


AUDIO SIGNAL

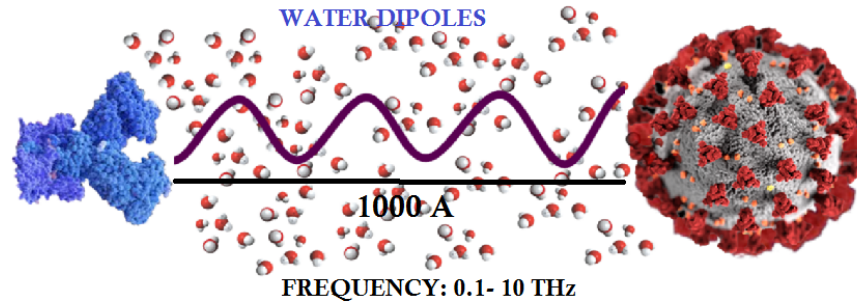


SPECTRUM OF AUDIO SIGNAL

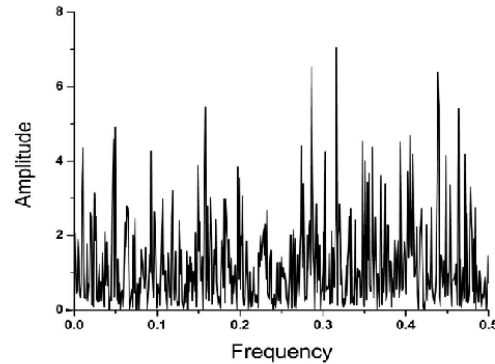
DECOMPOSITION OF SPECTRUM OF AUDIO SIGNAL



COMMUNICATION BETWEEN BIOLOGICAL MOLECULES



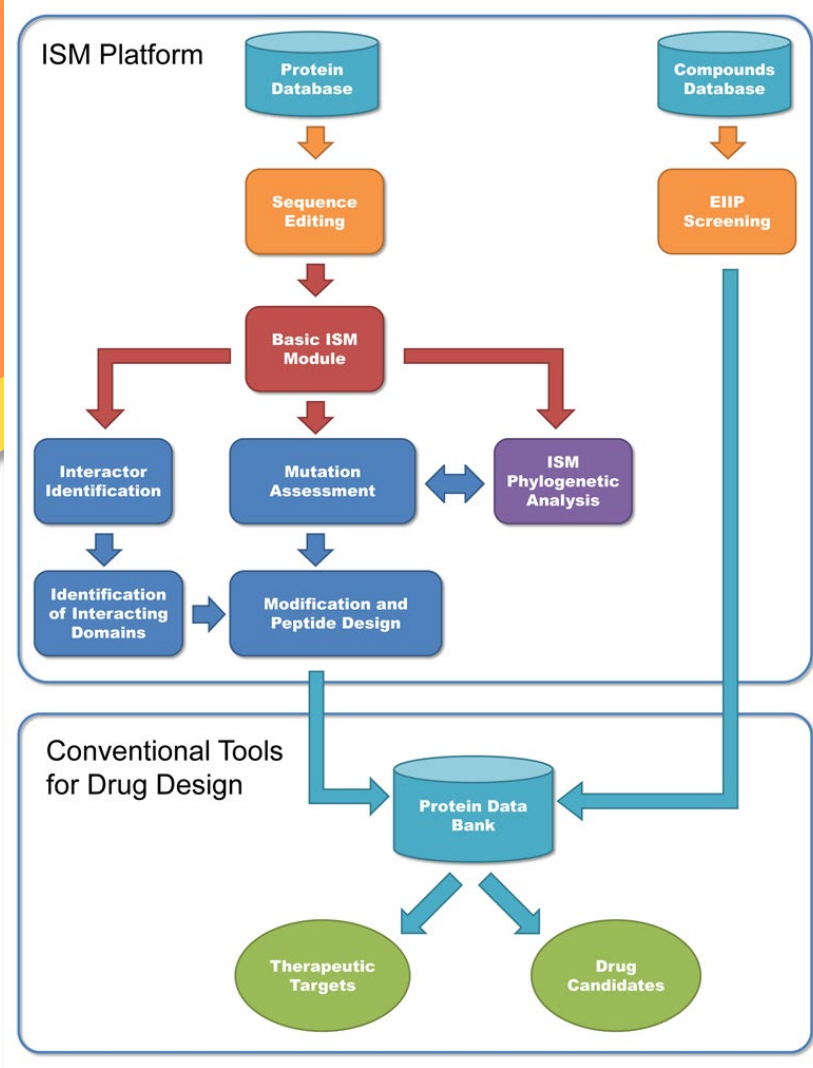
ELECTRODYNAMIC SIGNAL BETWEEN BIOMOLECULES



SPECTRUM OF BIOMOLECULAR SIGNAL

EB Bioinformatics Platform

EB analysis of genetic sequences allows immediate identification of function or modifications of functions and it doesn't depend on homology.



COVID 19 analyzed with EB

- History of developments:

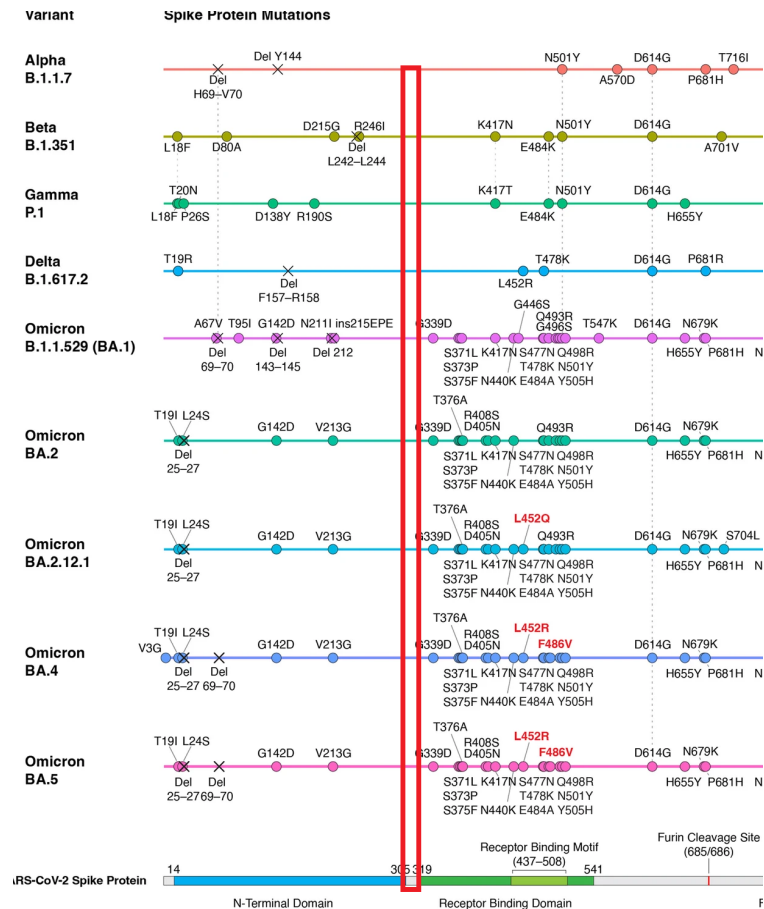
1. Virus showed up “officially in Dec of 2019”

2. Few weeks after sequence from China was available, we published this paper <https://f1000research.com/articles/9-52> (Jan 27th of 2020)

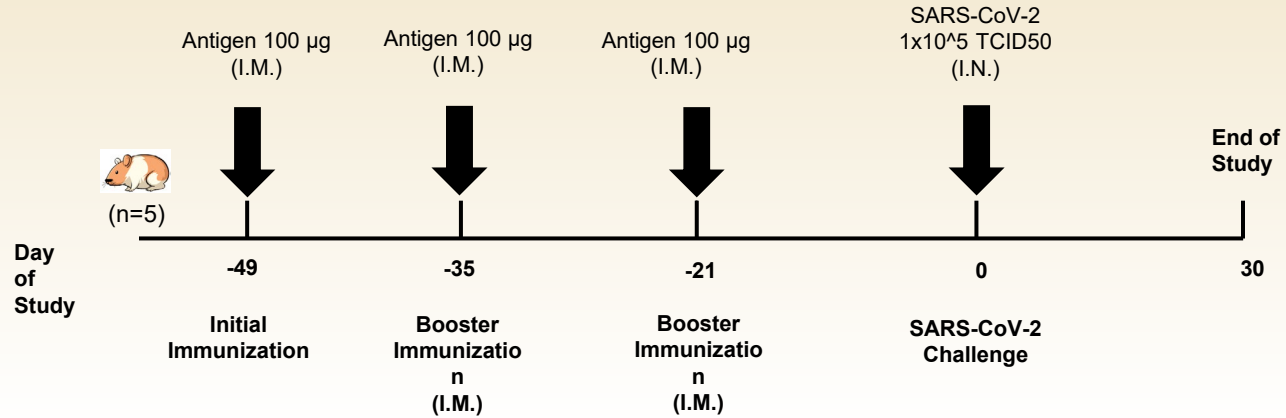
3. In this paper we proposed the domain in S1 (aa 266-330) to be essential for “targeting” of ACE2 receptor (also this is first published paper in the world to assert ACE2 being the human receptor for COVID)

4. Virus has changed RBD and other parts significantly and that’s what all companies are chasing for vaccine development (same as flu does).

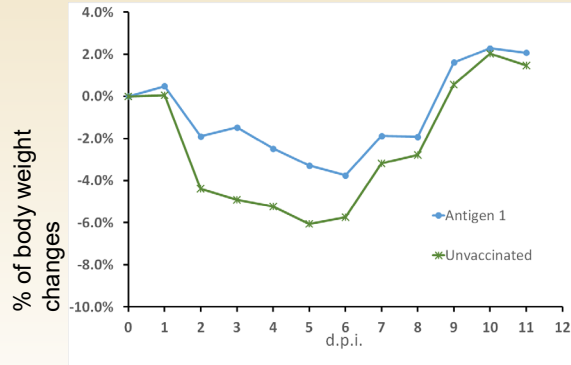
Targeting domain is unchanged up to date



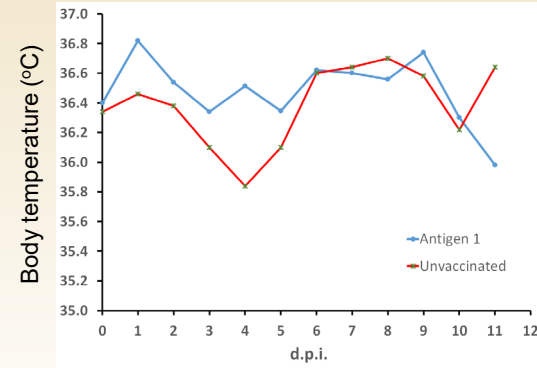
Experimental Design



Body weight and body temperature after SARS-CoV-2 Challenge



Body weight
changes



Body temperature

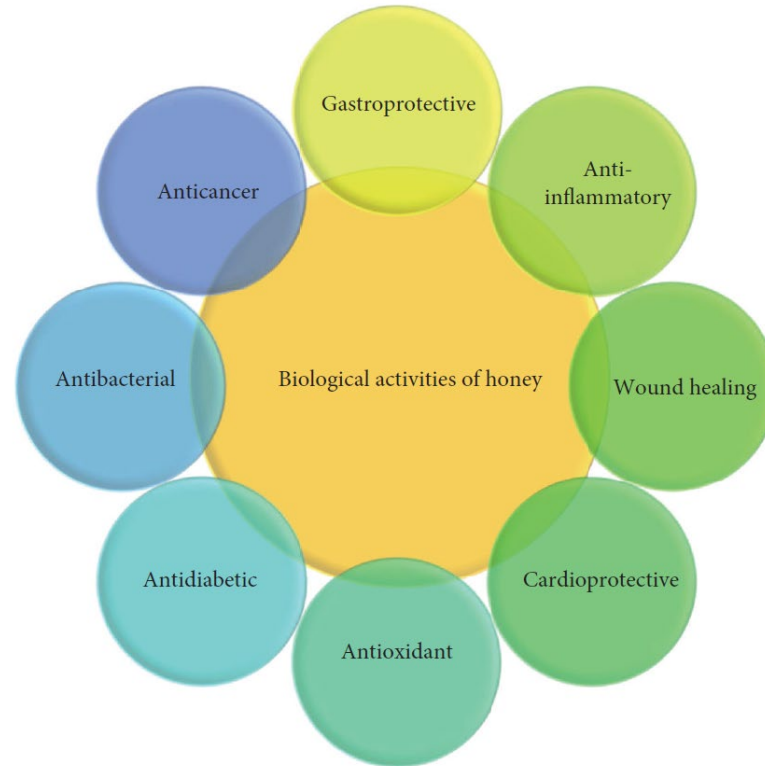
Pandemic Preparedness

- Sequence analysis of “Diseases X” within hours
- Determine targets for drugs and vaccines based on EB (Universal approach)
- Work with industry and government for rapid response
- Monitor evolution and functional changes

Electronic Biology Science and Honey

- At **ElectronBio** we believe in the power of nature to promote health and wellness.
- We plan to introduce new line of honey products featuring the finest honey from North Dakota enriched with powerful electron acceptors and supported by cutting-edge EB science.
- We are using honey as a natural source for new drug discovery based on nature and electronic biology (pain, anti-inflammatory, radioprotection etc...).

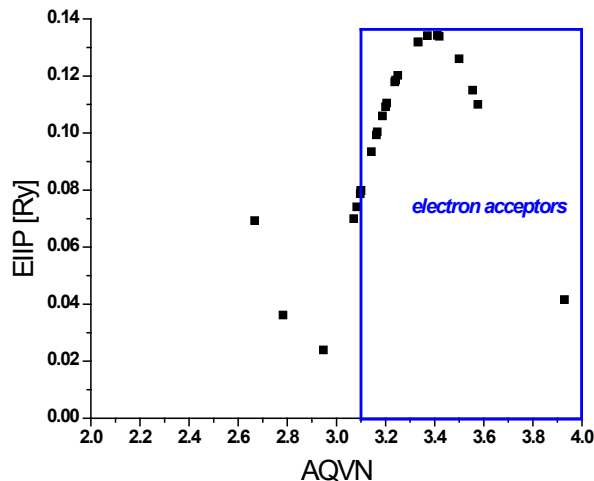
Various types of biological activities of honey



Common chemical constituents of honey

The analysis of the largest database of natural compounds (65531 molecules) revealed that only 10% of these compounds are electron acceptors.

The content of electron acceptors in honey is >65%.



Natural honey wholesale price in 2022

North Dakota US\$ 3.01 - 3.24 per kilogram

Manuka honey **US\$ 140.00 per kilogram**

What is the difference?

Manuka (NZ) has a good story (and ND honey does not).

Thank you!