

BUT I NEED A HIGHLY TRAINED
EXPERT IN BIOINFORMATICS

The Last Ship
S1 E4: We'll Get There

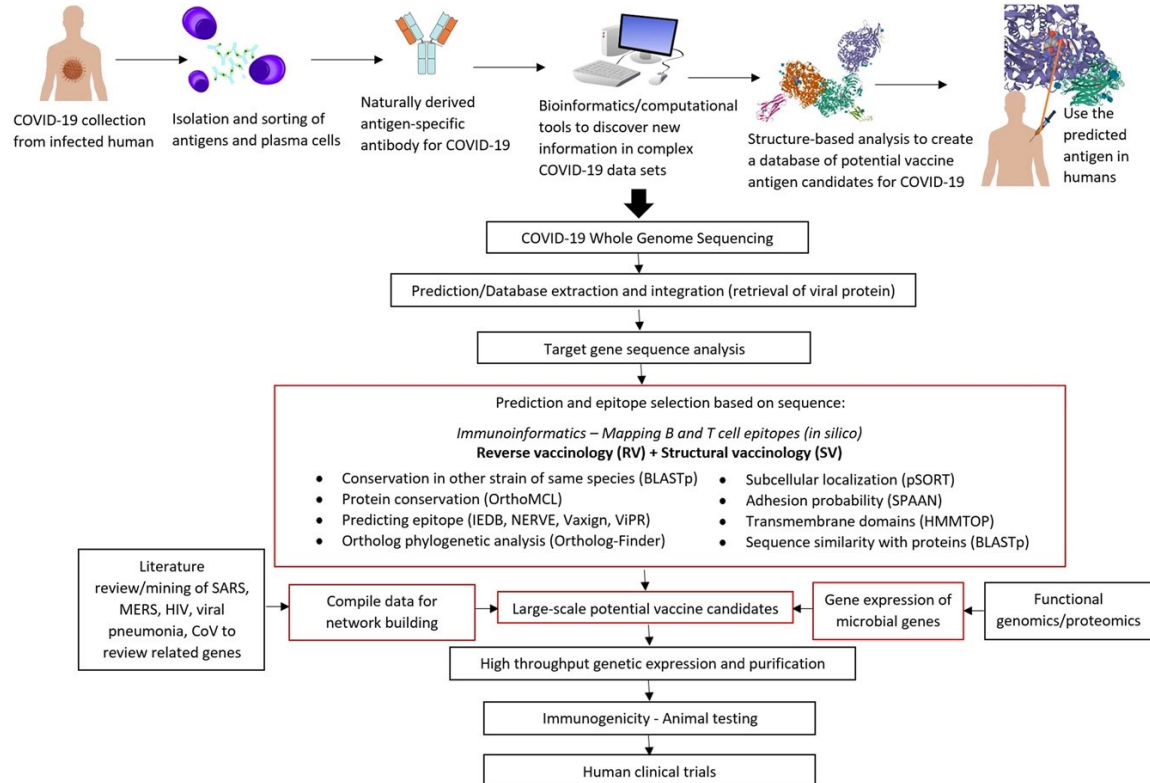
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 MORE EPISODES



Bioinformaticians: the hidden heroes of the COVID-19 pandemic

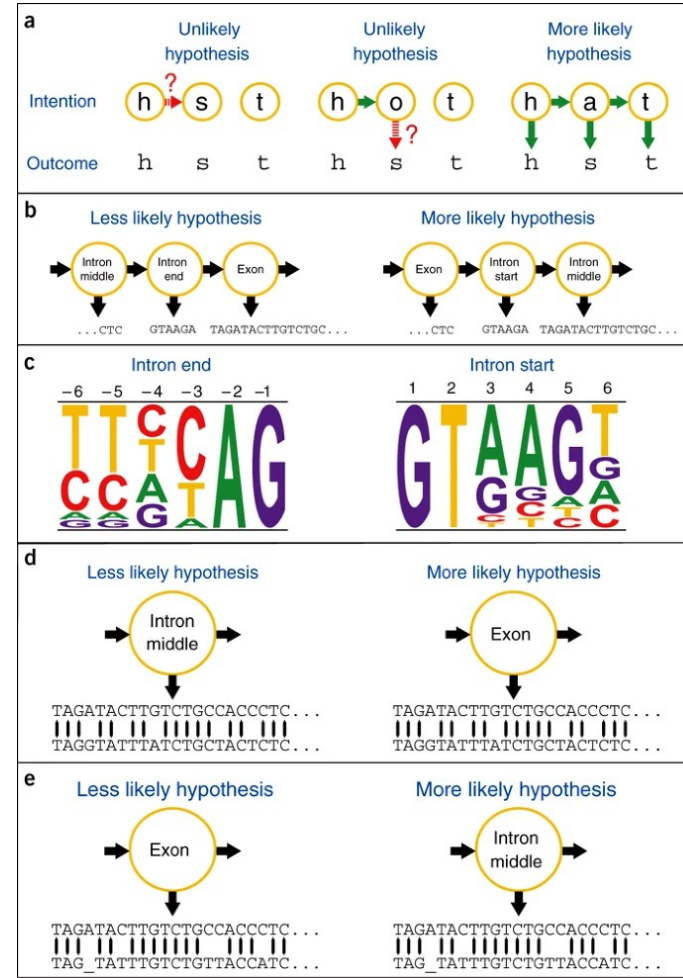
Ebony Torrington, BioTechniques 2022 72:5, 171-174
<https://www.future-science.com/doi/epub/10.2144/btn-2022-0039>



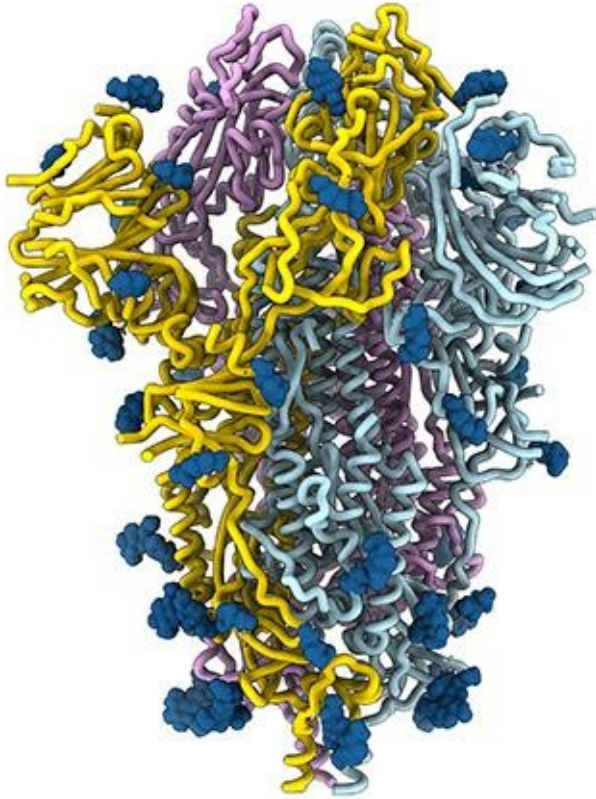
Ishack, S, Lipner, SR. Bioinformatics and immunoinformatics to support COVID-19 vaccine development. J Med Virol. 2021; 93: 5209- 5211. <https://doi.org/10.1002/jmv.27017>

Sequence analysis

- Assembly
- Clustering
- Phylogenetic analysis
- Motif finding
- Gene prediction
- Annotation



Structure analysis



Experimental data

X-ray crystallography

NMR

cryo-EM

Prediction

"threading"

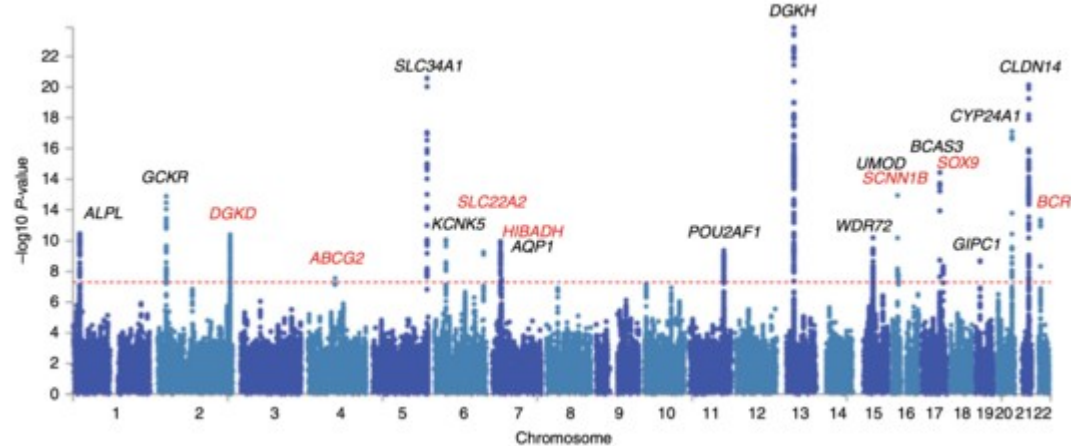
AlphaFold

docking

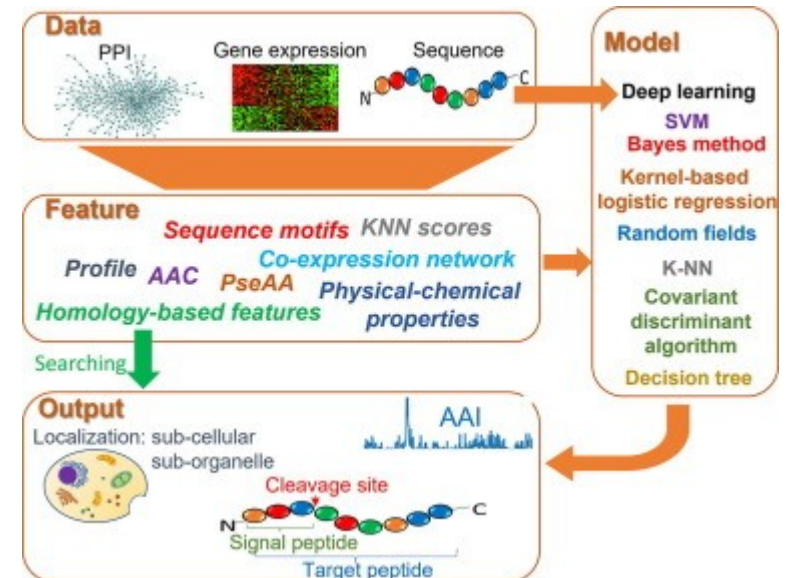
Interpretation

GWAS

https://en.wikipedia.org/wiki/Genome-wide_association_study



Yuexu Jiang et al., Computational methods for protein localization prediction, Computational and Structural Biotechnology Journal, 19, 2021
<https://doi.org/10.1016/j.csbj.2021.10.023>

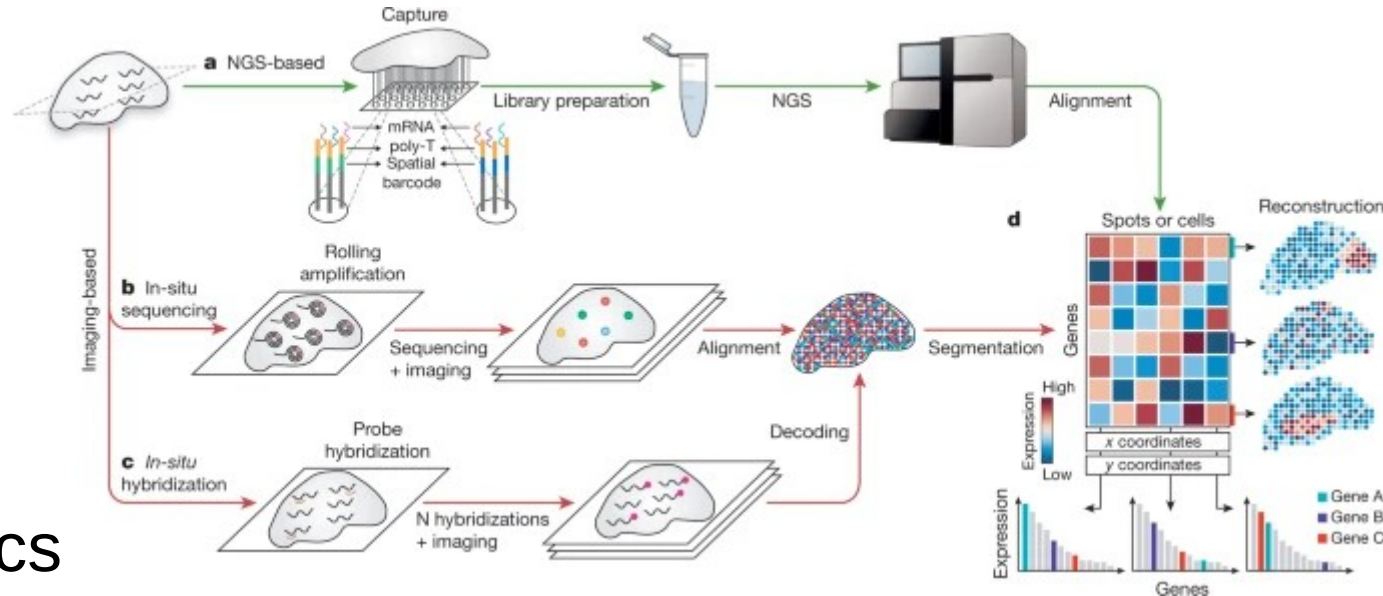
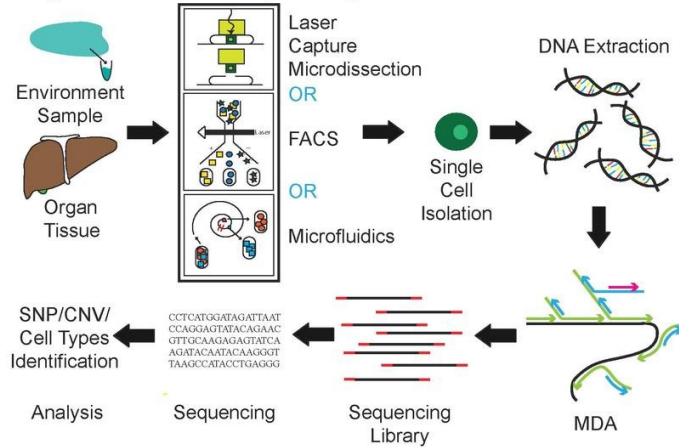


Some trends

single cell transcriptomics

https://en.wikipedia.org/wiki/Single-cell_sequencing

Single Cell Genome Sequencing Workflow

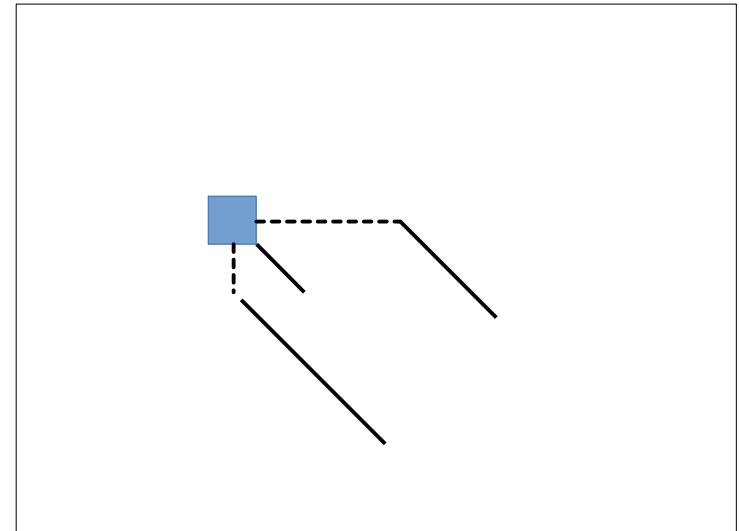
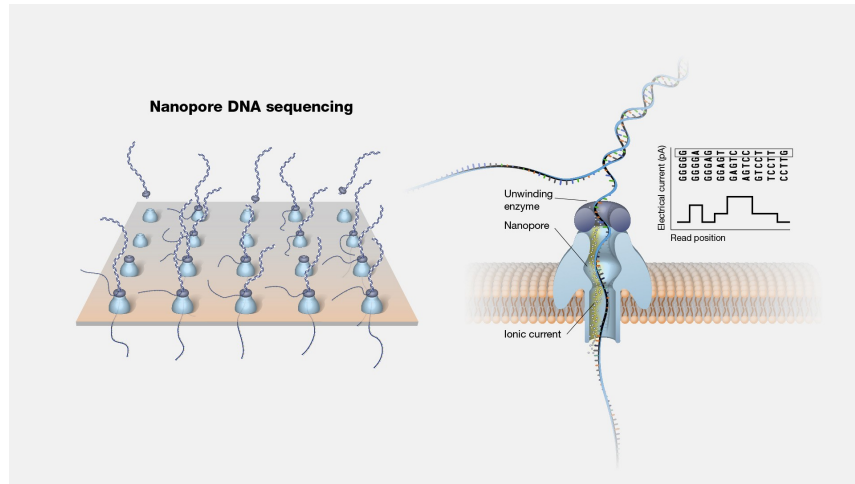


spatial transcriptomics

<https://www.nature.com/articles/s41586-021-03634-9>

Long reads

<https://www.genome.gov/genetics-glossary/Nanopore-DNA-Sequencing>



wavefront alignment