Canadian Bioinformatics Workshops

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Module 8 Lab

Aaron Petkau
Infectious Disease Genomic Epidemiology
April 18-21, 2023

Scenario

A 41-year old man was admitted to a hospital 6 days after onset of disease.

Standard methods were unable to diagnose the illness.

Metatranscriptomic sequencing (RNA) from bronchoalveolar lavage fluid.
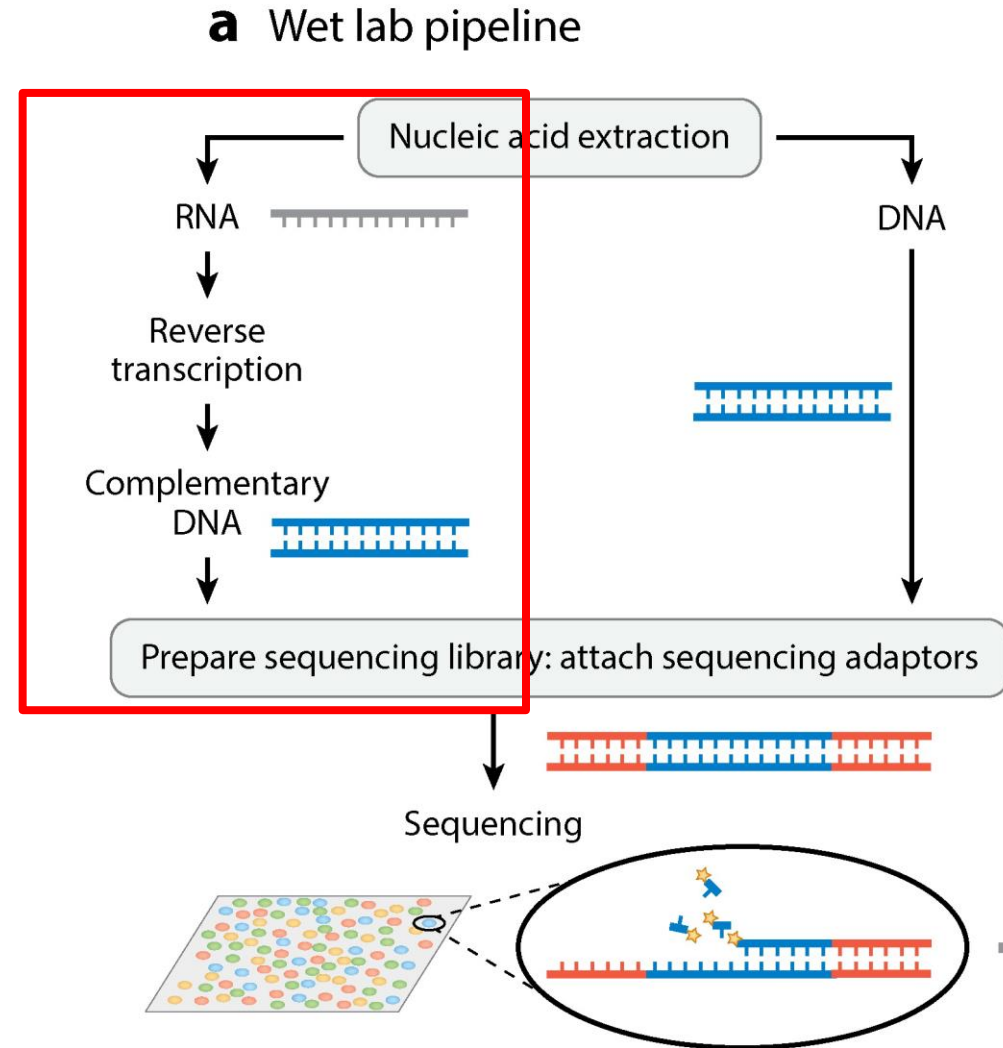
Objectives

Follow through the lab instructions to establish a hypothesis on the source of the illness.
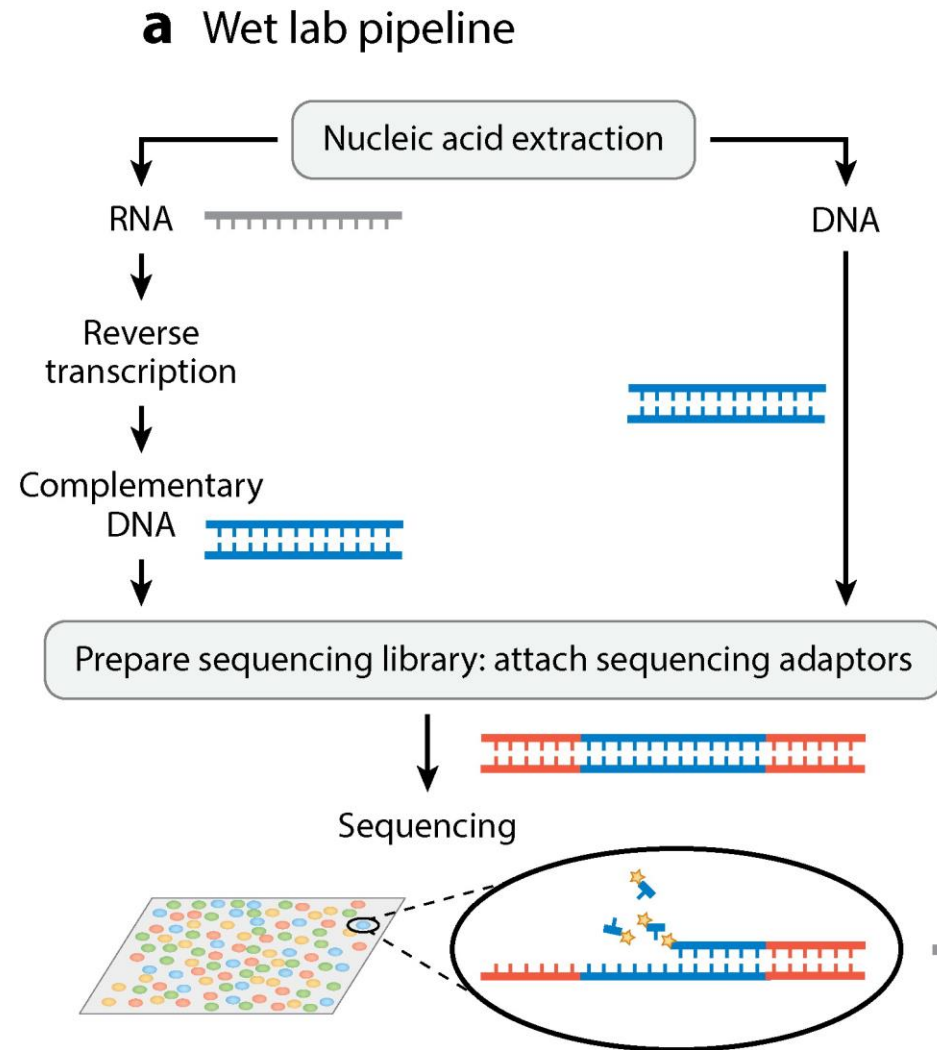
Metatranscriptomic (RNA-Seq)

Gu W, et al. 2019. "Clinical Metagenomic Next-Generation Sequencing for Pathogen Detection".
https://www.annualreviews.org/doi/full/10.1146/annurev-pathmechdis-012418-012751

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Metatranscriptomic (RNA-Seq)

a Wet lab pipeline

Nucleic acid extraction

RNA

DNA

Reverse transcription

Complementary DNA

Prepare sequencing library: attach sequencing adaptors

Sequencing

Gu W, et al. 2019. "Clinical Metagenomic Next-Generation Sequencing for Pathogen Detection".
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Metatranscriptomic (RNA-Seq)

```
@read1 length=151
CCCGTGTTCGATTGGCATTTCACCCCTATCCAC
AACTCATCCCAAAGCTTTTCAACGCTCACGAGT
TCGGTCCTCCACACAATTTTACCTGTGCTTCAA
CCTGGCCATGGATAGATCACTACGGTTTCGGGT
CTACTATTACTAACTGAAC
```
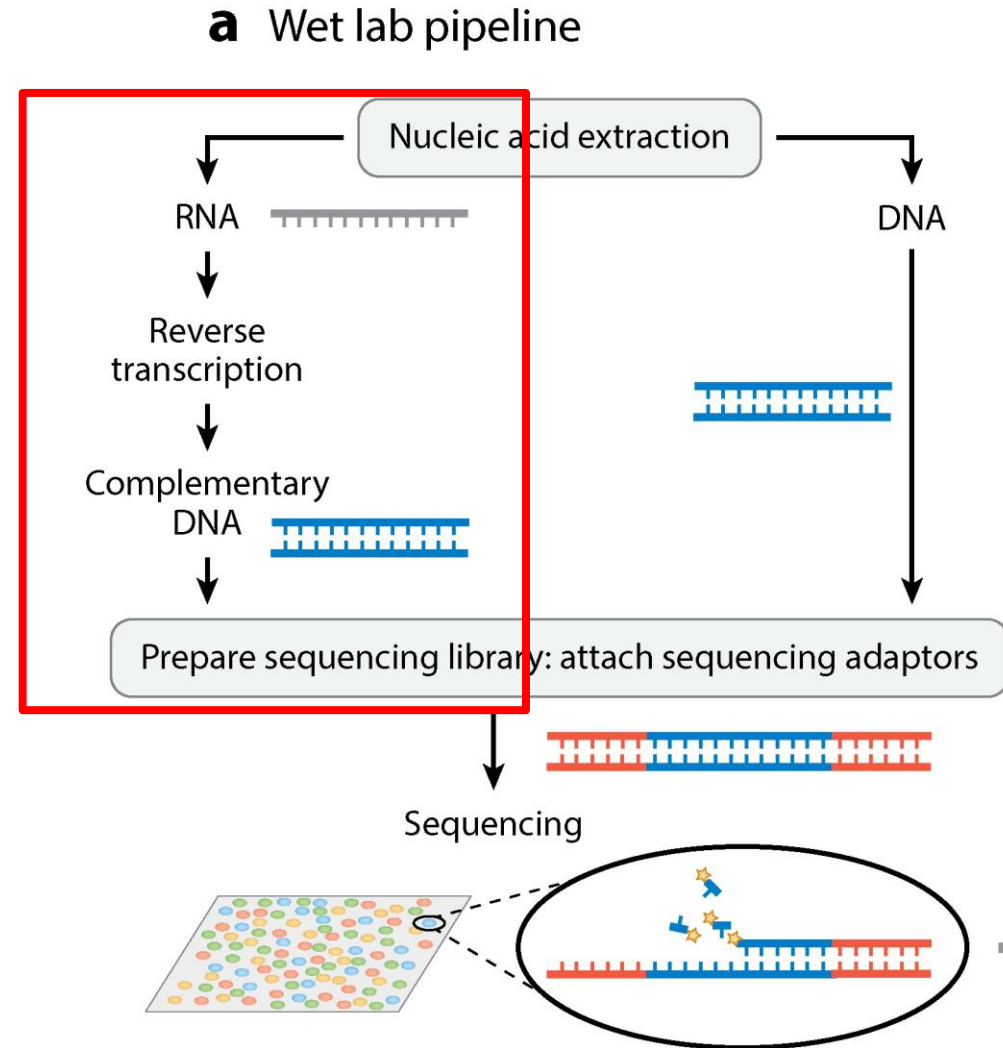

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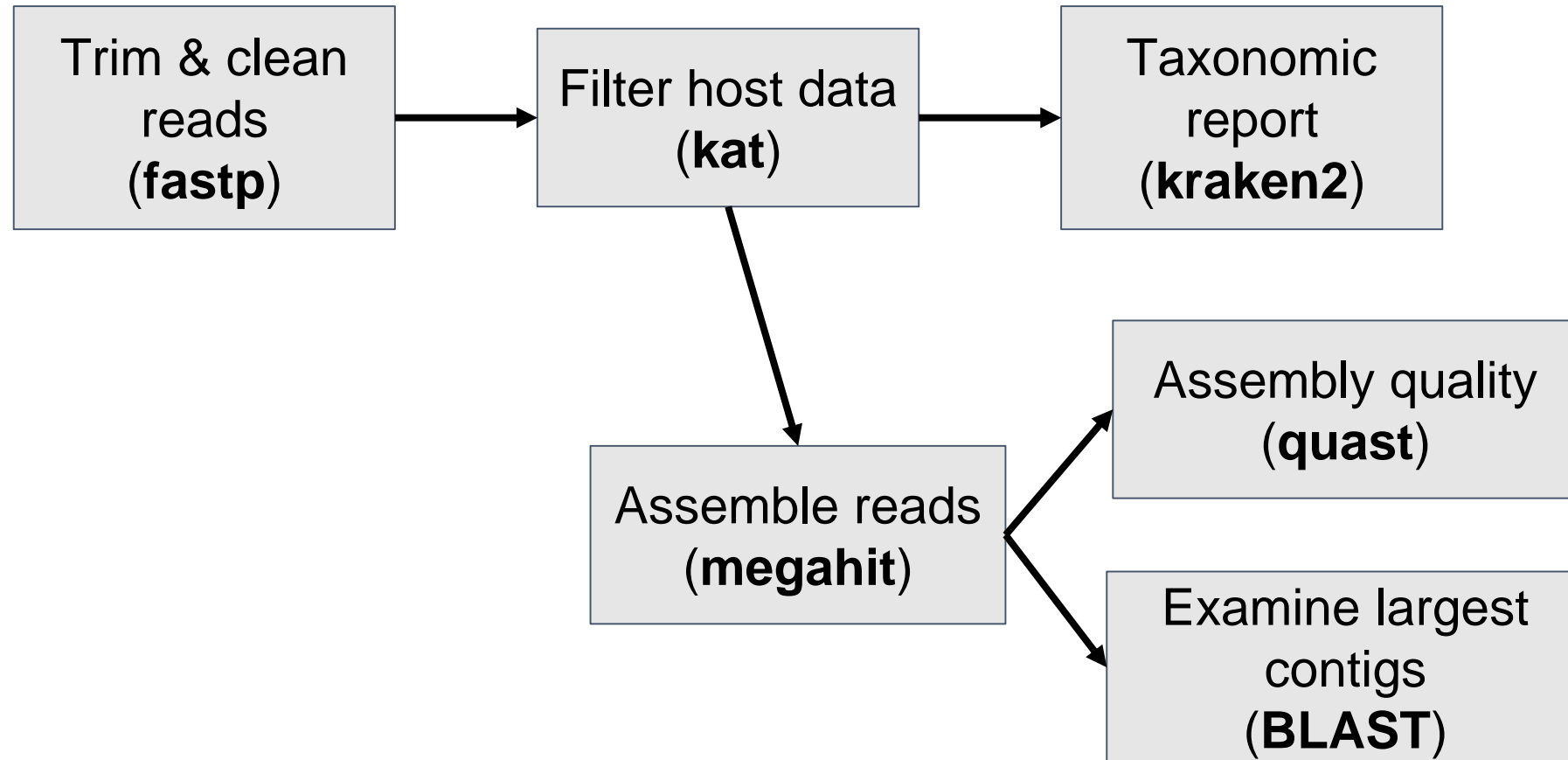Sequencing

Gu W, et al. 2019. "Clinical Metagenomic Next-Generation Sequencing for Pathogen Detection".
https://www.annualreviews.org/doi/full/10.1146/annurev-pathmechdis-012418-012751

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Procedure

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We are on a Coffee Break & Networking Session

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