



cMEDA- Center for Microbiome Engineering & Data Analysis Winter 2020 (the coronavirus issue)



Newsletter

Vision: to exploit the microbiome to improve human health and the environment.

Cytomegalovirus Genomes

The Genomics Core and Pacific Biosciences awarded a pilot grant to Dr. Michael McVoy and Ahmed Al Qaffas for PacBio long read sequencing of Human Cytomegalovirus (CMV). CMV is a herpes virus that causes opportunistic infections in the immunocompromised and neurodevelopmental damage to a fetus. The ~235 kb genome consists of two linear fragments of ~200 and ~35 kb. The genome varies significantly among strains

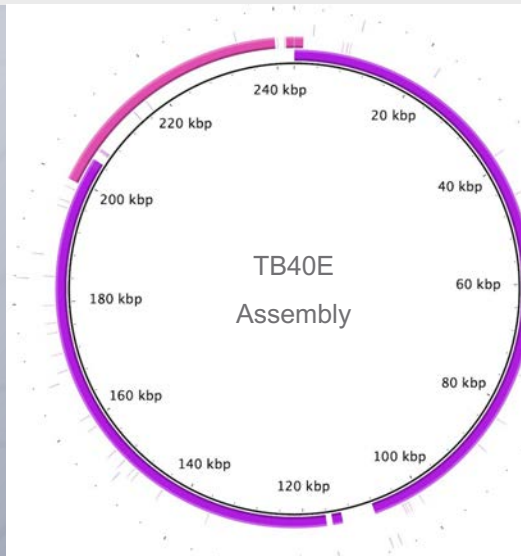
	Number bases	Read length	Mean read length	Longest Read
Highest	2.649E+09	159,051	39,459	104,740
Lowest	2.249E+08	6,245	12,701	52,701
Average	1.179E+09	45,150	27,292	52,488
Total	1.297E+10	496,649	382,086	734,825

and contains multiple short read repeats that render data from short read sequencers unusable for assemblies. About a dozen samples (CMV genomes and BACs) were sequenced in a single Smart Cell on the PacBio Sequel. The sequence statistics showed a longest read of ~105 Kb with an average read length of ~27 kb). The assembly of strain TB40E showed two contigs of ~200 and ~40 kb, which align well with the known reference sequence although several deletions and small variations are observed.

(Mike and Ahmed will present in the Forum on April 10)

cMEDA Mission:

to apply cutting-edge multi-omic technologies and quantitative computational tools in collaborative interdisciplinary research programs that will define and dissect the role of the microbiome in human health, disease, and the environment.



The PacBio is 'open for business'

Bring your samples to the Genomics Core (5th floor Sanger)

The Microbiome Forum (Zoom in!):

Next up, Friday, March 20 12 – 1:00 PM (Zoom only)

- Brett Boyd: Genome Reduction in Symbiotic Bacteria That Inhabit Insects
- Denise Wohlfahrt: Forensic Applications of the Microbiome Associated with Living and Dead Humans

<https://zoom.us/j/498858993>

Mark your calendars, Friday, April 10 12-1:00 PM (Zoom only)

- Mike McVoy and Ahmed Al Qaffas: PacBio and the genome sequences of cytomegalovirus
- Todd Kitten: Healthy Mouth, Happy Heart? The Oral Microbiome and Infective Endocarditis

Note: If you have news (new grants, papers published, new collaborations, etc.), please forward it for inclusion in upcoming news letters (gregory.buck@vcuhealth.org)