May 8th, 10:30 AM - 12:00 PM

A Pig Model of the Human Gastro-intestinal Tract

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COLLABORATIVE RESEARCH OPPORTUNITIES WITH TUFTS CUMMINGS SCHOOL OF VETERINARY MEDICINE (TCSVM)

Moderator: Dr. Sawkat Anwer, PhD, DMVH, Tufts Cummings School of Veterinary Medicine (TCSVM)

Presenter: Dr. Giovanni Widmer, PhD, TCSVM
16S amplicon sequencing

V1V2: Illumina HiSeq2500
150-nt single-end sequencing

V6: Illumina HiSeq2000
100-nt single-end sequencing
16S rRNA PCR strategy

primary PCR V6
ADAPTORACACTCTTTCCCCCAACGCAGAGAACCTTACC\textsuperscript{N_{60}}AGGTGNTGCATGGCTGTCGAGATCGGAAGAGCACACGTCTGAACTCCAGTCACNNNNNNADAPT
972–990  \rightarrow  1051–1069

cust. sequencing primer

secondary PCR V6
barcode read primer

secondary PCR V1V2
ADAPTORACACTCTTTCCCCAGAGTTTGATYMTGGCTCAG\textsuperscript{N_{312}}ACTCCTACGGGAGGCAGCAGATCGGAAGAGCACACGTCTGAACTCCAGTCACNNNNNNADAPT
7–27  \rightarrow  338–356

secondary PCR V1V2 with universal barcode primer
fecal transplants: human -> pig
taxonomy

experiment 1
adult-Similac

experiment 2
infant-Similac

experiment 3
adult-solid

age (days)

phylum-level classification (count)

Actinobacteria
Bacteroidetes
Firmicutes
Tenericutes
Proteobacteria
unclassified
Verrucomicrobia

fecal transplants: human -> pig
taxonomy
fecal transplant: PCoA based on UniFrac distance

numbers indicate day post-inoculation
fecal transplant: effect of diet

experiment 1
adult-Similac

experiment 2
infant-Similac

experiment 3
adult-solid
ACKNOWLEDGMENTS

Quanshun Zhang  sample prep, animal experiments
Alex Walker  DNA extraction, library prep
Kevin Huynh  DNA extraction, library prep
Rachel Sora  animal care
Patty Boucher  animal care
Albert Tai  Tufts Genomics Core
Kip Bodi  Tufts Genomics Core
Huyen Bum Kim  data analysis
Durwood Marshall  UIT support