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

A Pig Model of the Human Gastro-intestinal Tract

Giovanni Widmer
Tufts Cummings School of Veterinary Medicine

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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

V6: Illumina HiSeq2000
100-nt single-end sequencing

V1V2: Illumina HiSeq2500
150-nt single-end sequencing
16S rRNA PCR strategy

ADAPTORACACTCTTTCCCCCAACGCGAAGAACCTTACCG\textsuperscript{N}_{60}GATGNTGCATGGCTGTCGAGATCGGAAAGAGCACACGTCTGAACTCCAGTCAC\textsuperscript{N}_{312}ACTCCTACGGGAGGCAGCAGATCGGAAGAGCACACGTCTGAACTCCAGTCAC\textsuperscript{N}_{27}GGAAGAGCACACGTCTGAACTCCAGTCAC\textsuperscript{N}_{27}N_{312}GGAAGAGCACACGTCTGAACTCCAGTCAC\textsuperscript{N}_{312}GGAAGAGCACACGTCTGAACTCCAGTCAC

primary PCR V6
972–990
1051–1069

cust. sequencing primer

barcode read primer

secondary PCR V6

secondary PCR V1V2

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

experiment 1
adult-Similac

experiment 2
infant-Similac

experiment 3
adult-solid

phyllum-level classification (count)
age (days)

Actinobacteria
Bacteroidetes
Firmicutes
Tenericutes
Proteobacteria
unclassified
Verrucomicrobia
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

PC1 41%

PC2 22%

PC1 53%

PC2 24%

PC1 32%
<table>
<thead>
<tr>
<th>Name</th>
<th>Contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quanshun Zhang</td>
<td>sample prep, animal experiments</td>
</tr>
<tr>
<td>Alex Walker</td>
<td>DNA extraction, library prep</td>
</tr>
<tr>
<td>Kevin Huynh</td>
<td>DNA extraction, library prep</td>
</tr>
<tr>
<td>Rachel Sora</td>
<td>animal care</td>
</tr>
<tr>
<td>Patty Boucher</td>
<td>animal care</td>
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<tr>
<td>Albert Tai</td>
<td>Tufts Genomics Core</td>
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<tr>
<td>Kip Bodi</td>
<td>Tufts Genomics Core</td>
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<tr>
<td>Huyen Bum Kim</td>
<td>data analysis</td>
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<tr>
<td>Durwood Marshall</td>
<td>UIT support</td>
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