

DTU





**DTU Health Technology
Bioinformatics**

Projects

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Project Groups

- Group work, 4 per group, and present results on a poster
- Try to form diverse groups in terms of skills
- Analyse your own data!
- Supplement with existing data (e.g. MetaHIT, SRA...)
- Project data has been sequenced by BGI:
 - Data has NOT arrived...yet
 - You can start right away: run FastQC, do trimming...

NEXTflex™	Sequence
DNA Adapter	5'AATGATACGGCGACCACCGAGATCTACACTCTTTCCCTACACGACGCTCTTCCGATCT 5'GATCGGAAGAGCACACGTCTGAACTCCAGTCACCGATGTATCTCGTATGCCGTCTTCTGCTTG
Primer 1	5'AATGATACGGCGACCACCGAGATCTACAC
Primer 2	5'CAAGCAGAAGACGGCATACGAGAT

Project exam

- **Poster exam**
- **Each group will prepare a poster**
- **Each group will present the poster for the examiners**
- **Each group member will be questioned individually about the course objectives and the project (~5-10min)**
- **40% final grade**

Project previous years



Project titles

'16

- The Effect of Chili Consumption on the Abundance of Bacteroidetes in the Human Gut
- INFLUENCE OF CAPSAICIN ON THE GUT MICROBIOME β -DIVERSITY
- Investigating the effect of capsaicin on Firmicute bacteria in the human gut
- The effect of capsaicin on the butyrate production pathway and taxonomical distribution in a gut environment
- The interplay between dietary intervention with chili peppers, the human gut microbiome and bacterial resistance

'15

- Effect of alcohol intake on vitamin B12 producing bacteria in the gut microbiome
- Effect of alcohol on the enrichment of acid resistant bacteria in the gut microbiome
- Investigating the effect of one night of (excessive) alcohol consumption in pushing the microbiome towards having a higher abundance of microbiome markers of T2D, peptic ulcers, cirrhosis, etc.

Project titles

- '16
- The Effect of Chili Consumption on the Abundance of Bacteroidetes in the Human Gut
- INFLUENCE OF CHILI ON THE GUT MICROBIOME β -DIVERSITY
- Investigation of Firmicute bacteria in the human gut

- The effect of alcohol on the taxonomical diversity of the gut microbiome

- The effect of alcohol on the gut microbiome

'15

- Effect of alcohol intake on vitamin B12 producing bacteria in the gut microbiome
- Effect of alcohol on the enrichment of acid resistant bacteria in the gut microbiome
- Investigating the effect of one night of (excessive) alcohol consumption in pushing the microbiome towards having a higher abundance of microbiome markers of T2D, peptic ulcers, cirrhosis, etc.

BE CREATIVE:
add existing data/studies
think about metabolism

Group work

- **Form groups (~4-5 students per group)**
- **Discuss potential projects**
- **Do literature search**
- **Have a look at metadata (sort and organise)**
- **Have a look at barcodes and samples (you might have to revisit the multiplexed fastq file)**
- **Fill out the project information (link on wiki)**

Projects

- Think questions that can be answered with the data available
- Think questions that can be answered with tools learned in this course
- Additional programs etc. are encouraged BUT you will have to be able to explain how they work and what they show