

DTU





**DTU Health Technology
Bioinformatics**

Recap

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Pretest

- You folks know your biology!
- You folks know your UNIX!

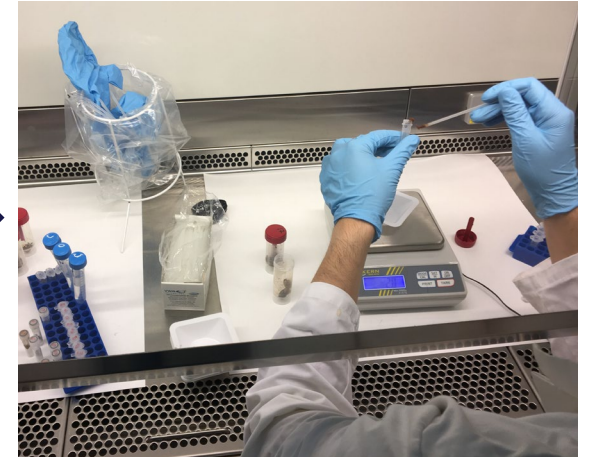
Biofilm in household sinks and drains



Biofilm



Sampling



DNA extraction library prep

#SampleID	A	B	C	D	E	F	G	Remarks
1	Alic0	Sec2000	ciprofloxacin	goos	2102122	A-0	male	0
2	Alic1	Sec2000	ciprofloxacin	goos	6316390	A-1	male	1
3	Alic3	Sec2000	ciprofloxacin	goos	2102129	A-3	male	3
4	Alic6	Sec2000	ciprofloxacin	goos	42154255	A-6	male	6
5	Alic8	Sec2000	ciprofloxacin	goos	6316380	A-8	male	8
6	Alic34	Sec2000	ciprofloxacin	goos	2102132	A-34	male	34
7	Boo6	Sec2000	ciprofloxacin	goos	42154259	B-0	male	0
8	Boo1	Sec2000	ciprofloxacin	goos	42154249	B-1	male	1
9	Boo3	Sec2000	ciprofloxacin	goos	6316377	B-3	male	3
10	Boo6	Sec2000	ciprofloxacin	goos	64208516	B-6	male	6
11	Boo8	Sec2000	ciprofloxacin	goos	6316388	B-8	male	8
12	Boo34	Sec2000	ciprofloxacin	goos	64208517	B-34	male	34

Collect Metadata !

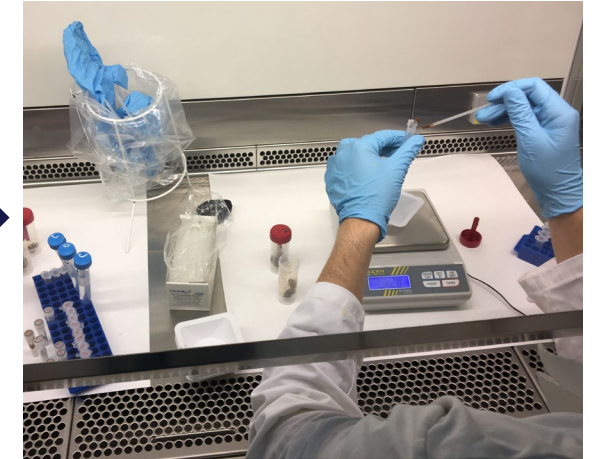
Sequencing



Biofilm



Sampling



DNA extraction library prep



Sequencing

#SampleID	Species	Antibiotic	Health	Size	Label	Gender	Timepoint	Remarks
1	Alicc0	Sec2000	ciprofloxacin	goost	2102122	A-0	male	0
2	Alicc1	Sec2000	ciprofloxacin	goost	6316390	A-1	male	1
3	Alicc3	Sec2000	ciprofloxacin	goost	2102129	A-3	male	3
4	Alicc6	Sec2000	ciprofloxacin	goost	42154255	A-6	male	6
5	Alicc8	Sec2000	ciprofloxacin	goost	6316380	A-8	male	8
6	Alicc34	Sec2000	ciprofloxacin	goost	2102132	A-34	male	34
7	Boc06	Sec2000	ciprofloxacin	goost	42154259	B-0	male	0
8	Boc1	Sec2000	ciprofloxacin	goost	42154249	B-1	male	1
9	Boc3	Sec2000	ciprofloxacin	goost	6316377	B-3	male	3
10	Boc6	Sec2000	ciprofloxacin	goost	64208516	B-6	male	6
11	Boc8	Sec2000	ciprofloxacin	goost	6316385	B-8	male	8
12	Boc34	Sec2000	ciprofloxacin	goost	64208517	B-34	male	34

Collect Metadata !

Illumina sequencing:

- 32 Samples have been shipped!
- Sequencing data will be available in a month
- We will let transfer and let you know when ready

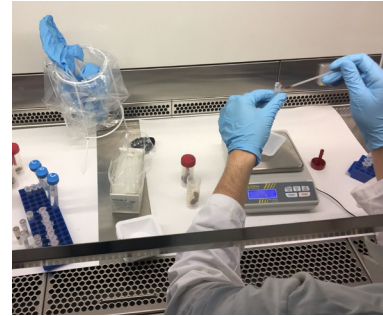
Final product



Biofilm



Sampling



DNA extraction library prep



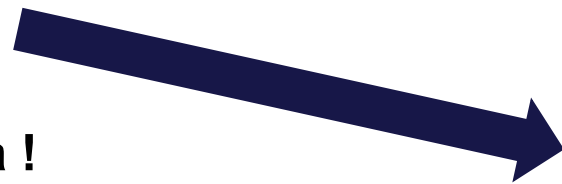
Sequencing



Analyze data

SampleID	Strain	Accession	Gene	Start	End	Strain	Transcript
01	ATCC 29218	NC_017046	penA	10000	10000	ATCC 29218	penA
02	ATCC 29218	NC_017046	penA	10000	10000	ATCC 29218	penA
03	ATCC 29218	NC_017046	penA	10000	10000	ATCC 29218	penA
04	ATCC 29218	NC_017046	penA	10000	10000	ATCC 29218	penA
05	ATCC 29218	NC_017046	penA	10000	10000	ATCC 29218	penA
06	ATCC 29218	NC_017046	penA	10000	10000	ATCC 29218	penA
07	ATCC 29218	NC_017046	penA	10000	10000	ATCC 29218	penA
08	ATCC 29218	NC_017046	penA	10000	10000	ATCC 29218	penA
09	ATCC 29218	NC_017046	penA	10000	10000	ATCC 29218	penA
10	ATCC 29218	NC_017046	penA	10000	10000	ATCC 29218	penA
11	ATCC 29218	NC_017046	penA	10000	10000	ATCC 29218	penA
12	ATCC 29218	NC_017046	penA	10000	10000	ATCC 29218	penA

Collect Metadata !



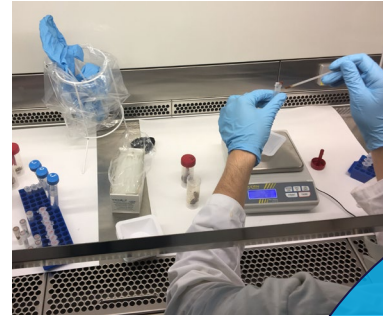
Poster presentation



Biofilm



Sampling



DNA extraction library prep



Sequencing

How to work with NGS?

Sample ID	Location	Date	Parameter	Value
S1	Lab	2010-01-01	Temp	20
S2	Lab	2010-01-01	pH	7.5
S3	Lab	2010-01-01	DO	8.5
S4	Lab	2010-01-01	Salinity	0
S5	Lab	2010-01-01	Light	100
S6	Lab	2010-01-01	Humidity	60
S7	Lab	2010-01-01	CO2	0.05
S8	Lab	2010-01-01	Chlorophyll a	1.5
S9	Lab	2010-01-01	Chlorophyll b	0.5
S10	Lab	2010-01-01	Chlorophyll c	0.2

Collect Metadata !



Analyze data



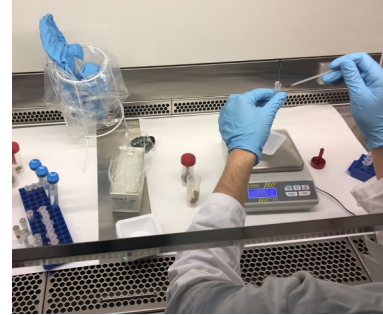
Poster presentation



Biofilm



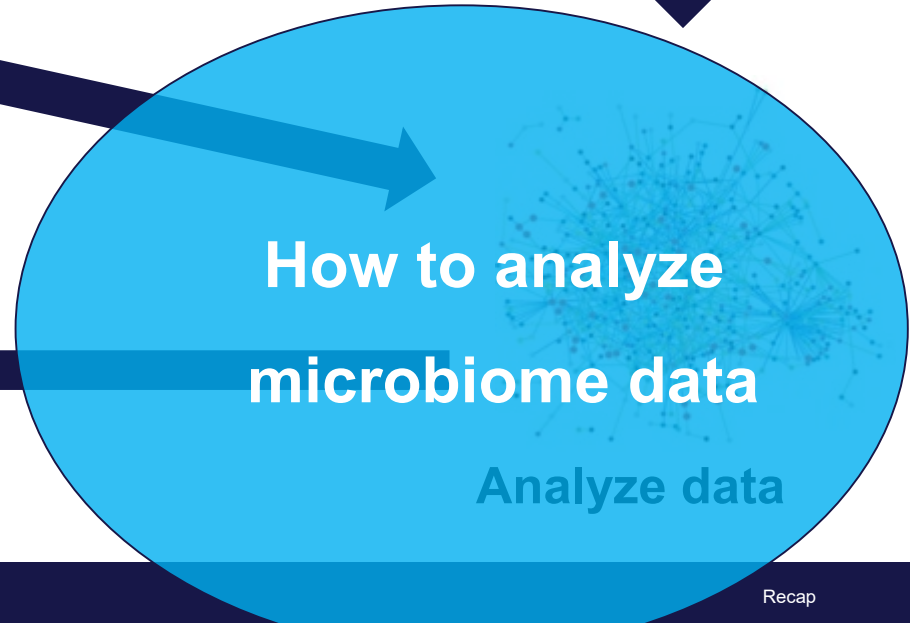
Sampling



DNA extraction library prep



Sequencing



SampleID	Instrument	LibraryID	Sequencing	Label	Channel	Transcript	
01_01_01	HiSeq2500	library001	gene1	21512751	A-1	male	15
01_01_02	HiSeq2500	library001	gene1	81512751	A-1	male	15
01_01_03	HiSeq2500	library001	gene1	21512751	A-1	male	15
01_01_04	HiSeq2500	library001	gene1	81512751	A-1	male	15
01_01_05	HiSeq2500	library001	gene1	21512751	A-1	male	15
01_01_06	HiSeq2500	library001	gene1	81512751	A-1	male	15
01_01_07	HiSeq2500	library001	gene1	21512751	A-1	male	15
01_01_08	HiSeq2500	library001	gene1	81512751	A-1	male	15
01_01_09	HiSeq2500	library001	gene1	21512751	A-1	male	15
01_01_10	HiSeq2500	library001	gene1	81512751	A-1	male	15
01_01_11	HiSeq2500	library001	gene1	21512751	A-1	male	15
01_01_12	HiSeq2500	library001	gene1	81512751	A-1	male	15
01_01_13	HiSeq2500	library001	gene1	21512751	A-1	male	15
01_01_14	HiSeq2500	library001	gene1	81512751	A-1	male	15
01_01_15	HiSeq2500	library001	gene1	21512751	A-1	male	15
01_01_16	HiSeq2500	library001	gene1	81512751	A-1	male	15
01_01_17	HiSeq2500	library001	gene1	21512751	A-1	male	15
01_01_18	HiSeq2500	library001	gene1	81512751	A-1	male	15
01_01_19	HiSeq2500	library001	gene1	21512751	A-1	male	15
01_01_20	HiSeq2500	library001	gene1	81512751	A-1	male	15

Collect Metadata !



Poster presentation



Summary

- Get that metadata typed in the [Google Sheet!](#)
- Think about what questions you would like to ask the data

Up next....Technology

- Introduction to sequencing technology

