Introduction to WGS in AMR surveillance – Day 3

Course offered by SEQAFRICA

The Fleming Fund
Regional Grants

19 February 2021

Pernille Nilsson

Virtual Housekeeping

Please **turn off your cameras and microphones** – this will help with bandwidth and maximise audibility.

Do frequently **use Slack** to share comments and ask questions. Keep the chat constructive, respectful and on topic!

For Q&A's **use Slack to submit your questions!** Please upvote (give a thumbs-up) to the questions that you like.

The session is being **recorded for distribution to participants** as a post course resource as well as for future iterations of the course.

Agenda

Friday 19th February 09:00 – 11:30

Day 3: Friday – 19 Feb 2021 – Bioinformatics with online tools
Join Zoom for Day 3

08.45 – 09.00	**Joining the call** – Assistance will be provided at this time to help participants join	
09.00 – 09.15	**Welcome and Introduction (Live)**	Pernille Nilsson (DTU, Denmark)
09.15 – 09.45	**[7] Online tools 1:** Introduction to online tools. Kmers, MLST and serotyping of Salmonella and E.coli	Stanford Kwenda (NICD, South Africa)
09.45 – 10.00	**BREAK**	
10.00 – 10.30	**[8] Online tools 2:** CGE Online Bioinformatics Tools. SpeciesFinder, KmerFinder, ResFinder.	Sonda Tolbert (KCRI, Tanzania)
10.30 – 11.00	**[9] Online tools 3:** Presentation of online tools available for microbial identification using sequence analysis: Pathogenwatch, autoMLST, pubMLST-ribosomal MLST	Anthony Smith (NICD, South Africa)
11.00 – 11.15	**[9E] Exercise using online tools:** Participants will download sequence data and tasked to perform analysis using the presented online tools. (Live introduction). To be handed in through this SurveyMonkey link prior to Day 5.	Anthony Smith (NICD, South Africa)
11.15 – 11.30	**Q&A and Wrap-up (Live)**	

[7] Online tools 1: Introduction to online tools

Stanford Kwenda (NICD, South Africa)

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[8] Online tools 2: CGE Online Bioinformatics Tools

Tolbert Sonda (KCRI, Tanzania)

[9] Online tools 3: Microbial identification

Anthony Smith (NICD, South Africa)

[9E] Exercise in using online tools

For this exercise you will perform analysis on four (4) separate genome assemblies of bacterial genomes using the online tools presented to you.

You have been provided with assembled sequencing data files generated from Illumina sequencing of genomic DNA extracted from pure cultures of bacteria.

Using the online tools that have been demonstrated to you, please identify and characterize the isolates with respect to their genus, species (serotype (*if applicable*) and MLST (*if applicable*). Also investigate and report on any presence of AMR determinants (acquired AMR genes or mutations in existing genes).

- Download the assembled genomes (.fasta files) to your computer via the *Jottacloud* link provided to you via email: There are four separate genome assemblies called Isolate 1-4.

- Run each of the four genomes through the appropriate online tools. i.e
    1. Tool(s) to identify the bacterial species (genus, species, serotype if applicable)
    2. MLST (if applicable)
    3. Determine the presence of AMR determinants (acquired AMR genes or mutations in existing genes)
- Study the output results and answer the questions in the following survey: https://www.surveymonkey.com/r/9Eonlinetools

Q&A

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Agenda

Monday 22nd February 09:00 – 12:00

Day 4: Monday – 22 Feb 2021 – Focus
Join Zoom for Day 4

08.45 – 09.00	Joining the call – Assistance will be provided at this time to help participants join	
09.00 – 09.15	**Welcome and Introduction (Live)**	Pernille Nilsson (DTU, Denmark)
09.15 – 10.15	**[10] Phylogeny: construction, visualization and interpretation.** Tools: Microreact (Pre-recorded Lecture)	Erkison Odih (UI, Nigeria)
10.15 – 10.30	**BREAK**	
10.30 – 11.00	**[10E] Exercise on phylogeny:** Participants will be given an exercise on phylogeny (Live introduction). To be handed in through SurveyMonkey link prior to attending Day 5.	Erkison Odih (UI), Sonda Tolbert (KCRI) and Ayorinde Afolayan (UI)
11.00 – 11.30	**[11] Genotype to Phenotype: Prediction of AMR by WGS** (Pre-recorded Lecture)	Jette Sejer Kjeldgaard (DTU, Denmark)
11.30 – 11.45	**[11E] Exercise Phenotype based on genotype:** Determining phenotype based on genotype. (Live introduction). To be handed in through SurveyMonkey link prior to attending Day 5.	Jette Sejer Kjeldgaard (DTU, Denmark)
11.45 – 12.00	**Q&A and Wrap-up (Live)**	

Contact us for more information

seqafrica@food.dtu.dk

pnil@food.dtu.dk

(Pernille Nilsson, Project Manager)

rshe@food.dtu.dk

(Rene S. Hendriksen, Technical Lead)

antimicrobialresistance.dk/seqafrica.aspx

@AfricaSeq

Thank you

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