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GenomeTrakr WGS Protocol Collection and Workflow for MiSeq V.2

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Tina Pfefer¹, Julie Haendiges¹, Maria Balkey¹, Ruth Timme¹

¹US Food and Drug Administration

GenomeTrakr

Tech. support email: genomeTrakr@fda.hhs.gov



Tina Pfefer

US FDA

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Protocol status: Working

We use this protocol and it's working

Created: December 14, 2022

Last Modified: December 16, 2022

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Keywords: GenomeTrakr, whole genome sequencing, enteric pathogens, surveillance, MiSeq, genometrakr wgs protocol collection, genometrakr submission, dry lab workflow for sequence qc, editing genometrakr submission, ncbi data curation protocol, workflow for miseq, ncbi database for genometrakr data, lab workflow for illumina miseq section, genometrakr data, associated protocol, sample extraction to ncbi submission, protocol collection, data curation protocol, protocol, ncbi submission, lab workflow, dry lab workflow, ncbi database, miseq, workflow, pulsenet lab, illumina miseq section, data curation, ncbi, wg, sequence qc

Abstract

Here we have created a collection of all the protocols used for WGS using the MiSeq, in order, from sample extraction to NCBI submission.

This collection has three sections:

- **Section 1: WGS Wet lab workflow for Illumina MiSeq**
- **Section 2: Dry lab workflow for sequence QC and NCBI submission - Direct Submission**
- **Section 3: Dry lab workflow for sequence QC and NCBI submission - PulseNet labs**

Associated protocols:

- **[Querying the NCBI database for GenomeTrakr data \(protocols.io\)](#)**
- **[NCBI data curation protocol - SOP for editing GenomeTrakr submissions \(protocols.io\)](#)**

Troubleshooting



Wet lab

1 **WGS Wet lab workflow for Illumina MiSeq**

2 **DNA Extraction**

Protocol



NAME

Manual DNA Extraction using Qiagen DNeasy Blood and Tissue Kit

CREATED BY

Julie Haendiges

Preview

3 **DNA Quantification**

Protocol



NAME

DNA Quantification using the Qubit Fluorometer

CREATED BY

Julie Haendiges

Preview

4 **Library Preparation**



Protocol



NAME

Illumina DNA Prep (M) Tagmentation Library Preparation for use on an Illumina MiSeq Sequencer

CREATED BY

Julie Haendiges

[Preview](#)

5 Sequencing

Protocol

NAME

Procedure for Operation and Maintenance of the Illumina MiSeq for Whole Genome Sequencing

CREATED BY

Julie Haendiges

[Preview](#)

Dry lab - Direct Submission

6 Dry lab workflow for sequence QC and NCBI submission - Direct Submission:

The following protocols are also included in a Springer Methods book chapter collection: [Utilizing the Public GenomeTrakr Database for Foodborne Pathogen Traceback \(protocols.io\)](#).

7 Check sequence quality:



Protocol



NAME

Quality control assessment for microbial genomes: GalaxyTrakr MicroRunQC workflow

CREATED BY

Ruth Timme

Preview

8 **Populate BioSample AND SRA metadata templates:**

Protocol



NAME

Guidance for populating GenomeTrakr metadata templates (BioSample and SRA)

CREATED BY

Ruth Timme

Preview

9 **Submit sequence and metadata to NCBI:**



Protocol



NAME

NCBI submission protocol for microbial pathogen surveillance

CREATED BY

Ruth Timme

Preview

10 **Update, retract, or replace these records in NCBI databases, if necessary:**

Protocol



NAME

NCBI data curation protocol - SOP for editing GenomeTrakr submissions

CREATED BY

Ruth Timme

Preview

Dry lab - PulseNet submission

11 **Dry lab workflow for sequence QC and NCBI submission - PulseNet labs:**

12 **Check sequence quality:**

Follow the CDC's guidance for assessing QC in BioNumerics

13 **Populate NCBI template:**



*****NOTE:** For NCBI submission for fields not included in the BioNumerics Template, please remember to include the name of the laboratory sequencing the isolates and the surveillance effort name in the **sequenced_by** and **project_name** fields as described in Step 5 of this protocol.

Protocol



NAME

Populating NCBI template for submissions using BioNumerics v7.6

CREATED BY

Maria Balkey

Preview

14 **Submit sequence and metadata to NCBI:**

Follow the CDC's guidance for NCBI submissions through BioNumerics.

15 **Update, retract, or replace these records in NCBI databases, if necessary:**

Protocol



NAME

NCBI data curation protocol - SOP for editing GenomeTrakr submissions

CREATED BY

Ruth Timme

Preview