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Version 5

GenomeTrakr WGS Protocol Collection and Workflow for MiSeq V.5

DOI

<https://dx.doi.org/10.17504/protocols.io.3byl4bwyjvo5/v5>



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Protocol status: Working

We use this protocol and it's working

Created: January 14, 2026

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Protocol Integer ID: 238664

Keywords: GenomeTrakr, whole genome sequencing, enteric pathogens, surveillance, MiSeq, genometrakr wgs protocol collection, bacterial pathogen genomic data at ncbi, dry lab workflow for sequence qc, sample extraction to ncbi submission, bacterial pathogen genomic data, metadata templates for ncbi submission, lab workflow for illumina miseq section, genometrakr, workflow for miseq, ncbi submission, ncbi template for submission, maxwell rsc cultured cells dna kit, dna extraction from inoculated broth, pulsenet lab, links to protocol, new protocol, added new protocol, removed protocol, populating ncbi template, dna extraction, dry lab workflow, lab workflow, protocol, using pulsenet, miseq, ncbi, sequence qc, using bionumeric, illumina miseq section, pathogen

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**

Version history:

V5:

Links to protocols updated with latest version

V4:

- Links to protocols updated with latest version, and
- Step 13 - Removed protocol "Populating NCBI template for submissions using BioNumerics", and replaced with protocol "Populating metadata templates for NCBI submissions using PulseNet 2.0"

V3:

- Links to protocols updated with latest version,
- Added new protocol: DNA Extraction from Inoculated Broth for WGS using the Maxwell RSC Cultured Cells DNA Kit,
- Added new protocol: Querying for Bacterial Pathogen Genomic Data at NCBI.



WGS Wet Lab Workflow for Illumina MiSeq

1 DNA Extraction - Manual

Protocol



NAME

Manual DNA Extraction using Qiagen DNeasy Blood and Tissue Kit

CREATED BY

Julie Haendiges

Preview

2 DNA Extraction - Automated

Protocol



NAME

DNA Extraction from Inoculated Broth for WGS using the Maxwell RSC Cultured Cells DNA 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 Workflow for Sequence QC and NCBI Submission - Direct Submission

- 6 The following protocols are also included in a Springer Methods book chapter collection: [A Comprehensive Guide to Quality Assessment and Data Submission for Genomic Surveillance of Enteric Pathogens V.4](#)

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 and validating 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 Querying data at NCBI

Protocol



NAME

Querying for Bacterial Pathogen Genomic Data at NCBI

CREATED BY

Maria Balkey

Preview

11 Update, retract, or replace your submissions at NCBI:

Protocol



NAME

NCBI Bacterial Pathogen Data Curation Protocol: SOP for Editing GenomeTrakr Submissions

CREATED BY

Ruth Timme

Preview

Dry Lab Workflow for Sequence QC and NCBI Submission - PulseNet Labs



12 Check sequence quality:

Follow the CDC's guidance for assessing QC in PulseNet 2.0

13 Populate NCBI template:

Protocol

NAME

Populating metadata templates for NCBI submissions using PulseNet 2.0

CREATED BY

Maria Balkey

Preview

14 Submit sequence and metadata to NCBI:

Follow the CDC's guidance for NCBI submissions through PulseNet 2.0.

15 Query data at NCBI

⇒ "Querying Data at NCBI"

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

⇒ Data curation protocol