

NeoCol: Standard Operating Procedure (SOP) for Storage & Processing of Genetic Samples v2.0

Purpose:

The purpose of this SOP is to describe the standard procedures involved in storage of swabs and stool samples between collection and genetic analysis.

Principal:

Swabs and stools collected from mothers and neonates will be using metagenomic next generation sequencing (mNGS) to better understand the diversity of colonising bacteria, antibiotic resistance genes, and how these change with time and other factors. There will be delays in between sample collection and genetic analysis, so measures need to be in place to ensure the DNA in the samples is adequately preserved. The swabs used in this study are designed to collect swab samples for DNA and RNA analysis and are ideal for microbiome studies and whole genome sequencing.

Responsibility:

This SOP applies to any clinical and laboratory staff who are involved in handling and processing genetics swabs and stools for NeoCOL study. It is the responsibility of those users to always follow these guidelines when handling and processing samples for the study.

Safety Requirements:

Gloves should be worn during sample handling. A laboratory gown should be worn at all times during sample processing. Standard hand hygiene practices should be followed before, and after handling of samples. Handle all specimens with care and treat them as potentially infectious material. Appropriate insulated gloves should be worn when using a -80°C Freezer.

Materials:

- Sample: genetic swab (Copan 2ml eNAT medium in tube & regular FLOQ swab in sachet) or stool specimen
- Non-sterile gloves, freezer gloves, laboratory coat
- -80°C freezer with a thermometer and temperature log.
- Optional: -20°C freezer with a thermometer and temperature log; 4°C fridge with a thermometer and temperature log



Figure 1: Genetic Swab (2ml eNAT medium in tube & regular FLOQ swab in sachet)

Procedure:

1. Check the label on the sample to ensure it is correct.
2. Processing:
 - a. Genetic swab:
 - i. These swabs preserve DNA and RNA for up to 4 weeks at room temperature and 4°C and for 6 months if stored at -20°C to -80°C.

- ii. Once swab received in laboratory store at room temperature or 4°C until feasible to transport to -20°C or -80°C.
 - iii. No extra processing required.
 - b. Stools:
 - i. With a sterile spatula, transfer sufficient stool from the stool container into the cryotube to reach the 1mL line.
- 3. Storage:
 - a. If a -80°C freezer is available on site:
 - i. Transport and freeze the stool sample at -80°C as soon as possible (*no more than 4 hours from collection*).
 - b. If a -80°C freezer is not available on site:
 - i. Option 1: (dry-ice available)
 - 1. Transport and freeze the stool sample at -20°C as soon as possible (*no more than 4 hours*).
 - 2. Transfer the stool samples to a -80°C freezer as soon as possible (*no more than 7 days*). Stool samples must be transported on dry ice to prevent thawing.
 - 3. Swabs can remain at room temperature or 4°C for up to 4 weeks. They should be transported to a facility with a -80°C freezer when convenient.
 - ii. Option 2: (dry-ice not available)
 - 1. Transport and store stool samples at 4°C on-site as soon as possible.
 - 2. Transfer the stool samples to a -80° freezer as soon as possible (no more than 24 hours) on *normal ice*.
 - c. Complete the NeoCOL Genetic Sample Storage Log.

References

- Nil

Document History

Version	Author(s)	Approved by	Update Reason	Date	SOP No:
1.0	B. Dickson	P. Williams	New document	11JUL2023	NeoCOL_SOP04
2.0	R. Kelleghan	P. Williams	Adapted for NeoCOL 2.0	17FEB2025	NeoCOL_2.0_SOP04

Site Training Record

Trainee Name	Read/Understand SOP (Tick)	Access to SOP (Tick)	Trainee Signature	Date	Trainer Initials