

Revision changes

06-06-2023: Centrifuge protocol is changed by adding brake position to the SOP

12-09-2023: G-force first centrifuge step changed

1. Goal

To describe how plasma from Streck cell-free DNA collection tubes must be prepared and stored for Radboud Biobank (RB) purposes, so that:

1. Interested parties including potential users know how the biomaterial has been handled.
2. The laboratory can assess whether they can process the biomaterial as described under paragraph 2 "Preparation".
3. The laboratory knows the requirements for the collection, processing and storage of the biomaterial to enable registration of deviations.
4. The collector knows the requirements for the collection and transport of the biomaterial to ensure correct delivery.
5. The RB is able to attach this procedure to the biomaterial in storage to determine the fitness for purpose.

1.1 Scope of application

This procedure is applicable to all employees concerned at the Radboud Biobank, the collectors and the Radboud Laboratory for Diagnostics (RLD).

2. Protocol plasma for cell-free DNA

Collection

Delivery	In collection tube. <ul style="list-style-type: none">• Do not send the tubes to the laboratory with the pneumatic tube system but use intern transport.• Tubes collected outside Radboudumc can be safely sent by post in transport blister, safety bag and mailing envelope.
Type of tube	Streck Cell-free DNA BCT CE collection tube, BMD 218996. NB: The tube is made from glass!
Temperature	Keep tubes at room temperature until prepared for storage.

Preparation

Time until freezing	Prepare and freeze the collected blood within 7 days of collection.
Centrifuge	g-force: 1600g. Time: 10 minutes. Temperature: room temperature. Brake: brake position 2.
Processing	Transfer the supernatant of each tube to a 5 ml polypropylene centrifugation tube (Eppendorf No. 0030119.401 or equivalent).
Centrifuge	5 ml polypropylene centrifugation tubes. g-force: 16.000g. Time: 10 minutes. Temperature: cooled 4 °C. Brake: brake position 5.
Aliquotation	Transfer the supernatant of each centrifugation tube to a 5 ml polypropylene storage tube.

Storage

Register Register the 5ml tubes in the Biobank Information Management System (BIMS) and attach a cryovial label.

Type of tube 5 ml polypropylene tube with external thread and screw cap. (Fisherbrand No. 10-500-27 or equivalent).

Temperature -80°C.

Miscellaneous

Deviations Note all deviations from this procedure in the BIMS.

3. Quality assurance

Review takes place via i) an internal audit (available on request at radboudbiobank@radboudumc.nl) and ii) 2-monthly performance reviews of deviations registered in the BIMS (available on request at radboudbiobank@radboudumc.nl)

3.1 Performance indicator

95% of the samples collected have been prepared and stored within the parameters of this procedure.

4. Accountability

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4.1 Limitations

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5. Comments

- It is the responsibility of the collectors to document in the clinical data if the blood is collected under fasting or non-fasting conditions.
- Thaw cryogenic tubes at appropriate temperature as specified in your protocol.
 Note: If cryoprecipitates form in the plasma, vortex the tube for 30 seconds after thawing. Do not centrifuge the plasma.

5. Relevant documents

Qdocs, literature, legislation and codes of conduct, website etc.

link	Title
Qdoc 045014	Radboud Biobank voorschrift RLD (NB alleen bestemd voor medewerkers RLD)
Qdoc 078088	Monstermanagement RLD t.b.v. Radboud Biobank
Qdoc 084860	DVO RLD - Biobank
Streck manual	Streck Cell-Free DNA BCT CD
ISO 20186-3	Molecular in vitro diagnostic examinations – Specifications or pre-examination processes for venous whole blood – part 3: Isolated circulating cell free DNA form plasma.
Pubmed	Article: Effect of pneumatic Tube System Transport on Cell-Free DNA.
Pubmed	Comparison of Roche Cell-Free DNA collection Tubes® to Streck Cell-Free DNA BCT®s for sample stability using healthy volunteers.
Qdoc 015297	Bloedafname RLD: veneus en capillair