

## DNA Extraction and Retention Policy

### Division of Laboratory Genetics and Genomics

The Division of Laboratory Genetics and Genomics at BC Children's Hospital provides clinical genetic testing services for the province of BC. Extraction and retention policies are based on patient centred care, ensuring that minimal blood volumes are collected, and identified samples are not stored without patient knowledge or consent. The Division *does not* store DNA samples for research purposes and/or for individuals in whom DNA testing is not immediately planned.

Approach to DNA extraction and sample retention varies based on the clinical scenario:

1. Genetic Test Performed at BCCH and Test Criteria are met:
  - a. Sample requirements and DNA retention times are outlined in Table 1.
  - b. Only a sufficient amount of DNA to complete the requested clinical testing is extracted. Residual DNA will *not* generally be available for additional testing or for transfer to other British Columbia laboratories.
  - c. Samples that are slated for disposal may be de-identified and used for QA / QC / validation / verification purposes related to the initial diagnostic test requested, or anonymized and use for test validation or verification.
  - d. Upon provision of appropriate Clinical Research Ethics Board approval, samples that are slated for disposal may be de-identified or anonymized and given to research investigators to help further research.
  - e. An individual may request destruction / disposal of their DNA sample at any time prior to slated disposal / de-identification / anonymization; please see the Directive to Destroy Residual DNA form available at [www.genebc.ca](http://www.genebc.ca).
2. Genetic Testing Not Performed in BC (Other):
  - a. *MSP approval of funding must be obtained prior to sample collection; samples will be rejected if received without documentation of approved funding.*
    - i. For shipment coordination by the Molecular Genetics section of the Division, complete paperwork must be provided in advance of sample collection, as per the Protocol for Coordinating Out-of-Province Genetic Testing available at [www.genebc.ca](http://www.genebc.ca).
  - b. Exception to timing of collection will be made only if funding will unquestionably be approved *AND* one of the following is true: the patient is an infant / toddler being transferred out of the care of BCCH; the patient is a young child and is having blood collection for other reasons; the management of a pregnancy is impacted by the testing and the individual is having blood collected at BCCH to ensure rapid turn around time.
    - i. ***Prior discussion and approval by the applicable Division Molecular Geneticist On-Service is required.*** The name of the approving Molecular Geneticist, and the reason for the request must be noted on the requisition. *Samples will be rejected if received without prior approval.*
  - c. The *entire sample* will be transferred to the clinical testing laboratory.

- d. For patients who are *not* insured by BC MSP or the Yukon Territory, such requests will be rejected.

3. No Genetic Test Ordered (DNA extraction only):

- a. ***Prior discussion and approval by the applicable Division Molecular Geneticist On-Service is required, except as outlined below.*** The name of the approving Molecular Geneticist, and the reason for the request must be noted on the requisition. *Samples will be rejected if received without prior approval.*
- b. Prior approval is not required for the following circumstances:
  - i. Patients followed using the “Protocol for the investigation of suspected metabolic disease in the critically ill infant”;
  - ii. Ongoing evaluation of a pregnancy where molecular testing is indicated pending outcome of other ongoing testing, cultured CVS/amniocytes may be sent to the Molecular Genetics section (MG) pending resolution of testing requirements.
- c. Sample requirements and retention times are outlined in Table 1.
- d. For patients who are *not* insured by BC MSP or the Yukon Territory, such requests will be rejected.

Table 1: Ideal / Minimum Collection volumes and sample/residual DNA retention.  
 MG = Molecular Genetics; CG = Cytogenetics.

| Requisition                  | Test Name  | Notes  | Ideal Collection Volume   | Minimum Collection Volume   | Retention of sample/residual DNA                                   |
|------------------------------|--|--|---|---|--|
| MG - General Requisition     | All listed tests   |  | 1 ml EDTA blood   | 0.5 ml EDTA blood   | 6 months from completion of test                                   |
|                              | FMR1 Related Disorders & Myotonic Dystrophy Type 1 by Southern Blot                              |  | 8 ml EDTA blood   | 3 ml EDTA blood   | 6 months from completion of test                                   |
|                              | Other: Pedigree number   | Prior approval required.                                       | 1 ml EDTA blood   | 0.5 ml EDTA blood   | 6 months from completion of test                                   |
|                              | Other: Out-of-province testing; MSP funding obtained.  | Reason <b>required</b> .                                       | Ordering Physician should indicate volume required by testing laboratory. | Ordering Physician should indicate volume required by testing laboratory. | None.  |
|                              | DNA Extraction Only: Reason provided.  | Prior approval required.                                       | 1 ml EDTA blood   | 0.5 ml EDTA blood   | 6 months.  |
| MG/CG - Prenatal Requisition | Cultured CVS or Amniocytes: MGL test   |  | 2X T25 flasks, 100% confluent   | 2X T25 flasks, 100% confluent   | 6 months from completion of test                                   |
|                              | Cultured CVS or Amniocytes; ongoing pregnancy: molecular test pending outcome of ongoing testing | Stabilized (not extracted) pending outcome of ongoing testing. | 2X T25 flasks, 100% confluent   | 2X T25 flasks, 100% confluent   | Until resolution of testing requirements to a maximum of 6 months. |
|                              | Uncultured CVS: MGL test   |  | 20 mg   | 20 mg   | 6 months from completion of test                                   |
|                              | Out-of-province testing; MSP funding obtained.   |  | Ordering Physician should indicate volume required by testing laboratory. | Ordering Physician should indicate volume required by testing laboratory. | None.  |
| CG - CMA Requisition         | Chromosome Microarray Analysis (CMA)   |  | 2 – 3 ml EDTA blood   | 0.5 ml EDTA blood   | 6 months from completion of test.                                  |