



THE HOSPITAL FOR
SICK CHILDREN

Paediatric
Laboratory Medicine

7555 University Avenue
Room 3416, Roy C. Hill Wing
Toronto, ON, M5G 1X8, Canada
Tel: 416-813-7200 x1
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(CLIA # 99D1014032)

Genome Diagnostics

www.sickkids.ca/en/care-services/for-health-care-providers/lab-testing-services

Patient Name:
Preferred Name (if different):
Date of Birth (DD/MM/YYYY):
Legal Sex: Male Female Non-binary/U/X
Sex Assigned at Birth (if different): Male Female Unassigned
Gender Identity: Male Female Non-binary/U/X
MRN:
Parent's Name:
Address:
For Canada Only
Provincial Health Card #: _____ Version: _____
Issuing Province: _____

Testing is provided for medical purposes only and results are not intended for forensic use. The laboratory is not a forensically accredited laboratory.

<p>Referring Physician (required):</p> <p>Name: _____</p> <p>Facility/Ward/Clinic (required): _____</p> <p>Address: _____</p> <p>Phone: _____ Fax: _____</p> <p>Email address: _____</p> <p>Signature: _____</p>	<p>Reason for Testing (required):</p> <p><input type="checkbox"/> Diagnosis <input type="checkbox"/> Carrier testing</p> <p><input type="checkbox"/> Familial mutation/variant analysis <input type="checkbox"/> Prenatal testing</p> <p><input type="checkbox"/> Bank DNA only <input type="checkbox"/> Variant re-assessment</p> <p><input type="checkbox"/> Parental sample</p> <p><input type="checkbox"/> Other (Specify): _____</p> <p>If expedited testing is requested, indicate reason:</p> <p><input type="checkbox"/> Pregnancy (Gestational age (weeks) _____)</p> <p><input type="checkbox"/> Other (Specify): _____</p>
<p>Copy Report To Another Healthcare Provider (all information is required):</p> <p>Name: _____</p> <p>Address: _____</p> <p>Phone: _____ Fax: _____</p>	<p>Familial Mutation / Targeted Variant Analysis:</p> <p>*If proband testing was performed elsewhere, a copy of the original report (all pages) is required. Send a positive control sample if available.</p> <p>Gene & NM #: _____</p> <p>Mutation/variant(s): _____</p> <p>SickKids Laboratory/Order number: _____</p> <p>SickKids Pedigree/Family number: _____</p> <p>Name of proband: _____</p> <p>Relationship to proband: _____</p> <p>Name(s) & DOB of other submitted family members: _____</p>
<p>Sample Information (required):</p> <p>Date obtained (DD/MM/YYYY): _____ - _____ - _____ Referring laboratory reference #: _____</p> <p><input type="checkbox"/> Blood in EDTA (purple top tube): min. 4 mL (0.5-3 mL for newborns)</p> <p><input type="checkbox"/> DNA: min. 10 ug in low TE buffer (Source: _____)</p> <p>*Unable to perform MLPA analysis on externally extracted DNA (contact lab)</p> <p><input type="checkbox"/> Direct CVS: min. 10 mg direct villi</p> <p><input type="checkbox"/> Cultured villi: 1 flask at 60-70% confluency and 1 flask at 80-90% confluency</p> <p><input type="checkbox"/> Cultured amniocytes: 1 flask at 60-70% confluency and 1 flask at 80-90% confluency</p> <p><input type="checkbox"/> Tissue (Source: _____)</p> <p><input type="checkbox"/> Other (Specify: _____)</p> <p>Closed consent:</p> <p><input type="checkbox"/> (If checked, all remaining DNA will be discarded upon notification by the ordering physician that all DNA testing has been completed)</p>	<p>Clinical Diagnostics and Family History (required):</p> <p><i>Draw or attach a pedigree and provide any relevant information below, including clinical and family history details, as this is important for accurate interpretation of results.</i></p> <p>Ethnicity: _____</p>
<p>Laboratory Use:</p> <p>Date (DD/MM/YYYY) Time Received:</p> <p>_____ _____ h</p> <p>Lab/Order #: _____</p> <p>Specimen type, amt & # of tubes: _____</p> <p>Comments:</p> <p>Pedigree/Family No./Patient/Order No. _____ / _____</p>	<p>Ordering Checklist:</p> <p><input type="checkbox"/> Specimen tube labeled with at least two identifiers</p> <p><input type="checkbox"/> Completed test requisition form Clinical information must be provided for all tests. Pages 4-5 must be completed for all tests. Testing will not proceed until these are provided.</p> <p><input type="checkbox"/> Proband's report and positive control (familial/targeted variant testing only)</p> <p><input type="checkbox"/> Completed billing form (page 6, if applicable)</p>

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LIST OF TESTS AVAILABLE BY DISEASE

For prenatal testing and cases where a familial mutation/variant is known, include information on page 1.

22q11 Deletion Syndrome

- 22q11 deletion/duplication analysis (*external DNA not accepted*)

Angelman Syndrome

- Methylation and deletion/duplication analysis (*external DNA not accepted*)
 UPD15 analysis (*please submit parental samples*)

Ashkenazi Jewish Carrier Screening

- Recurrent mutation analysis (7 diseases):
Bloom syndrome, Canavan disease, Familial Dysautonomia, Fanconi Anemia Group C, Mucopolidosis Type IV, Niemann-Pick disease, Tay-Sachs disease

ETHNICITY (required):

- Ashkenazic Sephardic French Canadian Cajun
 Non-Jewish Other _____

Autoinflammatory Disease *

Clinical information must be provided on pages 4 and 5

- Autoinflammatory Diseases (AID) NGS panel
 Recurrent Fever Syndrome (RFS) NGS panel
 Hemophagocytic Lymphohistiocytosis (HLH) NGS panel
 Aicardi-Goutieres Syndrome (AGS) NGS panel
 Deletion/duplication analysis

Becker Muscular Dystrophy

- DMD deletion/duplication analysis (*external DNA not accepted*)
 DMD sequence analysis

Beckwith-Wiedemann Syndrome

- IC1 and IC2 methylation† and 11p15 deletion/duplication analysis (*external DNA not accepted*)
 UPD11 analysis (parental sample required)
 CDKN1C sequence analysis
† No methylation analysis on CVS samples

Bone Marrow Transplantation

- Post-transplant monitoring

Cancer Related Tests

Li-Fraumeni Syndrome

- TP53 sequence analysis
 TP53 deletion/duplication analysis (*external DNA not accepted*)

Rhabdoid Tumour Predisposition Syndrome

- SMARCB1 sequence analysis
 SMARCB1 deletion/duplication analysis (*external DNA not accepted*)

Congenital Muscular Dystrophies

- Sequence analysis panel:
FKTN (FCMD), FKR, POMGnT1, POMT1, POMT2

Connective Tissue Disease *

Clinical information must be provided on pages 4 and 5

If more than one panel is requested, rationale must be provided on page 5.

- Ehlers Danlos Syndrome NGS panel
 Osteogenesis Imperfecta NGS panel
 Osteopetrosis and Disorders of Increased Bone Density NGS panel
 Bone Involvement NGS panel
 Deletion/duplication analysis

Craniosynostosis

- Apert Syndrome (FGFR2 recurrent mutations analysis)
 Crouzon Syndrome (FGFR2, FGFR3 recurrent mutation analysis)
 Pfeiffer Syndrome (FGFR1, FGFR2, FGFR3 recurrent mutation analysis)
 Saethre-Chotzen Syndrome (TWIST1 sequence analysis and FGFR3 recurrent mutation analysis)
 Non-Syndromic Craniosynostosis (FGFR3 recurrent mutation analysis)
 TWIST1 deletion/duplication analysis (*external DNA not accepted*)

Cystic Fibrosis and/or CFTR-Related Disorders **

Indication (provide additional clinical details on page 1 and/or pages 4-5):

- Fetal echogenic bowel (*ensure parental samples are linked to each other on both requisitions with at least two identifiers*)
 Clinical diagnosis of cystic fibrosis
 CFTR-related disorders
 Male factor infertility: oligo/azoospermia C(B)AVD
 Family history of cystic fibrosis
 Positive newborn screen (*ensure familial samples are linked to each other on all requisitions with at least two identifiers; send NSO report*)

Tests (indication specific):

- CFTR recurrent mutation analysis
 CFTR sequence analysis
 CFTR deletion/duplication analysis (*external DNA not accepted*)

Dopamine Beta-Hydroxylase Deficiency

- DBH Sanger sequence analysis

Duchenne Muscular Dystrophy

- DMD deletion/duplication analysis (*external DNA not accepted*)
 DMD sequence analysis
 DMD mRNA analysis (*contact the laboratory before ordering*)

Fabry Disease

- GLA sequence analysis
 GLA deletion/duplication analysis (*external DNA not accepted*)
 GLA mRNA analysis (*contact the laboratory before ordering*)

Fragile X Syndrome & FMR1-related disorders

- Fragile X syndrome
 Fragile X-associated primary ovarian insufficiency
 Fragile X-associated tremor ataxia syndrome (FXTAS)

Fragile X E Syndrome ***

- AFF2 trinucleotide repeat analysis
(*See testing requirements*)

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Hereditary Hearing Loss *

Clinical information must be provided on pages 4 and 5

When the Common and Non-Syndromic Hearing Loss Panel is requested, STRC dosage is tested.

- Common and Non-Syndromic Hearing Loss NGS panel
- Usher Syndrome NGS panel
- Stickler Syndrome NGS panel
- Alport Syndrome
- Norrie Syndrome, Treacher Collins Syndrome, Waardenburg Syndrome NGS panel
- Deletion/duplication analysis

Hereditary Hemorrhagic Telangiectasia

- ACVRL1* sequence analysis
- ENG* sequence analysis
- ACVRL1* and *ENG* deletion/duplication analysis (*external DNA not accepted*)
- SMAD4* sequence analysis

Hereditary Spastic Paraplegia *

Clinical information must be provided on pages 4 and 5

- Comprehensive HSP (AR/AD/XL) NSG panel including deletion/duplication analysis

Hunter Disease

- IDS* sequence analysis
- IDS* deletion/duplication analysis (*external DNA not accepted*)
- IDS* mRNA analysis (*contact the laboratory before ordering*)

Identity Testing

- Zygosity studies
- Maternal Cell Contamination Studies**
(*maternal sample required*)

Neurofibromatosis type 1/Legius syndrome *

Clinical information must be provided on pages 4 and 5

- NF1* sequence analysis
- NF1* deletion/duplication analysis (*external DNA not accepted*)
- SPRED1* sequence analysis
- SPRED1* deletion/duplication analysis (*external DNA not accepted*)

Neuronal Ceroid Lipofuscinoses (Batten Disease)

- PPT1 (CLN1)*, *TPP1 (CLN2)* and *CLN3* recurrent mutation analysis
- Sequence analysis panel:
PPT1 (CLN1), *TPP1 (CLN2)*, *CLN3*, *CLN5*, *CLN6*, *CLN7*, *CLN8*, *CLN10*

Noonan Syndrome and RASopathies *

Clinical information must be provided on pages 4 and 5

- Noonan Syndrome and RASopathies panel
- Deletion/duplication analysis for *SPRED1* only (*external DNA not accepted*)

Prader-Willi Syndrome

- Methylation and deletion/duplication analysis (*external DNA not accepted*)
- UPD15 analysis (*parental samples required*)

Renal Diseases

- Atypical Hemolytic Uremic Syndrome / Membranoproliferative Glomerulonephritis sequence analysis
- Focal Segmental Glomerulosclerosis sequence analysis

Russell-Silver Syndrome

- IC1 methylation and 11p15 deletion/duplication analysis (*external DNA not accepted*)
- UPD7 analysis (*parental samples required*)

Shwachman-Diamond Syndrome

- SBDS* sequence analysis

Simpson-Golabi-Behmel Syndrome

- GPC3* sequence analysis and *GPC3* and *GPC4* deletion/duplication analysis (*external DNA not accepted*)

Skeletal Dysplasia

- Achondroplasia (*FGFR3* recurrent mutation analysis)
- Hypochondroplasia (*FGFR3* recurrent mutation analysis)
- Thanatophoric Dysplasia (*FGFR3* recurrent mutation analysis)

Spinal and Bulbar Muscular Atrophy

- AR trinucleotide repeat analysis

Spinal Muscular Atrophy

- SMN1* and *SMN2* deletion/duplication analysis (*external DNA not accepted*)

Trismus Pseudocamptodactyly Syndrome

- MYH8* sequence analysis

X-Inactivation Analysis

- Other (PRIOR APPROVAL REQUIRED; CONTACT LABORATORY):**

*Next-Generation Sequencing (NGS) testing will only be initiated if the clinical information sections (pages 4-5) are completed. For more information on our Next-Generation Sequencing (NGS) panels, including the list of genes tested, visit our website: www.sickkids.ca/en/care-services/for-health-care-providers/lab-testing-services

** For information on the testing algorithm for Cystic Fibrosis, visit <https://www.sickkids.ca/en/care-services/for-health-care-providers/lab-tests/244-Cystic-Fibrosis/> on our website
*** For information on the testing requirement for Fragile X E, visit the Specimen Requirements section for Fragile X E Syndrome on our website: www.sickkids.ca/en/care-services/for-health-care-providers/lab-tests/250-FRAXE

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DISEASE SPECIFIC FEATURES

Autoinflammatory Disorders (RFS/HLH)

- Abnormal inflammatory response
- Fevers
- Arthritis
- Pulmonary complications
- Gastrointestinal irritation
- Hepatosplenomegaly
- Lymphadenopathy
- Hemophagocytosis
- Oral ulcers
- Rash, specify: _____
- Ocular inflammation specify: _____
- Edema (periorbital, optic disk)
- Vision loss
- Other: _____

Hearing Loss

- Age of onset: _____
- Sensorineural hearing loss
- Conductive hearing loss
- Mixed hearing loss
- Bilateral Unilateral
- Syndromic Non-syndromic
- Ear anomalies Ear tags
- Eye anomalies Renal anomalies
- White forelock Cardiac anomalies
- Hirschsprung disease
- Other: _____

Hereditary Spastic Paraplegia (HSP)

- Abnormal corpus callosum
- Cognitive impairment
- Ataxia Spasticity
- Hyperreflexia Seizures
- Hypertonia Hypotonia
- Dystonia Dysarthria
- Extensor plantar reflex
- Other: _____

The following investigations are required before molecular testing of HSP is undertaken:

- MRI – Brain and spinal cord
- Biochemical testing - Vitamin B12, vitamin E, very long chain fatty acids, lysosomal work-up, plasma amino acids and serum lipoprotein analysis (as appropriate)

Neurofibromatosis type 1 (NF1) / Legius Syndrome

- The patient meets the NIH criteria for a clinical diagnosis of NF1 (>2 of the clinical features below).
 - Café-au-lait macules ≥6 CALS (#: _____)
 - Neurofibromas, ≥ 2 or ≥ 1 Plexiform
 - Freckling, axillary or inguinal
 - Optic glioma
 - ≥2 Lisch nodules (iris hamartomas)
 - Osseous lesion (type: _____)
 - First degree relative diagnosed with NF1 by above criteria
 - Other: _____
 - The patient does not meet the NIH diagnostic criteria for NF1.
- Rationale for testing must be provided on page 5.

Connective Tissue Disorders (CTD)

Ehlers Danlos Syndrome (EDS)

Indicate the suspected clinical diagnosis in the patient:

- Classic Vascular
- Kyphoscoliotic Other: _____

Check applicable CTD features below.

Osteopetrosis and Disorders of Increased Bone Density

Check applicable CTD features below.

CTD Related Clinical Features:

- Joint hypermobility: Beighton score: _____
- Arterial aneurysms, dissection or rupture
- Intestinal rupture
- Molluscoid pseudotumors
- Subcutaneous spheroids
- Loose/stretchable skin
- Smooth/velvety skin
- Widened atrophic scars

Osteogenesis Imperfecta (OI)

If the patient does not present with one of the test indications below, rationale for testing must be provided on page 5.

- Fetal findings on anatomy ultrasound consistent with OI.
- Fractures with minimal or no trauma in the absence of other known disorders of bone metabolism.
- Vertebral fractures
- Dentinogenesis imperfecta
- Low ALP for age/gender (ALPL gene analysis only will be performed – not eligible for full panel)

Check applicable CTD features below.

Bone Involvement

Check applicable CTD features below.

- Recurrent spontaneous tendon rupture
- Easy bruising
- Myopia
- Lens dislocation
- Blue/gray sclerae
- Thumb or wrist sign
- Club foot
- Scoliosis
- Marfanoid habitus
- Short stature
- Shortened long bones
- Recurrent pneumothoraces
- Joint subluxations/dislocations
- Fractures
- Bone deformity
- Wormian bones
- Increased bone mineral density
- Diaphyseal sclerosis
- Hearing loss
- Osteosclerosis
- Other: _____

Noonan Syndrome and RASopathies

- Increased nuchal translucency
- Developmental delay
- Characteristic facies
- Broad or webbed neck
- Heart defect (specify: _____)
- Hypertrophic cardiomyopathy
- Short stature (%ile: _____)
- Pectus deformity
- Lymphatic dysplasias
- Characteristic hematological abnormality (specify: _____)
- Other RASopathy features (specify: _____)
- For postnatal patients: The patient must present with ≥ 2 of the above features for molecular testing to be undertaken.

FAMILY HISTORY (Required)

Draw or attach a pedigree and provide any relevant information below, including clinical and family history details, as this is important for accurate interpretation of results.

Ethnicity: _____

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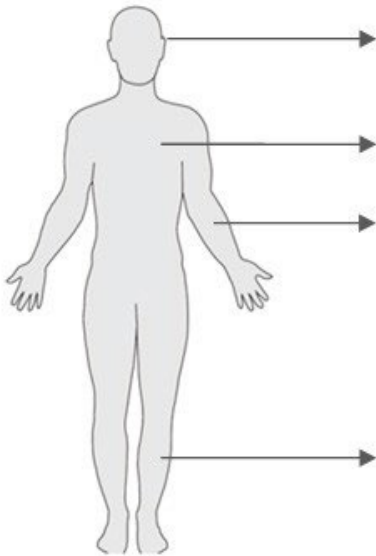
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ADDITIONAL RELEVANT CLINICAL INFORMATION

Previous Genetic Testing

- No
 Yes – Test Results: _____



GENERAL CLINICAL FEATURES

Perinatal history

- Premature birth
 IUGR
 Oligohydramnios Polyhydramnios
Other: _____

Growth

- Failure to thrive
 Growth retardation/short stature
 Overgrowth
 Macrocephaly Microcephaly
Other: _____

Physical/cognitive development

- Delayed fine motor development
 Delayed gross motor development
 Delayed speech and language
 Autistic behavior
 Intellectual disability
 Developmental regression
Other: _____

Behavioral

- Autistic features
 Obsessive-compulsive disorder
 Other psychiatric symptoms
Other: _____

Cancer/Malignancy

- Age of onset: _____
 Tumor type: _____
 Location(s): _____

Craniofacial/Ophthalmologic

- Abnormal face shape
 Blindness Cataracts
 Coloboma Optic atrophy
 Ophthalmoplegia Ptosis
 Retinitis pigmentosa
 Oral cleft
Other: _____

Brain malformations/abnormal imaging

- Abnormality of the basal ganglia
 Agenesis of the corpus callosum
 Brain atrophy
 Cortical dysplasia
 Hemimegalencephaly
 Heterotopia
 Holoprosencephaly
 Hydrocephalus
 Lissencephaly
 Periventricular leukomalacia
Other: _____

Cardiac/congenital heart malformations

- ASD VSD
 Coarctation of aorta
 Hypoplastic left heart
 Tetralogy of Fallot
 Cardiomyopathy
 Arrhythmia/conduction defect
Other: _____

Gastrointestinal

- Gastroschisis/omphalocele
 Gastrointestinal reflux
 Pyloric stenosis
 Tracheoesophageal fistula
 Hepatic failure
 Chronic intestinal pseudo-obstr.
 Hirschsprung disease
 Recurrent vomiting
 Chronic diarrhea
 Constipation
Other: _____

Genitourinary abnormalities

- Ambiguous genitalia
 Cryptorchidism
 Hypospadias
 Hydronephrosis
 Kidney malformation
 Renal agenesis
 Proximal renal tubulopathy
Other: _____

Endocrine

- Diabetes mellitus Type 1
 Diabetes mellitus Type 2
 Hypothyroidism
 Hypoparathyroidism
 Pheochromocytoma/paragan glioma
Other: _____

Neurological/Muscular

- Ataxia Hypotonia
 Chorea Hypertonia
 Dystonia Spasticity
 Exercise intolerance/ easy fatigue
 Headache/migraine
 Muscle weakness
 Seizures (type: _____)
 Stroke/stroke-like episodes
Other: _____

Skeletal/Limb abnormalities

- Contractures Club foot
 Polydactyly Syndactyly
 Vertebral anomaly Scoliosis
Other: _____

Skin/Hair

- Abnormality of the hair pattern, quantity
 Abnormal nail growth
 Abnormal pigmentation
 Café-au-lait macules
 Neoplasms of the skin
 Neurofibromas
 Blistering
 Ichthyosis
Other: _____



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(CLIA # 99D1014032)

Patient Name:
Preferred Name (if different):
Date of Birth (DD/MM/YYYY):
Legal Sex: Male Female Non-binary/U/X
Sex Assigned at Birth (if different): Male Female Unassigned
Gender Identity: Male Female Non-binary/U/X
MRN:
Parent's Name:
Address:

For Canada Only
Provincial Health Card #: _____ Version: _____
Issuing Province: _____

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BILLING FORM

Completion of Billing Form NOT required for patients with an Ontario Health Card Number.

The hospital, referring laboratory, referring physician, or a patient/guardian will be billed for the services rendered, upon direction from the referring physician.

- Invoices are sent upon completion of each test/service.
- Invoices are itemized and include the date of service, patient name, CPT code, test name and charge.
- Contact SickKids' Genome Diagnostics Laboratory at 416-813-7200 x1 with billing inquiries.

How to complete the Billing Form:

- Referring Physician completes the appropriate section below to specify billing method.
- Send requisition and completed "Billing Form" with specimen.

Section 1: Complete to have the Healthcare Provider billed:

Referring Laboratory's Reference #: _____

Billing address of hospital, referring laboratory, clinic, referring physician, or medical group (if different from requisition):

Name: _____

Address: _____

City: _____ Prov/State: _____

Postal/Zip Code: _____ Country: _____

Contact Name: _____ Contact Telephone #: _____

Section 2: Complete to have Patient/Guardian billed directly:

If electing to have patient/guardian billed:

- Patient/Guardian billing information below must be complete; otherwise, the healthcare provider will be billed.
- Advise the patient/guardian to expect a bill from the Genome Diagnostics laboratory.
- The patient's valid credit card information must be provided.
- Unfortunately, personal checks are not accepted as a method of payment.
- **In this case, the patient/guardian is solely responsible for the charges.**

Send bill to (check one): Patient Guardian

Method of Payment (check one): American Express MasterCard Visa

Name as it appears on credit card: _____

Credit card #: _____

Expiry date on credit card: _____

Signature of credit card holder (Required): _____

Mailing Address of Patient/Guardian (if different from requisition):

Name: _____

Address: _____

_____ Apt. #: _____

City: _____ Prov/State: _____

Postal/Zip Code: _____ Country: _____

Additional Contact Information

Patient's phone # with area code:

- or -

Guardian's phone # with area code:
