



THE HOSPITAL FOR
SICK CHILDREN

Paediatric
Laboratory Medicine

555 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/genome-diagnostics

Patient Name: _____

Birthdate (YYYY-MM-DD): _____

Gender: Male Female

Parent's Name: _____

Address: _____

Telephone #: _____

For Canada Only

Provincial Health Card #: _____

Version: _____

Issuing Province: _____

Referring Physician:

Name: _____

Address: _____

Phone _____ Fax _____

Email address: _____

Signature (required) _____

Copy Report To:

Name: _____

Address: _____

Phone _____ Fax _____

Sample Information:

Date obtained (YYYY-MM-DD): _____ - _____ - _____

Your referring laboratory reference #: _____

- Blood in EDTA (purple top tube): min. 4 mL (0.5-3 mL for newborns)
- DNA: min. 10 ug in low TE buffer (Source: _____)
- Direct CVS: min. 10 mg direct villi
- Cultured villi: 1-2 confluent T25 flasks
- Cultured amniocytes: 1-2 confluent T25 flasks
- Tissue (Source: _____)
- Other (Specify: _____)

Closed consent:

(If checked, all remaining DNA will be discarded upon notification by the ordering physician that all DNA testing has been completed)

Laboratory Use:

Date (YYYY-MM-DD) | Time Received: _____ - _____ - _____ | _____ h

Lab #: _____

Specimen type, amt & # of tubes: _____

Comments: _____

Pedigree No. / Patient No. _____ / _____

Test request (write below and/or check box(es) on pages 2 and 3):

Reason for Testing:

- Diagnosis Carrier testing
- Familial mutation/variant analysis Prenatal testing
- Bank DNA only
- Other (Specify: _____)

If expedited testing is requested, please indicate reason

- Pregnancy (Gestational age (weeks): _____)
- Other (Specify: _____)

Familial Mutation/Variant Analysis:

For prenatal testing and cases where a familial mutation or variant is known, please complete below and attach a copy of the proband's report:

Gene: _____

Mutation/variant(s): _____

SickKids Laboratory number: _____

SickKids Pedigree number: _____

Name of proband: _____

Relationship to proband/fetus: _____

Clinical Diagnostics and Family History:

Please 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: _____

Ordering Checklist:

- Specimen tube labeled with at least two identifiers
- Completed test requisition form (pages 1-5)
Clinical information must be provided on pages 4-5 for all Next-Generation Sequencing tests. Testing will not proceed until these are provided.
- Completed billing form (page 6, if applicable)

Genome Diagnostics

LIST OF TESTS AVAILABLE BY DISEASE

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

22q11 Deletion Syndrome

- 22q11 deletion/duplication analysis

Angelman Syndrome

- Methylation and deletion/duplication analysis
 UPD15 analysis (please submit parental samples)

Arrhythmic Right Ventricular Cardiomyopathy

- Sanger sequence analysis panel:
DSC2, DSG2, DSP, PKP2, TMEM43

Ashkenazi Jewish Carrier Screening

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

Atypical Hemolytic Uremic Syndrome / Membranoproliferative Glomerulonephritis

- Sanger sequence analysis panel:
APLN, C3, CD46, CFB, CFH, CFHR5, CFI, THBD

Autoinflammatory Disease *

Clinical information must be provided on pages 4 and 5

- Recurrent Fever Syndrome (RFS) NGS panel
 Hemophagocytic Lymphohistiocytosis (HLH) NGS panel
 Deletion/duplication analysis

Becker Muscular Dystrophy

- DMD Sanger sequence analysis
 DMD deletion/duplication analysis

Beckwith-Wiedemann Syndrome

- IC1 and IC2 methylation and 11p15 deletion/duplication analysis
 UPD11 analysis (please submit parental samples)
 CDKN1C Sanger sequence analysis

Bone Marrow Transplantation

- Post-transplant monitoring

Branchio-Oto-Renal Syndrome

- EYA1 Sanger sequence analysis
 EYA1 deletion/duplication analysis

Caffey Disease

- COL1A1 recurrent mutation analysis

Cancer Related Tests

Li-Fraumeni Syndrome

- p53 Sanger sequence analysis
 p53 deletion/duplication analysis

Rhabdoid Tumour Predisposition Syndrome

- SMARCB1 Sanger sequence analysis
 SMARCB1 deletion/duplication analysis

ALK testing **

- ALK digital PCR for p.F1245V (c.3733T>G), p.F1174L (c.3522C>A),
p.R1275Q (c.3624G>A)

Cancer Related Tests Continued

BRAF testing **

- BRAF digital PCR for p.V600E (c.1799T>A)

Charge Syndrome

- CHD7 Sanger sequence analysis
 CHD7 deletion/duplication analysis

Cherubism

- SH3BP2 recurrent mutation analysis
 SH3BP2 Sanger sequence analysis

Congenital Muscular Dystrophies

- Sanger sequence analysis panel:
FCMD, FKRP, 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 (TWIST sequence analysis and FGFR3
recurrent mutation analysis)
 Non-Syndromic Craniosynostosis (FGFR3 recurrent mutation analysis)
 FGFR2, FGFR3 and TWIST deletion/duplication analysis

Cystic Fibrosis

- CFTR recurrent mutation analysis
 CFTR Sanger sequence analysis
 CFTR deletion/duplication analysis

Dopamine Beta-Hydroxylase Deficiency

- DBH Sanger sequence analysis

Duchenne Muscular Dystrophy

- DMD Sanger sequence analysis
 DMD deletion/duplication analysis
 DMD mRNA analysis (please contact the laboratory before ordering)

Fabry Disease

- GLA Sanger sequence analysis
 GLA deletion/duplication analysis
 GLA mRNA analysis (please contact the laboratory before ordering)

Focal Segmental Glomerulosclerosis

- Sanger sequence analysis panel:
ACTN4, CD2AP, NPHS1, NPHS2, TRPC6

Fragile X Syndrome

- FMR1 trinucleotide repeat analysis

Genome Diagnostics

LIST OF TESTS AVAILABLE BY DISEASE

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

Fragile X E Syndrome ***

- FMR2 trinucleotide repeat analysis
(See testing requirements)

Gaucher Disease

- GBA recurrent mutation analysis

Hearing Loss: Non-Syndromic, Autosomal Recessive

- GJB2 Sanger sequence analysis
 GJB6 deletion/duplication analysis

Hearing Loss: Non-Syndromic, X-Linked

- POU3F4 Sanger sequence analysis
 POU3F4 deletion/duplication analysis

Hearing Loss: Aminoglycoside-induced, Mitochondrial

- MTRNR1, MTTT1 recurrent mutation analysis

Hearing Loss: Pendred Syndrome

- SLC26A4 Sanger sequence analysis
 SLC26A4 deletion/duplication analysis

Hereditary Hearing Loss *

Clinical information must be provided on pages 4 and 5

When the Common and Non-syndromic Hearing Loss NGS Panel is requested, testing will begin with GJB2 and GJB6 testing. If negative, reflex testing to NGS testing will be initiated.

- 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 Sanger sequence analysis
 ENG Sanger sequence analysis
 ACVRL1 and ENG deletion/duplication analysis
 SMAD4 Sanger sequence analysis

Hereditary Spastic Paraplegia *

Clinical information must be provided on pages 4 and 5

- Autosomal Dominant HSP NGS panel
 Autosomal Recessive HSP NGS panel
 X-Linked HSP NGS panel
 Deletion/duplication analysis

Hunter Disease

- IDS Sanger sequence analysis
 IDS deletion/duplication analysis
 IDS mRNA analysis (please contact the laboratory)

Identity Testing

- Tissue matching
 Zygosity studies

- Maternal Cell Contamination Studies
(please send maternal sample)

Neurofibromatosis type 1/Legius syndrome *

Clinical information must be provided on pages 4 and 5

- NF1 sequence analysis
 NF1 deletion/duplication analysis
 SPRED1 sequence analysis
 SPRED1 deletion/duplication analysis

Neuronal Ceroid Lipofuscinoses (Batten Disease)

- CLN1, CLN2 and CLN3 recurrent mutation analysis
 Sanger sequence analysis panel:
CLN1, 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

Prader-Willi Syndrome

- Methylation and deletion/duplication analysis
 UPD15 analysis (please submit parental samples)

Russell-Silver Syndrome

- IC1 methylation and 11p15 deletion/duplication analysis
 UPD7 analysis (please submit parental samples)

Shwachman-Diamond Syndrome

- SBDS Sanger sequence analysis (exon 2 only)

Simpson-Golabi-Behmel Syndrome

- GPC3 Sanger sequence analysis
 GPC3 and GPC4 deletion/duplication analysis

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

Trismus Pseudocamptodactyly Syndrome

- MYH8 Sanger sequence analysis

X-Inactivation Analysis

- Other: _____

* Next-Generation Sequencing (NGS) testing will only be initiated if the clinical information sections, located on pages 4 and 5 of the requisition form, are completed. For more information on our Next-Generation Sequencing (NGS) panels, including the list of genes tested, please visit our website: www.sickkids.ca/genome-diagnostics

** Testing for research/investigational purposes only

*** For information on the testing requirement for Fragile X E, please visit the Specimen Requirements section for Fragile X E Syndrome on our website: www.sickkids.ca/genome-diagnostics/FragileXE

Genome Diagnostics

Clinical Information (Required)

DISEASE SPECIFIC FEATURES

Autoinflammatory Disorders (RFS/HLH)

- Abnormal inflammatory response
Fever
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).
Cafe-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:

Note: Genetic testing is not offered for joint hypermobility alone. If testing is requested for joint hypermobility, please provide rationale on page 5.

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
Recurrent spontaneous tendon rupture

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 analysis only will be performed)
Check applicable CTD features below.

Bone Involvement

Check applicable CTD features below.

- 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 22 of the above features for molecular testing to be undertaken.

FAMILY HISTORY

Please 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.

Large empty box for drawing a pedigree and providing family history details.

Ethnicity: _____

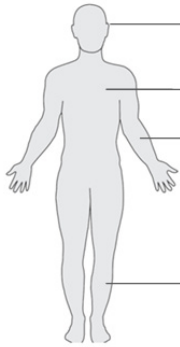
Genome Diagnostics

Clinical Information (Required)

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): _____

Craniocfacial/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-obstruction
- 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/paraganglioma
- 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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Patient Name: _____

Birthdate (YYYY-MM-DD): _____

Gender: Male Female

Genome Diagnostics

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

BILLING FORM

At your direction, we will bill the hospital, referring laboratory, referring physician, or a patient/guardian, for the services we render

- 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:

Your 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 you elect to have patient/guardian billed:

- Patient/Guardian billing information below must be complete; otherwise, the healthcare provider will be billed.
- Please advise the patient/guardian to expect a bill from our laboratory.
- Provide us with patient's valid credit card information.
- Unfortunately, we cannot accept personal checks.
- **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: _____