
Reporting Title: Hexosaminidase A and Total, WBC**Performing Location:** Rochester**Ordering Guidance:**

Testing for Tay-Sachs Disease and Sandhoff Disease

The following tests are available for diagnostic and carrier testing for Tay-Sachs and Sandhoff diseases.

NAGR / Hexosaminidase A and Total, Leukocytes/Molecular Reflex, Whole Blood:

- This is the recommended test for carrier testing for Tay-Sachs disease and Sandhoff disease.
- Testing begins with hexosaminidase A and total enzyme analysis. If the results are consistent with an affected or carrier for Tay-Sachs disease or Sandhoff disease, next generation sequencing to detect single nucleotide and copy number variants for *HEXA* or *HEXB*, respectively, will automatically be performed on the original specimen.
- This test is appropriate for males and pregnant or nonpregnant females.

NAGW / Hexosaminidase A and Total Hexosaminidase, Leukocytes (this test):

- This test can be used for diagnosis and carrier testing for Tay-Sachs disease or Sandhoff disease.
- Results for hexosaminidase A and total enzyme analysis are reported with recommendations for additional testing when appropriate. All follow-up testing must be ordered separately on new specimens.
- This test is appropriate for males and pregnant or nonpregnant females.

NAGS / Hexosaminidase A and Total Hexosaminidase, Serum:

- This test can be used for diagnosis and carrier testing for Tay-Sachs disease or Sandhoff disease.
- Results for hexosaminidase A and total enzyme analysis are reported with recommendations for additional testing when appropriate.
- If results indicate normal, indeterminate, or carrier status and the suspicion of Tay-Sachs disease remains high, MUGS / Hexosaminidase A, Serum for Tay-Sachs disease -B1 variant can typically be added and performed on the same specimen.
- With the exception of MUGS, all follow-up testing must be ordered separately on new specimens.
- This test is **not appropriate** for pregnant females or women receiving hormonal contraception. This test is appropriate for males and nonpregnant females.
- This test is particularly useful when it is difficult to obtain enough blood to perform leukocyte testing (NAGR or NAGW), as may be the case with infants.

MUGS / Hexosaminidase A, Serum:

- This is the recommended test for diagnosis and carrier testing for the B1 variant of Tay-Sachs disease. This test will not detect Sandhoff disease.
- This test should not be ordered as a first-line test.** Rather, this test should be ordered when the NAGR, NAGW, NAGS indicate normal, indeterminate, or carrier results, and the suspicion of Tay-Sachs disease remains high. In most cases, this test can be performed on the original specimen collected for NAGS.

Shipping Instructions:

For optimal isolation of leukocytes, it is recommended the specimen arrive refrigerated within 6 days of collection to be stabilized. Collect specimen Monday through Thursday only and not the day before a holiday. Specimen should be collected and packaged as close to shipping time as possible.

Specimen Requirements:

Container/Tube:

Preferred: Yellow top (ACD solution B)

Acceptable: Yellow top (ACD solution A)

Specimen Volume: 6 mL

Collection Instructions: Send whole blood specimen in original tube. Do not aliquot.

Forms:

1. **New York Clients-Informed consent is required.** Document on the request form or electronic order that a copy is on file. The following documents are available:
- [Informed Consent for Genetic Testing](#) (T576)
 - [Informed Consent for Genetic Testing-Spanish](#) (T826)
2. [Biochemical Genetics Patient Information](#) (T602)
3. If not ordering electronically, complete, print, and send a [Biochemical Genetics Test Request](#) (T798) with the specimen.

Specimen Type	Temperature	Time	Special Container
Whole Blood ACD	Refrigerated (preferred)	6 days	YELLOW TOP/ACD
	Ambient	6 days	YELLOW TOP/ACD

Result Codes:

Result ID	Reporting Name	Type	Unit	LOINC®
8775	Hexosaminidase Total, WBC	Alphanumeric	nmol/min/mg	24075-4
2294	Hexosaminidase Percent A, WBC	Alphanumeric	%	23825-3
2284	Interpretation (NAGW)	Alphanumeric		59462-2
35029	Reviewed By	Alphanumeric		18771-6

LOINC® and CPT codes are provided by the performing laboratory.

Supplemental Report:

No

CPT Code Information:

83080 x 2

Reference Values:

HEXOSAMINIDASE TOTAL

< or =15 years: > or =20 nmol/min/mg

> or =16 years: 16.4-36.2 nmol/min/mg

HEXOSAMINIDASE PERCENT A

< or =15 years: 20-80% of total
> or =16 years: 63-75% of total