

HistoTrak™ Quantitative Droplet Digital PCR



Langerhans cell histiocytosis (LCH), disseminated juvenile xanthogranuloma (JXG) family neoplasms, and pediatric Erdheim-Chester disease (ECD) are myeloid-derived clonal inflammatory disorders driven by recurrent kinase-activating mutations, most frequently in the MAPK signaling pathway. BRAF p.V600E is a hotspot mutation that strongly activates the MAPK pathway and is commonly harbored by multiple tumors, including histiocytic, hematopoietic, brain, papillary thyroid, and melanocytic neoplasms. It is the most prevalent mutation in LCH and ECD, carries prognostic significance, especially in multisystem LCH, and is a stable marker of histiocytoses that can be leveraged as an indicator of minimal residual disease (MRD). Targeted therapy with MAPK pathway inhibitors has been highly effective in the treatment of histiocytosis with mutations in pathway genes, including the BRAF p.V600E mutation¹⁻⁵. The HistoTrak™ test is a highly sensitive droplet digital PCR (ddPCR)-based molecular assay designed to measure MRD in patients with BRAF V600E-driven histiocytic and other neoplasms. It is used for monitoring the disease burden of patients with histiocytosis that harbor a BRAF V600E mutation, during or after therapy. In this setting, it is NOT a diagnostic test. Prior BRAF V600E mutation status should be known before performing the test for whole blood and bone marrow specimens. For more information, call the lab at 513-636-9820.

Mutation Target:

BRAF c.1799T>A p.V600E

Reporting Units:

Variant allele fraction (%VAF)

Acceptable Specimens:

- 5 mL whole blood or bone marrow in Streck NA BCT tube (**preferred**). Streck tubes can be provided upon request.
- EDTA is acceptable only if sample arrives within 24 hours of collection. If EDTA sample arrives after 24 hours of collection, only qualitative results will be reported.

Unacceptable Specimens:

- Frozen whole blood or bone marrow
- Sample collected in heparin
- Tissue samples

Shipping Conditions:

- Blood and bone marrow samples in Streck NA BCT tubes at ambient temperature.
- Blood and bone marrow samples in EDTA at 4°C in insulated container by overnight courier. Do NOT freeze.
- **For all samples, ship for delivery on Monday through Friday. Receiving docks are CLOSED on weekends and holidays; do NOT ship if delivery will occur on those days.**

Testing Schedule:

HistoTrak™ testing is performed Mon-Fri. For testing outside of this schedule, call the lab at 513-636-9820. TAT: 3-4 business days.

EPIC Test Code:

LAB00565 (1232100048)

CPT Codes:

81210 – Testing
G0452 – Physician interpretation

Clinical Lab Index:

HistoTrak™ Quantitative:
<https://www.testmenu.com/cincinnatichildrens/Tests/1234430>

Contact Information:

Cincinnati Children's Division of Pathology
Molecular and Genomic Pathology Services (MGPS)
Phone: 513-636-9820
Fax: 513-517-7099
Email: pathology@cchmc.org
Website: cincinnatichildrens.org/pathology

For pricing or billing questions, call 513-636-4261.

Shipping Address:

Cincinnati Children's Hospital Medical Center
Attn: Molecular and Genomic Pathology Services (MGPS)
3333 Burnet Ave, R2.001
Cincinnati, OH 45229

References:

1. Allen C, et al. *N Engl J Med.* 2018; 379: 856-868.
2. Heritier S, et al. *J Clin Oncol.* 2016; 34: 3023-3030.
3. Picarsic J, et al. *Acta Neuropathol Commun.* 2019; 7:168.
4. Goyal G, et al. *Blood.* 2020; 135: 1929-1945.
5. Lee L, et al. *Blood Adv.* 2020; 4: 717-727.