
Lab Dept: **Anatomic Pathology**

Test Name: **ELECTRON MICROSCOPY (MAYO)**

General Information

Lab Order Codes: EMAY

Synonyms: Ciliary morphology studies; Ceroid lipofucinosi; Cerebral autosomal dominant arteriopathy with sub-cortical infarcts and leukoencephalopathy

CPT Codes: 88300 – Level 1, Surgical Pathology, gross examination only
88348 – Electron microscopy, diagnostic

Test Includes: Transmission electron microscopy/ultrastructural study

Logistics

Test Indications: Crucial diagnostic information for the study of human disease may be provided by transmission and scanning electron microscopy. Often information of a confirmatory nature or of educational value to the clinician and pathologist can be obtained by this procedure.

In recent years, the technology involved in electron microscopy has progressed to the point where methods have become standardized and the instrumentation routine. The electron microscope is a fundamental tool in medical diagnostic and cellular patho-biological investigations, because it is at this instrument's level of resolution that most structural correlations with function and metabolism are visible.

Useful for tumor identification; diagnosing medical disorders such as storage diseases and immotile cilia syndrome; characterizing inorganic deposits.

Lab Testing Sections: Anatomic Pathology - Sendouts

Referred to: Mayo Medical Laboratories (MML Test: EM)

Phone Numbers: MIN Lab: 612-813-6280

STP Lab:651-220-6550

Test Availability: Daily, 24 hours

Turnaround Time: 7 – 21 days

Special Instructions: This test must be prescheduled with the Histology/Pathology department **for tissue specimens**. Please call for special instructions and supplies.

For **blood specimens** call lab for correct tube.

Specimen

Specimen Type: Tissue or blood

Container: Please use Mayo Supply Kit T660 whenever possible, otherwise use a leak-proof container. [See Special Processing](#): otherwise place specimen in glutaraldehyde (2.5 - 3%) or Trump's fixative

For blood specimens: Green top (Na Heparin) or Yellow (ACD Solution B) top tube

Draw Volume: **Tissue:** The specimen should be representative, thus, it is suggested that tissue fragments be obtained from several sites of the lesion. Use a sharp razor blade or scalpel to avoid crushing tissue. Cut tissue into tissue blocks 1-2 millimeters in largest dimension. Place the specimen in fixative as soon as it is taken. [See Special processing](#) for specific tissue requirements.

Blood: 5 mL (Minimum: 1 mL)

Processed Volume: Same as Draw Volume

Collection: Unfixed tissue or tissue placed in glutaraldehyde or Trump's fixative (included in EM Kit Supply T660) or **venipuncture for blood draw**.

Note: Formalin fixed tissue is not recommended. Paraffin-embedded tissue can be run-back to aqueous-phase and processed for EM, but fine structural detail invariably is poor; if this is the only tissue available for study, we prefer that the entire paraffin block be submitted. Paraffin blocks are not accepted for ciliary studies.

Special Processing: **Ciliary Morphology** (ciliary dyskinesia, immotile cilia syndrome, Kartagener's).
Acceptable Sources: Brushing (nasal/tracheal) and Biopsies (nasal/tracheal).
Unacceptable sources: Paraffin embedded

Neuronal Ceroid Lipofuscinosis (NCL)

Acceptable Sources: Skin biopsies and

Whole blood: (green top, sodium heparin or yellow top, ACD solution B). Blood tubes must be received within 48 hours of draw. DO NOT centrifuge, send in original container at ambient temperature.

Buffy coat in fixative is acceptable.

Unacceptable Sources: Whole blood in fixative

CADASIL (Cerebral Autosomal Dominant Arteriopathy with Sub-

cortical Infarcts and Leukodencephalopathy)

Acceptable Sources: Skin biopsies and brain tissue

Unacceptable Sources: Blood in fixative.

Patient Preparation: Physician preference

Sample Rejection: Unlabelled or mislabeled specimen; dry specimen; delay in transporting the specimen to pathology; muscle tissue; whole blood in fixative

Interpretive

Reference Range: Interpretive pathology report.

The images and case histories are correlated and interpreted by a pathologist who is an expert in the field of suspected diagnoses. Representative images are provided upon request.

Limitations: Certain factors are necessary for interpretation of electron microscopic images as follows:

- Optimal fixation of viable and representative tissue is imperative.
- Tumor biopsies must be accompanied by a history, hematoxylin-and-eosin stained slides, and a paraffin block.
- The tissue submitted must have been viable at the time of fixation.
- Selection of tissue representative of the lesion is essential.

Methodology: Electron microscopy

References: [Mayo Medical Laboratories](#) September 2018