
Lab Dept: **Anatomic Pathology**

Test Name: **MULTIPLE ENDOCRINE NEOPLASIA TYPE 2A
(RET) SEQUENCING**

General Information

Lab Order Codes: RET2A (Blood or Buccal Swab)

Synonyms: RET; Familial Medullary Thyroid Carcinoma; MEN2A; Pheochromocytoma and medullary thyroid carcinoma; PTC syndrome; Sipple syndrome; FMTC; MTC

CPT Codes: 81404 – Molecular Pathology procedure, Level 5
81405 – Molecular Pathology procedure, Level 6

Test Includes: Analysis is performed bi-directional sequencing of the coding exons 10, 11, 13 and 14 of the RET gene. Mutations found in the first of a family to be tested are confirmed by repeat analysis using sequencing, restriction fragment analysis, or another appropriate method.

Logistics

Test Indications: The diagnosis of MEN2A is made when an individual has two or more specific endocrine tumors; medullary carcinoma of the thyroid (>95%), pheochromocytoma (50%), or parathyroid adenoma/hyperplasia (20-30%). Prophylactic thyroidectomy in childhood is recommended when a RET mutation is identified. FMTC (Familial Medullary Thyroid Carcinoma) is diagnosed in families with four cases of medullary thyroid cancer in the absence of pheochromocytoma or parathyroid adenoma. The medullary thyroid cancer associated with FMTC is typically later onset and may be subclinical; therefore, in some families RET genetic testing may be necessary to differentiate sporadic medullary thyroid cancer from FMTC.

RET gene mutations also are associated with two other distinct disorders, MEN2B and Hirschsprung disease, and in approximately 10% of isolated pheochromocytoma. Predisposition to pheochromocytoma is shared by other cancer predisposition syndromes, including Von Hippel Lindau syndrome (VHL gene), Hereditary PGL/PCC syndrome (SDHD, SDHB, SDHC genes), NF1 (NF1 gene) and rarely Carney Complex (PRKAR1A).

Reasons for referral:

1. Confirmation of a clinical diagnosis
2. Genetic counseling
3. Identification of at-risk family members
4. Determination of appropriate screening and surgical management

Lab Testing Sections: Anatomic Pathology - Sendouts

Referred to: GeneDx, Inc. (GDX Test: 177)

Phone Numbers: MIN Lab: 612-813-6280
STP Lab: 651-220-6550

Test Availability: Daily, 24 hours (Preferred draws are Sunday - Thursday as specimens can only be received at the reference lab Monday - Friday. Specimens collected Friday or Saturday will be held for shipment on Monday.)

Turnaround Time: Approximately 5 weeks for new patients

Special Instructions: A GeneDx signed [request form](#) must be sent with any patient or specimen to the laboratory.

RET (Multiple Endocrine Neoplasia 2A) can be tested using cells obtained by swabbing the buccal mucosa (inside of cheek). Buccal brushes are not accepted on childrens under 6 months of age. Buccal swab collection kits are available from GeneDx (ph. 301-519-2100).

Specimen

Specimen Type: Whole blood
Buccal cell swab (preferred specimen)

Container: Blood: Lavender top (EDTA) tube
Buccal Smear: Cytobrush Plus Cell Collector® kit

Draw Volume: 1 - 5 mL blood
2 swabs from the Cytobrush Plus Cell Collector® kit

Processed Volume: Same as Draw Volume

Collection: Routine venipuncture for blood specimens, invert gently to mix
Buccal swab kit for buccal swabs:

Buccal Cell Collection procedure:

1. Remove a swab from the Buccal swab kit touching only the “stick” end.
2. **Do Not** rinse mouth before starting. Have the individual open his/her mouth. Twirl the swab on the inner cheek for 30 seconds. **Do Not** scrape so hard that the cheek bleeds.
3. Place the swab end in the labeled tube. Cut the “stick” with scissors at the level of the top of the tube. Replace cap and close completely.
4. Repeat the process with another swab on the opposite cheek.
5. Send the kit to the lab for processing and mailing.

Special Processing: Lab Staff: Send whole blood in original collection container labeled with

patient name, date of birth and medical record number, including signed consent form and requisition, with a cool pack, via overnight or second-day courier so that the sample will arrive at GeneDx, Inc. on a weekday (Monday through Friday). Samples drawn on Friday or Saturday should be held at refrigerated temperatures for shipment on Sunday. **Do not** freeze. **Note:** Specimens may be stored at refrigerated temperatures for up to 3 days prior to shipping.

Mail the Cytobrush Plus Cell Collector® kit, including signed consent form and requisition, by regular mail to GeneDx in the included envelope.

Patient Preparation: For buccal cell collection, **Do Not** have the patient rinse his/her mouth.

Sample Rejection: Unrefrigerated specimens older than 48 hours; clotted or hemolyzed for blood; frozen specimens; mislabeled or unlabeled specimens

Interpretive

Reference Range: No mutations detected

Critical Values: N/A

Limitations: Buccal brushes are not accepted on children under 6 months of age.

Methodology: Bi-directional sequence analysis

References: [GeneDx, Inc.](#) July 2012
(301) 519-2100 Fax (301) 519-2892

Update: 2/7/2013: CPT update
3/26/2014: CPT update