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**Lab Dept:** Anatomic Pathology

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

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**General Information**

**Lab Order Codes:** REAK (Blood or Buccal Swab)

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

**CPT Codes:** 81403 – Molecular Pathology Level 4

**Test Includes:** Testing of a relative for a specific known mutation (carrier testing) where testing was previously done by GeneDx. Using genomic DNA, the exon or exons of interest are screened by bi-directional sequence analysis and/or by non-sequence methods such as heteroduplex analysis or restriction enzyme digestion. The previously tested proband DNA serves as a positive control.

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**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.

**Carrier testing reasons for referral:**

1. Testing parents of a child with a specific dominant mutation, in order to determine if the mutation in the child is new or inherited.
2. Carrier testing in parents of a child with apparently homozygous recessive mutations, to rule out the possibility that the child has one mutated allele and one allele that is deleted or refractory to amplification.
3. Carrier testing in the parents of a child with recessive mutations, to confirm that all four parental alleles can be detected prior to prenatal diagnosis.
4. Pre-symptomatic testing in siblings of the index case.
5. Carrier testing in the extended family.

**Lab Testing Sections:** Anatomic Pathology - Sendouts

**Referred to:** GeneDx, Inc. (GDX#: 9011, Specify gene/mutation)

**Phone Numbers:** MIN Lab: 612-813-6280

STP Lab: 651-220-6550

**Test Availability:** Daily, 24 hours. Specimens collected Saturday or Sunday will be held for shipment on Monday.

**Turnaround Time:** 2 - 3 weeks

**Special Instructions:** A GeneDx [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 will not be accepted on children under 6 months of age. Buccal swab collection kits are available from GeneDx (ph. 301-519-2100).

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### ***Specimen***

**Specimen Type:** Whole blood (preferred specimen)

Buccal cell swab

**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 blood collection, 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.

<b>Special Processing:</b>	<p>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 in warm weather, via overnight or second-day courier so that the sample will arrive at GeneDx, Monday through Saturday. Samples drawn on Saturday or Sunday should be held at refrigerated temperatures for shipment on Sunday.</p> <p><b>Do not</b> freeze.</p> <p><b>Note:</b> Specimens may be stored at refrigerated temperatures for up to 7 days prior to shipping.</p> <p>Mail the Cytobrush Plus Cell Collector® kit, including signed consent form and requisition, by regular mail to GeneDx in the included envelope.</p>
<b>Patient Preparation:</b>	For buccal cell collection, <b>Do Not</b> have the patient rinse his/her mouth.
<b>Sample Rejection:</b>	Clotted or hemolyzed for blood; frozen specimens; mislabeled or unlabeled specimens

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### ***Interpretive***

<b>Reference Range:</b>	Interpretive report
<b>Critical Values:</b>	N/A
<b>Limitations:</b>	Buccal brushes are not acceptable on children under 6 months of age.
<b>Methodology:</b>	Capillary sequencing
<b>References:</b>	<p><a href="#">GeneDx, Inc.</a> February 2018  (301) 519-2100 Fax (301) 519-2892</p>
<b>Update:</b>	<p>2/7/2013: CPT update  2/2/2018: CPT update</p>