An STS in the human PTC oncogene located at 10q11.2

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The PTC oncogene is activated in 12–25% of human thyroid papillary carcinomas (1 and Jhiang, S. *et al.* manuscript in preparation). This oncogene is a novel rearranged form of the *ret* proto-oncogene that occurs in vivo as a tumor-specific somatic event (2). It results from recombination of the tyrosine-kinase domain of the *ret* proto-oncogene with the 5' terminal sequence of a novel gene designated H4. Both the H4 gene and *ret* proto-oncogene were mapped at chromosome 10q11.2, close to the locus of Multiple endocrine neoplasia type 2A (MEN2A) syndrome (3, 4). MEN2A is an inherited disease characterized by medullary thyroid carcinoma, pheochromocytoma and hyperplasia of the parathyroid glands. We have combined this information in a sequence tagged site (STS), designated H4.1/10q11.2 for inclusion in the human genome map. Using the polymerase chain reaction (PCR) described below, a fragment of 281 bp was amplified from as little as 10 ng of human genomic DNA (Figure 1). The sequence of amplified fragment is shown as follows:

CCATGGCGGACAGCGCCAGCGAGAGCGACACGGACG-
GGGCGGGGGCAACAGCAGCAGCTCGGCCGCCATG-
CAGTCGTCCTGCTCGTCGACCTCGGGCGGCGGCGGT-
GGCGGCGGGGAGGCGGCGGCGGTGGGAAGTCGGG-
GGGCATTGTCATCTCGCCGTTCCGCCTGGAGGAGCT-
CACCAACCGCCTGGCCTCGCTGCAGCAAGAGAACAA-
GGTGCTGAAGATAGAGCTGGAGACCTACAACTGAA-
GTGCAAGGCACTGCAGGAGGAGAACCGCGAC

PCR primers: forward (50 to 72 in Figure 2 of ref. 3): 5'CCATGGCGGACAGCGCCAGCGAG; reverse (330 to 307 in Fig. 2 of ref 3): 5'GTCGCGGTTCTCCTCCTGCAGTG.

PCR components: 10 ng of human genomic DNA, 0.5 µg of each oligonucleotide, 200 µM dNTPs, and 2.5 U Taq polymerase (Perkin Elmer Cetus) in 50 µl of 1×PCR buffer (50 mM KCl, 10 mM Tris-HCl, pH 8.3 at 25°C, 1 mM MgCl₂).

PCR profile: 94°C for 3 minutes, 35 cycles of 94°C for 30 seconds, 55°C for 1 minute, 72°C for 2 minutes, then extended at 72°C for 7 minutes.

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Figure 1. PCR products electrophoresed on 1.2% Seakem agarose gel and photographed after EtBr staining. Lane M contains 1 µg of 1 kb ladder (BRL). Lane 1 is a negative control containing 10 µl of PCR product that did not include DNA template. Lanes 2–4 contain 10 µl of amplified DNA using 10 ng (2), 100 ng (3) and 1 µg (4) of genomic DNA isolated from human placenta as template. A single band of 281 bp is visible in lanes 2–4 corresponding to the expected STS.

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