The poly (purine) poly (pyrimidine) sequence in the 5' end of the thyroglobulin gene used as a probe, identifies a DNA fingerprint in man

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A 200 bp long stretch of poly (purine) poly (pyrimidine) repetitive sequence has been identified in the 5' end of the human thyroglobulin (TG) gene:

AGAGAAAGAATAGAAGAAAGAAAAGAAGGAAGGAA-
GGAAAGAAGGAAGAAAGAAAAGAAA-

GAGGGAAGGAAGGAAAGAAAGAAAGGAAGAATGAAA-
GGAAAGAAGGATAGAAGGGAGAAAAG-

GAAGGAAAGAAGAAAGAAAGGAAGAAAGGAAAGA-
AGGAAGGAGGAAGGAGAAGGAGAAAG-

GGTAGGGTGGGGAAGGAAAGAACAAGGA (1).

Like other tandem-repeated sequences described (6), this sequence presents a high G+C content with a strand asymmetry (high G content on one strand) but its repetitive cores are different from those previously described (6).

Despite its localization in the promoter of the TG gene, this sequence does not seem to play a significant role in the control of the TG gene in transient expression experiments (2). As its repetitive nature suggested that it could be polymorphic, oligonucleotide primers were synthesized (A: 5' GAGCTCTAAGAGGTTGTTAG 3' and B: 5' CCACAGTGAGGGAAGCAA 3') and a PCR amplification was performed on human genomic DNA from 10 unrelated individuals. The same unique band was amplified showing no polymorphism.

We have then tested the possibility that this poly (purine) poly (pyrimidine) repetitive sequence might recognize a family of hypervariable sequences in the human genome.

The PCR product obtained was used as a probe on human genomic DNA digested with *Hinf*I. The probe revealed an individual-specific multilocus-multiallelic polymorphism (with mendelian inheritance of the bands) (fig. 1) the pattern of which is different from the one obtained with other probes (3-5).

This makes it a new probe allowing DNA fingerprinting.

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Typical fingerprints of 6 individuals: C and F are the parents of E. A, B and D are unrelated.