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VARIATIONS IN THE NRAMPI GENE AND SUSCEPTIBILITY TO TUBERCULOSIS

Genetic factors may affect the susceptibility to tuberculosis, but no specific genes governing susceptibility have been identified. In mice, natural resistance to infection with some mycobacteria is influenced by the gene for natural-resistance-associated macrophage protein 1 (Nramp 1), but the role of human homologue of this gene, NRAMP1 in TB is unknown.

A case-control study of TB in Gambia, W. Africa typed polymorphisms in NRAMP1 using sequence-specific oligonucleotide hybridisation and microsatellite analysis. Subjects were 410 adults (mean age, 34.7 years) with smear-positive pulmonary tuberculosis and 417 ethnically matched, healthy controls. Patients with HIV infection were excluded.

Results showed that four NRAMP1 polymorphisms were each significantly associated with TB. Subjects heterozygous for two NRAMP1 polymorphisms in intron 4 and the 3' untranslated region of gene were particularly overpresented among those with TB, as compared with those with the common NRAMP1 genotype (odds ratio, 4.07; 95% CI, 1.86 to 9.12; chi-square = 14.58; $p < 0.001$). Genetic variation in NRAMP1 affects susceptibility to tuberculosis in W. Africans.

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