



# Association of a miR-34b binding site single nucleotide polymorphism in the 3'-untranslated region of the methylenetetrahydrofolate reductase gene with susceptibility to male infertility

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**ABSTRACT.** This study aims to explore the possible associations between a genetic variation in the miR-34b binding site in the 3'-untranslated region (UTR) of the methylenetetrahydrofolate reductase (*MTHFR*) gene (rs55763075) with male infertility in a Chinese population. Genotype distributions of the rs55763075 single nucleotide polymorphism were investigated by polymerase chain reaction and direct sequencing in a Chinese cohort that included 464 infertile men with idiopathic azoospermia or oligospermia and 458 controls with normal fertility. Overall, no significant differences in the distributions of the genotypes of the *MTHFR* rs55763075 polymorphism were detected between the infertility and control groups. A statistically significant increased risk of male infertility was found for carriers

of the rs55763075 AA genotype when compared with homozygous carriers of the rs55763075 GG genotype in the azoospermia subgroup (OR = 1.721; 95% CI = 1.055-2.807; P = 0.031). Furthermore, we found that rs55763075 was associated with folate and homocysteine levels in patients with idiopathic azoospermia. Our results indicated that the *MTHFR* 3'-UTR rs55763075 polymorphism might modify the susceptibility to male infertility with idiopathic azoospermia.

**Key words:** MiR-34b; 3'-UTR; Methylene tetrahydrofolate reductase; Male infertility