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SNPs pair up in asthma pharmacogenetics

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Many believe that [single nucleotide polymorphisms \(SNPs\)](#) will prove to be powerful tools as predictive pharmacogenetic loci. In the September 12 [Proceedings of the National Academy of Sciences](#), Drysdale *et al.* examined the functional significance of SNPs in the 5' upstream and ORF regions of the β 2-adrenergic receptor (β 2-AR) gene ([Proc Natl Acad Sci USA 2000, 97:10483-10488](#)) The β 2-ARs are G-protein coupled receptors that can cause muscle relaxation and bronchodilation. Beta-blocker agonists are used as drugs to treat bronchospasms in asthma patients. Drysdale *et al.* characterized 13 SNPs in the β 2-AR gene that were grouped into 12 distinct combinations (haplotypes). They analyzed a group of 121 asthmatics and their response to the beta-blocker albuterol. Pairs of haplotypes were significantly related to drug responsiveness, whereas single SNP haplotypes were not. Furthermore, *in vitro* transfection experiments showed that SNP haplotypes affect β 2-AR expression and receptor density. These results caution against the predictive utility of randomly chosen individual SNP loci, and emphasize the advantage of analyzing multiple SNP combinations simultaneously.

References

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