

GLUT9 (SLC2A9) is an electrogenic hexose transporter with splicing variants that mediate co-reabsorption of uric acid along with glucose and fructose at the apical membrane (GLUT9ΔN/SLC2A9v2) as well as through the basolateral membrane (SLC2A9v1) and thus into the circulation. GLUT9 has recently been identified as a high-capacity urate transporter, with rates 45–60 times faster than its glucose/fructose transport activity. GLUT9 may be responsible for the observed association of the consumption of fructose-sweetened soft drinks with an increased risk of hyperuricemia and gout. Genome-wide association studies (GWAS) suggest that polymorphisms in SLC2A9 may play an important role in susceptibility to gout in the Caucasian population. The presence of one predisposing variant allele increases the relative risk of developing gout by 30–70%, most likely by increasing expression of the shorter isoform, SLC2A9v2 (GLUT9ΔN). GWAS have identified over 30 loci associated with serum urate levels, most encoding transporters in the gut or kidney. Recent meta-analyses suggest that genetic polymorphisms may explain up to 23.9% of the variation in serum urate levels, much higher than previously appreciated. However, the utility of genetic testing for relevant polymorphisms remains investigational with few exceptions. The Q141K variant of *ABCG2*, which encodes a urate transporter that secretes urate in the small intestine, is associated with early onset and severe gout and resistance to allopurinol. The *HLA-B*50:10* genotype is associated with allopurinol hypersensitivity in Asian populations. This field is evolving rapidly.

Alcohol promotes hyperuricemia because of increased urate production and decreased uric acid excretion. Excessive alcohol consumption accelerates hepatic breakdown of ATP to increase urate production. Alcohol consumption can also induce hyperlacticacidemia, which blocks uric acid secretion. The higher purine content in some alcoholic beverages may also be a factor. Consumption of beer confers a greater risk of gout than liquor, and moderate wine intake does not increase gout risk. Intake of red meat and fructose increases the risk of gout, whereas intake of low-fat dairy products, purine-rich vegetables, whole grains, nuts and legumes, less sugary fruits, coffee, and vitamin C reduces the risk.