



**Keywords:**

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Pharmacogenomic studies have revealed significant associations between transporter gene polymorphisms and drug responses. For instance, certain genetic variations in the gene encoding organic anion transporter 1B1 have been linked to altered statin metabolism and an increased risk of statin-induced myopathy. By identifying these genetic variations, clinicians can make informed decisions about drug selection, dosage adjustments, and personalized treatment plans.

### **Strategies for optimizing drug delivery**

The intricate role of drug transporters in therapeutic delivery has prompted researchers to develop strategies aimed at modulating their activity. Prodrug design involves chemically modifying a drug to make it a substrate for a specific transporter. This approach allows for targeted delivery of the active drug to its intended site of action. Additionally, researchers are exploring the potential of drug transporter inhibitors and inducers to enhance drug efficacy. By inhibiting transporters that