

## **Tobacco use disorder treatment biomarkers**

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Genetically-informed tobacco treatment biomarker research has focused on leveraging knowledge of genetic influences on nicotine metabolism, tobacco dependence, risk factors involved in tobacco treatment relapse, and general substance dependence. Translation of biomarker discovery into retrospective and prospective studies of clinical validity has occurred for nicotine metabolism-related biomarkers. We have developed prediction models of the nicotine metabolite ratio using clinical and genomic data from laboratory studies of nicotine metabolism that account for >50% of NMR variance and provide genomic evidence supporting our biochemical knowledge of nicotine metabolizing enzymes. We have recently validated these genomic models in a large population-based cohort of current smokers. We seek to demonstrate clinical utility retrospectively in available clinical trials. Prospective validation, and demonstration of clinical utility of these genomic models have yet to be demonstrated. The SRNT Genetics-Treatment Working Group has addressed past research approaches and findings, and has provided guidance for future research and meta-analysis. A data-sharing culture and integrated analyses will accelerate the translation of biomarkers into tobacco use disorder treatment, and help reduce the burden of tobacco-related disease.