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**Metabolomics for Mapping Disease Signatures and
Drug Response Phenotypes**

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Metabolomics is the study of metabolism at the “global” level and involves studies of the “metabolome”, the entire repertoire of small molecules present in cells and/or tissues. The identities, concentrations and fluxes of these compounds represent the final product of interactions that extend from gene sequence to include gene expression, protein expression and the total cellular environment, an “environment” that in the clinical setting includes drug exposure. Using several targeted and random metabolomic analytical platforms and informatics tools we have started to define initial metabolic signatures for several central nervous system (CNS) disorders and for response to drugs used to treat these disorders. Metabolic signatures reveal impairments in neurotransmitter and lipid biochemical pathways and ongoing effort is underway to map more precisely sites of impairments. Additionally, we have established the “National Metabolomics Consortium for Drug Response Phenotype” a consortium specifically designed to integrate metabolomics and pharmacogenomics data towards better defining drug response phenotypes. We will share initial findings from the analysis of simvastatin a drug used for the treatment of cardiovascular disease.