**Creating Meals Plans with Engineered Gut Microbes for Neurotransmitter Production to Improve Mental Health**

Recently, mental and substance use disorders have become the leading cause of disability, and over 70% of those suffering from a mental illness worldwide lack the necessary treatment options (The State of Mental Health in America, n.d.). It is imperative that these issues are addressed, and mental health treatment is more accessible and individually Fortunately, through SynthMind Meals, we plan to manipulate and regulate the biosynthesis, release, and reuptake of neurotransmitters by using naturally occurring microbes in the gut, which can be used to help those with mental health illnesses. Specifically, we will extract plasmid DNA of a lactobacillus bacteria and insert neurotransmitter-producing genes. We will then introduce the modified plasmid back into Lactobacillus cells through transformation and use an E. coli culture to replicate probiotics. Lastly, we can implement these microbes into meal plans that consumers can purchase from the grocery store, increasing accessibility of treatment. This way people can simultaneously find nourishment and improvement to their mental health.