Presymtomatic Detection of Disease

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Detection of disease in humans is primarily based upon symptoms an individual may experience. New research suggests that monitoring the oral microbiome for changes in the normal flora could indicate health status and screening tests could be developed for human saliva. We tested our hypothesis on a similar, complex community: yogurt. Successful identification of natural flora occurring in yogurt samples, would allow monitoring of the natural flora to assess whether the yogurt is normal or spoiled, as a model for health and disease state. Our project consisted of three phases: 1. Select and apply micro and molecular biology techniques to monitor any changes in the natural flora of yogurt. 2. Test our hypothesis using a simplified model of the oral microbiome, yogurt. 3. If the hypothesis is supported, test an oral microbiome in health and sickness to monitor alterations in naturally occurring flora and develop plans for a diagnostic test. The results presented in this project demonstrate the successful completion of phase 1 and continued use of such procedures in phase 2. Upon the completion of phase 1, it was determined that the best method for monitoring yogurt bacteria was to run PCR off the yogurt itself, rather than culturing yogurt bacteria. In addition: 1) Milk agar was not the best media for growing out all bacterial species within the yogurt. 2) L. rhamnosus took a dominant stance when grown on both milk agar and 2xYT media. 3) PCR conducted straight off of a yogurt sample did amplify some bacterial DNA, so it may be easier to use species specific primers to single out distinct species in the yogurt.

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