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Susan Holmes*, Stanford University, Stanford, CA 94305. *Finding meaningful patterns: the decoding of the human microbiome.*

Modern biological data present multiple challenges akin to code breaking. We can learn from the master codebreakers who worked during World War II how to leverage patterns using mathematics and statistics. Turing and his fellow codebreakers used graphs and alignments to process their data. I will show how similar approaches provide rich insight into the complex dynamics of the human microbiome. We still use the Bayes factors and diversity indices developed in the 1940's to detect changes in the bacterial communities. (Received May 23, 2016)