1. Title
    a. Applications for visualization of the relationship between dietary data and biomarkers
2. Research Question
    a. How do dietary components (macronutrients, quantified diversity of whole foods, caloric intake, etc) predict various biomarkers (blood lipid levels, weight, etc)?
3. Objectives
    a. Create and modify coding tools to analyze and visualize dietary data associated with biomarkers.
4. Approach
    a. I will build from DietR packages that analyze dietary data with statistical tools, specifically following methods outlined in Sadohara et al (2019) "Dietary pattern and diversity analysis using 'DietR' package in R." Methods include data import, tidying, creating functions to apply to various datasets, creating visuals to emphasize relationships, and exporting visualizations.
5. Selected References
    a. Dietary pattern and diversity analysis using 'DietR' package in R Rie Sadohara1,2, David Jacobs2 , Mark A. Pereira2 , Abigail J. Johnson2 1Kyoto-city, Kyoto, Japan 2Division of Epidemiology & Community Health, University of Minnesota School of Public Health
    b. Darren C Greenwood, Laura J Hardie, Gary S Frost, Nisreen A Alwan, Kathryn E Bradbury, Michelle Carter, Paul Elliott, Charlotte E L Evans, Heather E Ford, Neil Hancock, Timothy J Key, Bette Liu, Michelle A Morris, Umme Z Mulla, Katerina Petropoulou, Gregory D M Potter, Elio Riboli, Heather Young, Petra A Wark, Janet E Cade, Validation of the Oxford WebQ Online 24-Hour Dietary Questionnaire Using Biomarkers, *American Journal of Epidemiology*, Volume 188, Issue 10, October 2019, Pages 1858–1867, https://doi.org/10.1093/aje/kwz165
    c. Youngyo Kim, Youjin Je, Dietary Fiber Intake and Total Mortality: A Meta-Analysis of Prospective Cohort Studies, *American Journal of Epidemiology*, Volume 180, Issue 6, 15 September 2014, Pages 565–573, https://doi.org/10.1093/aje/kwu174