The Liberal Arts Program presents

**Liberal Arts Guest Speaker Series 13-14**

“Maintenance of Intestinal Health and Prevention of Colon Disease Through Dietary Interventions”

**Dr. Nancy D. Turner**

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12-1 pm
LH 144

**ABSTRACT INFO:** People throughout the world are being challenged by increasing rates of chronic diseases including obesity, cardiovascular disease, diabetes, and cancer. However, research suggests that it may be possible to reduce the rates and/or severity of these diseases through dietary approaches. For example, colon cancer incidence may be reduced by over 50% through the consumption of beneficial foods with elevated levels of dietary fiber (indigestible carbohydrates). Carbohydrates in our diet that are not digested in the small intestine reach the colon and serve as a substrate for microbial fermentation. One of the main byproducts of microbial fermentation, short chain fatty acids (SCFA), can be absorbed and utilized by epithelial cells lining the colon. One of these SCFA, butyrate, is a preferred metabolic substrate for colon cells, but it also serves to regulate gene expression. Because the level of SCFA and relative content of butyrate produced is dependent upon the microbial populations, any dietary modifications that alter the distribution of bacteria will inevitably alter the concentration of butyrate available for absorption and utilization by colon cells.

Foods containing indigestible carbohydrates often contain many bioactive compounds. Because these compounds are found within the indigestible plant cell structure they become delivered to the colon. These bioactive compounds also contribute to the regulation of the microbiota and colon epithelial cells. Therefore, the combined effects of the indigestible carbohydrates themselves, and the biologically active compounds these foods contain contribute to the suppression of colon cancer and inflammation. This presentation will provide a discussion of recent data from my laboratory demonstrating the influence of indigestible carbohydrates and bioactive compounds on microbial populations, SCFA levels, and the suppression of colon cancer and colitis.

**BIO:** Dr. Nancy D. Turner is an Associate Professor in the Department of Nutrition & Food Science at Texas A&M University, and is a Past Chair of the Intercollegiate Faculty of Nutrition. She is also a member of the Intercollegiate Faculty of Toxicology and Intercollegiate Faculty of Genetics. Her research program is focused on characterizing the mechanisms whereby dietary chemoprotective compounds found in fiber-containing foods mitigate colon carcinogenesis and inflammatory bowel disease. The Turner lab is particularly interested in understanding how these bioactive compounds influence the intestinal environment, with special attention given to the interaction between colon microbiota and the colonocytes. In addition, her work attempts to define the responses of the colon environment to radiation exposures and weightlessness, such as is experienced by astronauts on long-duration missions. Her research has led to the publication of 58 peer-reviewed papers, 6 book chapters, and she was one of the editors of a book entitled “Potential Health Benefits of Citrus”. Her research program has received over $4 million in grants from NASA, the National Space Biomedical Research Institute, USDA/ARS, USDA/IFAFS, NIH, the United Sorghum Checkoff Program, and the California Dried Plum Board.

**FOR MORE INFORMATION:**

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