

1308 Utilization of dot blots to screen probiotic Lactobacilli for mucin binding. J. Newman* and R. Jimenez-Flores, California Polytechnic State University, San Luis Obispo, CA.

Probiotics are live microbial food ingredients that benefit the host's health, specifically, the gastrointestinal tract (GI). Mucin, a highly glycosylated protein, is a major constituent of mucus and therefore is present in the GI tract. Mucin is also present in the milk fat globule membrane. To be effective, probiotic organisms must adhere to intestinal cells to successfully colonize the intestine. Adherence to intestinal cells involves the ability to bind to mucin. The objective of this project was to develop a method to explore the mucin binding ability of probiotic *Lactobacillus* species. Bovine sub maxillary mucin, porcine stomach mucin and various milk fractions were diluted in series, in concentrations that ranged from 1-5% to 0.001-0.005%. A serial dilution was tested for each purified protein or buttermilk fraction. The proteins were immobilized on PVDF membrane using a dot blotter and then the membrane was blocked with gelatin. The different bacterial strains under study were biotinylated using EZ-Link™ Sulfo-NHS-LC-Biotin. These labeled cells were used to wash the membranes containing the immobilized proteins. Streptavidin-horseradish peroxidase conjugate was used to develop the blot with o-phenylenediamine dihydrochloride substrate. Results demonstrate the ability of NCFM cells to bind to bovine mucin. Our work suggests this is an effective method to screen probiotic *Lactobacillus* species for mucin-binding ability.

Key Words: Probiotics, Mucin, Lactobacillus