

**P-028. Screening and Binding
Characterization of Lactic Acid Bacteria with
Milk Fat Globular Membrane Components**

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Research in the field of probiotic bacteria has gained more attention in recent years because of their known health benefits and because consumers are becoming more aware of the nutritional benefits provided by probiotic containing foods. Currently there are two genera of bacteria that are recognized as probiotic; *Bifidobacterium* and *Lactobacillus*. These bacteria are defined as a food ingredient or dietary supplement that provides health benefits to the consumer when they are live, active cultures. However, there is disagreement in definition of activity and methods for assessment of probiotics. We focused on developing an assay for lactic acid bacteria (LAB) that gives a quantitative measure of their affinity to milk components. Dairy Products Technology Center, Cal Poly San Luis Obispo LAB genetic strains which were isolated and typed using pulse field electrophoresis were used in this study. Bacteria were grown in MRS broth. Cells were used in their stationary and exponential phase of growth for each experiment. A dot blot assay, adopted from an immunoblotting technique, was used as a quantitative measurement of the binding ability of the bacteria to various milk fractions. The same strains underwent mild sonication to isolate their S-layer proteins and characterized using SDS-Page gels. We correlated dot blot results to SDS-Page gels to establish protein patterns. The binding ability is strain specific and correlated with the growth phase. Milk fractions containing high levels of milk fat globule membranes showed better binding ability over all other of the milk fractions used in the study. We compared the binding mechanisms of lactic acid bacterial strains and determined which bacteria are optimal for probiotic use with dairy products as carriers.