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# Probiotics and Prebiotics

*Dana Buckman<sup>1</sup>; Ajith Nair<sup>2</sup>*<sup>1</sup>BioForm Solutions Inc., USA<sup>2</sup>Liveo Research, Switzerland

## Study of the impact of environmental variables on the quality and efficacy of probiotics using flow cytometry

Probiotic quality can be materially impacted by the manufacturing, storage condition, packaging, and delivery processes. Environmental variables can specifically result in the activation and subsequent degradation of probiotics and cause the loss of its efficacy and desired shelf life. Therefore, a systematic study was designed to understand how each of these variables impact the degradation of the probiotic. This is scientifically relevant for the industry to determine the protection requirement and how to implement various technologies to address this issue. A mere CFU count mechanism commonly used in the industry may not be sufficient to understand the degradation process and how to implement corrective actions. Here we present a quick and accurate method to monitor cell health perturbations due to such environmental conditions which can lead to creating an efficient protective environment through packaging to ensure maximum product efficacy. This study uses flow cytometry to investigate the effect of individual environmental conditions on cell health after incubation of probiotics under different RH conditions.

*dana@bioformsolutions.com*  
*ajith.nair@liveoresearch.com*