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**Use of flow cytometry to assess the health of probiotic *bacillus* endospores**

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*Bacillus* endospores are ideal for inclusion in commercial probiotic formulations due to their resistance to environmental stress and relative metabolic dormancy. However, accurate methods to evaluate endospore health and metabolic state are lacking. We previously demonstrated that flow cytometry, in conjunction with DNA-binding dyes, can accurately enumerate populations of live, injured and dead vegetative bacterial cell. In the present study, we used flow cytometry to assess various industrially-relevant properties of endospores. Various dye systems were used with flow cytometry to characterize "healthy" (defined as dormant and heat-stable), "injured" (defined as damaged and heat-labile, prematurely germinated or both) and dead spore populations. Cell sorting was subsequently employed to isolate these populations to confirm their properties empirically. The results will help guide the development of spore-specific flow cytometry-based assays to evaluate formulations and manufacturing processes of probiotics containing endospores.

**Biography**

Dana Buckman has over 25 years of experience using flow cytometry for research and industrial applications. For the past 5 years, she developed flow cytometry-based assays for the analysis of probiotics as CFU- assays. She founded BioForm Solutions, a San Diego-based contract research organization, to provide such services for the analysis of probiotics in the supplement, food and beverage and agriculture markets. BioForm Solutions is the leader in the flow cytometry-based analysis of probiotics, serving many of the industry's key manufacturers.

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