IMMUNOLOGIC RESPONSE TO A NOVEL PROBIOTIC ORGANISM IN PATIENTS WITH ACTIVE CROHN'S DISEASE. Liam O'Mahony, Jane McCarthy, Maria Peeney, Colum Dunne, Barry Kiely, Gerald C. O'Sullivan, John K. Collins, Fergus Lj Shahanan, Nui, Cork, Ireland.

Background: Enteric microflora have been implicated in the pathogenesis of Crohn's disease, prompting investigation of probiotic therapy. However, little is known of the immunologic response to probiotic organisms in Crohn's disease. This is important because Crohn's disease is associated with increased intestinal permeability, marked serologic responses to various pathogens and non-pathogens, and loss of immunologic tolerance to enteric microflora. We reported the selection criteria for Lactobacillus salivarius (spp UCC 118) as a probiotic organism and described the micro- and immunologic outcomes of feeding trials in normal subjects. Aim: to assess the secretory IgA response and systemic serologic and cytokine responses to oral L. Salivarius in active Crohn's disease. Methods: 21 consecutive patients with mild active Crohn's disease, in whom a change of therapy was considered necessary, were studied. Patients were already taking a stable dose of oral 5-ASA but were not on steroids and were offered a trial of probiotic therapy (10^10 organisms in yoghurt/day for 6 weeks). Interchange of steroids. The CDAA was 175-250; those with more active disease requiring steroids or other therapy were excluded. Systemic L. salivarius 118-specific antibody was measured by a microtiter plate agglutination and salivary IgA response was measured by a validated Ig-bound, organism-specific, flow cytometric assay. Cytokines were measured by ELISA. Compliance was confirmed by fecal isolation of the probiotic in all subjects. Results: In contrast to our previous results in normal subjects, a serum IgG response to the probiotic organism was evident after 3-6 weeks, becoming significantly elevated over baseline after 6 weeks (p < 0.01). There was no significant alteration in cytokine levels (IFN, IL-8, IL-1RA, sIL-6R), although those patients with an elevated TNF level had a marked reduction after probiotic feeding. A significant organism-specific salivary IgA response was evident at 3 weeks in 50% of patients. Mean CDAA was not significantly altered but 11/21 patients had not required steroids ≥2 months after probiotic therapy. Conclusion: (1) patients with active Crohn's disease have significant systemic IgG and local mucosal IgA responses to probiotic L. salivarius (UCC118) organisms; (2) this supports the view that this probiotic strain is not in simple transit but engages the mucosal immune response; (3) in contrast to normal subjects, systemic immune responses in Crohn's disease to probiotics should be anticipated.

IN VITRO FERMENTATION OF DIFFERENT TYPES OF DIETARY FIBER IN ULCERATIVE COLITIS: PRODUCTION OF BUTYRATE. Fernando Fernandez-Baneres, Lourdes Fluvia, Jose M. Hernandez, Elia­bet Navarro, Miguel A. Gassull, Hosp Germans Trias i Pujol, Barcelona, Spain.

In a previous study we observed that a dietary fiber which yields butyrate in the colon (Plantago ovata seeds) was able to maintain remission in ulcerative colitis (UC) as compared to mesalazine (Am J Gastroenterol 1999). Recently, different studies have shown that butyrate may have an anti-inflammatory effect by modulating the release of pro-inflammatory cytokines. Aim: to determine in vitro the ability of different types of dietary fiber to yield short chain fatty acids (SCFA), especially butyrate, in patients with UC in remission. Methods: Fresh stools specimens were collected from 8 patients with UC in remission. Fecal homogenates (feces diluted 1:5 with sodium bicarbonate) were incubated under anaerobic conditions (nitrogen), at 37°C for 0, 6, 24 and 48 h, with the different types of fiber as dry power (20 mg/ml): Fiber A, Plantago ovata seeds; Fiber B, Plantago ovata husk (POH); Fiber C, POH+ Resistant starch 1 g; Fiber D, POH+ Resistant starch 0.5 g. Fecal suspensions without additions served as control. The bacterial fermentation was stopped by freezing at -80°C. SCFAs were determined by GLC using a semicapillary column. Friedman's two-way analysis of variance for repeated measures was used in the statistical analysis. Results: A significant increase in total SCFA production at 6 h and 24 h was observed with all fibers as compared to basal values. Results at 6 h and 24 h are shown in the Table (4% respect to basal value; <p<0.05 vs No fiber at 24 h). Butyrate levels were higher with Fiber A than with the other types of fiber (24 h: 19.5±3 vs 13.6±3, 16.2±3, 14.1±3 mMol/l; p=0.07 vs others and p=0.04 vs Fiber B; 8.3±0.8 vs 5.2±0.7, 6.5±0.9, 5.4±0.6 percent of Total SCFAs, p=0.006 vs others). Conclusions: Although all types of fiber studied produce in vitro similar amounts of SCFA, Plantago ovata seeds showed a higher trend to produce butyrate.