

sit time in left colon and faecal levels of propionibacteria and bifidobacteria during ingestion period.

Conclusions:

- Part of ingested Propionibacteria survive digestive transit in a large number of subjects. They are not able to colonize the intestine, but promote the growth of colonic Bifidobacteria.
- Digestive motility, assessed by colonic transit time, is directly related to these bacterial changes.

Role of a human digestive strain of *Bacteroides thetaiotaomicron* in the metabolism of food-borne glucosinolates. L. Elfoul^a, S. Rabot^a, A.J. Duncan^b, L. Goddyn^b, N. Khelifa^c, A. Rimbault^c (^aInra UEPSD/MBS 78352 Jouy-en-Josas cedex; ^bMLURI Aberdeen, Faculté des sciences pharmaceutiques et biologiques; ^cLaboratoire de biologie/UMA Paris, France).

Consumption of brassica vegetables (cabbage, broccoli, etc.), which contain thioglucosides named glucosinolates, is associated with a lower risk of cancer. This property has been attributed to the isothiocyanates released by hydrolysis of parent glucosinolates under the action of plant myrosinase (EC 3.2.3.1). When the plant enzyme is inactivated by heating, the digestive microflora is responsible for the glucosinolate degradation into still unknown physiologically active compounds. Our aim was to investigate the ability of a strain of *Bacteroides thetaiotaomicron*, isolated from a human faecal microflora, to convert glucosinolates into isothiocyanates in vivo. Sixteen F344 germ-free rats were inoculated with the *B. thetaiotaomicron* strain and offered a glucosinolate-containing diet to simulate a realistic nutritional situation. They were dosed by stomach tube with 50 µmol of sinigrin, a pure glucosinolate commonly found in many brassica vegetables. Total

urine and faeces were thereafter collected separately over 48 h. In the faeces, excretion of intact sinigrin was quantified by HPLC and the release of its specific derivative, allylisothiocyanate, was detected by GC. Conversion of sinigrin into allylisothiocyanate was estimated by quantifying its major final metabolite, a specific urinary mercapturic acid, by HPLC. The *B. thetaiotaomicron* strain was able to degrade sinigrin since only 8 % of the oral dose was excreted intact in the faeces. Trace amounts of allylisothiocyanate were detected in the faeces 18 h after the administration of sinigrin and the mercapturic acids of allylisothiocyanate appeared in the urine as early as the 6th hour. Most mercapturic acid excretion occurred within 30 h following sinigrin administration and the proportion of sinigrin converted into allylisothiocyanate was estimated to be 13 %. This study shows that a strain belonging to the dominant human colonic microflora is able to degrade, in vivo, a glucosinolate commonly found in brassica vegetables, and to convert it into allylisothiocyanate, a compound with potential health benefits.

Butyrate and glutamine metabolism in colonocytes: role of the intestinal microflora. C. Cherbuy^a, C. Andrieux^b, C. Ide^a, C. Tuleu^c, M. Watford^a, P.H. Duée^a, B. Darcy-Vrillon^a (^aLNSA, Inra, 78352 Jouy-en-Josas cedex; ^bUEPSD, Inra, 78352 Jouy-en-Josas cedex; ³Lab. de Pharmacotechnie, Fac. des Sci. Pharm. et Biol. de Paris V, Paris, France).

The principal oxidative substrates of the colonic epithelium are butyrate, produced by bacterial fermentation, and circulating glutamine. We have previously shown that the capacity for ketogenesis from butyrate is lower, while the capacity for glutamine utilization is higher in the germfree rat. The goal of this study was to determine the role of the intestinal