

Gopal, P., Dekker, J., Prasad, J., Pillidge, C., Delabre, M.-L., & Collett, M., (2005). Development and commercialisation of Fonterra's probiotic strains. The Australian Journal of Dairy Technology, 60 (2), 173-182.

Abstract

Fonterra took a strategic decision in early 1996 to invest in a multidisciplinary research program to develop its own proprietary probiotic strains. A structured approach based on *in vitro* and *in vivo* screening methods was used for the primary screening of potential probiotic candidates. The target health benefit used for selection of strains was immune enhancement. Strains were evaluated using both *in vitro* immune tests and appropriate *in vivo* animal models. After screening more than 2000 strains, four potential probiotic strains of food or human origin were selected. Strains were shown to provide protection against disease and mortality in animals challenged with pathogens such as *Salmonella typhimurium* and *Escherichia coli* O157:H7. Safety of the strains was tested exhaustively and strains were shown to be safe for human consumption. Four strains were characterised using both classical and modern molecular techniques as *Lactobacillus rhamnosus* HN001, *L. rhamnosus* HN067, *L. acidophilus* HN017 and *Bifidobacterium lactis* HN019 and were patent protected. Two – *L. rhamnosus* HN001 and *B. lactis* HN019 – were trade marked as DR20 and DR10 respectively. The clinical efficacy of selected strains in human subjects has been established for these strains through a number of well-designed clinical trials. Clinical trials have been conducted in number of countries with target populations and the results have been published in peer-reviewed scientific and medical journals. The impact of consumption of the strains on gut micro-ecology in humans has also been established through several dietary intervention studies. One of our current research initiatives is a genomic-based research program on our strains. A draft genome sequence of *L. rhamnosus* HN001 has allowed us to develop lactobacillus-specific genetic tools, undertake studies on cell surface properties of HN001, and investigate the mechanisms of immune enhancement. This large body of scientific research and efficacy data on strains has provided Fonterra with an ideal platform for commercialisation. Commercialisation of strains has been achieved through two channels. First route to market has been through Fonterra's own consumer products company Fonterra Brands (formerly New Zealand Milk). The second route to commercialisation has been through licensing agreement with Danisco, a major Danish ingredients company. Danisco markets these strains through its premium probiotic brand HOWARU™ as HOWARU™ Bifido and HOWARU™ Rhamnosus.