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Transgenic rice plants producing human lactoferrin

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Human lactoferrin (hLF), which has several biological activities including protection against pathogens, regulation of iron absorption, and immune system modulation, is a glycoprotein with a molecular mass of 80 kDa present in human milk. Plant transformation vector for introduction of hLF cDNA was constructed, introduced into *Agorbacterium tumefaciens* EHA105 by electroporation method, and then calli from rice embryo cells were co-cultivated with*A. tumefaciens* harboring the hLF cDNA. Transformed rice plants were selected on media containing bialaphos. The integration of hLF cDNA in rice plants was confirmed by Southern blot analysis. Northern and Western blot analyses showed that the hLF cDNA was expressed in transgenic rice plants. T1 seeds from transgenic lines were harvested. T1 transgenic rice plants are under cultivation for selection of T2rice cultivar stably expressing hLF gene in collaboration with National Agricultural Science and Technology Institute. Rice is generally regarded as safe (GRAS), has a good nutritional value and no known allergenicity, and has already been used in infant formula. We suggest that production of only human-derived useful proteins in other crops including rice will give considerable effects on human being.

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