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### Studies on Vitamin Supplement to Commercial Powdered Infant Formula

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This study was conducted to investigate vitamin contents of commercial powdered infant formula. 10 commercial infant formula based on cow's milk were collected and the contents of fat soluble vitamin and water soluble vitamin were compared with Dietary Reference Intakes for Koreans. The overall vitamin contents in 100g, in 100 kcal, and 100ml of infant formula satisfied the recommended formula regulation and Codex. In infant formula during 0-5 monthly age, vitamin A, D, E, K, C, Thiamin, Riboflavin, Niacin, B6 and Folate could supply 178.63%, 205.25%, 208.41%, 976.26%, 173.15%, 237.22%, 269.75%, 295.90%, 431.55% and 165.75% of recommended daily vitamin intakes, respectively.

**Key words:** Commercial infant formula, vitamin content, fat soluble vitamin

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### Efficient Inhibition of Hepatitis C Virus RNA Replication by Oligodeoxyribozymes that Cleave Viral Nonstructural Gene 3

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Identification of accessible sites in targeted RNAs is a major limitation to the effectiveness of antisense oligonucleotides. A class of antisense oligodeoxyribozymes, also known as DNAzyme, which is a small catalytic DNA, has been shown to efficiently cleave target RNA at purine-pyrimidine junctions in vitro. We have designed a strategy to identify accessible cleavage sites in the target RNA, the hepatitis C virus nonstructural gene 3 (HCV NS3) RNA that encodes viral helicase and protease, from a pool of random DNAzyme library. The screening procedure identified 16 potential cleavage sites in the target RNA. Corresponding DNAzymes were constructed for the selected target sites and were tested for RNA-cleavage in vitro. These selected DNAzymes were effective in cleaving the target RNA in the presence of Mg<sup>2+</sup>. The DNAzymes, when they are transfected to the human hepatoma cell lines harboring the HCV subgenomic replicon RNA, efficiently inhibited HCV RNA replication in cells by decreasing expression of HCV NS3 gene. Since these DNAzymes that were identified using the novel screening procedure showed significant cleavage activity against HCV RNA in human cells, it can be applicable as an antisense oligonucleotides-based therapeutic agent for clinical trial in HCV infected patients.

**Key words:** DNAzyme, deoxyribozyme, HCV (Hepatitis C virus), HCV replicon