

Intestinal epithelia (Caco-2) cells acquire iron through the basolateral endocytosis of transferrin

Núñez, Marco Tulio

Tapia, Victoria

Arredondo, Miguel

Although the absorption of iron through the intestinal epithelia is inversely related to body iron stores, the mechanisms by which the enterocytes sense body iron stores are unknown. Polarized enterocytes have transferrin receptors in their basolateral surface; hence, we tested the hypothesis that the endocytosis of circulating transferrin may be part of the body's iron sensing mechanism. Particularly, we evaluated the contribution of basolateral transferrin to iron content of intestinal cells, and we investigated what factors modulate this contribution. For this purpose, we used the intestinal cell line Caco-2 grown on porous filters. When the cells were simultaneously offered equimolar amounts of iron, from the apical medium as ^{55}Fe -nitrilotriacetate and from the basolateral medium as ^{59}Fe - transferrin, most of the internalized iron came from the basolateral endocytosis of ^{59}Fe -transferrin. Experiments of transferrin binding and internalization showed that holotransferrin and apotran