

# Effect of ascorbate in the reduction of transferrin-associated iron in endocytic vesicles

Escobar, Aldo

Gaete, Victoria

Núñez, Marco Tulio

Externally added ascorbate or NADH effectively reduced ferricyanide and promoted the exit of Fe<sup>3+</sup> originated from acid-destabilized transferrin contained inside endocytic vesicles. The effect of ascorbate was mediated by an ascorbate uptake system, and the effect of NADH was mediated by the membrane-associated oxidoreductase. At physiological concentrations of both ascorbate and NADH, the ascorbate transport and the NADH-oxidoreductase system were additive as measured by the rate of reduction of ferricyanide and by the mobilization of transferrin-associated iron. The results indicate that Fe<sup>3+</sup> reduction may occur by a nonenzymatic reaction with ascorbate transported into the vesicle lumen. The ascorbate-mediated reduction of iron derived from transferrin occurring in the endosome could play a major role in cellular iron uptake. © 1992 Plenum Publishing Corporation.