

*Amino Acids. 2012 May 29.*

## **Regulation of intestinal protein metabolism by amino acids.**

Bertrand J, Goichon A, Déchelotte P, Coëffier M.

### **Source**

INSERM UMR 1073, 22 bd Gambetta, 76183, Rouen cedex, France.

### **Abstract**

Gut homeostasis plays a major role in health and may be regulated by quantitative and qualitative food intake. In the intestinal mucosa, an intense renewal of proteins occurs, at approximately 50 % per day in humans. In some pathophysiological conditions, protein turnover is altered and may contribute to intestinal or systemic diseases. Amino acids are key effectors of gut protein turnover, both as constituents of proteins and as regulatory molecules limiting intestinal injury and maintaining intestinal functions. Many studies have focused on two amino acids: glutamine, known as the preferential substrate of rapidly dividing cells, and arginine, another conditionally essential amino acid. The effects of glutamine and arginine on protein synthesis appear to be model and condition dependent, as are the involved signaling pathways. The regulation of gut protein degradation by amino acids has been minimally documented until now. This review will examine recent data, helping to better understand how amino acids regulate intestinal protein metabolism, and will explore perspectives for future studies.