

[Biochem J.](#) 1984 Jan 1;217(1):289-96.

## **Intracellular localization and properties of phosphate-dependent glutaminase in rat mesenteric lymph nodes.**

[Ardawi MS](#), [Newsholme EA](#).

### **Abstract**

Phosphate-dependent glutaminase was present at approximately similar activities in lymph nodes from mammals other than rat, and in thymus, spleen, Peyer's patches and bone marrow of the rat. This suggests that glutamine is important in all lymphoid tissues. Phosphate-dependent glutaminase activity was shown to be present primarily in the mitochondria of rat mesenteric lymph nodes, and most of the activity could be released by detergents. The properties of the enzyme in mitochondrial extracts were investigated. The pH optimum was 8.6 and the  $K_m$  for glutamine was 2.0 mM. The enzyme was activated by phosphate, other phosphorylated compounds including phosphoenolpyruvate, and also leucine: 50% activation occurred at 5, 0.2 and 0.6 mM for phosphate, phosphoenolpyruvate and leucine respectively. The enzyme was inhibited by glutamate, 2-oxoglutarate, citrate and ammonia, and by N-ethylmaleimide and diazo-5-oxo-L-norleucine; 50% inhibition was observed at 0.7 and 0.1 mM for glutamate and 2-oxoglutarate respectively. Some of these properties may be important in the control of the enzyme activity in vivo