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Alkaline phosphatase histochemistry to identify active Crohn's disease

Intestinal alkaline phosphatase (IAP) plays an essential role in intestinal homeostasis and health through interactions with the resident microbiota, diet and the gut. The physiological role of AP in the intestine has been an open question for decades, but the realization that IAP can remove a terminal phosphate group from LPS, thus greatly diminishing its damaging potential, meant that it may serve a protective role. Crohn's disease influence the alkaline phosphatase activity in the intestine, increasing their activity. We have presented, a histochemistry-based method for AP which is useful to identify active Crohn's disease and to differentiate Ulcerative colitis. We used BCIP/NBT to detect endogenous alkaline phosphatase activity in cryo- and paraffin sections of intestine. Actively inflamed and uninvolved areas of Crohn's disease revealed staining for AP. in the apical region of the enterocyte, and is concentrated in the brush border in uninvolved areas of inflammation. So, in our study, the IAP activity is markedly upregulated in active Crohn's disease, the isoform expressed by the inflamed intestine is not IAP but tissue non-specific AP. Intestinal inflammation in Crohn's disease produces an induction of AP activity that is attributable in part to augmented expression, accompanied by a change in isoform, in epithelial cells. This histochemistry method of detection can provide a sensitive, high-resolution localization of endogenous phosphatase activity in the intestine of patients with Crohn's disease. It may be used as a suitable marker of CD, and offers several advantages over other methods of diagnosis.

Biography

Torres MI is a Professor of Cell Biology in Jaén University School of Experimental Sciences (Spain). She has received her PhD with special award in 1994 from the University of Granada, Spain. Her research developed in the field of inflammation and immune tolerance in inflammatory bowel disease and celiac disease. She has published more than 70 scientific papers and invited reviews and book chapters. Currently, she serves on the Editorial Board of some relevant journals. She has been a visiting Professor in the Massachusetts General Hospital, and in Medical University of South Carolina and in the Service de Recherches en Hemato-Immunologie, in Paris.

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