



Early Detection of Kidney Cancer: Biochemical Assay Using New And Sensitive Tumor Marker

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ABSTRACT

The first mammalian lectin was isolated by Gilbert Ashwell and Anatol Morell, meanwhile, first member of the β -galactose-specific lectins family was isolated from the electric eel. The number of purified animal lectins has started to grow quickly since the beginning of the 1980. Recently, studies directed to human were carried out concerning detection, purification, identification, determination of physical and chemical properties, as well as determination of lectins levels in the normal and abnormal individuals. The present study was designed to investigate lectins in sera of patients with kidney tumors, in addition to non tumoral kidney disease patients. Fifty five patients of malignant kidney tumors were enrolled in addition to 23 patients of benign kidney tumors, and 18 patients of non tumoral kidney diseases used as control groups, in addition to 46 healthy individuals were also investigated. The measurement of total serum proteins revealed significant ($p < 0.001$) decrease in patients of malignant tumors when compared with those of benign, non tumoral diseases, and healthy individuals. The conditions of the hemagglutination assay of serum lectin activity were optimized. The cutoff value of the specific hemagglutination activity was found to equal 6 SHU for discriminatory malignant kidney tumors. Serum lectins activity were indicated to be inhibited by galactose, mannose, lactose and N-acetyl galactosamine. Purification of lectin from sera of patients with malignant kidney tumors by affinity chromatography with the use of silver stain revealed LacBL PAGE of purified lectin demonstrated one band consisted lectin activity. These results suggest that the diagnosis of the specific hemagglutination activity of lectin is promising biomarker for discrimination of malignant kidney tumor patients and the purified lectin could be introduced in the field of biomarkers.

Keywords: Lactose Binding Lectin, kidney tumors, cancer, purification.
