

Cancer Research

Cancer Research, Vol 57, Issue 14 3026-3031, Copyright © 1997 by American Association for Cancer Research

Tumor-specific expression of cytochrome P450 CYP1B1

GI Murray, MC Taylor, MC McFadyen, JA McKay, WF Greenlee, MD Burke and WT Melvin

Department of Pathology, University of Aberdeen, Foresterhill, United Kingdom. g.i.murray@abdn.ac.uk

Cytochrome P450 CYP1B1 is a recently cloned dioxin-inducible form of the cytochrome P450 family of xenobiotic metabolizing enzymes. An antibody raised against a peptide specific for CYP1B1 was found to recognize CYP1B1 expressed in human lymphoblastoid cells but not to recognize other forms of cytochrome P450, particularly CYP1A1 and CYP1A2. Using this antibody, the cellular distribution and localization of CYP1B1 were investigated by immunohistochemistry in a range of malignant tumors and corresponding normal tissues. CYP1B1 was found to be expressed at a high frequency in a wide range of human cancers of different histogenetic types, including cancers of the breast, colon, lung, esophagus, skin, lymph node, brain, and testis. There was no detectable immunostaining for CYP1B1 in normal tissues. These results provide the basis for the development of novel methods of cancer diagnosis based on the identification of CYP1B1 in tumor cells and the development of anticancer drugs that are selectively activated in tumors by CYP1B1.