IMMUNOGLOBULIN M DISTRIBUTION AND MODULAR PEPTIDE INTERACTIONS IN THE STROMA OF HUMAN COLORECTAL ADENOMAS AND ADENOCARCINOMAS

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Background. Tissue organisation field theory explains that cancer starts as a result of an alteration in supporting tissue and inflammatory cells. The immunoglobulins (Igs) detected in colorectal adenocarcinomas come from the loss of integrity of resident μ chain-producing cells. Nearly half of the contact residues of Igs are aromatic and highly reactive. In the same way, the vast majority of cell surface proteins in the extra-cellular matrix contain a number of different domains or modules. The (Arg-Gly-Asp) RGD receptor domain of fibronectin constitutes cell adhesion receptors for cell-matrix adhesion and for bidirectional signalling across the membrane. Highly homologous oligopeptides emulate and compete with matrix adesive proteins: streptavidin binds to cells via the (Arg-Tyr-Asp) RYD mimetic RGD peptide. Furthermore, tyrosine-tryptophan-threonine-aspartic acid (YWTD) domains, physiologically binds laminin and seven different endocytic receptors contain 1-8 YWDT beta-propeller domains.

Objectives. The primary aim of this study was to evaluate the *in situ* presence and distribution of μ chains in 46 colorectal tumours of different histological grades using fluoresceinate goat anti-human μ chains. The secondary aim was to evaluate the cell and stromal interactions of the fluoresceinate YWTD, RGD antigens and streptavidin in sequential biopsy specimens of the same samples.

Results. The detection of μ chains was low in the adenomas and high in the adenocarcinomas. Two morphological types of B cells differently associated with tissue integrity. Stromal μ chain-producing cells strongly bound YWTD, RGD and streptavidin.

Conclusions. In colorectal tumours, RGD-mimicking site peptides mainly compete with fibronectin/immunoglobulin binding. The presence of μ chain/YWTD interactions shows that sequences richer in aromatic residues should be considered.

Biography:

Dr. Caterina Defendenti (MD) Caterina Defendenti is a doctor lab at Fatebenefratelli Hospital in Milan. She recevied her medical degree in 1986 from the University of Pavia, completing postgraduate training in Internal Medicine from the same institution in 1991, and postgraduate training in Clinical Biochemistry from the University of Milan in 2002. Her clinical and scientific works focus on autoimmune/cancer diseases. In this field she has published ”Clinical and Laboratory Aspects of Ro/SSA-52 antibodies”. Autoimmunity Reviews 2010; "B cellular homing in inflammatory bowel disease”. BMC Immunity 2011; Unusual B cell morphology in inflammatory bowel disease” Pathology – Research and Practice 208 (2012) 387– 391; Morphological distribution of μ chains and CD15 receptors in colorectal polyp and adenocarcinoma specimens. BMC Clinical Pathology 2013, 13:8; Significance of serum IL-9 levels in inflammatory bowel disease. International Journal of Immunopathology and Pharmacology 2015.

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