MUCIN 4

► Mucins (MUCs)

Mucin-1

► Mucins (MUCs)

Mucin-17

► Mucins (MUCs)

Mucins (MUCs)

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Synonyms

MUCIN 1: MUC1; Transmembrane mucin 1; Mucin-1; Muc1; Polymorphic epithelial mucin (PEM); Peanut-lectin binding urinary mucin (PUM); Episialin; MAM-6; DF3 antigen; H23 antigen; Epithelial membrane antigen (EMA); H23AG; Krebs von den Lungen-6 (KL-6); Episialin; Polymorphic epithelial mucin (PEM); Cell membrane-associated polymorphic mucin; Tumor-associated epithelial membrane antigen; Tumor-associated mucin; MUC1/TR; MUC1 apo-mucin; Mammary serum antigen (MSA); Human milk fat globule antigen (HMFG); CAM 123-6; Polymorphic urinary mucin (PUM); Peanut-reactive urinary mucin
MUCIN 4: MUC4; Muc4; Ascites sialoglycoprotein-1 (ASGP-1)
MUCIN 16: MUC16; Mucin 16; Muc16; CA-125
MUCIN 17: Mucin-17; Membrane mucin 17; Muc3; Intestinal membrane mucin 17; Secreted mucin 17

Historical Background

The word "mucin" originated from the Greek word "*slimy"* and denotes the glycoproteins of the mucosal lining of epithelial cells. By the 1980s, mucins were found to be an important molecule present in the mucosal epithelial lining of the respiratory, gastrointestinal, and genitourinary tract. Due to the large size and complex structure with extensive glycosylation, sequencing and functional studies were restricted until 1990. At that time, a revolution happened in understanding mucin structure, when four independent groups found an identical protein core named MUC1, which was encoded from isolated cDNA clones from mammary and pancreatic mucins (Apostolopoulos et al. 2015). Cloning and nomenclature of other mucins followed MUC1, with full-length MUC1 cDNA clones obtained from the mammary gland or milk mucin. MUC1 N- and C-terminus are hypothesized to evolve from repeated region of secretory mucin MUC5B (Kufe 2009). In 1991, MUC4 was cloned from the human tracheobronchial cDNA library and a human pancreatic tumor cell line (Chaturvedi et al. 2008). In 1999, the complete genomic sequence of MUC4 was established (Moniaux et al. 1999). MUC16/CA125, a well-known serum biomarker for ovarian cancer, was first identified by an antibody (OC-125) developed by Bast and colleagues. This antibody was reactive against ovarian cancer cell OVCA 433, derived from a patient with serous ovarian carcinoma (Bast et al. 1981). Later on, after almost two decades, from an independent study of two researchers, Yin and O'Brien showed that