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## Matrix metalloproteinases in gastric inflammation and cancer : clinical relevance and prognostic impact

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# **Matrix Metalloproteinases in Gastric Inflammation and Cancer**

## **Clinical Relevance and Prognostic Impact**

Frank Kubben

**Matrix Metalloproteinases in Gastric Inflammation and Cancer  
Clinical Relevance and Prognostic Impact**

Kubben, Frank J.G.M.

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# **Matrix Metalloproteinases in Gastric Inflammation and Cancer**

## **Clinical Relevance and Prognostic Impact**

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Voor mijn ouders  
Aan Ellen en Thijs



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## Abbreviations

ABC, avidin biotin complex

ADAMs, a disintegrin and metalloproteinases

ADAMTs, a disintegrin and metalloproteinases with thrombospondin motifs

APMA, *p*-aminophenylmercuric acetate

ARMS, amplification refractory mutation system

BIA, bioactivity assay

BSA, bovine serum albumin

CI, confidence interval

ECM, extracellular matrix

ELISA, enzyme-linked immunosorbent assay

EMMPRIN, extracellular matrix metalloproteinase inducer

ERK, extracellular signal-regulated kinase

F, female

FDA, Food and Drug Administration

HNL, human neutrophil lipocalin, also named NGAL

Hp, *Helicobacter pylori*

HR, hazard ratio

HRP, horseradish peroxidase

kDa, kilo Dalton

M, male

MALT, gastric mucosa associated lymphoid tissue

MMPs, matrix metalloproteinases

MPO, myeloperoxidase

mRNA, messenger ribonucleic acid

MT-MMPs, membrane-type matrix metalloproteinases

NA, not applicable

ND, not defined

NGAL, neutrophil gelatinase-associated lipocalin, also named HNL

NS, non significant

NSAIDs, non-steroidal anti-inflammatory drugs

PBS, phosphate-buffered saline

PCR, polymerase chain reaction

PUMP-1, putative matrix metalloproteinase-1 (MMP-7)

RFLP, restriction fragment length polymorphism

S-2444, pyro-Glu-Gly-Arg-*p*-nitroanilide

SEM, standard error of the mean

SNP, single nucleotide polymorphism

TBS, tris-buffered saline

TIMPs, tissue inhibitors of metalloproteinases

TNM, tumour node metastasis

VEGF, vascular endothelial growth factor

WHO, World Health Organisation