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Sandra Radenkovic, Gordana Konjevic, Vladimir Jurisic, Katarina Karadzic, Marina Nikitovic & Kristina Gopcevic

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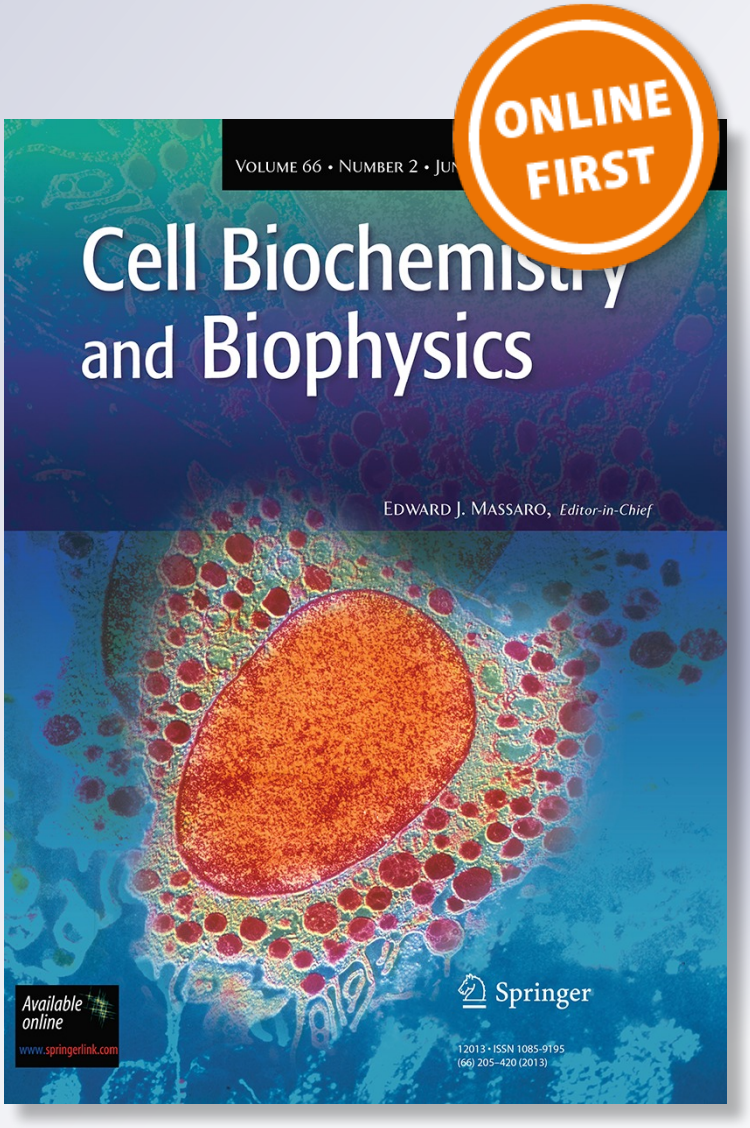

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ORIGINAL PAPER

Values of MMP-2 and MMP-9 in Tumor Tissue of Basal-Like Breast Cancer Patients

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Abstract Gelatinase A (MMP-2) and gelatinase B (MMP-9) are proteolytic enzymes involved in process of tumor invasion, and they are considered as possible tumor markers in breast cancer patients. In this study, we measured activity of latent and active form of MMP-2 and MMP-9 in tumor and adjacent tissue of 60 breast cancer patients by SDS-PAGE zymography. The activity of both form of gelatinases significantly increased with each advancing clinical stage of disease. ProMMP-9 and aMMP-9 activity in tumor tissue shows a positive association with tumor size. Patients with lymph node involvement have higher proMMP-2, aMMP-2 and aMMP-9 activity than node negative patients. Steroid receptor-negative tumors had enhanced aMMP-2 and aMMP-9 activity. Patients with basal-like cancers had higher proMMP-2 tumor activity and aMMP-2 adjacent tissue activity compared to patients with luminal A tumors. Patients with negative hormone receptors are associated with increased activity of both form of gelatinases in adjacent tissue. Reported increased activity of MMP-2 in tumor and adjacent tissue of basal-like tumors implicates that MMP-2 might have a role in aggressive biology of basal-like cancers. Additional investigations regarding molecular pathways in adjacent tissue could give better insight into aggressive nature of basal-like carcinomas.

Keywords MMP-2 · MMP-9 · Basal-like breast cancer · Tumor tissue · Clinicopathological markers

Abbreviations

MMPs	Matrix metalloproteinases
DAB	3,3diaminobenzidine
ER	Estrogen receptor
PR	Progesterone receptor
HER2	Human epidermal growth factor receptor 2
CK5/6	Citokeratin 5 or 6

Introduction

Matrix metalloproteinases (MMPs) are zinc-dependent endopeptidases causally involved in tumor progression [1]. While some of these MMPs appear to be involved in stimulating tumor cell growth, others are causally involved in invasion and metastasis [2]. Two of the MMPs implicated in the spread of cancer are MMP-2 and -9, also known as gelatinase A and B. These MMPs are thought to mediate invasion and metastasis by catalyzing degradation of type IV collagen, the main component of basement membranes and inducing angiogenesis. MMP-2 and -9, like all other known mammalian MMPs, are initially synthesized as inactive precursors [3]. The mechanism of activation in vivo is largely unknown but is likely to involve proteolytic processes

S. Radenkovic · G. Konjevic · K. Karadzic · M. Nikitovic
Department of Experimental Oncology, Institute of Oncology and Radiology of Serbia, Pasterova 14, 11 000 Belgrade, Serbia
e-mail: stankovics@ncrc.ac.rs

S. Radenkovic
Department for Radiation Oncology and Diagnostics, Institute of Oncology and Radiology of Serbia, Pasterova 14, 11000 Belgrade, Serbia

G. Konjevic · M. Nikitovic · K. Gopcevic
School of Medicine, University of Belgrade, Belgrade, Serbia

V. Jurisic (✉)
School of Medicine, University of Kragujevac, Kragujevac, Serbia
e-mail: vdvd@mailcity.com

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