

# Cancer Diagnostics Conference & Expo

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## The role of Epo/EpoR signaling pathway in colorectal cancer

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Colorectal cancer (CRC) is a heterogeneous disease with increasing incidence and is the third most common cancer worldwide. 80% of CRC cases are sporadic without family history or genetic predisposition as a result of agglomeration of mutations and epigenetic modifications of several genes together with environmental factors. Chemotherapy together with targeted drugs tending to individualized therapy is a cornerstone of systemic treatment. Molecular and genetic features of the tumor determine the prognosis and response to (targeted) treatments. Anemia of chronic disease can be found in about 60-70% of patients with malignant disease. Pathophysiology of this type of anemia is multifactorial and level of hemoglobin is independent bad prognostic factor for survival. Anemia in malignant disease is often cured with recombinant erythropoietin (rHuEpo). Epo is a 34 kDa glycoprotein hormone, which binds to cells with erythropoietin receptor (EpoR), thus leading to its activation and stimulation of erythropoiesis. EpoR is a protein, member of the cytokine receptor family, where expression was found in different tumors. The role of Epo/EpoR signaling pathway in CRC remains unclear and data from studies are inconclusive. Moreover, the data *in vivo* are not consistent with those *in vitro* suggesting that Epo *in vivo* is probably acting together with other growth factors. Because there is still no conclusive answer about whether rHuEpo therapy leads to tumor progression, clinicians can use it only in limited frameworks. Especially precaution must be taken using rHuEpo together with anticancer drugs which are using activation of NF- $\kappa$ B to kill cancer cells due to association of Epo and protein NF- $\kappa$ B in apoptotic resistance, thus leading to negative effect of anticancer therapy. For elucidating the role of Epo/EpoR system in CRC and other tumors, standard procedures for detection of receptor-specific antibodies, for binding of radiolabeled ligands and confirmation of receptor size at the appropriate molecular mass must be followed. Even after such a use with all precautions, limitations in these techniques can possibly lead to a contradictory and inconclusive data.

### Biography

Renata Dobrila-Dintinjana is a Physician, Specialist in Internal Medicine, Sub-specialist in Medical Oncology and Professor at Faculty of Medicine of University Rijeka. Her research focused on field of gastrointestinal tumors and supportive cancer care, especially in the field of cachexia-anorexia syndrome and nutrition. She is the author of over 100 publications mostly in English, 20 chapters in the book and over 300 abstracts. She is a Member of international associations as ASCO, ESMO, AACR, MASCC, IASGO, also a Member and Head of some Executive Boards in Croatia. She acts as a Reviewer for journals and projects in the field of Supportive Cancer Care, Palliative Care, Gastrointestinal Cancers and Molecular Oncology.

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