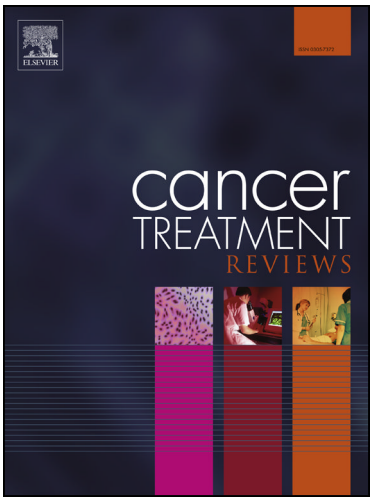

Tumour Review

Targeting the microenvironment in solid tumors

Carmen Belli, Dario Trapani, Giulia Viale, Paolo D'Amico, Bruno Achutti Duso, Paolo Della Vigna, Franco Orsi, Giuseppe Curigliano

PII: S0305-7372(18)30014-8
DOI: https://doi.org/10.1016/j.ctrv.2018.02.004
Reference: YCTRV 1723

To appear in: *Cancer Treatment Reviews Cancer Treatment Reviews*

Received Date: 5 September 2017
Revised Date: 6 February 2018
Accepted Date: 9 February 2018

Please cite this article as: Belli, C., Trapani, D., Viale, G., D'Amico, P., Achutti Duso, B., Della Vigna, P., Orsi, F., Curigliano, G., Targeting the microenvironment in solid tumors, *Cancer Treatment Reviews Cancer Treatment Reviews* (2018), doi: https://doi.org/10.1016/j.ctrv.2018.02.004

Targeting the microenvironment in solid tumors

Carmen Belli[1*], Dario Trapani[1], Giulia Viale[1], Paolo D'Amico[1], Bruno Achutti Duso[1], Paolo Della Vigna[2], Franco Orsi[2] and Giuseppe Curigliano[1]

[1]Division of Early Drug Development for Innovative Therapies, European Institute of Oncology, via Ripamonti 435, 20141 Milan, Italy.

[2]Interventional Radiology Division, European Institute of Oncology, via Ripamonti 435, 20141 Milan, Italy.

* Corresponding Author:

Carmen Belli, MD PhD

Division of Early Drug Development for Innovative Therapies

Istituto Europeo di Oncologia

Via Ripamonti 435, 20141 Milano

Phone: +39 02 94372659

Fax: +39 02 94379224

Email: carmen.belli@ieo.it

Highlights

- **Tumor microenvironment (TME) gets specific modifications during cancer progression.**
- **Targeting different components of TME may overcome drug resistance.**
- **It is advantageous to target genetically stable TME containing non-tumor cells.**

Abstract: Tumorigenesis is a complex and dynamic process involving different cellular and non-cellular elements composed of tumor microenvironment (TME). The interaction of TME with cancer cells is responsible for tumor development, progression and drug resistance. TME consists of non malignant cells of the tumor such as cancer associated fibroblasts (CAFs), endothelial cells and pericytes composing tumor vasculature, immune and inflammatory cells, bone marrow derived cells, and the extracellular matrix (ECM) establishing a complex cross-talk with tumor. These interactions contribute towards proliferation and invasion of the tumor by producing growth factors, chemokines and matrix-degrading enzymes. ECM is a complex system containing macromolecules with distinctive physical, biochemical and biomechanical properties. During tumorigenesis this system is deregulated favoring the generation of tumorigenic microenvironment enhancing tumor-associated angiogenesis and inflammation.

An important step of anticancer treatment is the identification of the biological alterations present in TME in order to target these key molecular players. Multitargeted approaches, providing a simultaneous inhibition of TME components, may offer a more efficient way to treat cancer. In this