

Accepted Manuscript

Double-sided effect of tumor microenvironment on platelets targeting nanoparticles

Xinli Chen, Qingbing Wang, Lisha Liu, Tao Sun, Wenxi Zhou, Qinjun Chen, Yifei Lu, Xi He, Yu Zhang, Yujie Zhang, Chunhui Ruan, Qin Guo, Chao Li, Chen Jiang



PII: S0142-9612(18)30474-5

DOI: [10.1016/j.biomaterials.2018.07.005](https://doi.org/10.1016/j.biomaterials.2018.07.005)

Reference: JBMT 18748

To appear in: *Biomaterials*

Received Date: 20 April 2018

Revised Date: 27 June 2018

Accepted Date: 3 July 2018

Please cite this article as: Chen X, Wang Q, Liu L, Sun T, Zhou W, Chen Q, Lu Y, He X, Zhang Y, Zhang Y, Ruan C, Guo Q, Li C, Jiang C, Double-sided effect of tumor microenvironment on platelets targeting nanoparticles, *Biomaterials* (2018), doi: 10.1016/j.biomaterials.2018.07.005.

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

1 **Double-sided effect of tumor microenvironment on platelets targeting nanoparticles**

2 *Xinli Chen¹, Qingbing Wang², Lisha Liu¹, Tao Sun¹, Wenxi Zhou¹, Qinjun Chen¹, Yifei Lu¹, Xi He¹,*
3 *Yu Zhang¹, Yujie Zhang¹, Chunhui Ruan¹, Qin Guo¹, Chao Li¹, Chen Jiang*¹*

4
5 **Affiliation**

6 ¹Key Laboratory of Smart Drug Delivery, Ministry of Education, State Key Laboratory of Medical
7 Neurobiology, Department of Pharmaceutics, School of Pharmacy, Fudan University, Shanghai
8 200032, China

9 ²Department of Interventional Radiology, Ruijin Hospital, Shanghai Jiao Tong University School
10 of Medicine, Shanghai 200025, China.

11 *Corresponding authors.

12 *Email: jiangchen@shmu.edu.cn

13
14 **Key words:** Tumor microenvironments; Homing Nanoparticles; Pancreatic cancer;
15 Hypopermeable; Photothermal therapy

16
17 **Abstract:** The cancer cells and stromal cells in tumor microenvironment secrete cytokines and
18 recruit “homing” cells (macrophage, lymphocytes, platelets, etc.). Platelets can interact with tumor
19 microenvironment and specifically aggregate at tumor sites. Surprising, we observed different
20 “homing” effects of activated platelets in breast cancer model and pancreatic cancer model which
21 is highly related with the blood supply of tumors. Besides, platelets targeting magnetic
22 nanoparticles (MNPs) can home to breast cancer but be repelled from pancreatic cancer. We
23 observed the targeting effect of MNPs is highly related with the expressions of collagen α (marker
24 of extracellular matrix) and CD34 (marker of tumor neovascularization). The homing
25 nanoparticles such as platelets targeting MNPs could realize the tumor targeting ability,
26 photo-thermal effect and tumor immunotherapeutic ability in the accessible tumor (e.g. breast
27 cancer) but not the hypovascular tumor (e.g. pancreatic cancer).

28

29

Download English Version:

<https://daneshyari.com/en/article/10130624>

Download Persian Version:

<https://daneshyari.com/article/10130624>

[Daneshyari.com](https://daneshyari.com)