

Tumor environment keeps tumor-fighting T cells away

September 19 2011

Tumors have an arsenal of tricks to help them sidestep the immune system. A study published on September 19 in the *Journal of Experimental Medicine* reveals a new trick -- the ability to keep tumor-fighting T cells out by disabling a T cell-attracting protein within the tumor core.

The [immune system](#) faces many challenges in its attempt to fight off cancer. The tumor itself can promote the generation of naturally suppressive immune cells that keep their tumor-fighting brethren in check. Tumors can also create a hostile environment that hampers T cell function. The hostile environment is caused in part by the production of harmful reactive nitrogen species (RNS) inside the tumor.

RNS trigger the addition of small chemical modifications to proteins in their immediate vicinity. According to the new study, one of these RNS targets is CCL2, a small protein that attracts protective T cells to the tumor. Once modified by RNS, however, CCL2 is invisible to tumor-fighting [T cells](#), which thus remain helplessly outside the tumor margins. By generating a drug that blocks RNS-induced chemical reactions or by injecting unmodified CCL2 into the [tumor](#), the scientists restored the T cells' ability to invade.

If these findings hold up in humans, such RNS-blocking drugs might be combined with current therapies to help eradicate tumors more effectively.

More information: Molon, B., et al. 2011. J. Exp. Med.
[doi:10.1084/jem.20101956](https://doi.org/10.1084/jem.20101956)

Provided by Rockefeller University

Citation: Tumor environment keeps tumor-fighting T cells away (2011, September 19) retrieved
27 April 2024 from
<https://medicalxpress.com/news/2011-09-tumor-environment-tumor-fighting-cells.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.