

## NEWS IN BRIEF

### Tracking Down Tumor-Targeting Bacteria

Long studied for their promise in addressing a spectrum of medical conditions, probiotic bacteria eventually also may aid in delivering cancer treatments.

While investigating probiotic bacteria that preferentially home in on tumor sites, researchers led by Mark Tangney, PhD, of University College Cork in Ireland, have taken a step in this direction. In a [paper](#) published in *PLoS ONE*, the team reported what is said to be the first accurately localized 3-dimensional *in vivo* images of bacteria in tumors.

The researchers engineered nonpathogenic strains of *Escherichia coli*, *Bifidobacterium breve*, and *Salmonella typhimurium* to express the bioluminescence gene *lux* and injected them intravenously into mice with various solid tumors. Collaborating with Caliper Life Sciences of Hopkinton, MA, the researchers developed a whole-body imaging system that uses 3-dimensional diffuse optical tomography combined with microcomputed tomography to pinpoint the location of the bioluminescent signals from the bacterial strains.

The team then imaged mice that had luciferase-carrying tumors engineered from human colorectal carcinomas and generated images that precisely colocalized the bacterial and tumor cells.

The first author of the *PLoS ONE* article, Michelle Cronin, PhD, says that the approach “allows us to see exactly where the bacteria go in the tumor site.” The microbes don’t invade live tumor cells but live in necrotic tumor tissue, where they apparently avoid clearance by the immune system.



*Salmonella typhimurium* (red) invades cultured human cells in this color-enhanced scanning electron micrograph. In mice, 3-dimensional bioluminescent imaging has shown exactly where bacteria that flock to tumors end up. *Rocky Mountain Laboratories, National Institute of Allergy and Infectious Diseases*

Cronin says the team hopes to engineer the bacteria to deliver gene therapies or to activate systemically administered drugs specifically at tumor sites.

*Cancer Discovery*; published OnlineFirst February 9, 2012; doi:10.1158/2159-8290.CD-NB2012-012

# CANCER DISCOVERY

## Tracking Down Tumor-Targeting Bacteria

*Cancer Discovery* 2012;2:OF2. Published OnlineFirst February 9, 2012.

**Updated version** Access the most recent version of this article at:  
doi:[10.1158/2159-8290.CD-NB2012-012](https://doi.org/10.1158/2159-8290.CD-NB2012-012)

**E-mail alerts** [Sign up to receive free email-alerts](#) related to this article or journal.

**Reprints and Subscriptions** To order reprints of this article or to subscribe to the journal, contact the AACR Publications Department at [pubs@aacr.org](mailto:pubs@aacr.org).

**Permissions** To request permission to re-use all or part of this article, use this link  
<http://cancerdiscovery.aacrjournals.org/content/2/3/OF2>.  
Click on "Request Permissions" which will take you to the Copyright Clearance Center's (CCC) Rightslink site.