

Title (en)
NON-INVASIVE TUMOR IMAGING BY TUMOR-TARGETED BACTERIA

Title (de)
NICHT INVASIVES TUMOR-IMAGING MITTELS TUMORGERICHTETER BAKTERIEN

Title (fr)
IMAGERIE NON INVASIVE DE TUMEURS PAR DES BACTERIES CIBLEES SUR DES TUMEURS

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Abstract (en)
[origin: WO0125399A2] The present invention provides non-invasive compositions and methods to detect solid tumors using tumor-targeted bacteria. specifically, the present invention provides compositions and methods for detecting solid tumors *in vivo* by delivery of a marker gene to a solid tumor via a population of tumor-targeted bacteria, methods for detecting solid tumors by detecting a compound incorporated into the bacteria, methods for detecting solid tumors by detecting an infection caused by the bacteria at the tumor site(s), methods for detecting solid tumors by detecting an antigen present on the surface of the bacterial vectors. When detecting a tumor entails detecting a marker gene product expressed by the tumor-targeted bacteria, the marker gene product can be detected directly in the tumor, by the use of a labeled moiety that interacts with the marker gene product, or by the use of the labeled marker substrate. Thus, if a marker gene product is directly detectable, it can be detected directly. When a marker gene product is not directly detectable, a labeled moiety that interacts with the marker gene product is detected, or a labeled marker substrate is used and a labeled marker metabolite is detected. A tumor can thus be localized or detected by scanning a subject to detect the marker gene product, a labeled complex comprising the marker gene product and its interacting moiety, or a labeled marker metabolite, respectively, thereby imaging the tumor. Specifically, the attenuated tumor-targeted bacteria of the invention are facultative aerobes or facultative anaerobes which are modified to encode the marker gene. Still further, this invention provides compositions and methods of simultaneously imaging and treating a tumor in a subject using one or a plurality of populations tumor-targeted organisms. The invention provides non-invasive, clinically applicable methods for imaging tumors which can be implemented using existing imaging techniques to monitor and evaluate *in vivo* cancer treatments in human subjects. Kits are also provided.

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