

ABSTRACT

METHOD AND APPARATUS FOR ENHANCING ACCURACY OF TUMOUR RESPONSE THERAPY EVALUATION WITH REDUCED EXAMINATION TIME

The present disclosure relates to a method for evaluating therapy response in a tumor. In an aspect, the method can include the steps of obtaining a first set of volume images before contrast; obtaining a second set of volume images post contrast; subtracting the first set of volume images from the second set of volume images to obtain a third set of images that focus on enhanced tumor tissue; drawing, based on the third set of images, slice-by-slice, a region of interest (ROI) on boundary of the tumor in a representative section showing largest tumor dimension; generating a pharmacokinetic parameter map by voxel-wise comparing pharmacokinetic parameter value for each voxel of each slice with respect to one or more threshold values, and classifying the voxel based on output of the comparison step; and superimposing the ROI on the pharmacokinetic parameter map to enable interpretation of the ROI.

FORM 2

THE PATENTS ACT, 1970

(39 of 1970)

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The Patent Rules, 2003

COMPLETE SPECIFICATION

(See sections 10 & rule 13)

1. TITLE OF THE INVENTION

**METHOD AND APPARATUS FOR ENHANCING ACCURACY OF TUMOUR
RESPONSE THERAPY EVALUATION WITH REDUCED EXAMINATION TIME**

2. APPLICANTS (S)

NAME	NATIONALITY	
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3. PREAMBLE TO THE DESCRIPTION

COMPLETE

The following specification particularly describes the invention and the manner
in which it is to be performed.

METHOD AND APPARATUS FOR ENHANCING ACCURACY OF TUMOUR RESPONSE THERAPY EVALUATION WITH REDUCED EXAMINATION TIME

FIELD OF INVENTION

[0001] The present disclosure relates to medical image analysis, and more particularly, to a method and apparatus for reducing examination time and enhancing accuracy for response therapy evaluation in a tumor.

BACKGROUND OF THE INVENTION

[0002] The background description includes information that may be useful in understanding the present disclosure. It is not an admission that any of the information provided herein is prior art or relevant to the presently claimed invention, or that any publication specifically or implicitly referenced is prior art.

[0003] Functional imaging using single photon emission computed tomography (SPECT) and positron emission tomography (PET) is extremely valuable in the diagnosis of various medical disorders. Uncertainty in the anatomic definition on SPECT and PET images, however, sometimes limits their usefulness. To overcome this, a combination of magnetic resonance images (MRI) and X-ray computed tomography (CT) images with functional SPECT or PET images of the same sections of the body is sometimes used. This provides complementary anatomic (MRI or CT) and physiological (SPECT or PET) information that is of great importance to research, diagnosis and treatment.

[0004] Magnetic resonance imaging (“MRI”) is a well-known, highly useful technique for diagnosing abnormalities in biological tissues. MRI can detect abnormalities that are difficult or impossible to detect by other techniques, without the use of x-rays or invasive procedures.

[0005] Functional body images and structural images are two types of medical images used by medical practitioners for the diagnosis of certain medical disorders. Functional body images such as those derived from SPECT or PET scans, provide physiological information, whereas structural images such as those derived from CT or MRI, provide an anatomic map of the body. Different medical imaging techniques may provide scans with complementary and occasionally conflicting information. For

