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(54) Title: SYSTEM AND METHOD FOR QUANTITATIVE MOLECULAR BREAST IMAGING

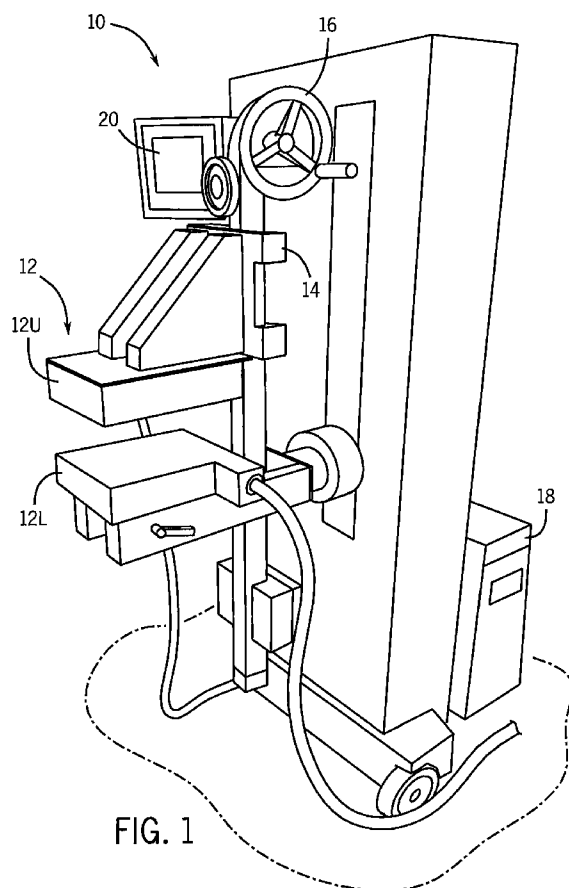


FIG. 1

(57) Abstract: A system and method for performing quantitative lesion analysis in molecular breast imaging (MBI) using the opposing images of a slightly compressed breast that are obtained from the dual-head gamma camera. The method uses the shape of the pixel intensity profiles through each tumor to determine tumor diameter. Also, the method uses a thickness of the compressed breast and the attenuation of gamma rays in soft tissue to determine the depth of the tumor from the collimator face of the detector head. Further still, the method uses the measured tumor diameter and measurements of counts in the tumor and background breast region to determine relative radiotracer uptake or tumor-to-background ratio (T/B ratio).



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B FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WEST, PUBMED, Google Scholar radionuclide and gamma and photon and tumor and \$2attenuat\$3 and (equation or formula) and geometrc near5 mean and coefficient near5 \$2attenuat\$3

C DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No
Y	'Molecular Breast Imaging using a Dedicated High-Performance Instrument' (O'CONNOR et al) Proc of SPIE Vol 6319 63191D (Aug 2006) p 8, para 4, para 10, para 2, Table 3, Fig 2, 10 and 12	1-17
Y	US 2004/0015075 A1 (KIMCHY et al) 22 January 2004 (22 01 2004) para [0122], [0131], [0137], [0151], [0180]-[0196], [0202], f0235]-[0254]	1-17
Y	US 2003/0108147 A1 (KOJIMA et al) 12 June 2003 (12 06 2003) para [0019]-[0021], [0068], [0091]-[0092]	3-13 and 16-17
Y	US 5,261,406 A (MACKAY et al) 16 November 1993 (16 11 1993) col 2, ln 18-59	5 and 12-17
Y	'A compact, discrete CsI(Tl) scintillator/Si photodiode gamma camera for breast imaging' (GRUBER) Dissertation [online] (December 1, 2000) Lawrence Berkeley National Laboratory Paper LBNL-47620 [retrieved on 2008-06-22] Retrieved from the Internet <URL http://repositores.cdlib.org/lbnl/LBNL-47620> p 11, para 2, p 118, para 2 and p 119, para 1	7 and 9-13

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