

Title (en)
VOXEL-RESOLUTION MYOCARDIAL BLOOD FLOW ANALYSIS

Title (de)
HERZMUSKEL-BLUTFLUSSANALYSE MIT VOXEL-AUFLÖSUNG

Title (fr)
ANALYSE DU FLUX SANGUIN MYOCARDIQUE PAR RÉOLUTION DE VOXELS

Publication
EP 3052013 A4 20170705 (EN)

Application
EP 14850179 A 20141003

Priority

- US 201361887290 P 20131004
- US 2014059062 W 20141003

Abstract (en)
[origin: WO2015051256A1] A myocardial blood flow analysis scan includes incorporating a pharmacological kinetic model with the standard factor analysis model where each time activity curve is assumed to be a linear combination of factor curves. Pharmacological kinetics based factor analysis of dynamic structures (K-FADS-II) model can be applied, whereby estimating factor curves in the myocardium can be physiologically meaningful is provided. Additional optional aspects include performing a discretization to transform continuous-time K-FADS-II model into a discrete-time K-FADS-II model and application of an iterative Improved Voxel-Resolution myocardial blood flow (IV-MBF) algorithm. Where the model is applied without assumption that a right ventricle tissue curve and a left ventricle tissue curve obey a particular mathematical relationship, a least squares objective function can be applied to obtain estimates for parameters of the pharmacological kinetic model by applying a majorize-minimize optimization technique to iteratively estimate the curves.

IPC 8 full level
A61B 5/02 (2006.01)

CPC (source: EP)
A61B 5/026 (2013.01); **A61B 6/037** (2013.01); **A61B 6/503** (2013.01); **A61B 6/507** (2013.01); **A61B 6/5217** (2013.01); **G16H 50/50** (2017.12)

Citation (search report)

- [X] US 2006083415 A1 20060420 - EL FAKHRI GEORGES [US], et al
- [Y] WO 2012135526 A2 20121004 - UNIV HOWARD [US], et al
- [Y] US 2003048937 A1 20030313 - GULLBERG GRANT T [US], et al
- [A] MEYER ET AL: "Assessment of input function distortions on kinetic model parameters in simulated dynamic ^{82}Rb PET perfusion studies", NUCLEAR INSTRUMENTS & METHODS IN PHYSICS RESEARCH. SECTION A: ACCELERATORS, SPECTROMETERS, DETECTORS, AND ASSOCIATED EQUIP, ELSEVIER BV * NORTH-HOLLAND, NL, vol. 571, no. 1-2, 26 January 2007 (2007-01-26), pages 199 - 202, XP005737919, ISSN: 0168-9002, DOI: 10.1016/J.NIMA.2006.10.062
- [A] JI YOUNG AHN ET AL: "Quantification of regional myocardial blood flow using dynamic H_2^{15}O PET and factor analysis", THE JOURNAL OF NUCLEAR MEDICINE, SOCIETY OF NUCLEAR MEDICINE, US, vol. 42, no. 5, 1 May 2001 (2001-05-01), pages 782 - 787, XP009105384, ISSN: 0161-5505
- See references of WO 2015051256A1

Designated contracting state (EPC)
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

DOCDB simple family (publication)
WO 2015051256 A1 20150409; EP 3052013 A1 20160810; EP 3052013 A4 20170705

DOCDB simple family (application)
US 2014059062 W 20141003; EP 14850179 A 20141003