

dce_2CXM_ValidationDataSet

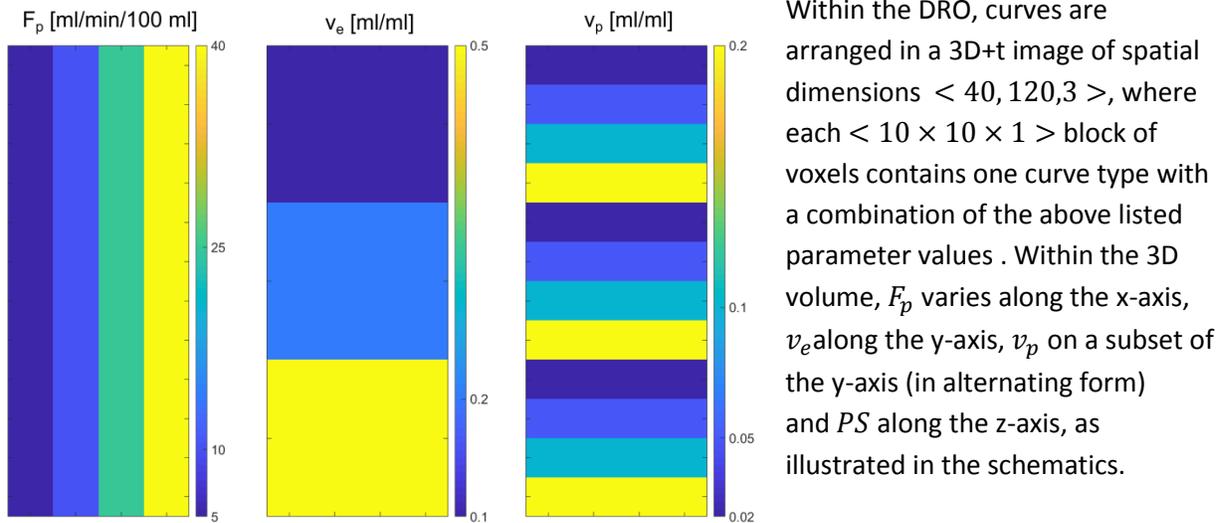
This is the documentation for the two compartment exchange model (2CXM) digital reference object (DRO). 144 concentration time curves with different parameter combinations of F_p , PS , v_p and v_e were simulated using the 2CompFlowExch model in JSIM (<http://www.physiome.org/jsim/>).

Parameter values used for curve simulation were

$$F_p \in \{5, 10, 25, 40\} \frac{ml}{\min 100ml} \quad v_p \in \{0.02, 0.05, 0.1, 0.2\}$$

$$PS \in \{0.0, 5, 15\} \frac{ml}{\min 100ml} \quad v_e \in \{0.1, 0.2, 0.5\}$$

Temporal resolution is 0.5 s over a total of 661 time points. The arterial input function was taken from the QIBA_v6_Tofts DRO (<https://sites.duke.edu/dblab/qibacontent/>)



The AIF was added as $\langle 40, 20, 3 \rangle$ block on the bottom of the image, leading to a final DCE MRI data set of dimension $\langle 40, 140, 3, 661 \rangle$.

The 4D concentration image is converted to signal intensities via relative signal enhancement using a factor of $k=1$

$$C(t) = k \cdot \frac{S(t) - S_0(t)}{S_0(t)} \rightarrow S(t) = \frac{1}{k} \cdot C(t) \cdot S_0(t) + S_0(t)$$

LICENSE

=====
Copyright (c) 2018 German Cancer Research Center, Division of Medical Image Computing and Department of Translational Radiation Oncology.
All rights reserved.

This work is licensed under the Creative Commons Attribution 4.0 International License. To view a copy of this license, visit <http://creativecommons.org/licenses/by/4.0/>.

Information for attribution:

Title of work: MITK-ModelFit dce_2CXM_ValidationDataSet

Attribute work to name: German Cancer Research Center, Division of Medical Image Computing and Department of Translational Radiation Oncology

Attribute work to URL: <http://mitk.org/wiki/MITK-ModelFit>

Attribute work in publications: Please use the following citation for referencing.

Debus C and Floca R, Ingrisich M, Kompan I, Maier-Hein K, Abdollahi A, Nolden M, *MITK-ModelFit: generic open-source framework for model fits and their exploration in medical imaging - design, implementation and application on the example of DCE-MRI* (arXiv:1807.07353)

=====