

## Accepted Manuscript

Title: Automatic delineation of brain regions on MRI and PET images from the pig

Authors: Jonas Villadsen, Hanne D. Hansen, Louise M. Jørgensen, Sune H. Keller, Flemming L. Andersen, Ida N. Petersen, Gitte M. Knudsen, Claus Svarer



PII: S0165-0270(17)30394-1  
DOI: <https://doi.org/10.1016/j.jneumeth.2017.11.008>  
Reference: NSM 7893

To appear in: *Journal of Neuroscience Methods*

Received date: 21-7-2017  
Revised date: 9-10-2017  
Accepted date: 12-11-2017

Please cite this article as: Villadsen Jonas, Hansen Hanne D, Jørgensen Louise M, Keller Sune H, Andersen Flemming L, Petersen Ida N, Knudsen Gitte M, Svarer Claus. Automatic delineation of brain regions on MRI and PET images from the pig. *Journal of Neuroscience Methods* <https://doi.org/10.1016/j.jneumeth.2017.11.008>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

## Automatic delineation of brain regions on MRI and PET images from the pig

Jonas Villadsen<sup>a</sup>, Hanne D. Hansen<sup>a</sup>, Louise M. Jørgensen<sup>a,b</sup>, Sune H. Keller<sup>c</sup>, Flemming L. Andersen<sup>c</sup>, Ida N. Petersen<sup>b,d</sup>, Gitte M. Knudsen<sup>a,b</sup>, Claus Svarer<sup>a,\*</sup>

<sup>a</sup> *Center for Integrated Molecular Brain Imaging (Cimbi) and Neurobiology Research Unit, Rigshospitalet, Copenhagen, Denmark.*

<sup>b</sup> *Faculty of Health and Medical Sciences, University of Copenhagen, Copenhagen, Denmark.*

<sup>c</sup> *Department of Clinical Physiology, Nuclear Medicine and PET, Rigshospitalet, Copenhagen, Denmark.*

<sup>d</sup> *Department of Drug Design and Pharmacology, Faculty of Health and Medical Sciences, University of Copenhagen, Copenhagen, Denmark.*

\* *Corresponding Author: Claus Svarer, Neurobiology Research Unit, Rigshospitalet N6931, Blegdamsvej 9, 2100 Copenhagen, Denmark. E-mail: claus.svarer@nru.dk.*

### Highlights (old highlights, new version below)

- A PET atlas of the domestic pig brain was constructed using MRI as reference
- Spatial normalization and delineation of brain regions on new PET scans was automated
- Only requires a perfusion-weighted image of the dynamic PET scan, no MRI required
- Applicable for radiotracers having different brain kinetics and spatial distributions
- Eliminates operator-dependent variation and increases accuracy and reproducibility

### Highlights

- Construction of a multimodality brain atlas for the domestic pig
- Automatized spatial normalization and delineation of brain regions on new PET scans
- The method uses a perfusion-weighted image of the dynamic PET scan
- Validated across radiotracers with different brain kinetics and spatial distributions
- Freely available to standardize pig PET image quantification

Download English Version:

<https://daneshyari.com/en/article/8840471>

Download Persian Version:

<https://daneshyari.com/article/8840471>

[Daneshyari.com](https://daneshyari.com)