Application Note

Bruker Albira Software Suite NMI 3.0 PET Isotope/Compound/Activity & Corresponding PMOD 4.3 SUV Parameters

Overview

Bruker PET systems may include the optional PMOD analysis software. Bruker PET datasets may be viewed and analyzed in PMOD. This note is intended to provide a basic description in how the Isotope/Compound and Dose study information entered in the Albira Software Suite NMI 3.0 corresponds to PMOD 4.3 SUV Parameter fields. **Note that Albira Software Suite NMI 3.0 images are reconstructed to the dose calibration time where "decay correction" is selected at reconstruction. It is intended that the Dose and Dose Calibration time entered at study registration are the activity and time as obtained using a dose calibrator.**

Albira Software Suite NMI 3.0: Compound/Dose Fields

Isotope/Compound and Dose information is registered in the Albira Software Suite NMI 3.0 for each study. Dose information is input during the initial study registration and can be viewed by right clicking the data Name in the list and selecting Compound Data (Figure 1). Albira Software Suite NMI 3.0 generates MicroPET format data that can be analyzed using PMOD.

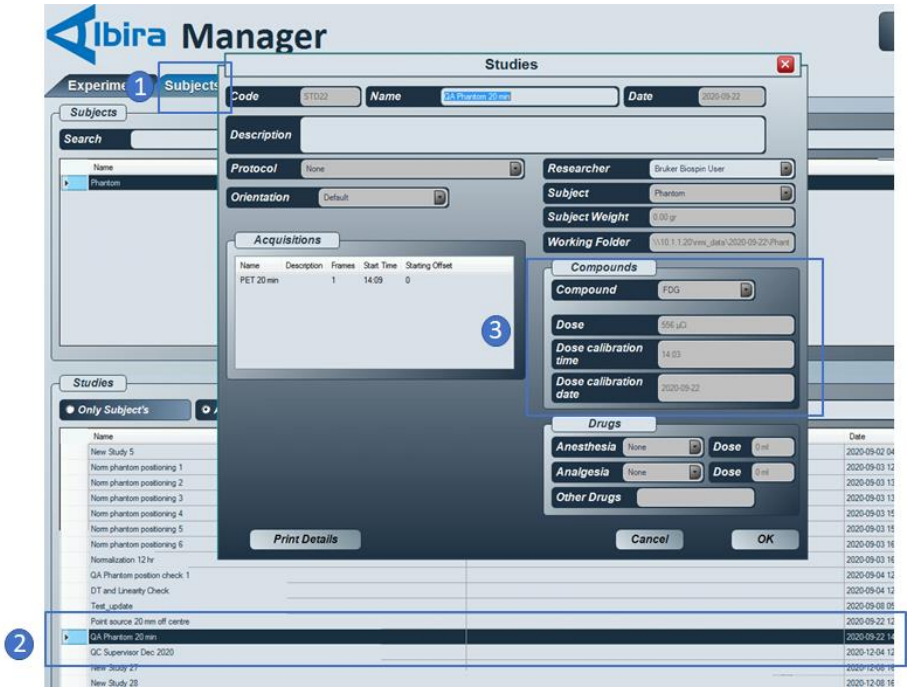

Figure 1. Albira Software Suite NMI 3.0 Compound/Dose Registration. To view information for an existing study 1) select the Subject and Studies Tab in the Albira Software Suite NMI 3.0 Manager view. 2) Double-click the relevant Study in the list. 3) The compound and Dose (activity in syringe at dose calibration time) is shown.

PMOD SUV Parameters

The MicroPET data viewed in PMOD will include dose details within the header. This will facilitate simple data analysis including VOI measurements such as %ID/g. The relevant parameters can be viewed at the SUV Parameters menu (Figure 2).

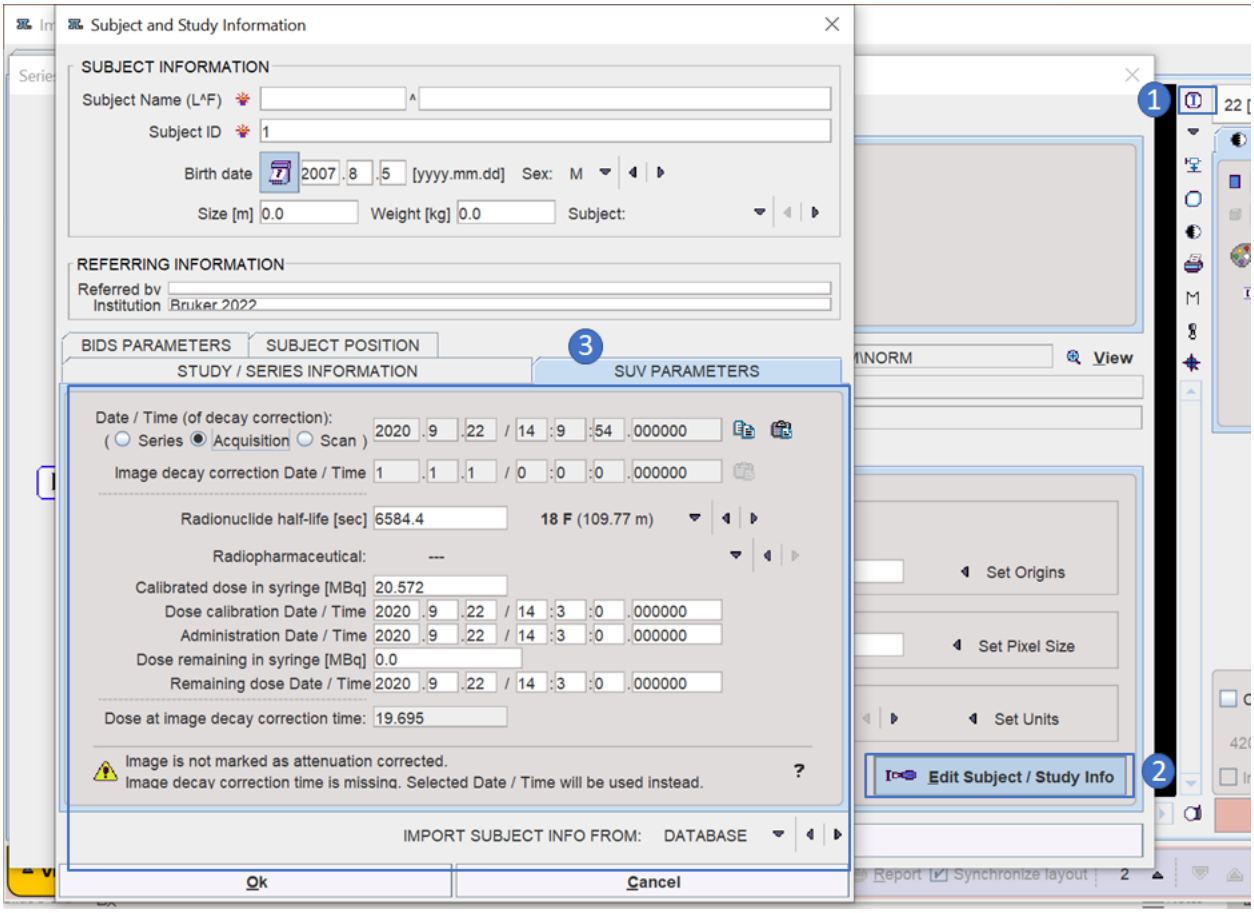

Figure 2. PMOD 4.3 Isotope/Compound/Dose Information. To view the PET Isotope/Compound/Dose header information, select 1) Information, 2) Edit Subject/Study Info and SUV Parameters.

The SUV Parameters dialogue shows two values for calibrated dose: 1) Calibrated dose in syringe (should match the activity entered in the Albira Suite during study registration), and 2) Dose at image decay correction time. Note that **Dose at image decay correction time is the activity that will be used in the SUV calculations within PMOD.** No image decay correction time is specifically stated in the MicroPET file header and incorrectly reads 1.1.1/0.0.0.0000, which will result in an incorrect value for Dose at image decay correction time. A simple way to adjust this is to copy the acquisition time value to the fields below before completing uptake analysis (Figure 3). (The user should not be concerned that the Image decay correction date/time now shows the same as the acquisition time. The image is decay corrected to the dose calibration time and adjusting this does not change the image units.) Figure 4 shows typical %ID/mL view for a cylinder phantom.

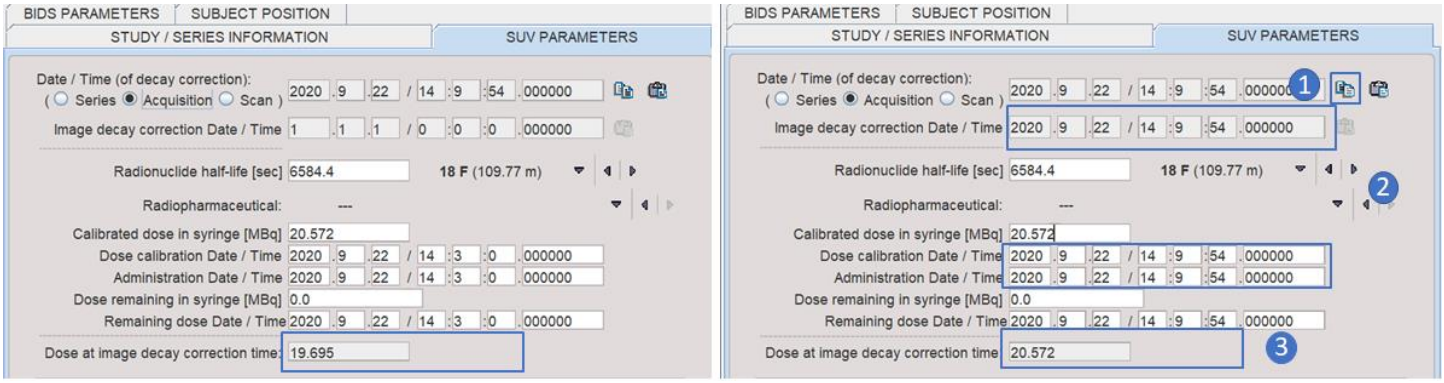

Figure 3. PMOD SUV Parameters before adjusting (left) and after adjusting (right) dose information. Dose at image decay correction time is the activity that will be used in the SUV calculations within PMOD. To adjust the Dose at image decay correction time the reference time needs to be adjusted by selecting the button 1) copy dose to fields. Check that the Image decay correction date/time and Dose calibration/administration time fields are now the same as the Acquisition time. The Dose at image decay correction time (3) should now match the value that was entered in the Albira Suite study registration.

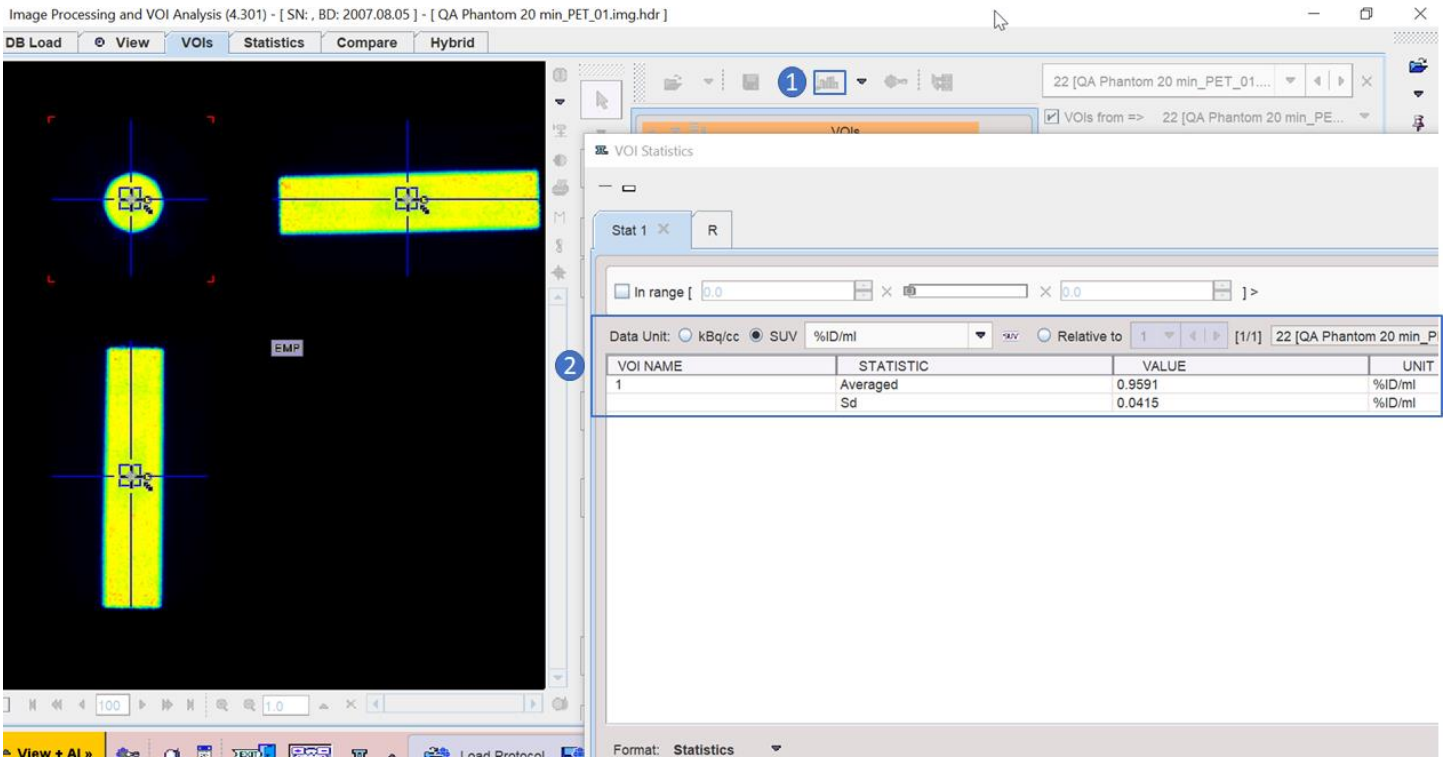

Figure 4. %ID/mL for dynamic frames for 18F loaded cylinder phantom. VOI is generated and 1) Statistics button is selected, 2) a Value is generated.