



SOFTWARE

# Educational Training Guide

## Albira Si Software Suite + PMOD Workflow Basics

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# Educational Training Guide

## Albira Si PET/SPECT/CT Study Workflows Basics

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# Albira Si Study Workflows

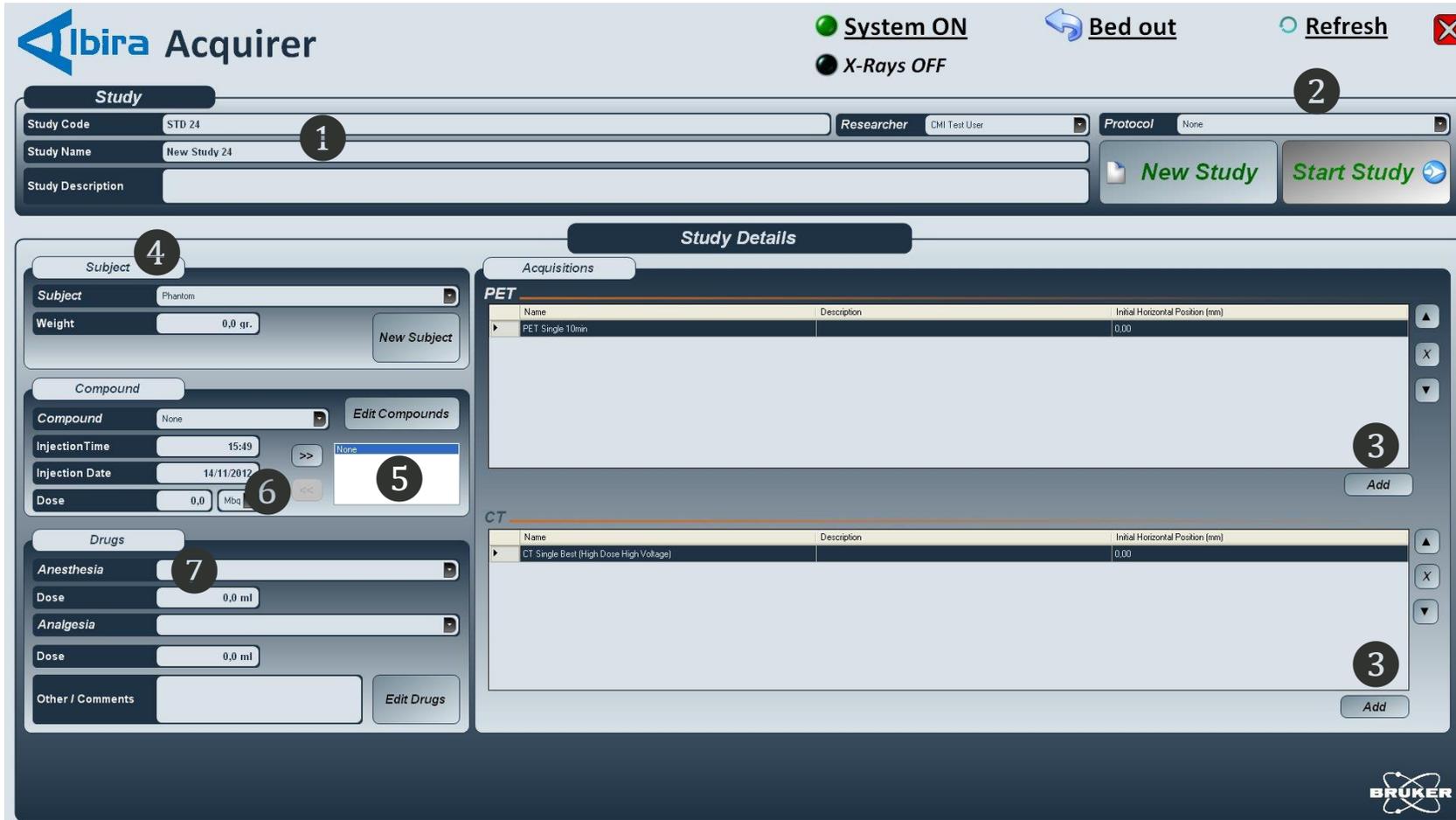
## 1. Albira Si Software Suite Modules



- 1. Acquirer.** Study Registration and scan acquisitions.
- 2. Reconstructor.** Location for reconstructing PET, SPECT, and CT data.
- 3. Manager.** Parameters and defining the various properties of samples and reagents.
- 4. Supervisor.** Quality control tool.

# Albira Si Study Workflows

## 2. Albira Acquirer – Initiating Study/Acquisition



**Albira Acquirer**

System ON | Bed out | Refresh | X-Rays OFF

**Study**

Study Code: STD 24 (1) | Researcher: CMI Test User | Protocol: None (2)

Study Name: New Study 24

Study Description

New Study | Start Study

**Study Details**

**Subject** (4)

Subject: Phantom

Weight: 0,0 gr-

New Subject

**Compound**

Compound: None

Edit Compounds

InjectionTime: 15:49

Injection Date: 14/11/2012 (6)

Dose: 0,0 Mbq (6)

None (5)

**Drugs** (7)

Anesthesia

Dose: 0,0 ml

Analgesia

Dose: 0,0 ml

Other / Comments

Edit Drugs

**Acquisitions**

**PET**

| Name             | Description | Initial Horizontal Position (mm) |
|------------------|-------------|----------------------------------|
| PET Single 10min |             | 0,00                             |

Add (3)

**CT**

| Name                                    | Description | Initial Horizontal Position (mm) |
|---|-------------|----------------------------------|
| CT Single Best (High Dose High Voltage) |             | 0,00                             |

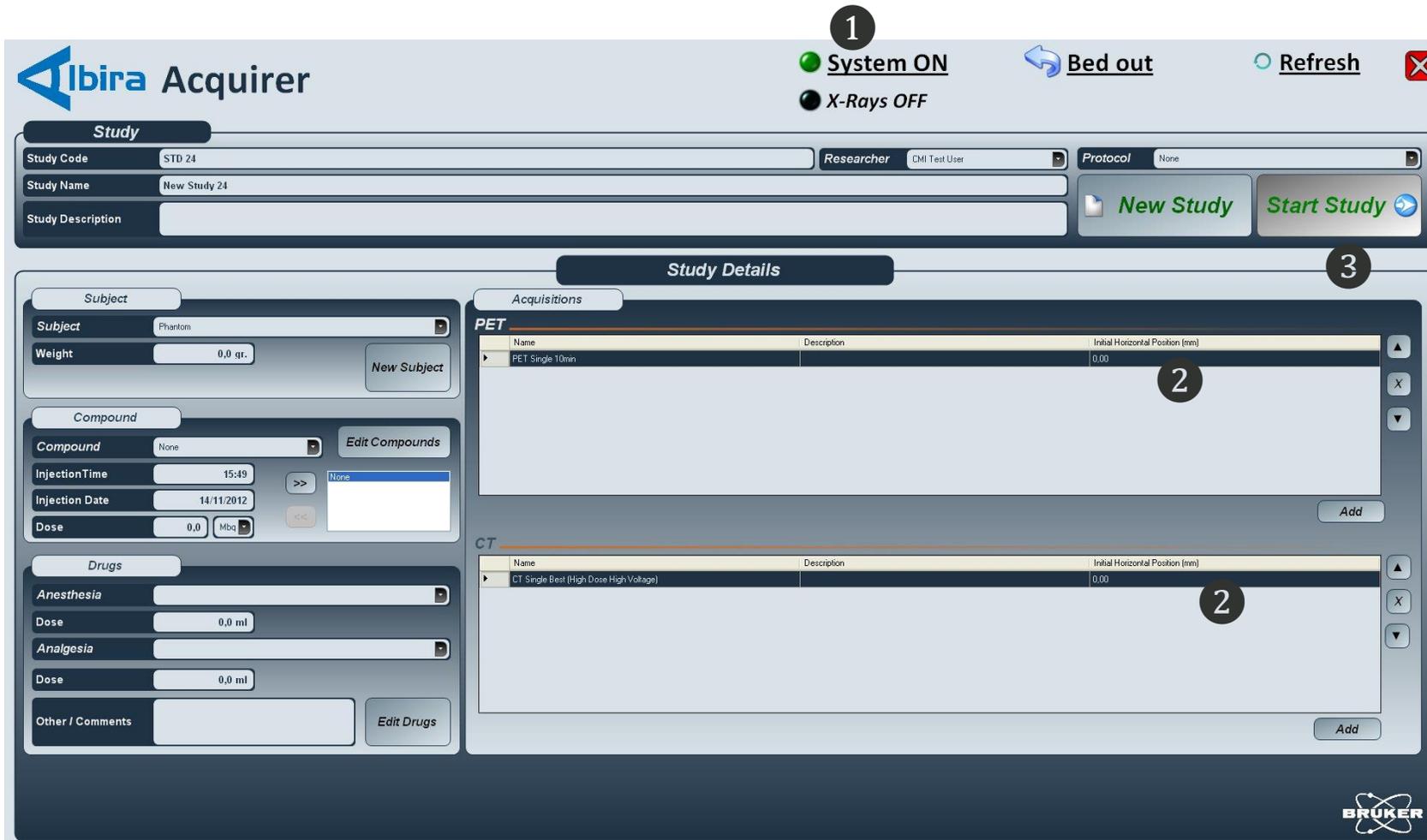
Add (3)

1. Enter a **Study Name**
2. Select a predefined PET/CT or SPECT/CT **Protocol**, OR
3. Select individual PET OR SPECT + CT Acquisitions using **Add**. **Required: See the Albira Si User Guide for details on Manager and defining custom parameters.**
4. Enter **Subject** details
5. Select the **Compound** (e.g. 18F-FDG or 18F-NaF) and move to the active position using the >> button
6. Input the activity at **Dose** calibration
7. Note **Drugs** (e.g. isoflurane) if desired

**Required:** In preparation for your animal study, complete the “PET Daily Point Source QA” at the start of each day. Include the CT scan protocol at the same time to ready warm up and flat-fielding.

# Albira Si Study Workflows

## 2. Albira Acquirer – Initiating Study/Acquisition



The screenshot shows the Albira Acquirer software interface. At the top, there are status indicators: a green dot next to 'System ON' (circled with '1'), a blue arrow next to 'Bed out', and a refresh icon next to 'Refresh'. Below this is the 'Study' section with fields for 'Study Code' (STD 24), 'Study Name' (New Study 24), and 'Study Description'. There are buttons for 'New Study' and 'Start Study'. The 'Study Details' section is divided into 'Subject' and 'Acquisitions'.

The 'Subject' section includes fields for 'Subject' (Phantom), 'Weight' (0,0 gr-), 'Compound' (None), 'InjectionTime' (15:49), 'Injection Date' (14/11/2012), 'Dose' (0,0 Mbc), 'Anesthesia' (0,0 ml), and 'Analgesia' (0,0 ml). There are buttons for 'New Subject', 'Edit Compounds', and 'Edit Drugs'.

The 'Acquisitions' section contains two tables: 'PET' and 'CT'. Both tables have columns for 'Name', 'Description', and 'Initial Horizontal Position (mm)'. The 'PET' table has one entry: 'PET Single 10min' with a position of 0,00. The 'CT' table has one entry: 'CT Single Best (High Dose High Voltage)' with a position of 0,00. Both entries have a circled '2' next to their position values. There are 'Add' buttons at the bottom of each table.

At the bottom right of the interface is the Bruker logo.

1. Select **System ON** to initialize if indicator is not already green.
2. Set the **Horizontal Position**. The position value (mm) should be the measured value from the front end of the cradle to the center of the target region. (A CT scout view may be initiated by selecting the “+” button).
3. Select **Start Study** to initiate scans.

# Albira Si Study Workflows

## 2. Albira Acquirer – PET Acquisition Status

1. **Status, Time/Activity Graph** (100-200 Instant kEvents/s typical)
2. **Progress** shows the estimated study and acquisition progress
3. Live video feed, **Bed Status** (horizontal position), and Ring Status are displayed

The screenshot displays the Albira Acquirer software interface during a PET acquisition. At the top, the status is 'System ON' and 'X-Rays OFF', with a 'Bed out' button and a 'Refresh' button. The 'Study' section shows 'Study Code: STD 1266', 'Study Name: New Study 1266', and 'Study Description'. The 'Stats' panel shows 'Acquisition kEvents: 50,568.1', 'Average kEvents/s: 21.03', and 'Instant kEvents/s: 18.90'. The 'Time/Activity Graph' shows a stable activity level around 20 kEvents/s over time. The 'Progress' panel shows 'Study' and 'Acquisition' both at 20% completion, with 'Study time' and 'Acquisition Time' at 00:00:59 and 'Remaining time' at 00:03:59. The 'Bed Status' panel shows a horizontal line with a vertical bar indicating position, and 'Bed offset' at 0.0 mm. The 'Ring Status' panel shows a circular diagram with 'Ring angle' at 0.0 degrees. A live video feed of the scanner's interior is also visible.

# Albira Si Study Workflows

## 2. Albira Acquirer – SPECT Acquisition Status

1. Status, Time/Activity Graph (1800-2200 Instant Events/s typical) and acquisition image for two cameras at current projection
2. Progress shows the estimated study and acquisition progress
3. Live video feed, Bed Status (horizontal position), and Ring Status are displayed

# Albira Si Study Workflows

## 2. Albira Acquirer – CT Acquisition Status

1. CT Projections shows the last 4 projections.
2. Progress shows the estimated study and acquisition progress.
3. Live video feed, Bed Status (horizontal position), and Ring Status are displayed



The screenshot displays the Albira Acquirer software interface. At the top, it shows system status: 'System ON' (green dot) and 'X-Rays ON' (red dot). There are also buttons for 'Bed out', 'Refresh', and a close icon. Below this is a 'Study' section with fields for 'Study Code' (STD 1261), 'Study Name' (New Study 1261), and 'Study Description'. There are also dropdown menus for 'Researcher' (Test) and 'Protocol' (None), along with 'Go Back' and 'Stop Study' buttons.

The main area is titled 'CT Acquisition' and is divided into several sections:

- Stats:** Shows 'Projection' (33/600), 'CT Settings' (45 kV 0.7 mA), and 'Temperature' (0,00).
- CT Projections:** A row of four projection images labeled 'Projection 30', 'Projection 31', 'Projection 32', and 'Projection 33'. A circled '1' is placed above this section.
- Progress:** Shows 'Study' progress at 5% and 'Acquisition' progress at 5%. It also displays 'Study time' (00:01:57), 'Acquisition Time' (00:01:57), and 'Remaining time' (00:19:00). A circled '2' is placed above this section.
- Bed Status:** A graph showing the bed's vertical position over time. The y-axis is labeled 'O u t' and the x-axis is 'D o w n'. A vertical shaded bar indicates the current bed position. A circled '3' is placed above this section.
- Ring Status:** Shows a live video feed of the CT ring, a 'Ring angle' of 19,8°, and a 'Bed offset' of 0,0 mm.

# Albira Si Study Workflows

## 3. Albira Reconstructor – Standard Reconstruction



**1** Select Pending or All.

**2** Highlight the Study in the list.

**3** Select Add >.

**4** Select Start Reconstruction.

Progress indicators will appear. **Tip: Reconstruction parameters applied are using this selection are as defined in the selected Acquisition protocol defined in the Manager module.**

| Name                 | Date                | Subject |
|----------------------|---------------------|---------|
| SPECT Gated 2D Test2 | 23/10/2012 15:56:26 | Mouse   |
| SPECT Gated 2D Test1 | 23/10/2012 14:27:50 | Mouse   |
| 0                    | 22/10/2012 15:04:50 | Phantom |
| Test gated Rat 1     | 22/10/2012 11:46:39 | Mouse   |
| Test gated 9 PET H 0 | 22/10/2012 11:11:46 | Mouse   |
| Norm 0-1-2           | 21/10/2012 21:51:43 | Mouse   |
| Ring 0-1-2           | 21/10/2012 9:26:18  | Mouse   |
| Normalfactor Ring1-2 | 19/10/2012 16:55:02 | Mouse   |
| Test gated 7 RAW     | 19/10/2012 16:28:47 | Mouse   |

1. Select **Pending** or **All**.

2. Highlight the Study in the list.

3. Select **Add >**.

4. Select **Start Reconstruction**.  
Progress indicators will appear. **Tip: Reconstruction parameters applied are using this selection are as defined in the selected Acquisition protocol defined in the Manager module.**

SOFTWARE

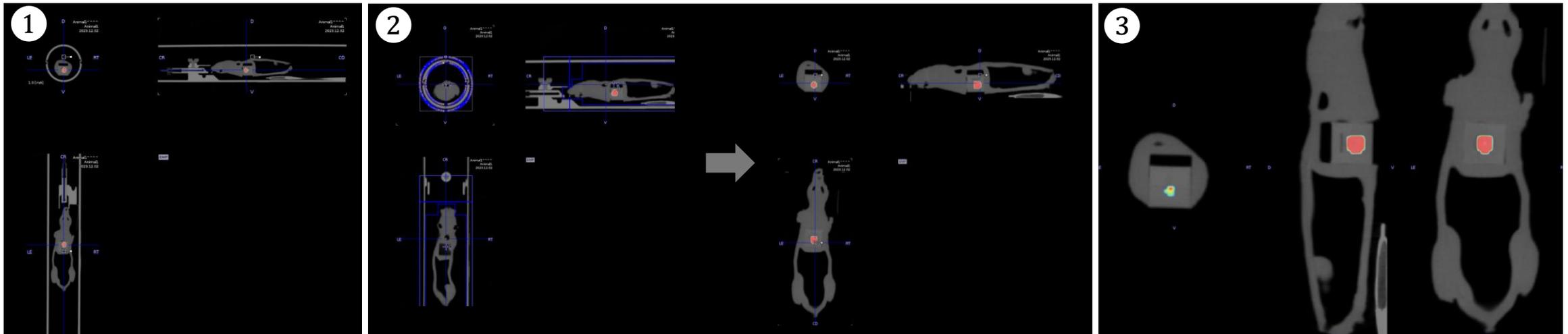
# Educational Training Guide

## Albira Si & PMOD Multimodal Image Fusion & Display Workflows

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# Albira Si: PMOD Multimodal Image Fusion & Display Workflow Basics

- 1. Multimodal Image Fusion.** Workflow for fusion of PET OR SPECT data to CT data.
- 2. Multimodal Image Masking.** Process for subtraction of hardware components in CT image.
- 3. Multimodal Image Display.** Workflow for Image Capture of Linear and/or MIP image display.



**Tip:** Begin by referencing the “PMOD File Management & Starting Reference For Bruker PET Data” to configure default application menus for simple workflows.

# Albira Si: PMOD Multimodal Image Fusion & Display

## 1. Importing Albira Si MicroPET Datasets

1. **PMOD PFUS.** Open the PMOD PFUS module.
2. Select **“Load Select Data”** button to access the database.
3. Select **“Import>AUTODETECT”**.
4. Select **“Set Input Files”**
5. Select the PET/CT or SPECT/CT study files **Tip: Use “forFusion or Fusion file version where available”**. Select **“Add to Selected”**.
6. Select **“Start Import”**.

**Subjects [23]**

| Subject Name        | Subject ID            | Modification Date       | Sex | Date of Birth |
|---------------------|-----------------------|-------------------------|-----|---------------|
| Animal1             | Animal1               | 2024-03-01 10:22:40.376 |     | 2024.02.09    |
| Service             | BrukerService         | 2024-02-29 20:51:15.693 | O   | 2024.02.12    |
| PET module          | PET module            | 2024-02-29 17:45:14.661 | O   | 2024.02.13    |
| Feb 2 CT Service    | Feb 2 CT Service      | 2024-02-08 14:48:41.605 | O   | 2024.02.02    |
| APOEM3              | Arota-2               | 2024-01-30 07:05:11.927 | O   | 2022.10.21    |
| APOEM4              | Arota-1               | 2024-01-29 17:37:07.903 | O   | 2022.10.21    |
| Control             | Arota                 | 2024-01-29 17:00:42.217 | O   | 2022.10.21    |
| FusePETCT           | 142-4-1               | 2024-01-29 14:02:22.702 | M   | 2022.01.17    |
| 4 mouse ct protocol | 4 mouse ct protocol   | 2024-01-24 14:41:59.276 | O   | 2023.12.03    |
| CTRadBodyStitching  | CTRadBodyStitching    | 2024-01-08 12:31:27.892 | O   | 2023.04.15    |
| 3MOUSE_F1B_SCAN     | 1.2.3                 | 2023-12-12 14:22:18.971 | O   | 2023.02.01    |
| Companion           | 4 mouse ct protocol-1 | 2023-12-12 13:52:09.389 | O   | 2023.12.03    |
| RatBodyPETCT        | RatBody1              | 2023-11-20 15:10:06.198 | O   | 2023.02.03    |
| Ethel C11DPA        | Ethel C11DPA          | 2023-11-08 12:13:26.178 | O   | 2019.11.15    |

**Series [7]**

| Study Description | Subject Name | Study Date | Study Time | Series Date | Series Time | Series Description   | Modification       | Last Use            | Mod |
|-------------------|--------------|------------|------------|-------------|-------------|--|--------------------|---------------------|-----|
| Day 10            | Animal1      | 2024.03.01 | 10:03:11   | 2024.03.01  | 10:22:18    | 1 stitched volumes, QuantRange, CmbSmooth, ChkStruct, GrdS | 2024-03-01 10:22:4 | 2024-03-01 10:22:18 | PT  |
| Day 1             | Animal1      | 2024.03.01 | 08:51:55   | 2024.03.01  | 09:30:07    | 1 stitched volumes, QuantRange, CmbSmooth, ChkStruct, GrdS | 2024-03-01 10:12:1 | 2024-03-01 10:12:1  | PT  |
| Day 1             | Animal1      | 2024.03.01 | 08:51:55   | 2024.03.01  | 08:51:56    | ATS reference image  | 2024-03-01 10:12:1 | 2024-03-01 10:12:1  | CT  |
| Day 1             | Animal1      | 2024.03.01 | 08:51:55   | 2024.03.01  | 09:28:46    | AnatomicalReferenceStandardDoseMultiPositionAC             | 2024-03-01 10:12:1 | 2024-03-01 10:12:1  | PT  |
| Day 1             | Animal1      | 2024.03.01 | 08:51:55   | 2024.03.01  | 08:51:55    | PETMultiPositionAC   | 2024-03-01 10:12:1 | 2024-03-01 10:12:1  | PT  |
| Day 1             | Animal1      | 2024.03.01 | 08:51:55   | 2024.03.01  | 08:51:55    | AnatomicalReferenceStandardDoseMultiPositionAC             | 2024-03-01 10:12:1 | 2024-03-01 10:12:1  | CT  |

# Albira Si: PMOD Multimodal Image Fusion & Display

## 1. Multimodal Image Fusion Data Loading

**1** Fusion Load Matching Comparison MIP

**2** DATABASE DICOM AUTODETECT

**3** Subject Name: Animal1, Subject ID: Animal1, Modification Date: 2024-03-01 10:22:40.376

| Subject Name        | Subject ID            | Modification Date       | Sex | Date of Birth |
|---------------------|-----------------------|-------------------------|-----|---------------|
| Animal1             | Animal1               | 2024-03-01 10:22:40.376 | 0   | 2023.12.02    |
| Service             | BrukerService         | 2024-02-29 20:51:15.693 | 0   | 2024.02.12    |
| PET module          | PET module            | 2024-02-29 17:45:14.691 | 0   | 2024.02.13    |
| Feb 2 CT Service    | Feb 2 CT Service      | 2024-02-08 14:48:41.605 | 0   | 2024.02.02    |
| APQEM3              | Arota-2               | 2024-01-30 07:05:11.927 | 0   | 2022.10.21    |
| APQEM4              | Arota-1               | 2024-01-29 17:37:07.903 | 0   | 2022.10.21    |
| Control             | Arota                 | 2024-01-29 17:00:42.217 | 0   | 2022.10.21    |
| FusedPETCT          | 142-4-1               | 2024-01-29 14:02:22.702 | M   | 2022.10.17    |
| 4 mouse ct protocol | 4 mouse ct protocol   | 2024-01-24 14:41:59.276 | 0   | 2023.12.03    |
| CTRatBodyStitching  | CTRatBodyStitching    | 2024-01-08 12:31:27.982 | 0   | 2023.04.15    |
| 3MOUSE_F1B_SCAN     | 1,2,3                 | 2023-12-12 14:22:18.971 | 0   | 2023.02.01    |
| Comparison          | 4 mouse ct protocol-1 | 2023-12-12 13:52:09.389 | 0   | 2023.12.03    |
| RatBodyPETCT        | RatBody-1             | 2023-11-20 15:10:06.198 | 0   | 2023.02.03    |
| Ethel_C11DPA        | Ethel_C11DPA          | 2023-11-08 12:13:26.178 | 0   | 2019.11.15    |

**4** Series [7]

| Study Description | Subject Name | Study Date | Study Time | Series Date | Series Time | Series Description   | Modification       | Last Use         | Mod |
|-------------------|--------------|------------|------------|-------------|-------------|--|--------------------|------------------|-----|
| Day 10            | Animal1      | 2024.03.01 | 10:03:11   | 2024.03.01  | 10:22:18    | 1 stitched volumes, QuantRange, CmbSmooth, ChkStrict, Grds | 2024-03-01 10:22:4 | 2024-03-01 10:10 | PT  |
| Day 10            | Animal1      | 2024.03.01 | 10:03:11   | 2024.03.01  | 09:30:07    | AnatomicalReferenceStandardDoseMultiPositionAC             | 2024-03-01 10:13:1 | 2024-03-01 10:10 | CT  |
| Day 1             | Animal1      | 2024.03.01 | 08:51:55   | 2024.03.01  | 08:51:56    | 1 stitched volumes, QuantRange, CmbSmooth, ChkStrict, Grds | 2024-03-01 10:12:1 | 2024-03-01 10:10 | PT  |
| Day 1             | Animal1      | 2024.03.01 | 08:51:55   | 2024.03.01  | 08:51:56    | ATS reference image  | 2024-03-01 10:12:1 | 2024-03-01 10:10 | OT  |
| Day 1             | Animal1      | 2024.03.01 | 08:51:55   | 2024.03.01  | 09:28:46    | AnatomicalReferenceStandardDoseMultiPositionAC             | 2024-03-01 10:12:C | 2024-03-01 10:10 | CT  |
| Day 1             | Animal1      | 2024.03.01 | 08:51:55   | 2024.03.01  | 09:28:46    | PETMultiPositionAC   | 2024-03-01 10:12:C | 2024-03-01 10:10 | PT  |
| Day 1             | Animal1      | 2024.03.01 | 08:51:55   | 2024.03.01  | 09:28:46    | AnatomicalReferenceStandardDoseMultiPositionAC             | 2024-03-01 10:12:C | 2024-03-01 10:10 | CT  |

**5** Selected for loading [2] Components Administration [307]

| Subject Name | Study Date | Study Time | Series Date | Series Time | Study Description | Modification                                   | Last Use           | Mod              | nt | nz | nx  |     |
|--------------|------------|------------|-------------|-------------|-------------------|--|--------------------|------------------|----|----|-----|-----|
| Animal1      | 2024.03.01 | 10:03:11   | 2024.03.01  | 10:22:18    | Day 10            | AnatomicalReferenceStandardDoseMultiPositionAC | 2024-03-01 10:13:1 | 2024-03-01 10:10 | CT | 1  | 971 | 384 |
| Animal1      | 2024.03.01 | 10:03:11   | 2024.03.01  | 10:22:18    | Day 10            | 1 stitched volumes, Quant                      | 2024-03-01 10:22:4 | 2024-03-01 10:10 | PT | 1  | 307 | 120 |

1. **PMOD PFUS.** Open the PMOD PFUS module.
2. Select **“Load Select Data”** button to access the database.
3. Select the **Subject Name** from the menu (in this Example Animal 1).
4. Highlight a PET/CT or SPECT/CT in the **Series** menu. **Select Add Selected series.**
5. Set the Anatomical (CT) to the top and PET (PT) to bottom in the menu before opening using the arrow key at right.

# Albira Si: PMOD Multimodal Image Fusion & Display

## 1. Multimodal Image Fusion Data Loading

The screenshot shows the PMOD software interface with several data tables. A red circle '1' highlights the 'Open' button in the 'Selected for loading' table. A red circle '2' highlights the 'Load Image Processing Macro' button in the top right. A red circle '3' highlights the 'Retrieve' button in the bottom right.

| Subject Name        | Subject ID            | Modification Date       | Sex | Date of Birth |
|---------------------|-----------------------|-------------------------|-----|---------------|
| Arnie1              | Arnie1                | 2024-03-01 10:22:40.976 |     | 2023.12.02    |
| Service             | Bruker Service        | 2024-02-29 20:51:15.693 | 0   | 2024.02.12    |
| PET module          | PET module            | 2024-02-29 17:45:14.691 |     | 2024.02.12    |
| Feb 2 CT Service    | Feb 2 CT Service      | 2024-02-08 14:48:41.605 | 0   | 2024.02.02    |
| APQEM3              | Arota-2               | 2024-01-30 07:05:11.927 | 0   | 2022.10.21    |
| APQEM4              | Arota-1               | 2024-01-29 17:37:07.903 | 0   | 2022.10.21    |
| Control             | Arota                 | 2024-01-29 17:00:42.217 | 0   | 2022.10.21    |
| FusedPETCT          | 142-41                | 2024-01-29 14:02:22.702 | 0   | 2022.01.17    |
| 4 mouse ct protocol | 4 mouse ct protocol   | 2024-01-24 14:41:59.976 | 0   | 2023.12.03    |
| CTRatBodyStitching  | CTRatBodyStitching    | 2024-01-08 12:31:27.982 | 0   | 2023.04.15    |
| 3MOUSE_F18_SCAN     | 1.2.3                 | 2023-12-12 14:22:18.971 | 0   | 2023.02.01    |
| Comparison          | 4 mouse ct protocol-1 | 2023-12-12 13:52:09.989 | 0   | 2023.12.03    |
| RatBodyPETCT        | RatBody-1             | 2023-11-20 15:10:06.198 | 0   | 2023.02.03    |
| Ethel_C11DPA        | Ethel_C11DPA          | 2023-11-08 12:12:26.178 | 0   | 2019.11.15    |

| Study Description | Subject Name | Study Date | Study Time | Series Date | Series Time | Series Description   | Modification       | Last Use            | Mod |
|-------------------|--------------|------------|------------|-------------|-------------|--|--------------------|---------------------|-----|
| Day 10            | Animal1      | 2024.03.01 | 10:03:11   | 2024.03.01  | 10:22:18    | 1 stitched volumes, QuantRange, CmbSmooth, ChkStrict, Grds | 2024-03-01 10:22:4 | 2024-03-01 10:10:10 | PT  |
| Day 10            | Animal1      | 2024.03.01 | 10:03:11   | 2024.03.01  | 10:22:18    | AnatomicalReferenceStandardDoseMultiPositionAC             | 2024-03-01 10:12:1 | 2024-03-01 10:10:10 | CT  |
| Day 1             | Animal1      | 2024.03.01 | 08:51:55   | 2024.03.01  | 09:30:07    | 1 stitched volumes, QuantRange, CmbSmooth, ChkStrict, Grds | 2024-03-01 10:12:1 | 2024-03-01 10:10:10 | PT  |
| Day 1             | Animal1      | 2024.03.01 | 08:51:55   | 2024.03.01  | 08:51:56    | ATS reference image  | 2024-03-01 10:12:1 | 2024-03-01 10:10:10 | OT  |
| Day 1             | Animal1      | 2024.03.01 | 08:51:55   | 2024.03.01  | 08:51:55    | AnatomicalReferenceStandardDoseMultiPositionAC             | 2024-03-01 10:12:1 | 2024-03-01 10:10:10 | CT  |
| Day 1             | Animal1      | 2024.03.01 | 08:51:55   | 2024.03.01  | 09:28:46    | PETMultiPositionAC   | 2024-03-01 10:12:1 | 2024-03-01 10:10:10 | PT  |
| Day 1             | Animal1      | 2024.03.01 | 08:51:55   | 2024.03.01  | 08:51:55    | AnatomicalReferenceStandardDoseMultiPositionAC             | 2024-03-01 10:12:1 | 2024-03-01 10:10:10 | CT  |

| Subject Name | Study Date | Study Time | Series Date | Series Time | Study Description | Series Description   | Modification       | Last Use            | Mod | nt | nz  | nx  |
|--------------|------------|------------|-------------|-------------|-------------------|--|--------------------|---------------------|-----|----|-----|-----|
| Animal1      | 2024.03.01 | 10:03:11   | 2024.03.01  | 10:22:18    | Day 10            | AnatomicalReferenceStandardDoseMultiPositionAC             | 2024-03-01 10:12:1 | 2024-03-01 10:10:10 | CT  | 1  | 971 | 384 |
| Animal1      | 2024.03.01 | 10:03:11   | 2024.03.01  | 10:22:18    | Day 10            | 1 stitched volumes, QuantRange, CmbSmooth, ChkStrict, Grds | 2024-03-01 10:22:4 | 2024-03-01 10:10:10 | PT  | 1  | 307 | 120 |

1. If this is the first instance of opening the data after Import, select with **Operations** to apply initial image rotations and orientations\*.

2. Select the “**Load Image Processing Macro**” button.

3. Select your Image Macro in the list and select “**Retrieve**”.

\*Required: Define a Macro with appropriate image rotations and orientations to enable subsequent processing. See “PMOD File Management & Starting Reference For Bruker PET Data”.

# Albira Si: PMOD Multimodal Image Fusion & Display

## 1. Multimodal Image Fusion

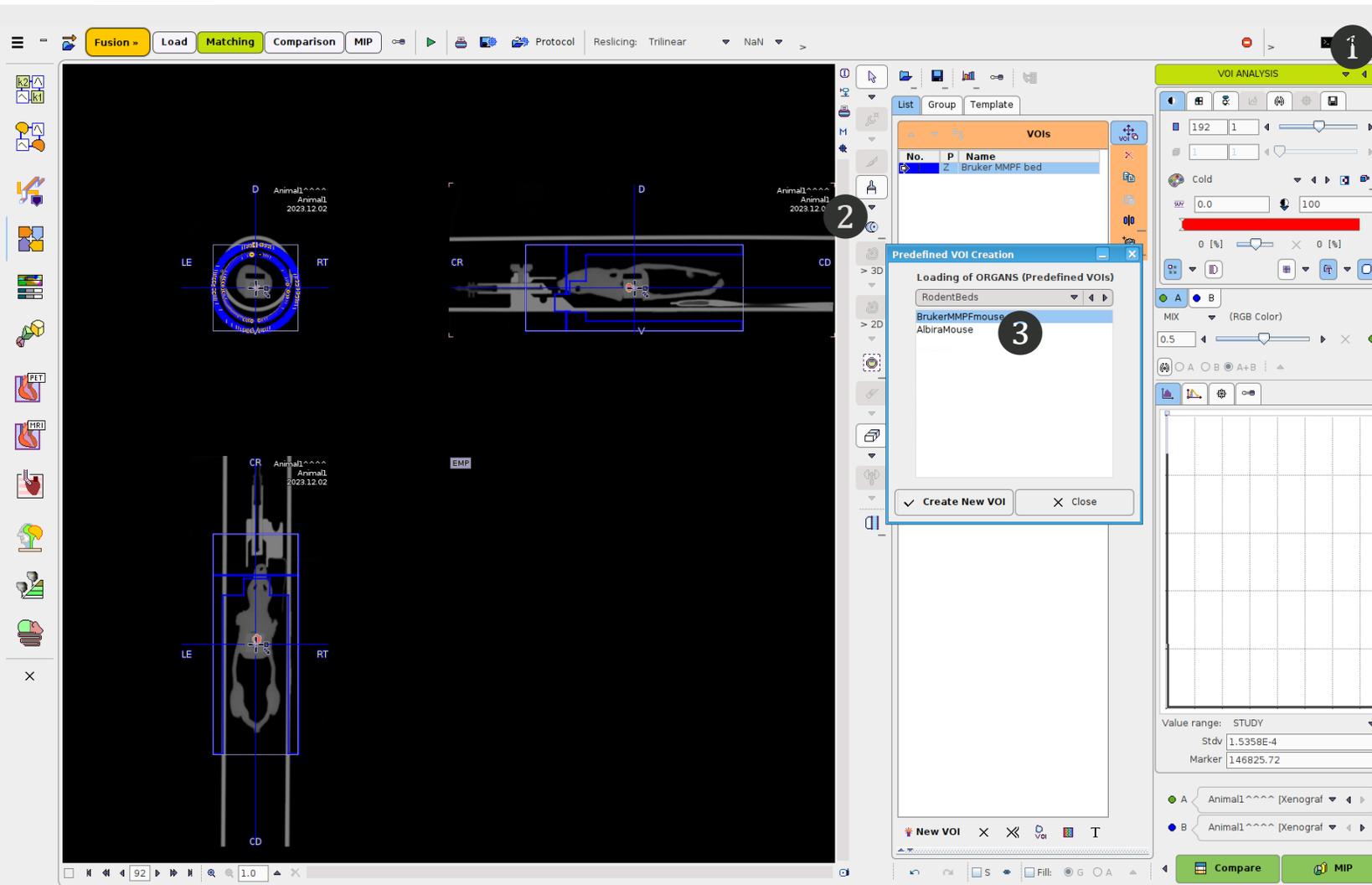


**1. Reference & Matching.** Select Reference & Matching in the pull-down menu to display PET fused to the CT (or MR).

**2. INP & REF.** Toggle between INP & REF tabs for image controls for the PET & CT (or 3D MR) Respectively. Adjust image display as desired.

# Albira Si: PMOD Multimodal Image Fusion & Display

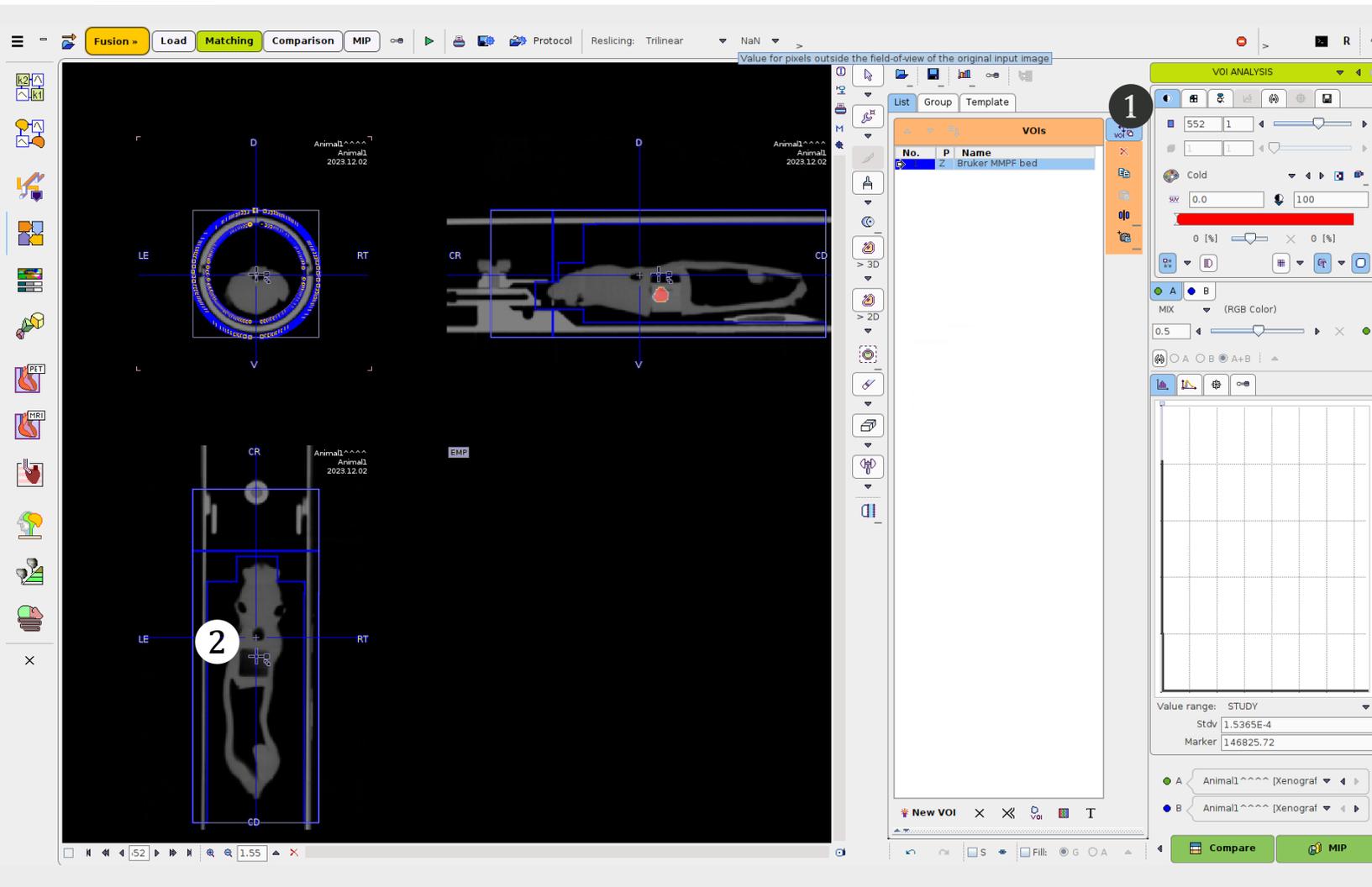
## 2. Multimodal Image Masking



1. **VOI Analysis.** Select **VOI ANALYSIS** in the pull-down menu.
2. **Create Regular VOI.** Place the orthogonal crosshairs in the image center. To create a VOI based on the Bruker MMPF cradle, first select **Create Regular VOI > Organs (Predefined VOI)**.
3. **Select Rodent Beds > Bruker MMPF Mouse.**

# Albira Si: PMOD Multimodal Image Fusion & Display

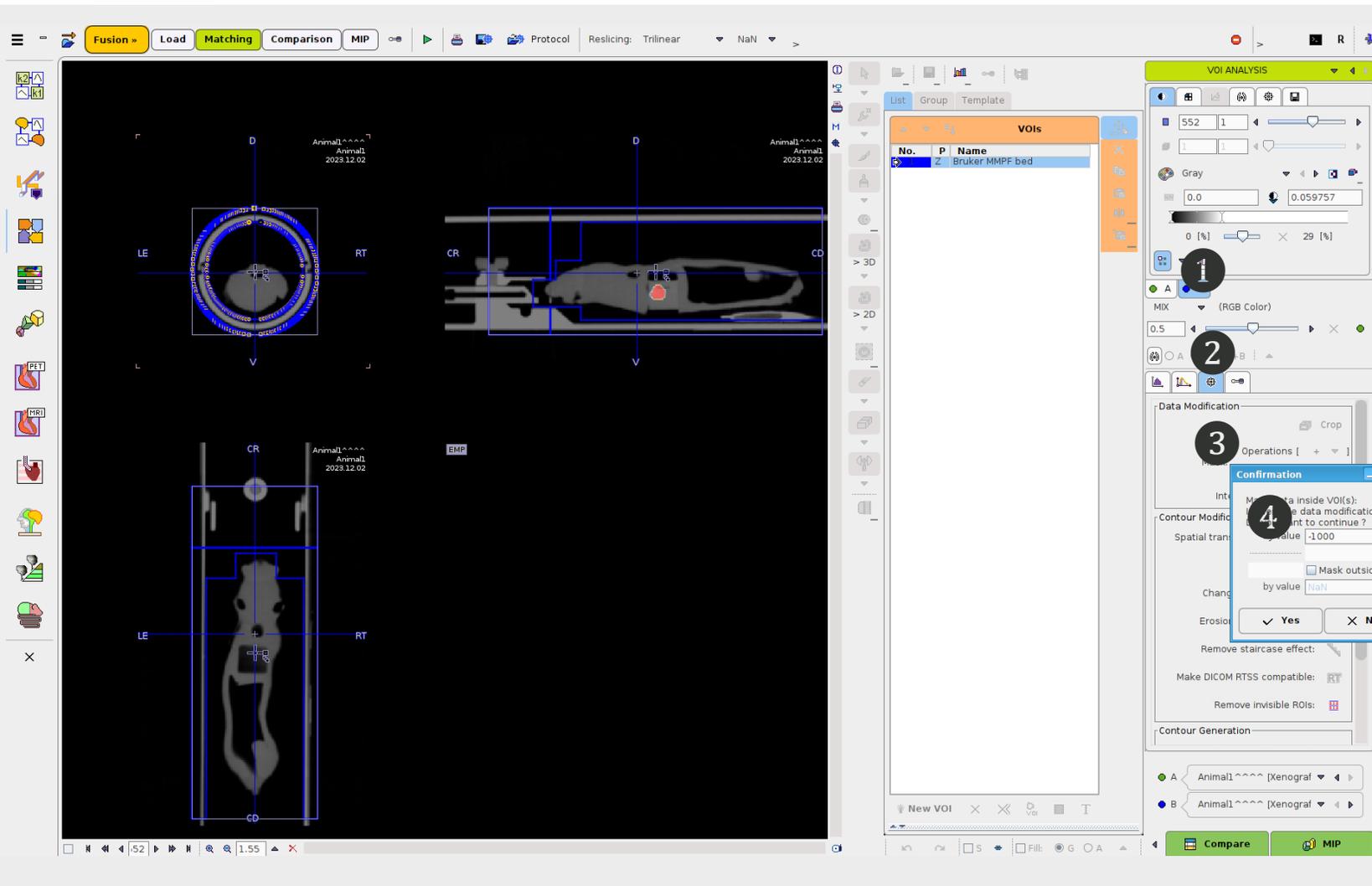
## 2. Multimodal Image Masking



1. **Operation on Entire VOI.** Select the **Operation on Entire VOI** button.
2. **Drag the VOI at the crosshair** to align with the cradle.

# Albira Si: PMOD Multimodal Image Fusion & Display

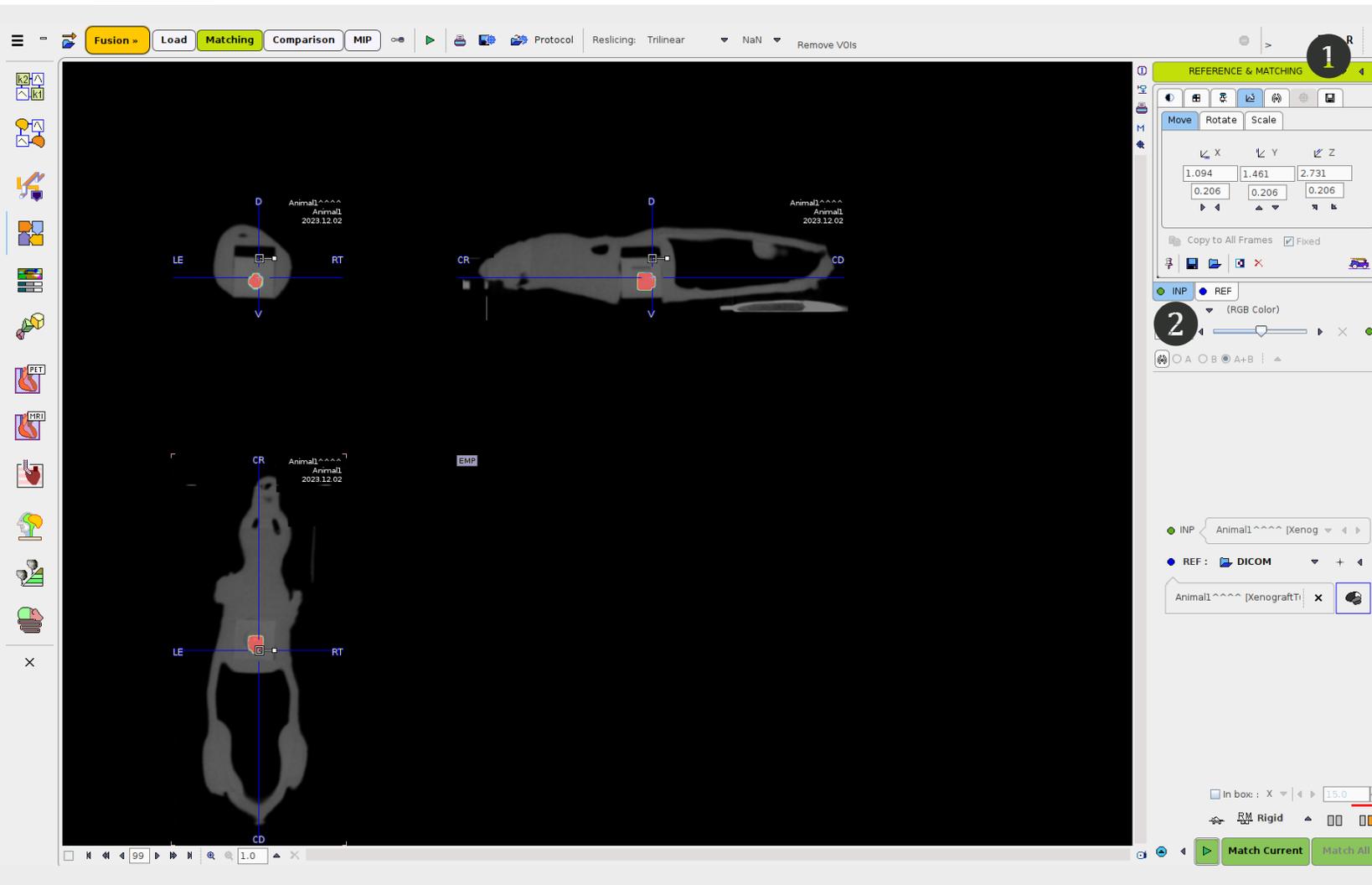
## 2. Multimodal Image Masking



1. **Tab B.** Select Tab B to set the current active working image data to the CT (or 3D MR) data.
2. **Masking Tab.** Select the “Masking...” tab.
3. **Mask In.** Select the “Mask voxels inside selected VOI(s)” button.
4. For Hounsfield calibrated CT enter “-1000” in the dialogue, and select yes.

# Albira Si: PMOD Multimodal Image Fusion & Display

## 3. Multimodal Image Display

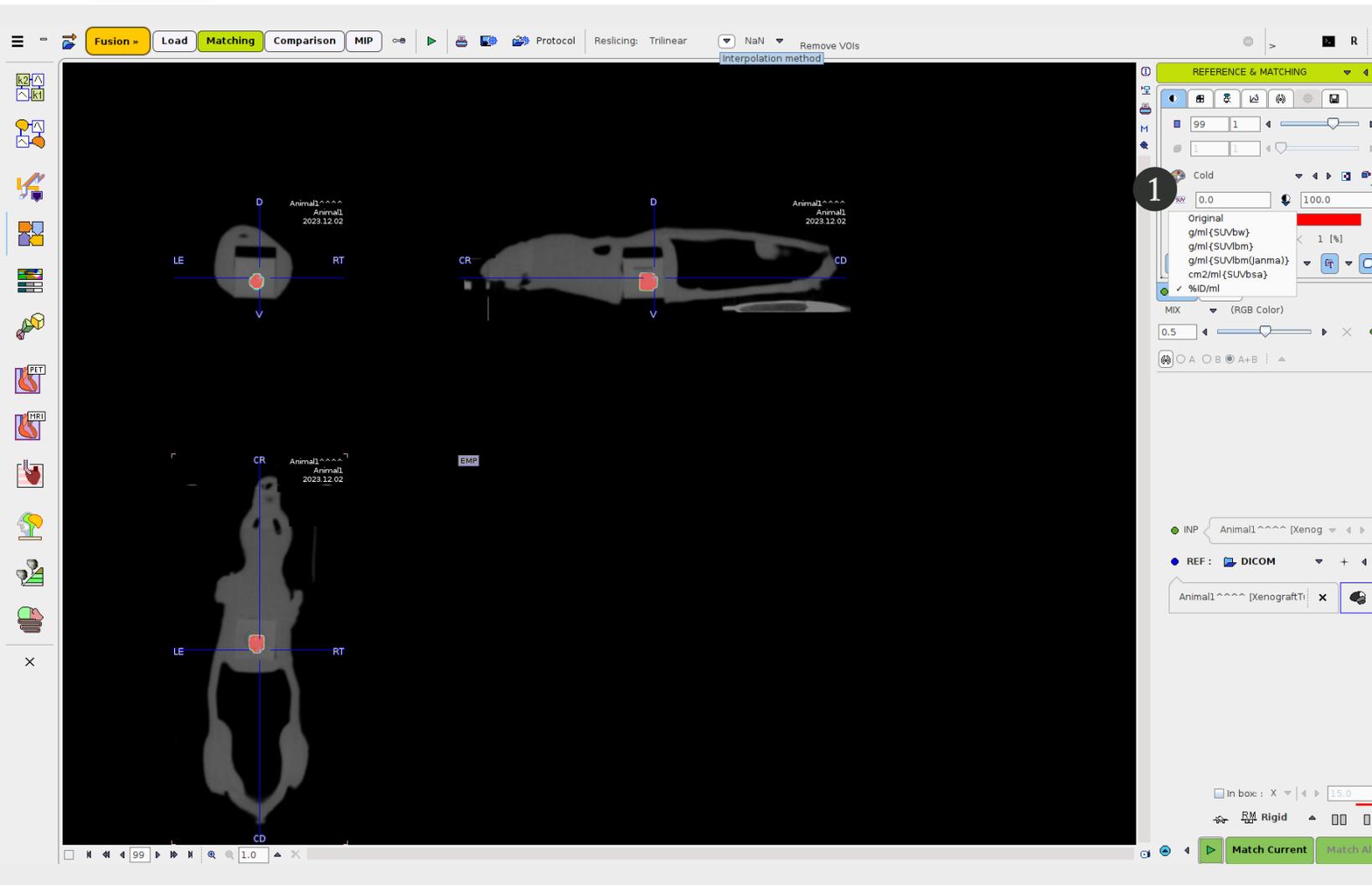


**1. Reference & Matching.** Select in the pull-down menu to display PET fused to the CT.

**2. INP & REF.** Toggle between the tabs to adjust contrast for the PET & CT images as desired.

# Albira Si: PMOD Multimodal Image Fusion & Display

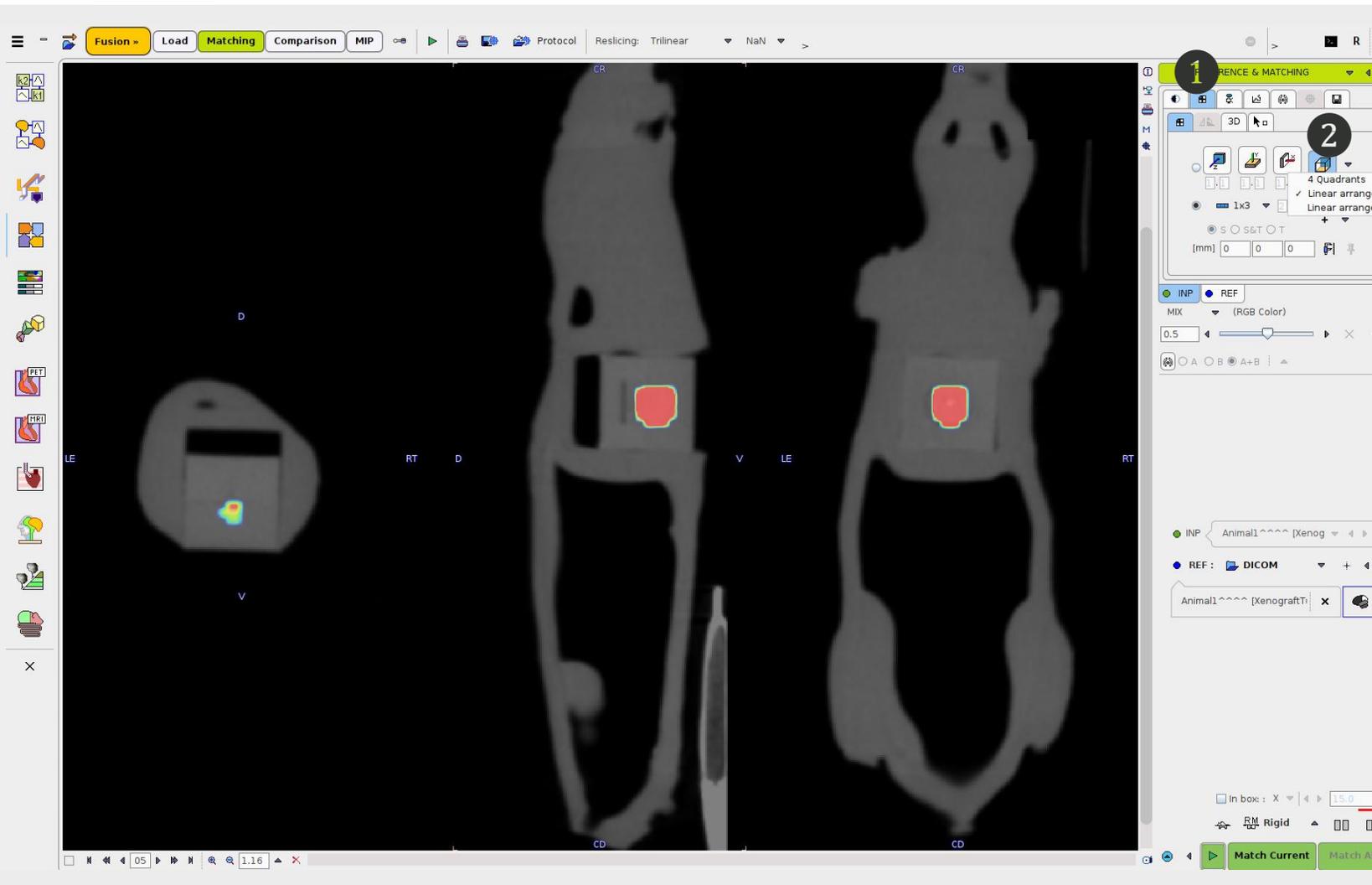
## 3. Multimodal Image Display



1. **SUV.** If not already predefined in the PFUS application menu, select the unit for display. This is often %ID/ml.

# Albira Si: PMOD Multimodal Image Fusion & Display

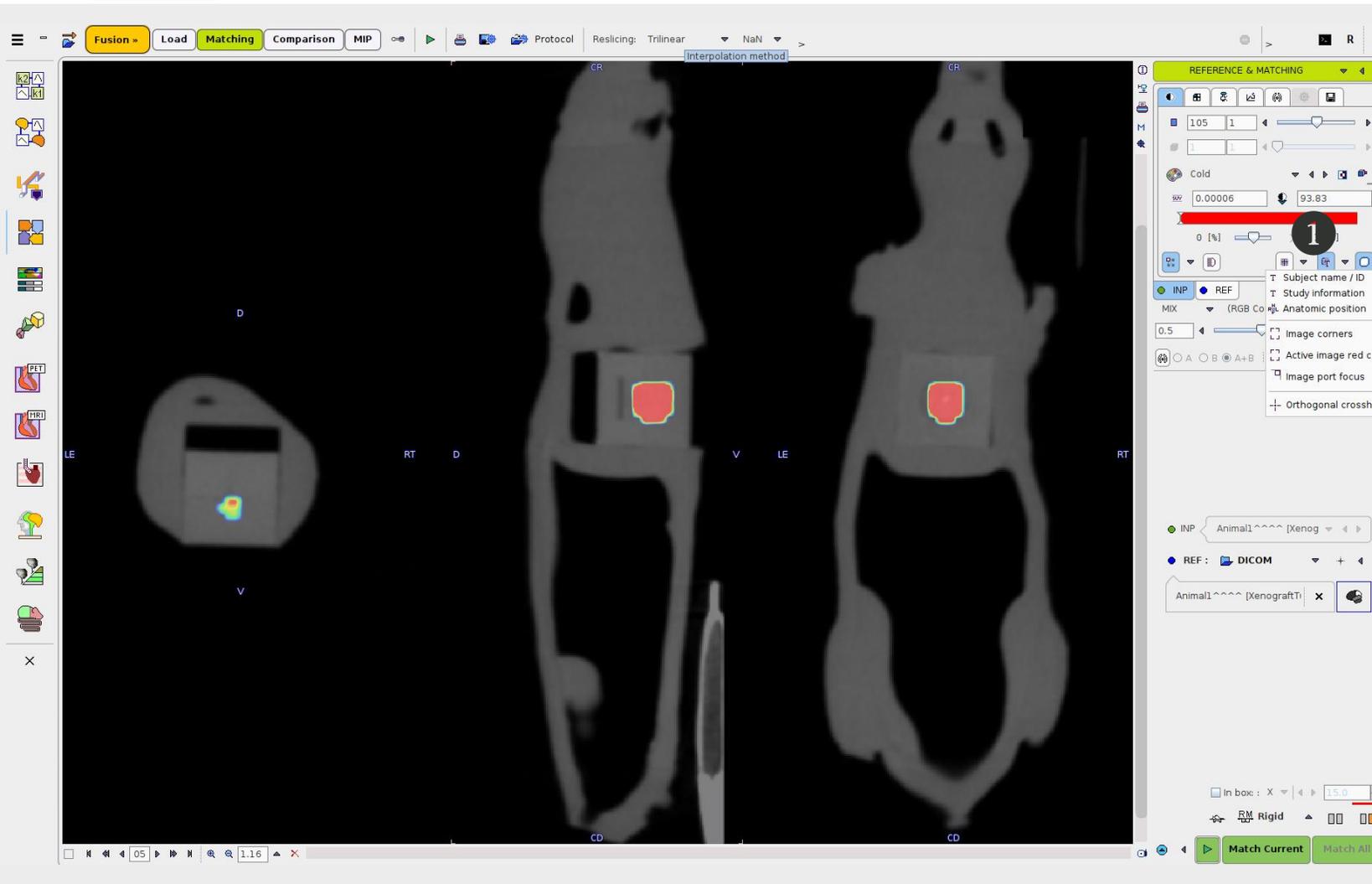
## 3. Multimodal Image Display



1. **Image Display Layouts.** Select the **Image Display Layout** tab.
2. **Linear Arrangement.** Select the **Linear arrangement** display selection, common for display in figures.

# Albira Si: PMOD Multimodal Image Fusion & Display

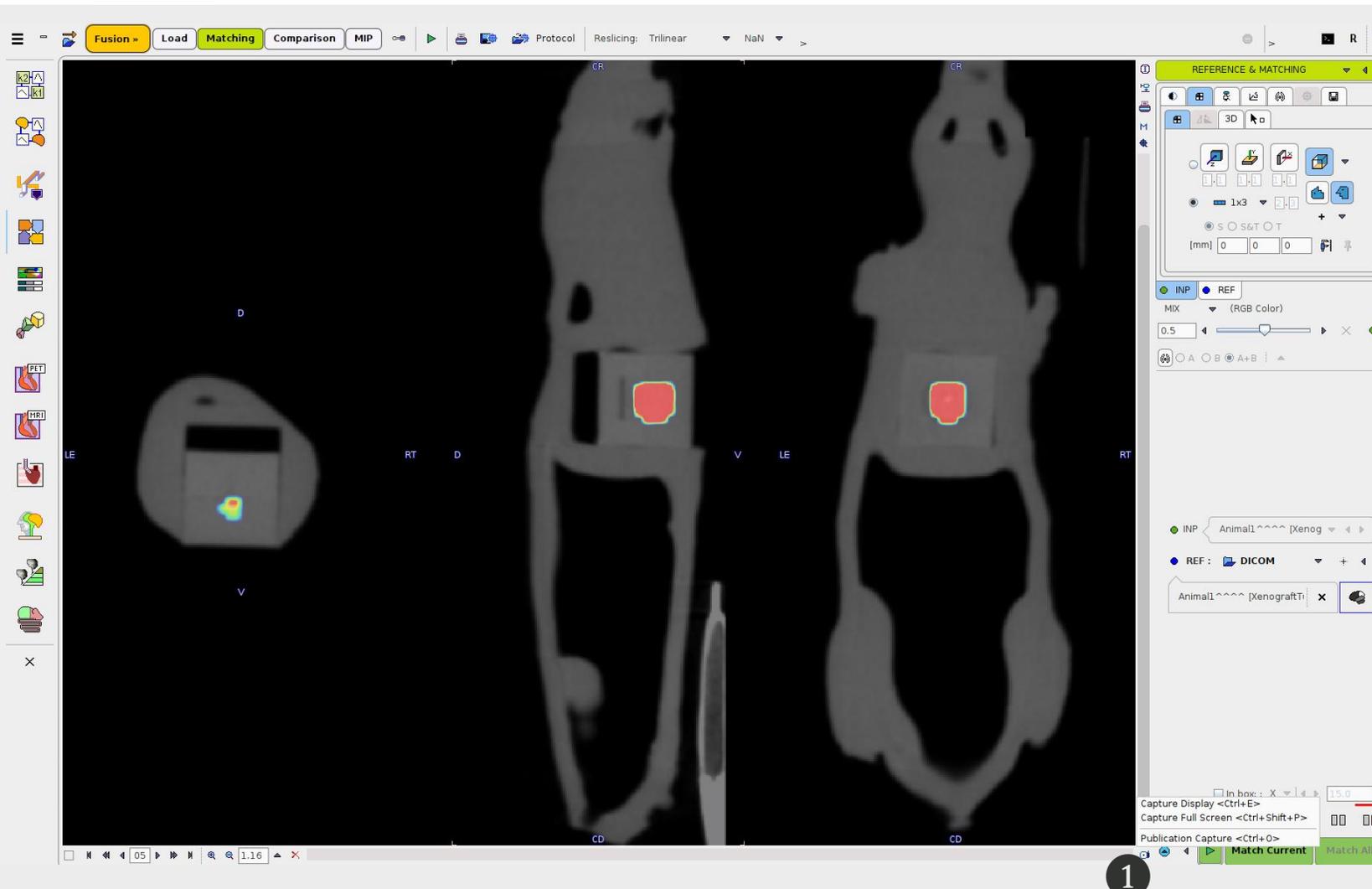
## 3. Multimodal Image Display



1. Image Annotation and overlay elements. Select the Image and overlay elements menu to add or remove elements to the display.

# Albira Si: PMOD Multimodal Image Fusion & Display

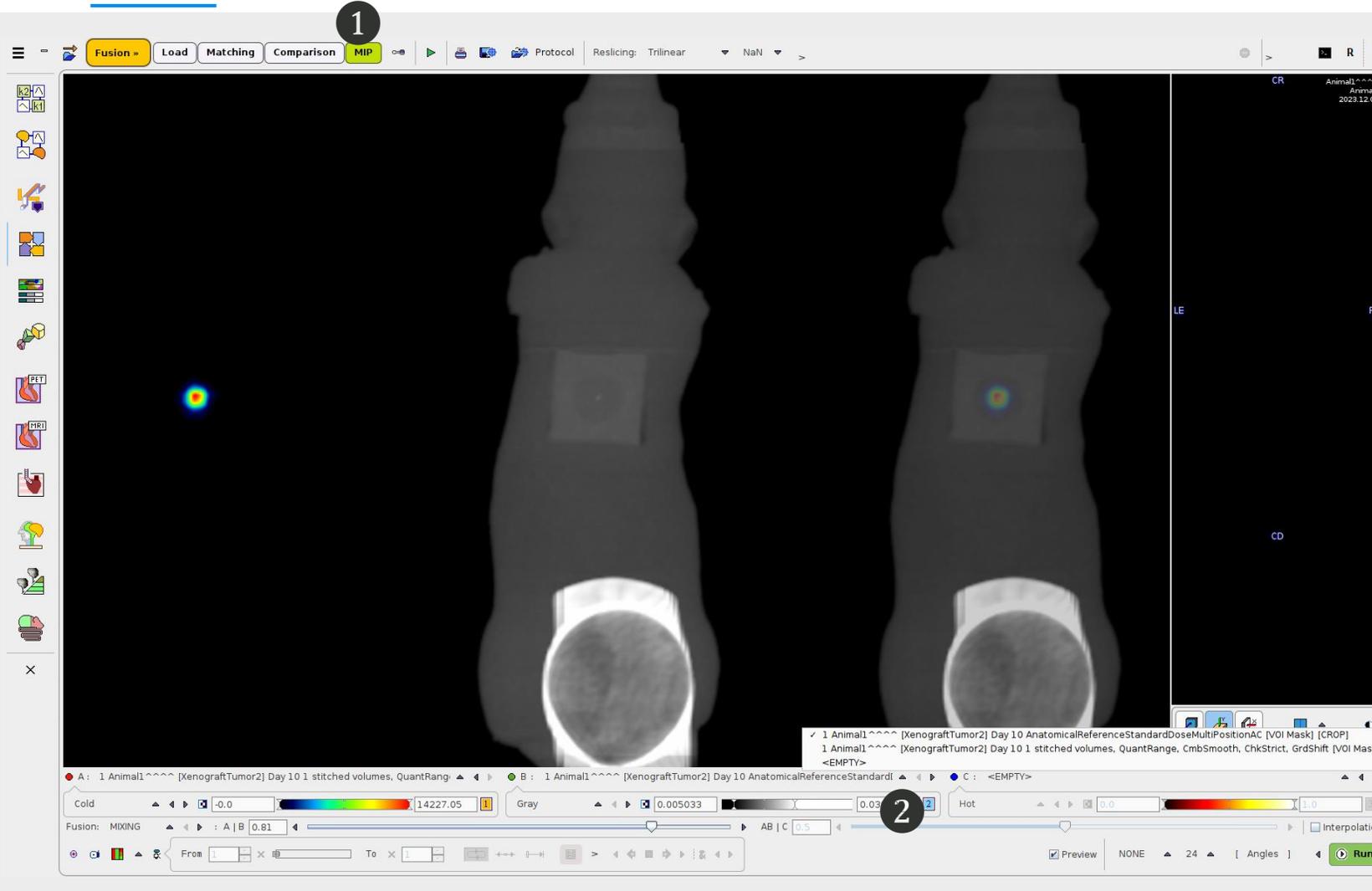
## 3. Multimodal Image Display



1. **Capture Image Display.** Select the **Capture Image Display** button, and select the **Publication Capture** button.

# Albira Si: PMOD Multimodal Image Fusion & Display

## 3. Multimodal Image Display



1. MIP. Select the **MIP** tab at top.

2. Set the left image to PET and right image to MR or CT using the pulldown menus. Adjust the contrast and display as described and complete the image capture.



SOFTWARE

# Educational Training Guide

PET/MR & PET/CT Software Workflows: PMOD VOI Basic Workflows

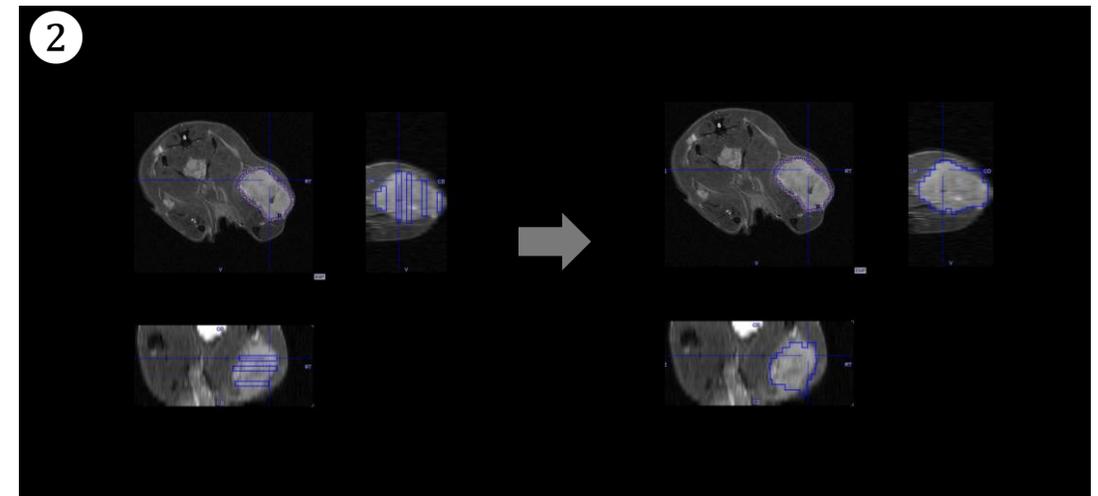
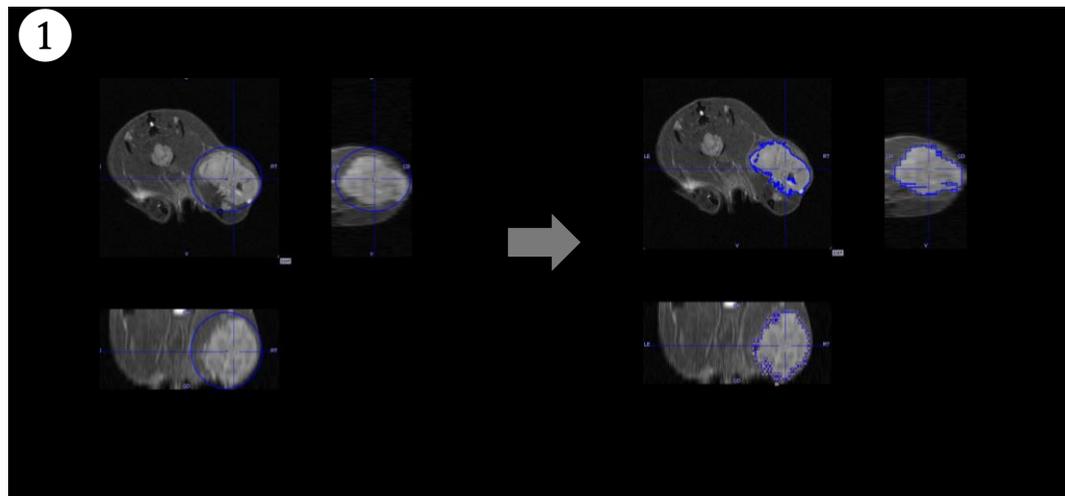
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# PET/MR & PET/CT: PMOD VOIs Basics

## VOIs by Iso-Contouring and Contour Interpretation

### 1. VOIs & Iso-Contouring by Region Growing

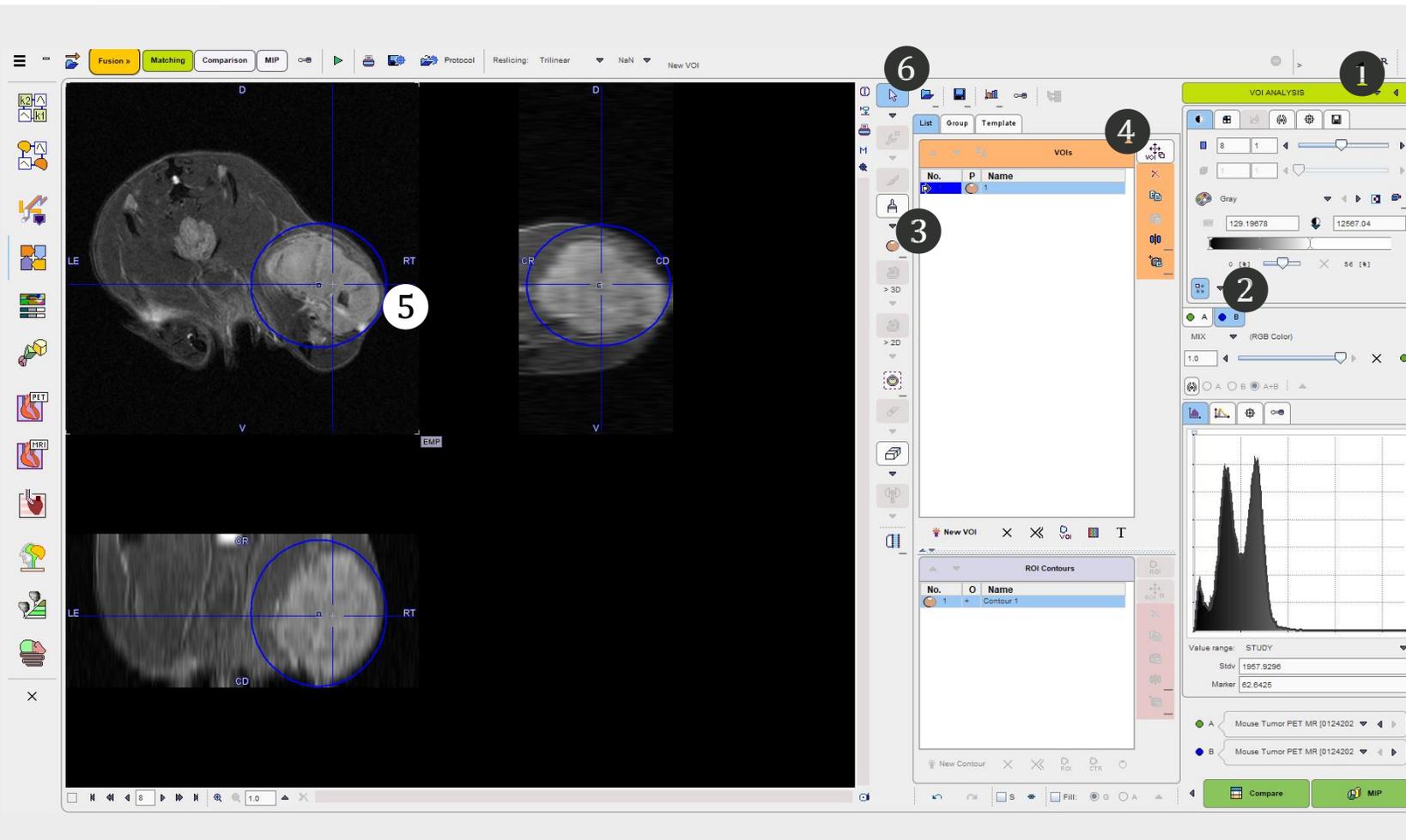
### 2. VOIs & Freehand with Contour Interpretation



Study data (courtesy Virginia Tech) was acquired in a BioSpec 9.4 MRI with a PET Insert Si103 and analyzed using PMOD v4.4

# PET/MR & PET/CT: PMOD Multimodal Imaging Fusion & Display

## 1. PMOD PFUS VOIs & Iso-Contouring by Region Growing

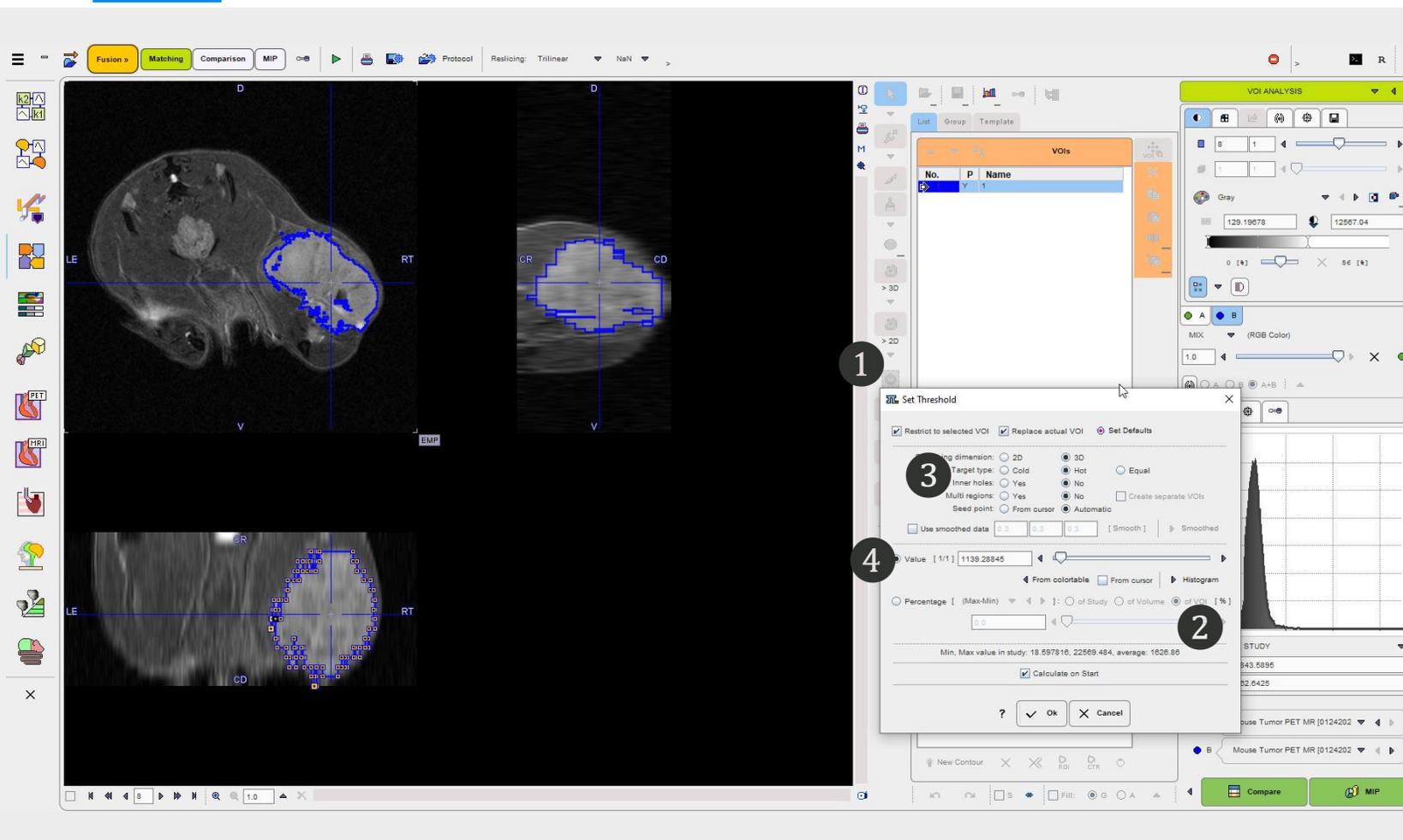


1. **VOI ANALYSIS.** Select in the pull-down menu to access VOI tools.
2. **Tab B.** Select to set the current active working image to the CT or MR reference data.
3. **Create regular VOI.** Select and choose SPHERE.
4. **Operation on Entire VOI.** Select the Operation on Entire VOI button.
5. Adjust the location and boundaries of the sphere to outside the tumor margins.
6. **Save VOI.** Tip: If additional studies will be analyzed, it may be useful to save the sphere VOI to the database for recall.

**Tip:** The Iso-Contouring By Region Growing VOI method is suitable with targets with well defined anatomical or PET signal boundaries

# PET/MR & PET/CT: PMOD Multimodal Imaging Fusion & Display

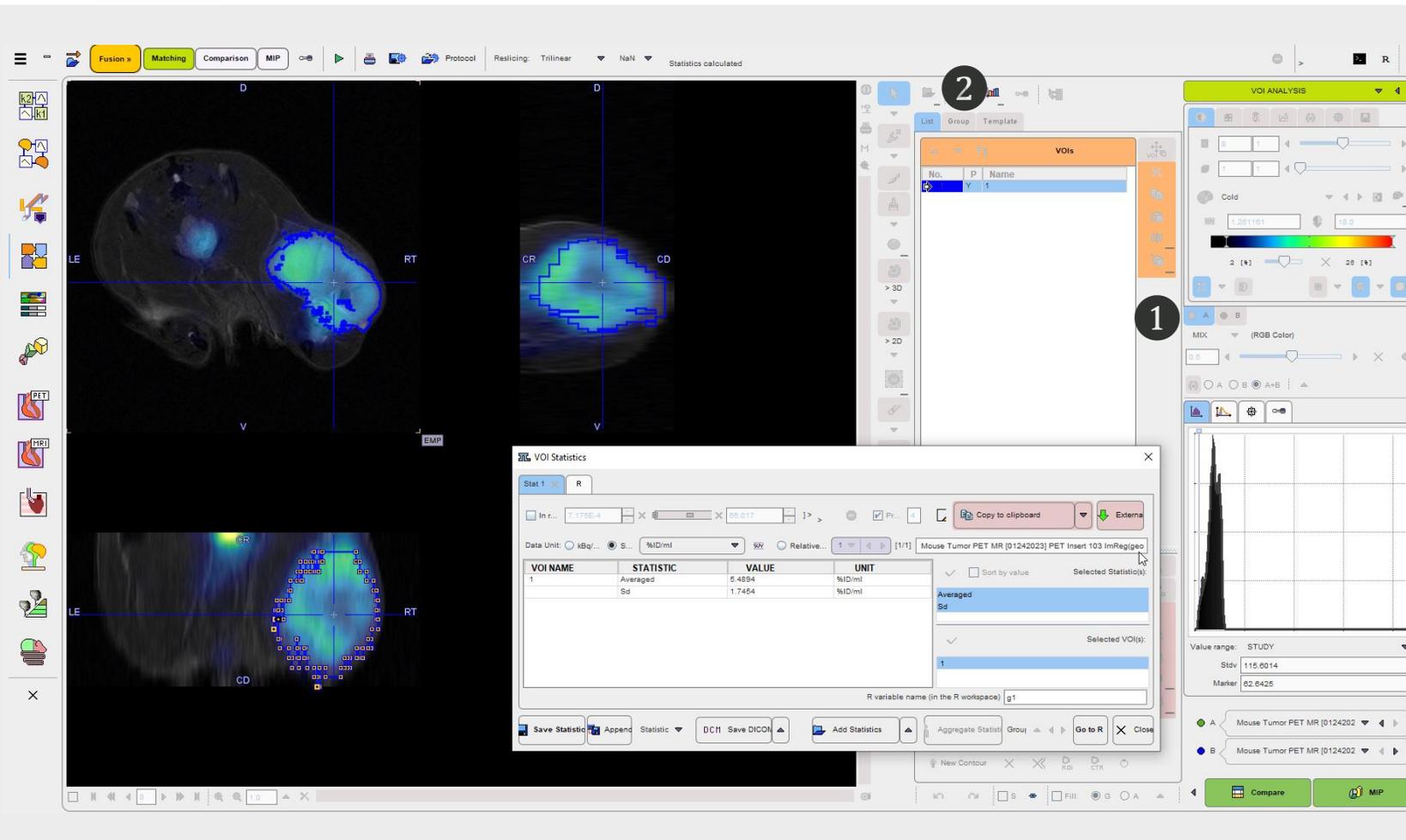
## 1. PMOD PFUS VOIs & Iso-Contouring by Region Growing



1. Iso-contouring by Region Growing. Select in the VOI tools menu.
2. Check the Percentage “of VOI” selection.
3. Check the “Hot” target type for e.g. PET signal, and “Cold” target type for negative contrast tissues (e.g. CT lung contrast).
4. Set Threshold. Set the thresholding boundaries value and select OK. **Tip:** Where Iso-contouring by Region Growing is applied directly to the PET image, users most often use a defined %ID/mL (e.g. 10%) value to threshold all data for consistency.

# PET/MR & PET/CT: PMOD Multimodal Imaging Fusion & Display

## 1. PMOD PFUS VOIs & Iso-Contouring by Region Growing

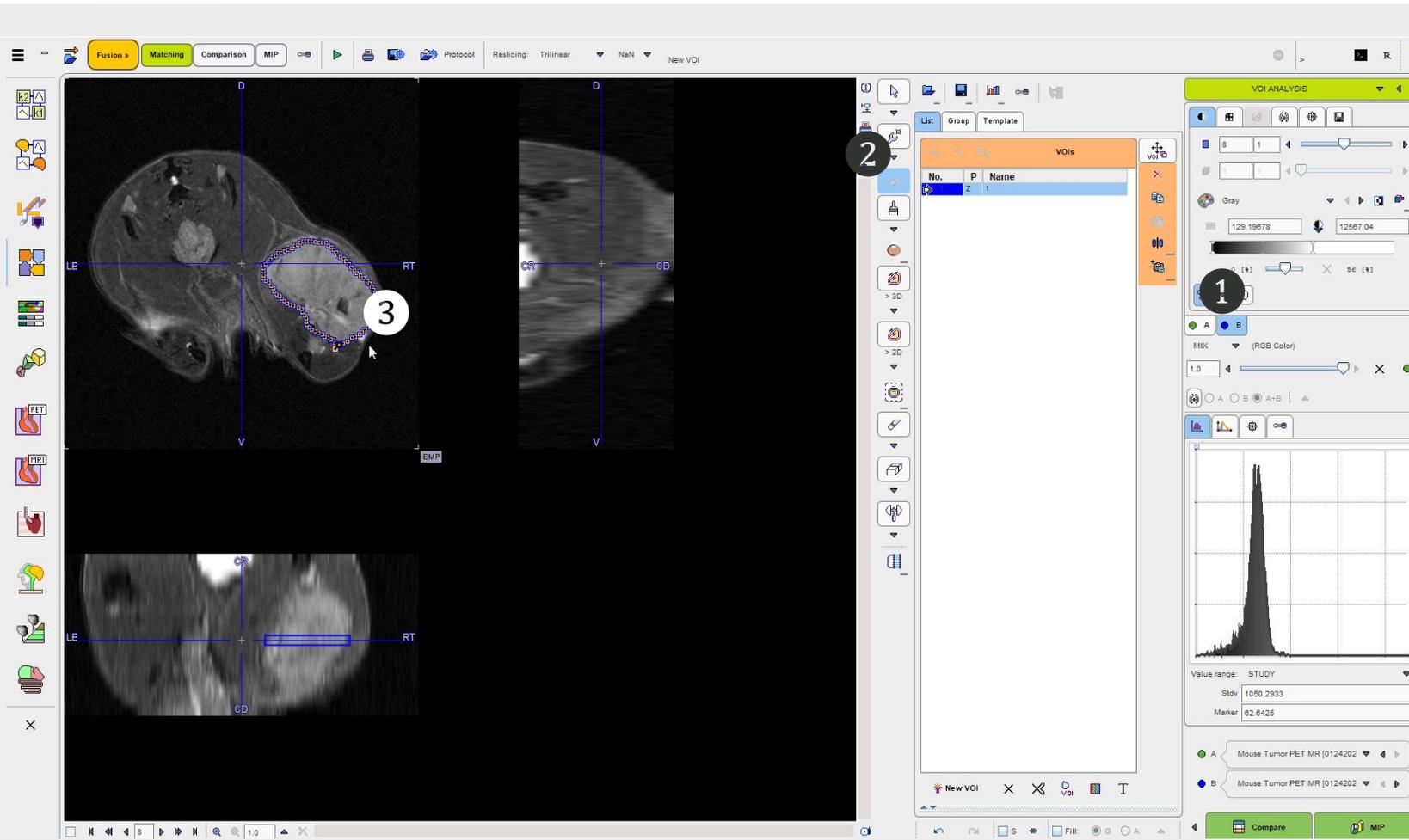


1. Tab A. Select Tab A to set the active image to the PET input data.

2. **VOI Statistics.** Select the VOI Statistics button to view VOI statistic. Tip: Choose “Selected Statistics” or “Default Statistics” when prompted to view your predefined subset of statistics or an interactive menu of statistics respectively.

# PET/MR & PET/CT: PMOD Multimodal Imaging Fusion & Display

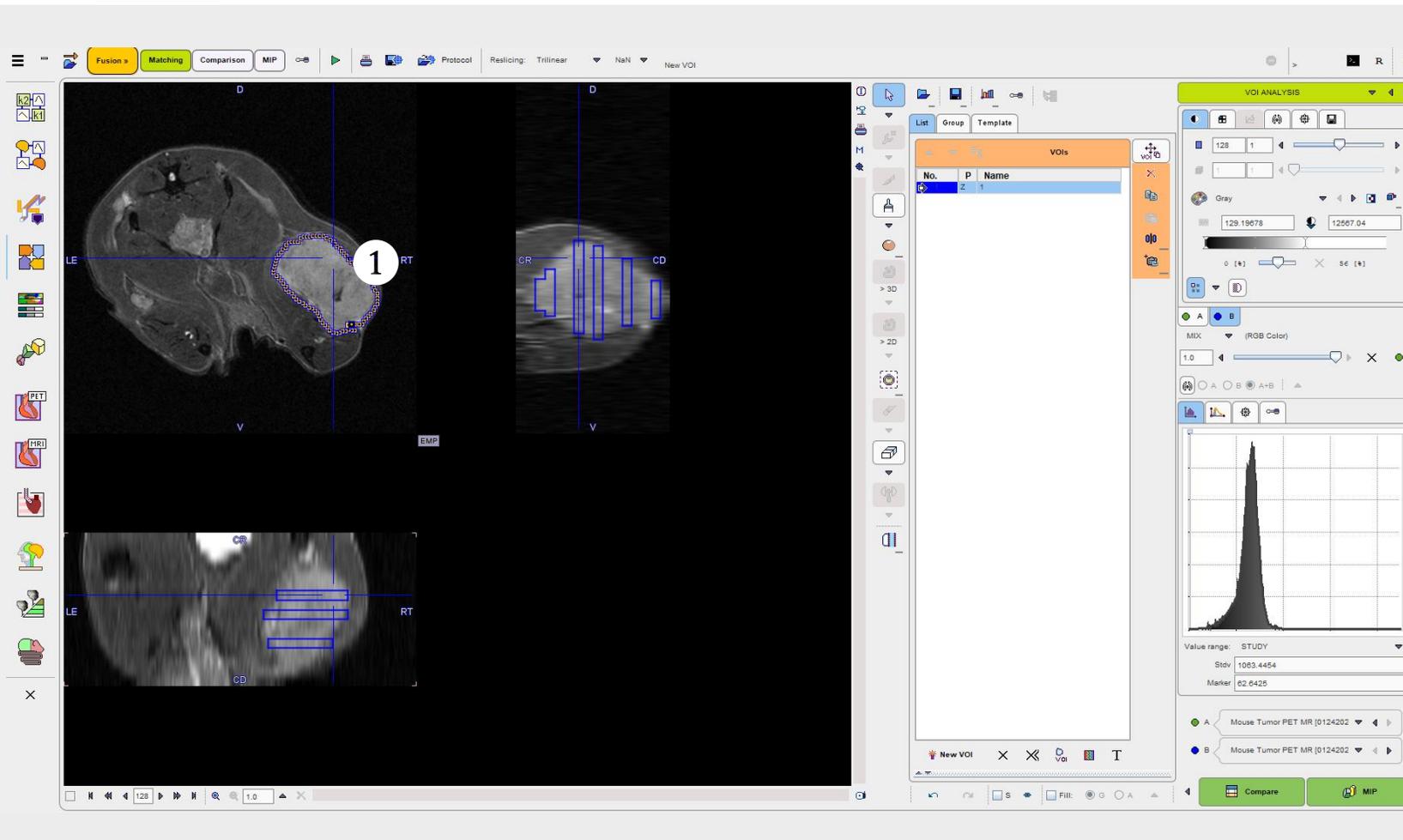
## 2. PMOD PFUS VOI & Freehand with Contour Interpretation



1. **Tab B.** Select Tab B to set the active working image to CT or MR reference data.
2. **Draw Polygon with Dense Vertices.** Select the Draw Polygon with Dense Vertices button.
3. **VOI.** Tracer the ROI boundaries on a selected slice.

# PET/MR & PET/CT: PMOD Multimodal Imaging Fusion & Display

## 2. PMOD PFUS VOI & Freehand with Contour Interpretation

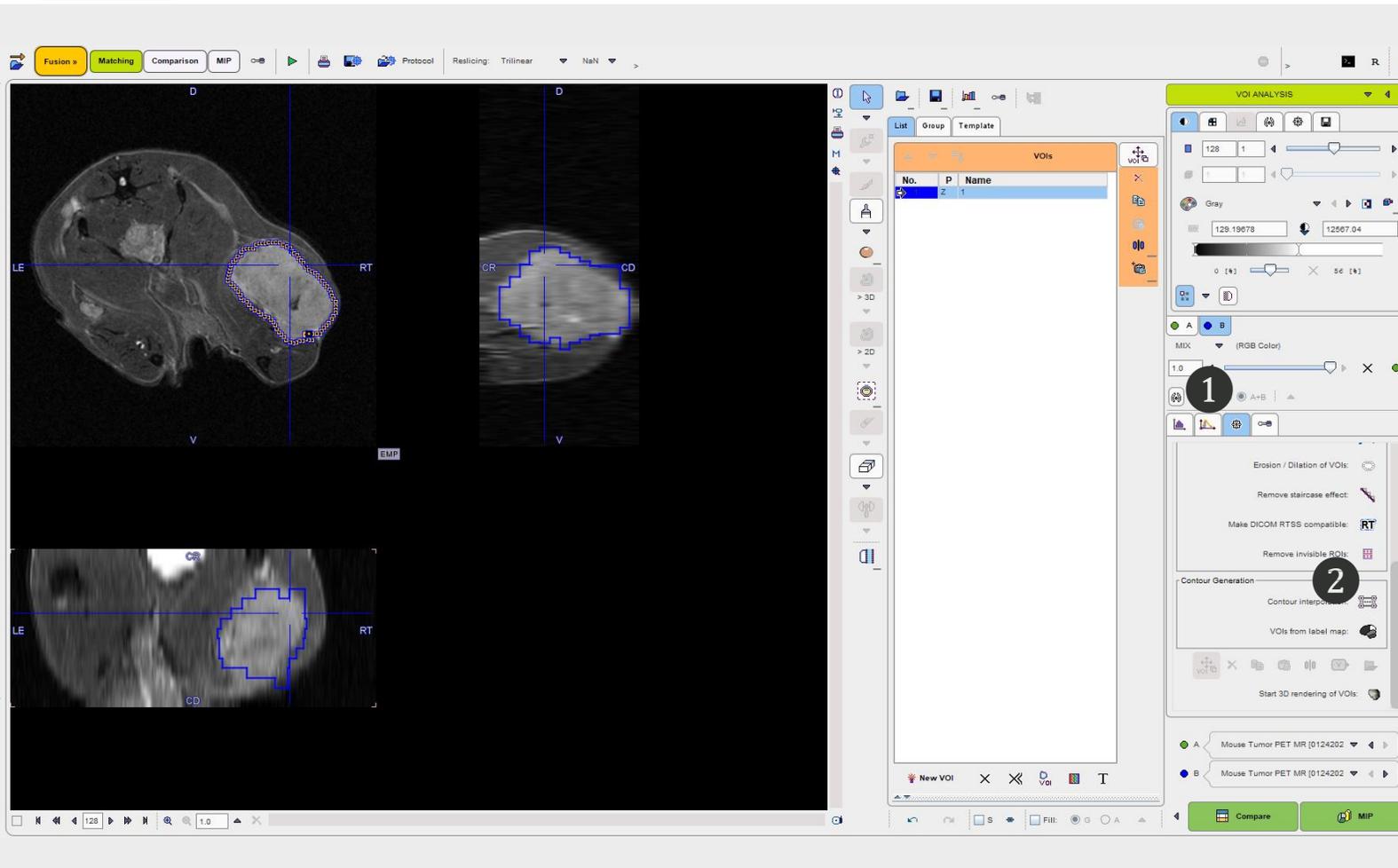


1. **VOI.** Trace the ROI boundaries on additional non-contiguous slices. Slices must be drawn in a single axis only.

**Tip:** The Freehand with Region Growing VOI method is useful for targets with faint boundaries.

# PET/MR & PET/CT: PMOD Multimodal Imaging Fusion & Display

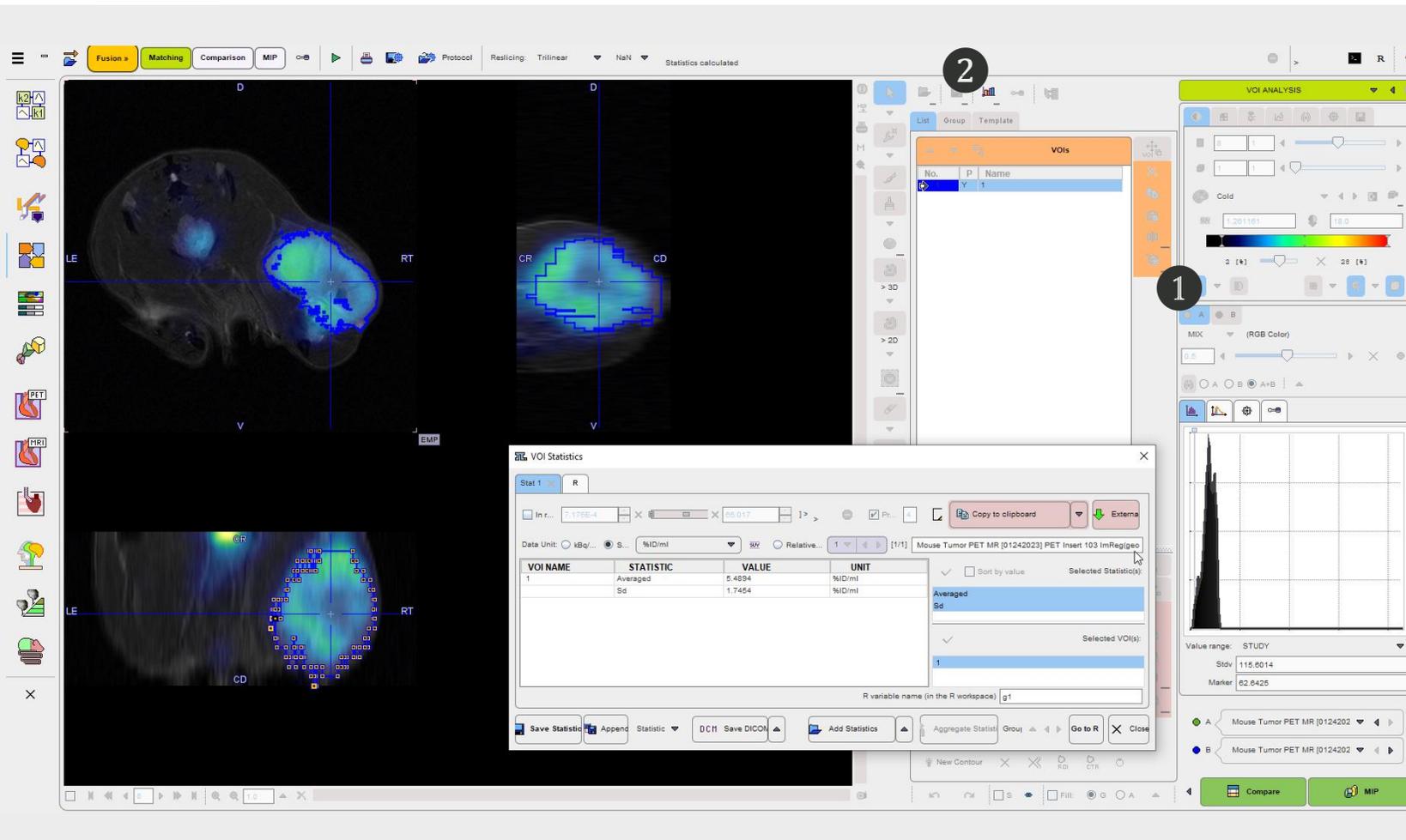
## 2. PMOD PFUS VOI & Freehand with Contour Interpretation



1. Masking Tab. Select the “Masking...” tab.
2. Contour Interpolation. Select the Contour Interpolation button to fill the non-contiguous spaces.

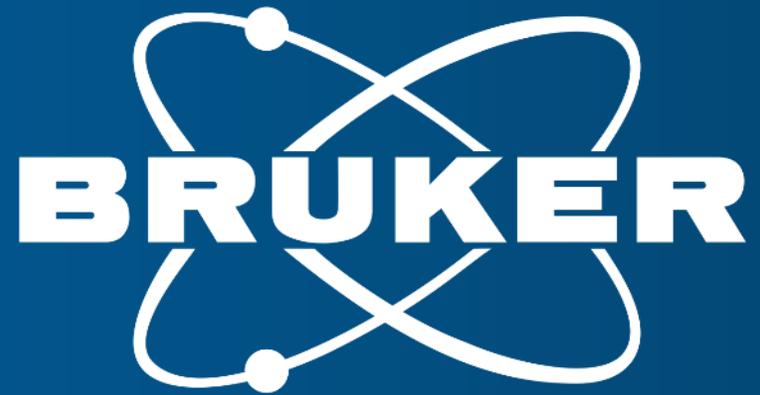
# PET/MR & PET/CT: PMOD Multimodal Imaging Fusion & Display

## 2. PMOD PFUS VOI & Freehand with Contour Interpretation



1. Tab A. Select Tab A to set the active image to the PET input data.

2. VOI Statistics. Select the VOI Statistics button to view VOI statistic.



Innovation with Integrity