VUEBOX® RESEARCH - QUICK GUIDE

Get started with VueBox® Research effortlessly with our quick guide, outlining fundamental workflow steps.

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I. TISSUE PERFUSION - BOLUS ANALYSIS

USE THIS FEATURE TO: ANALYSE PERFUSION PARAMETERS IN A WASH-IN / WASH-OUT KINETICS

OUTPUT:

PE	Peak Enhancement
WiAUC	Area Under the Curve (Wash-in)
RT	Rise Time
mTTl	mean Transit Time (local)
TTP	Time To Peak
WiR	Wash-in Rate
WiPI	Wash-in Perfusion Index (WiAUC/RT)
WoAUC	Wash-out AUC
WiWoAUC	Wash-in and Wash-out AUC
FT	Fall Time
WoR	Wash-out Rate

WORKFLOW:

1. Open a Bolus clip in **Tissue Perfusion package.**

2. Adjust the linearization settings in the **Video Settings** panel.

3. Choose the **Bolus** perfusion model in the perfusion models tab.

4. Define the images to be excluded using the **Clip editor**.

5. Draw Delimitation ROI delimiting the processing area

6. Draw multiple ROI successively as desired.

7. Move the **Image slider** to choose a reference image for motion compensation.

8. Click the button to launch the **Motion compensation**.

9. Review the motion compensated clip using the **Image slider.**

10. If the **Motion compensation** is unsuccessful, try one of the following:

11. Select another reference image and click the button again to re-apply **Motion compensation.**

12. Click the button to return to the **Clip editor** and exclude any images thought to be degrading the result of motion correction, such as out of plane movements, and then re-apply **Motion compensation.**

13. Once satisfied with motion compensation, click the button to launch the **Perfusion Data Processing**.

14. Accept or select another instant in the **Contrast arrival detection** dialog box.

15. If needed, adjust the **Gain** and **Dynamic range** sliders for each parametric image or check **Apply preset** to apply the user preferences.

16. Click the button to export data

17. Click the button to store the context.

II. TISSUE PERFUSION – REPLENISHMENT ANALYSIS

USE THIS FEATURE TO: ANALYSE PERFUSION PARAMETERS IN A REPLENISHMENT KINETICS AFTER BUBBLE DISTRUCTION (INFUSION)

OUTPUT:

rBV	relative Blood Volume
WiR	Wash-in Rate
mTT	mean Transit Time
PI	Perfusion Index (rBV / mTT)

WORKFLOW:

1. Open a Replenishment clip in **Tissue Perfusion package.**
2. Adjust the linearization settings in the **Video Settings** panel.
3. Wait for the **flash detection** to be completed. If necessary, set flash images manually by using the ⚡ button or the "F" keyboard key.
4. Choose the **Replenishment** perfusion model in the perfusion models tab.
5. If multiple segments are present, select the replenishment segment to be analyzed with arrow buttons (◆◆).
6. Draw Delimitation ROI delimiting the processing area
7. Draw multiple ROI successively as desired.
8. Move the **Image slider** to choose a reference image for motion correction.
9. Click the 🗇 button.
10. Review the motion compensated clip using the **Image slider.**
11. If the **Motion compensation** is unsuccessful, try one of the following:
12. Select another reference image and click the 🗇 button again to re-apply **Motion compensation.**
13. Click the ⬅ button to return to the **Clip editor** and exclude any images thought to be degrading the result of motion correction, such as out of plane movements, and then re-apply **Motion compensation.**
14. Once satisfied with motion compensation, click the ➡ button to launch the **Perfusion Data Processing**.
15. If needed, adjust the **Gain** and **Dynamic range** sliders for each parametric image or check **Apply preset** to apply the user preferences.
16. Click the 🖩 button to export data.
17. Click the 💾 button to store the context.

III. TISSUE NORMALIZATION, DYNAMIC VASCULAR PATTERN ANALYSIS

USE THIS FEATURE TO: HIGHLIGHT HOW THE CONTRAST AGENT IS BEING DISTRIBUTED IN A SPECIFIC AREA COMPARED WITH THE SURROUNDING TISSUE

OUTPUT:

DVP	Dynamic Vascular Pattern
DVPP	Dynamic Vascular Pattern Parameter (DVPP) – Parametric image

WORKFLOW:

1. Open a Bolus clip in **Tissue Normalization package.**
2. Adjust the linearization settings in the **Video Settings** panel.
3. Define the images to be excluded using the **Clip editor**.
4. Draw Delimitation ROI delimiting the processing area
5. Draw Tissue 1 and Reference ROI successively.
6. As desired, additional Tissue 2 and Tissue 3 ROI can be drawn (see section **Error! Reference source not found.**).
7. Move the **Image slider** to choose a reference image for motion compensation.
8. Click the ▭ button to launch the **motion compensation**.
9. Review the motion compensated clip using the **Image slider.**
10. If the **Motion compensation** is unsuccessful, try one of the following:
11. Select another reference image and click the ▭ button again to re-apply **Motion compensation.**
12. Click the ⬅ button to return to the **Clip editor** and exclude any images thought to be degrading the result of motion correction, such as out of plane movements, and then re-apply **Motion compensation.**
13. Once satisfied with motion compensation, click the ➡ button to launch the **Perfusion Data Processing**.
14. Accept or select another instant in the **Contrast arrival detection** dialog box.
15. If needed, adjust the **Gain** and **Dynamic range** sliders for each parametric image or check **Apply preset** to apply the user preferences.
16. Click the ▭ button to export data
17. Click the ▭ button to store the context.

IV.   LOW-INTENSITY SIGNAL ANALYSIS

USE THIS FEATURE TO: DEPICT MAXIMUM INTENSITY PROJECTION OF A LOW-INTENSITY SIGNAL IN A ROI IN A HIGH-INTENSITY BACKGROUND.

OUTPUT:

PA	Perfused Area
rPA	Relative Perfused Area

WORKFLOW:

1. Open a clip in **Low-Intensity Signal package**.
2. Adjust the linearization settings in the **Video Settings** panel.
3. Draw **Delimitation ROI** delimiting the processing area
4. Draw a Low Intensity Region (**LIR**) delimiting the area with low-intensity contrast signal
5. Draw a High Intensity Region (**HIR**) delimiting a small reference area with high-intensity contrast signal
6. As desired, **other optional LIRs** can be drawn
7. Move the **Image slider** to choose a reference image for motion compensation.
8. Click the ⬜ button to launch the **motion compensation**.
9. Review the motion compensated clip using the **Image slider.**
10. click the ➡ button to launch the **Data Processing**.
11. Adjust the baseline and perfusion segments location in the **Frame Segments Detection** dialog box if needed.
12. Click the 📋 button to export data
13. Click the 💾 button to store the context.

V.   PARAMETER TREND tool

USE THIS FEATURE TO: COMPARE PERFUSION PARAMETERS VALUES ACROSS DIFFERENT EXAMINATIONS OF THE SAME SUBJECT

OUTPUT:

GRAPH	Display of a perfusion parameter over time
	Relative change of a perfusion parameter

WORKFLOW:

1. **Select the Vuebox® Research analyses** to include in the comparison
2. Start the analysis
3. Click the ⊕ button to **add a graph for a quantification parameter** you want to study
4. Click again the ⊕ button to **add a graph to display the time intensity curves** for all the analyses for one or more ROI
5. Click on 🖫 button to **save the parameter trend**
6. **Configure the export parameters** and validate