

syngo NATIVE TrueFISP Non-Contrast MR Angiography: Pulmonary Arteries

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NATIVE (non-contrast angiography of the arteries and veins) is a contrast-free MR angiography technique for visualizing the vessels of the body. You can find tailored protocols for use in renal arteries and peripheral vessels on the protocol tree from Siemens Healthineers. *syngo* NATIVE TrueFISP is based on the TrueFISP (true fast imaging with steady state precession) sequence, which is a balanced steady-state gradient echo technique. The sequence can be made selective for arteries or veins by appropriate positioning of the inversion pulse, which can be positioned independently from the imaging volume.

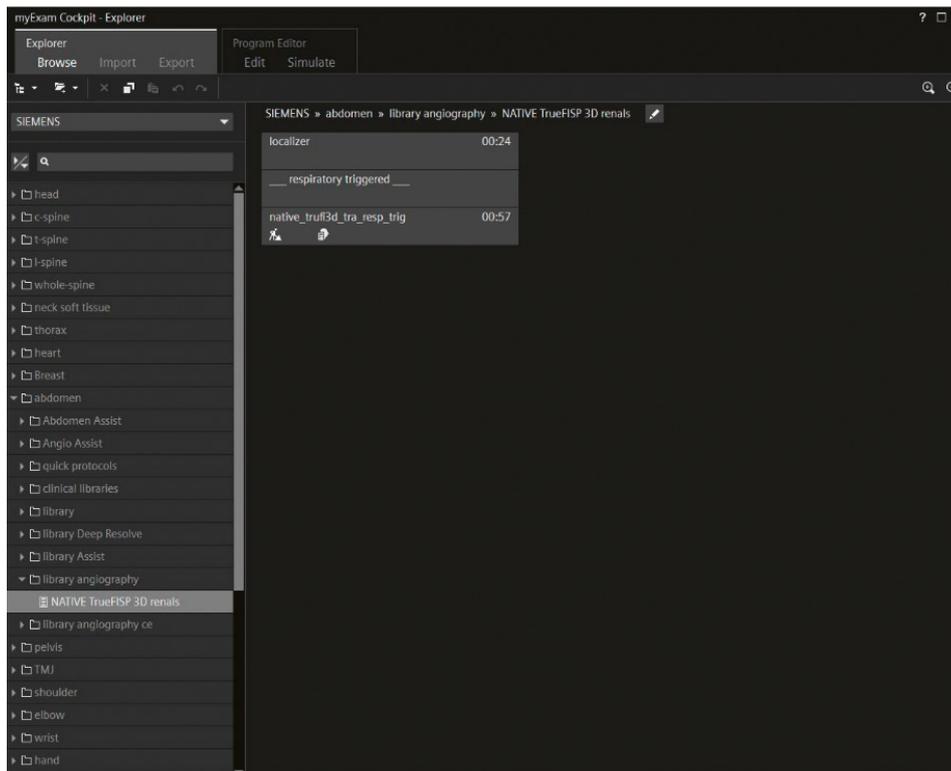
The most robust method of performing *syngo* NATIVE TrueFISP is with respiratory triggering. With BioMatrix

Technology, the respiratory sensor in the BioMatrix spine coil improves the workflow and increases efficiency.

The following acquisition protocol was performed on a 1.5T MAGNETOM Sola and on a 3T MAGNETOM Cima.X.

We start with the patient positioned headfirst, with the BioMatrix Contour L coil or the BioMatrix Body 18 coil covering the upper abdomen to the thorax. For better localization of the pulmonary arteries, I recommend a T2 TrueFISP sequence for the lungs, in addition to the standard free-breathing localizer. The exam can also be performed with the patient in a feetfirst position.

You can take the NATIVE TrueFISP sequence directly from the protocol tree, as shown in Figure 1.

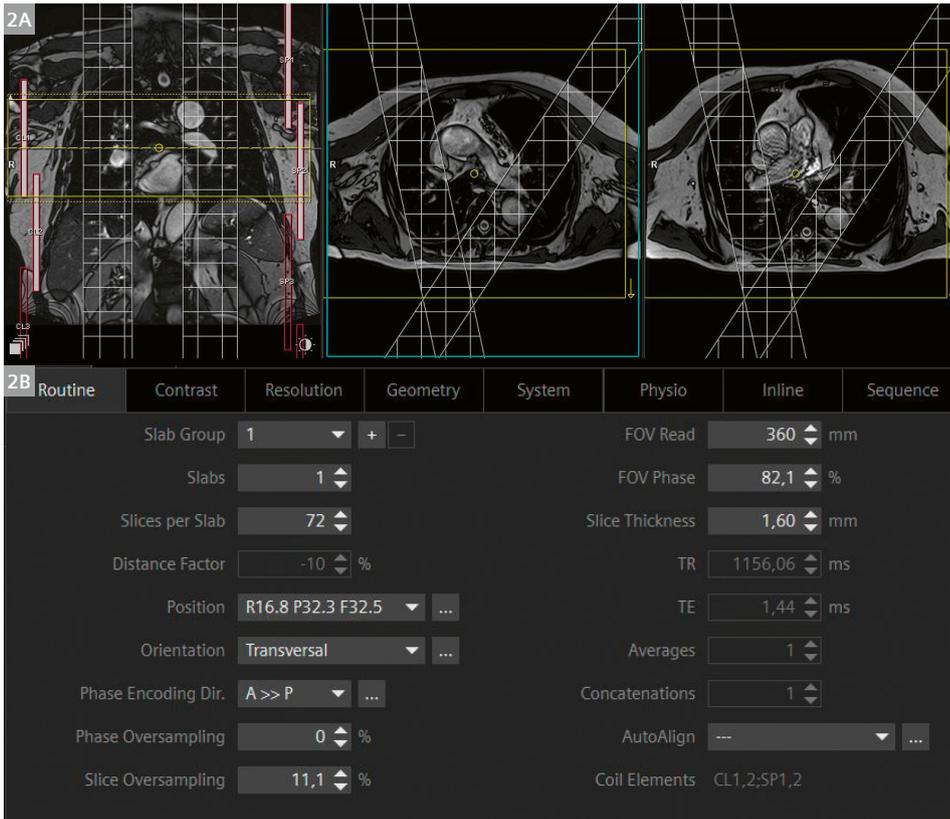


1 The NATIVE TrueFISP sequence in the protocol tree.

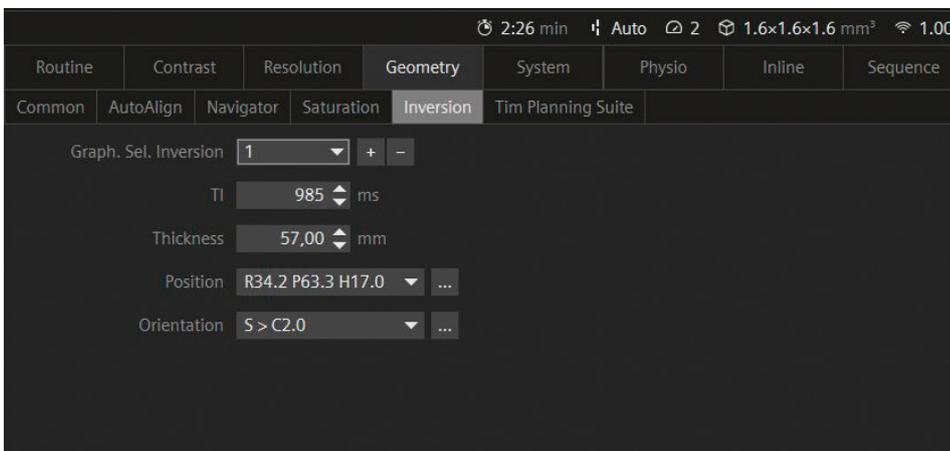
Next, align the axial slices with the pulmonary arteries and increase the number of slices as needed. Make sure that the inversion band is positioned perpendicular to the pulmonary vessels (Fig. 2).

You can modify the inversion time of the inversion bands as needed. Note that the optimal range for pulmo-

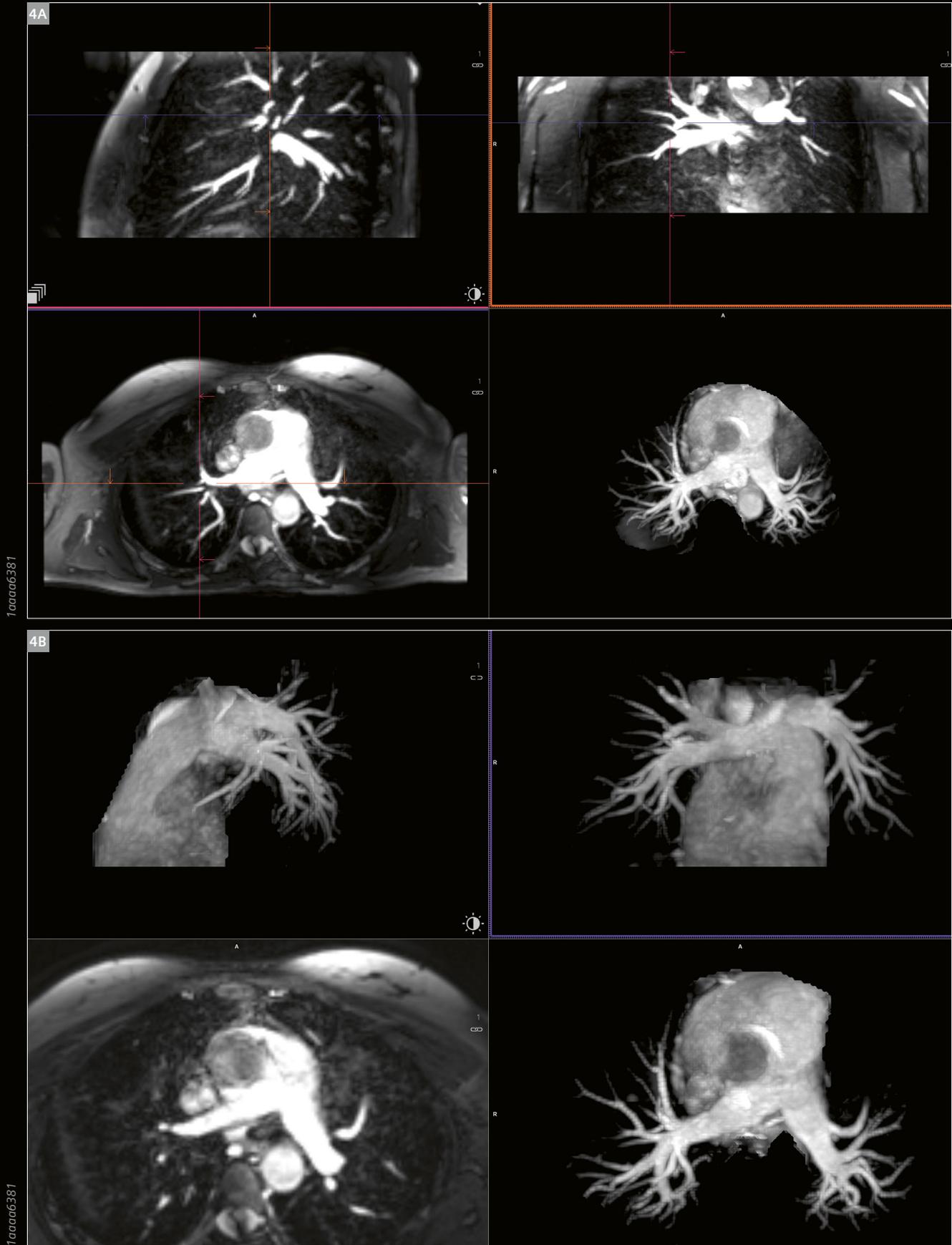
nary artery values is generally considered to be between 900 and 1100 ms (Fig. 3). The acquisition time will vary depending on the patient's respiratory cycle. The sequence can be performed on either 1.5T or 3T systems. Below are some example results.

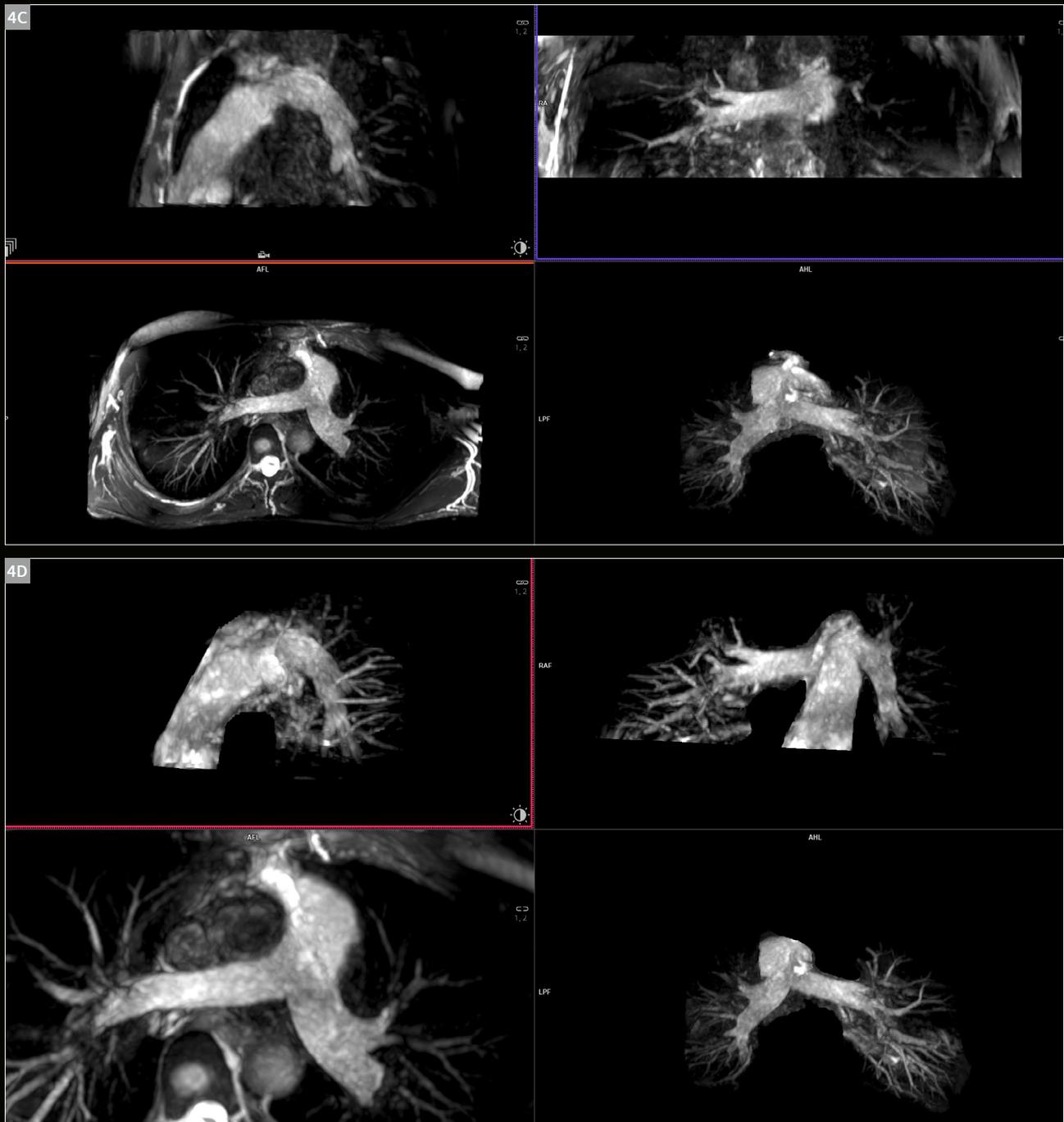


2 Axial slices aligned with the pulmonary arteries (2A) and details of alignment on the dashboard (2B).



3 Optimal inversion time (TI) of the inversion bands: between 900 and 1100 ms.





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4 Pulmonary arteries scanned with syngo NATIVE TrueFISP, a contrast-free MR angiography technique. Images produced on a 1.5T MAGNETOM Sola (**4A, 4B**) and a 3T MAGNETOM Cima.X. (**4C, 4D**) system.



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