Press Release

MaRVis MR safe guidewires demonstrated to be uniquely applicable in low field and high field MRI-guided interventions at iMRI conference 2022

October 18, 2022 – MaRVis Interventional has presented its MR safe and visible guidewires in a joint publication by MaRVis and Siemens Healthcare GmbH titled "Artifact exploration of metallic and non-metallic guidewires at 0.55T, 1.5T, and 3T MR systems" at the Interventional MRI conference 2022 in Leipzig. Magnetic resonance imaging (MRI) at low field (0.55 Tesla) on a novel scanner generation developed by Siemens Healthcare is considered by MaRVis to be the future for many MRI-guided interventions. Whereas commercial metal-base guidewires previously have been described to be acceptably electrically safe at 0.55T MaRVis and Siemens have shown in own experiments that visibility is insufficient. At 1.5T and 3T image distortion created by metal guidewires is unacceptable. Solely MaRVis MR safe guidewires present as a continuous line plus an additional ball-shaped tip marker in interventional real-time MR imaging which is an absolute necessity for interventionalists, in particular cardiologists. Therefore, MaRVis uniquely offers innovative medical devices which can be very well visualized with almost identical artifacts at all field strengths.

MaRVis Interventional GmbH has developed and CE marked a comprehensive portfolio of fiber-composite – based MR safe guidewires. This portfolio comprises the commonly used three types of guidewires: 0.035" diameter in standard and stiff versions fulfilling the mechanical requirements for various interventions, and a 0.014" micro guidewire for a broad range of interventions in small vessels. With this product portfolio MaRVis is a door opener to broad clinical application of MRI-guided interventions for the benefit of patients, physicians and the healthcare systems.

A new trend in this medical area is low field MRI (0.55 Tesla) based on highly elaborated algorithms which create image quality almost comparable to higher field strengths. The benefit of such new MR scanners developed by Siemens Healthcare GmbH is their larger bore diameter, smaller overall size, no need for large volumes of helium for operation of the MR scanner, and resulting much lower space requirements and significantly lower operational cost.

A key aspect of low field interventional MRI is availability and choice of appropriate interventional medical devices, i.e. at first instance guidewires and catheters. Whereas previously it had been published that commercial nitinol guidewires are sufficiently safely usable at 0.55T interventional MRI, no data had been presented if a nitinol guidewire is visible or not at 0.55T. Therefore, MaRVis and Siemens Healthcare have started a joint testing approach to determine visibility of commercial nitinol guidewires and the MaRVis MR guidewires at the three field strengths of 0.55T, 1.5T and 3T. Results from in vitro measurements in a water bath phantom (static testing) and of moving guidewires in a heart phantom have been presented at the Interventional MRI conference 2022 in Leipzig (14./15. October 2022).

Dr. Klaus Düring, CEO of MaRVis Interventional GmbH and presenter of the lecture at the conference stated: "When having read the paper by Dr. Adrienne Campbell-Washburn at National Institute of Health (NIH, USA) stating that metal-based commercial nitinol guidewires may be electrically safe enough for

use at 0.55T for us the next question was what it is about MR visibility of these nitinol guidewires at low field MRI. Therefore, we joined forces with Siemens Healthcare who were equally interested to investigate MRI visibility of our fiber-plastics based MR guidewires at 0.55T. The outcome is that the nitinol guidewires are barely visible at 0.55T and create inappropriate image distortion at 1.5T and 3T, whereas our fiber-plastics guidewires doped with a continuous MR marker and a distinct MR tip marker present very nicely and homogenously across all three field strength with a continuous line and a dot at the tip. This type of visualization has been named by other presenters to be a key requirement for clinical use. Thus, the MaRVis MR guidewire portfolio is uniquely useful for MRI-guided interventions at all field strengths and consequently enables most interventional procedures. This will support the clinical breakthrough for MRI-guided interventions."

MaRVis Interventional GmbH is a German medical device company dedicated to development, regulatory approval and marketing of MR safe and visible interventional devices. It has developed a patent-protected comprehensive platform technology integrating optimal mechanical properties with confined and precise visualization of the devices in MRI at the commonly used field strengths of 1.5 T, 3T and newly 0.55T. The first focus of MaRVis is on MR safe and visible guidewires, which has been realized in the world´s first full portfolio of CE marked 0.035" standard and stiff guidewires and 0.014" micro guidewires. The MaRVis MR guidewires offer superior mechanical handling and MR visibility and have been successfully tested in numerous model and animal trials in >25 European and U.S. centers in various medical fields of application, resulting in 50+ scientific publications. This first-in-class platform technology, protected by 30+ patents, provides high flexibility and is a powerful basis for the design of a broad spectrum of diverse interventional MR safe and visible devices.

Contact:

Dr. Klaus Düring
MaRVis Interventional GmbH
Frickenstr. 5
82494 Krün
Germany
Phone: +49 8825 9219955
Fax: +49 8825 9216561
k.duering@marvistech.com
www.marvistech.com