


# Canon


## How to Use the medicalAR App

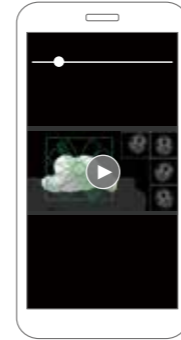
Images with the  icon can be viewed in motion. Download the app by scanning the QR code or visit our website:  
<https://global.medical.canon/about/medicalAR>



**1** Launch the app and start the camera.



**2** Scan the whole page, including an image with the  icon.



**3** When the trigger image is captured, the linked contents will be displayed.

# Canon

CANON MEDICAL SYSTEMS CORPORATION  
<https://global.medical.canon>

©Canon Medical Systems Corporation 2020. All rights reserved.  
Design and specifications are subject to change without notice.  
MCAMR0172EA 2020-05 CMSC/SO/Printed in Japan

Canon Medical Systems Corporation meets internationally recognized standards for Quality Management System ISO 9001, ISO 13485.  
Canon Medical Systems Corporation meets the Environmental Management System standard ISO 14001.

Vantage Orian, <sup>SURE</sup>VOI, Pianissimo and Made for Life are trademarks of Canon Medical Systems Corporation.

Vitreia is a trademark of Vital Images, Inc.  
Improved diagnosis for life is a trademark of Olea Medical S.A.S.  
PI-RADS and BI-RADS are registered trademarks of the American College of Radiology.

Disclaimer: Some features presented in this brochure may not be commercially available on all systems shown or may require the purchase of additional options. Please contact your local representative from Canon Medical Systems for details.

*Made For life*



## Vantage Orian

Productivity  
Comfort  
Confidence



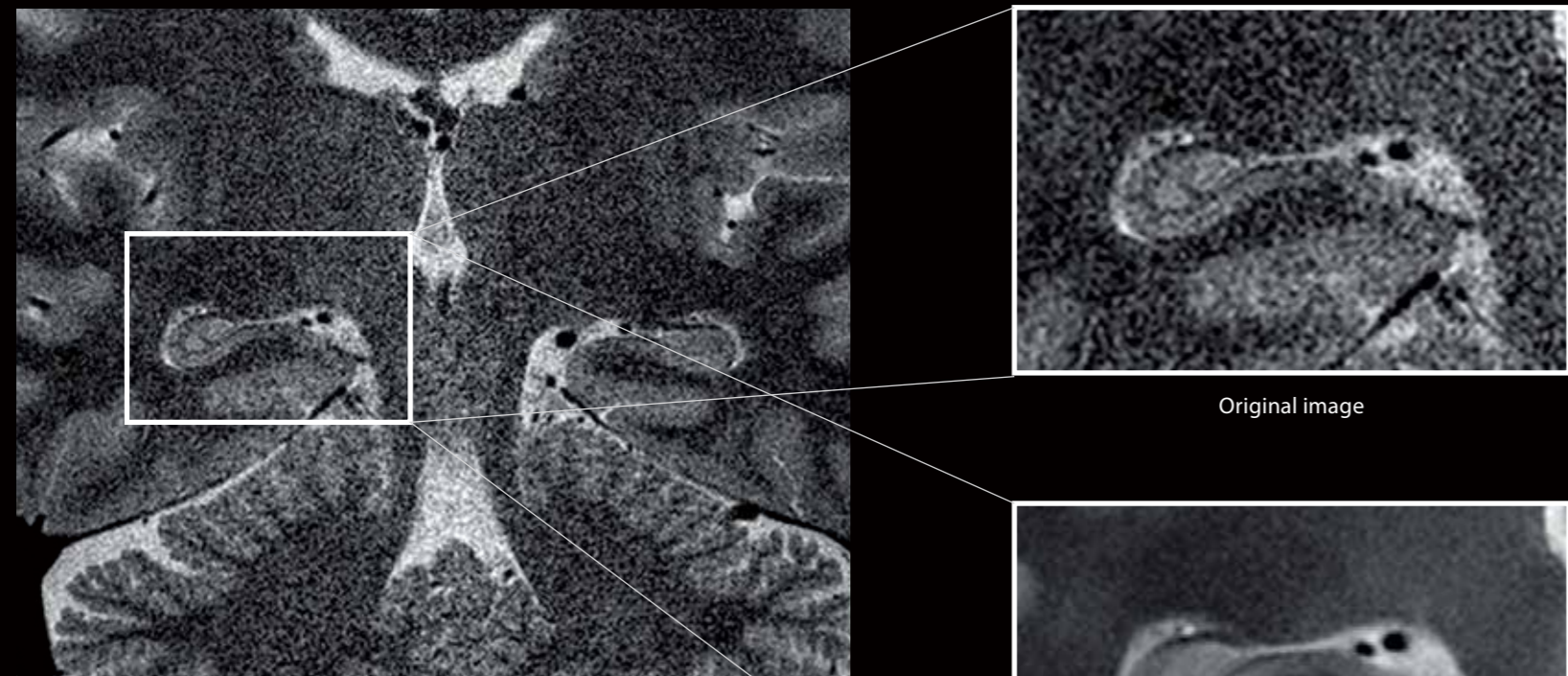
High Productivity  
Patient Comfort  
Clinical Confidence

Step into the AI era with Vantage Orian to boost your MRI imaging performance and productivity at 1.5T. With outstanding patient comfort and uncompromised clinical confidence, Vantage Orian is the perfect answer to your 1.5T MRI business and clinical requirements.

***Vantage Orian***



# Achieve High SNR Images with Deep Learning Reconstruction



Original image

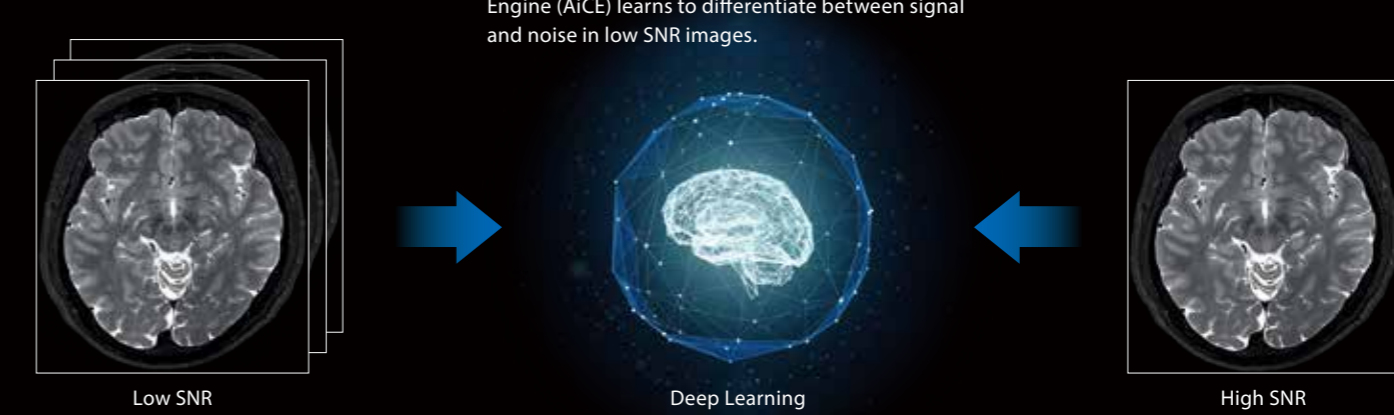
Original image



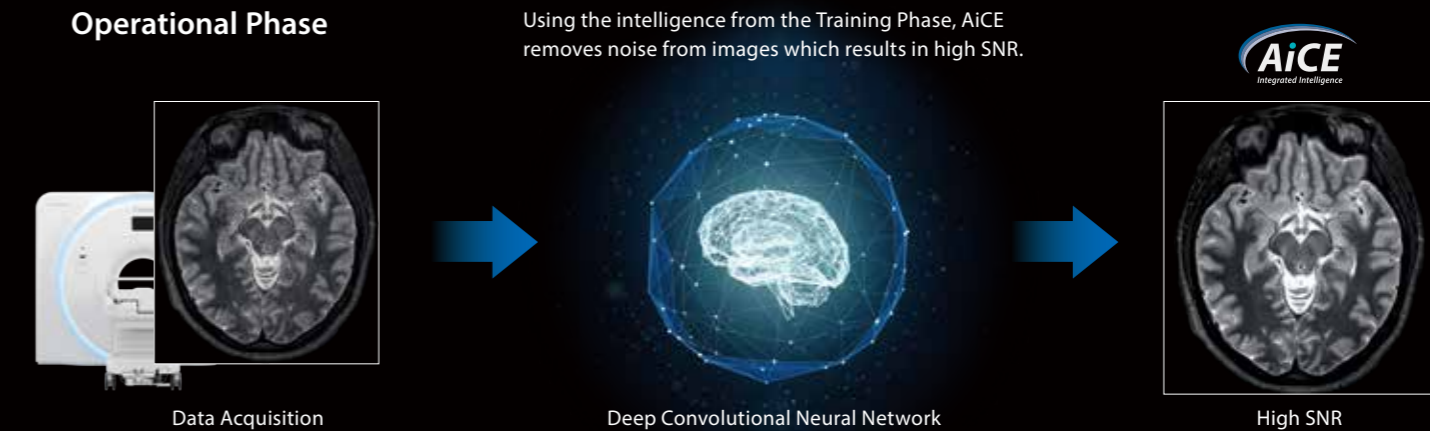
# See through the noise. This is intelligence.

Advanced intelligent Clear-IQ Engine (AiCE) is the world's first Deep Learning Reconstruction technology for MRI. Producing stunning MR images that are exceptionally detailed. Harnessing the enormous computational power of a Deep Convolutional Neural Network (DCNN), AiCE is trained to restore low SNR MR data to match the properties of high SNR images.

## Training Phase



## Operational Phase

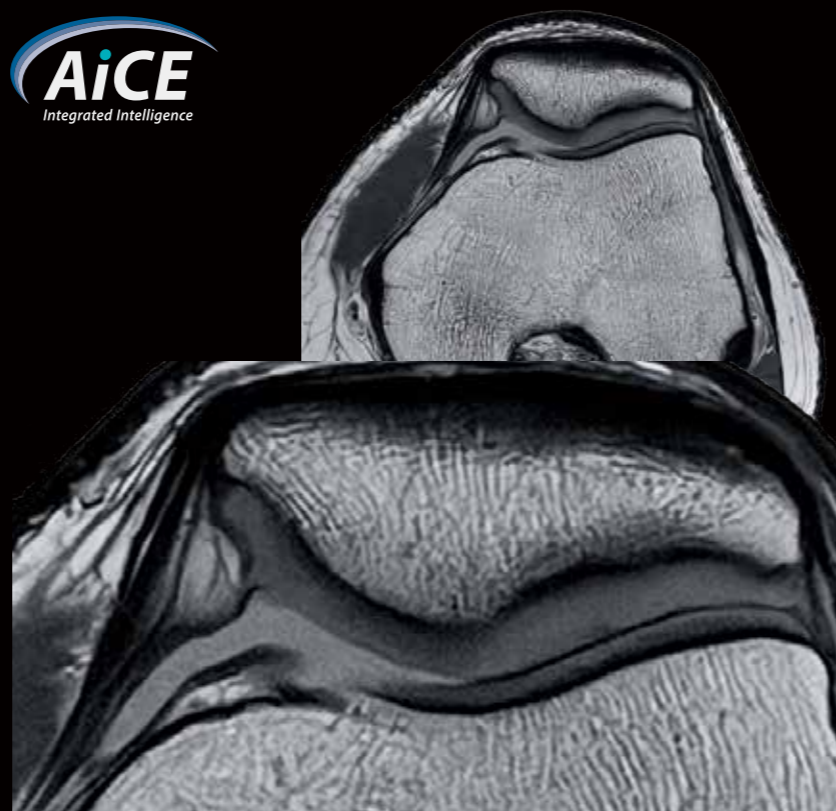




# Outstanding resolution with Deep Learning

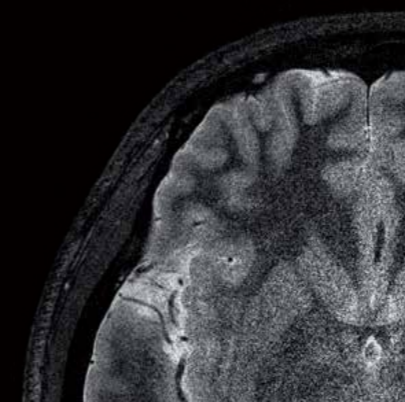
AiCE intelligently removes noise from images which results in higher SNR and enables increased resolution. Achieve sharp, clear and distinct images utilizing the power of Deep Learning, allowing you to see through the noise.

Original image



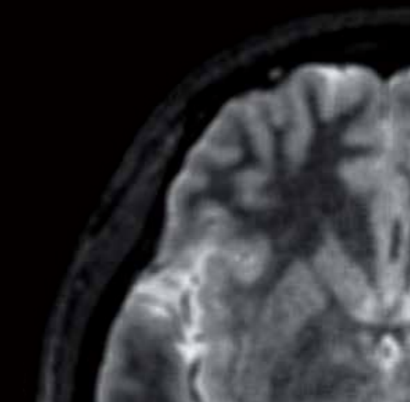
PDw 0.15 x 0.15 x 2 mm  
4:52

Following images demonstrates noise subtraction from the same original image utilizing a conventional filter (top images) compared to AiCE (bottom images). With the conventional filter some necessary anatomical information has been removed along with the noise, AiCE intelligently identifies noise from the original image due to the deep learning algorithms.



Original image

-



Conventional

=

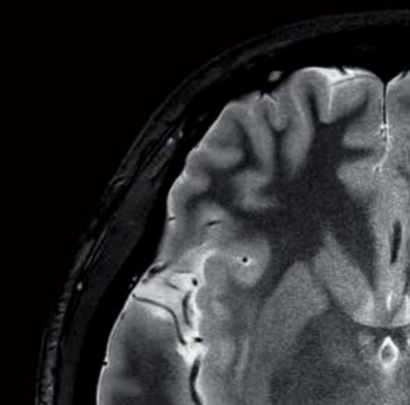


Subtraction



Original image

-



AiCE  
Integrated Intelligence

=



Subtraction

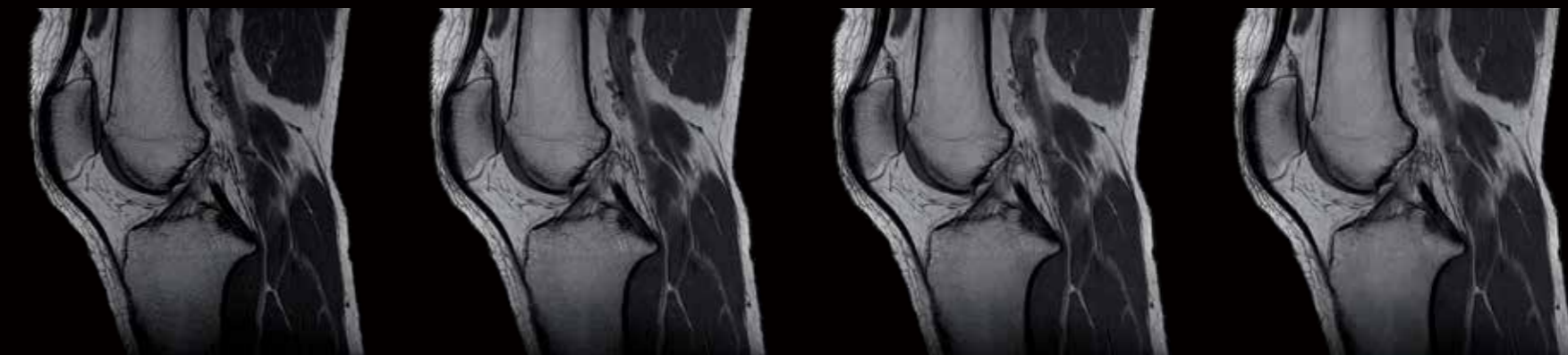


Advancing scan speeds  
with intelligent technology



## Compressed SPEEDER

Compressed SPEEDER is a new imaging technique that can accelerate scan times across the whole body. This unique imaging approach enables high-speed imaging up to four times compared to current scan speeds while maintaining excellent image performance.



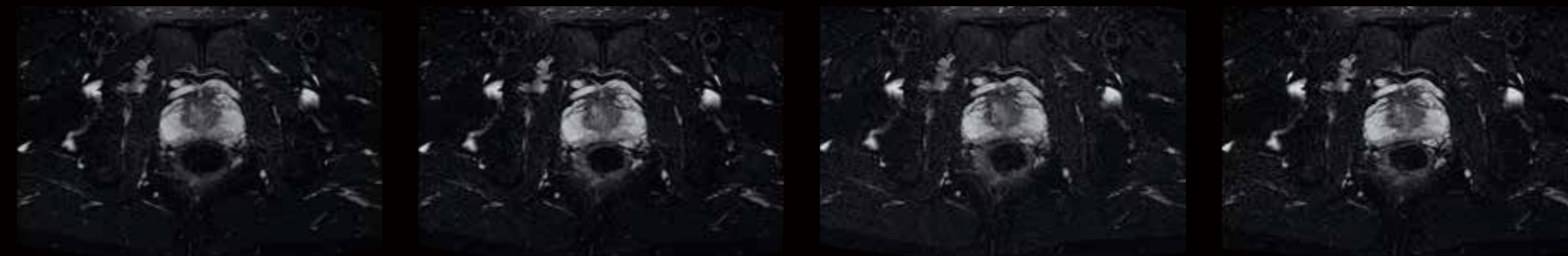
Without CS 2:39

CS x2 1:21

CS x3 0:56

CS x4 0:44

Sg PDw, 0.5 × 0.5 mm resolution



Without CS 4:27

CS x2 2:27

CS x3 1:46

CS x4 1:26

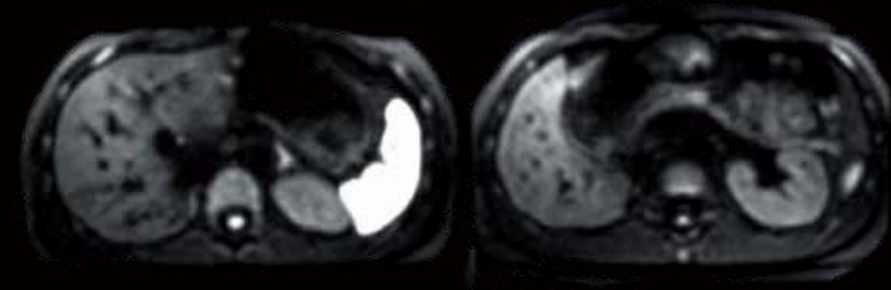
Ax T2w FatSat 0.83 × 0.83 mm resolution

# Intelligent technology to advance productivity

Reducing scan time improves the patient experience and increases throughput. With intelligent technology that advances our rapid scan technology, Vantage Orian delivers productivity that goes beyond expectations.

## Accelerated Diffusion Weighted Imaging with MultiBand SPEEDER

MultiBand SPEEDER acquires multiple slices simultaneously, which enables reduced scan times. DWI scans in particular can be acquired in about half the time compared to previous sequences.



Time : 0:55

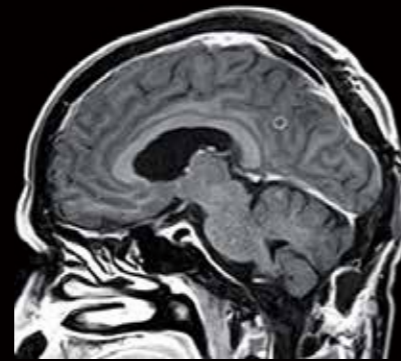
Courtesy of Dr. Xavier Alomar, Clinica Creu Blanca, Spain

*"MultiBand Diffusion Sequence has reduced our clinical scan times by half compared to the traditional Spin Echo Diffusion while maintaining image quality in the Abdominal Region."*

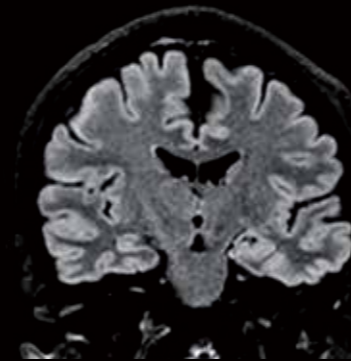
*Dr. Xavier Alomar, Clinica Creu Blanca, Spain*

## Faster scans with Fast 3D mode

New Fast 3D reduces scan times up to 50%<sup>1</sup> for different contrast weighted images while maintaining homogeneity and fat suppression.



T1w Post Contrast Enhancement



MPR FLAIR

Left: Courtesy of Dr. Hamamoto, Jichi Medical University Saitama Medical Center, Japan

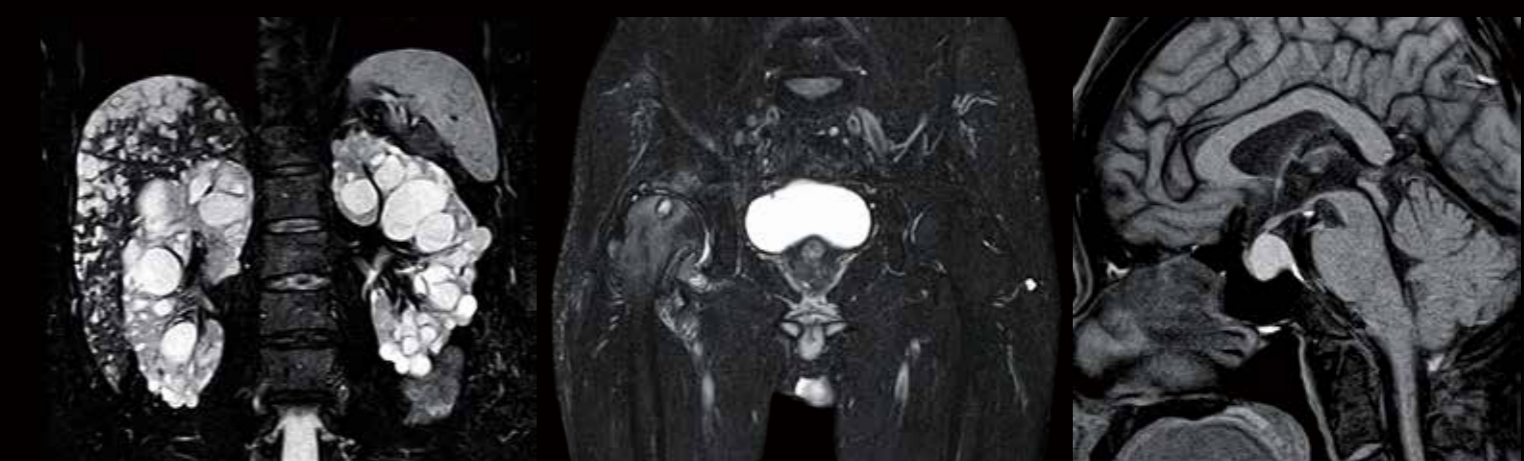
*"Fast 3D shortens imaging time while maintaining high quality images comparable to those offered by conventional techniques, contributing to work-flow improvements in routine medical care. It also delivers improved image quality without extending imaging time when compared to existing FASE3D."*

*Dr. Kohei Hamamoto, Jichi Medical University Saitama Medical Center, Japan*

<sup>1</sup> As compared to standard FASE3D sequence

## Reduce scans with Water Fat Separation

Water Fat Separation (WFS) achieves consistent fat suppression and homogeneity while acquiring four different tissue contrasts in one scan, reducing the total number of scans you need to acquire. Available for T1, T2, and PD sequences, WFS can be acquired in any area of the body.



Water image T2w

Water image T2w

Water image T1w

Courtesy of Dr. Arakawa, Saiseikai Kumamoto Hospital, Japan

*"Since WFS can shorten scan time, it can reduce patient burden and improve the examination efficiency."*

*Mr. Takeshi Ohta, Radiographer, Department of Radiology, Saiseikai Kumamoto Hospital, Japan*

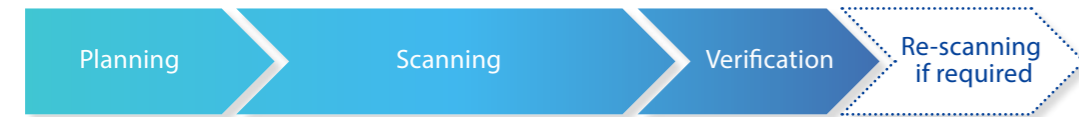


# Productivity focused technology that improves workflow and image consistency

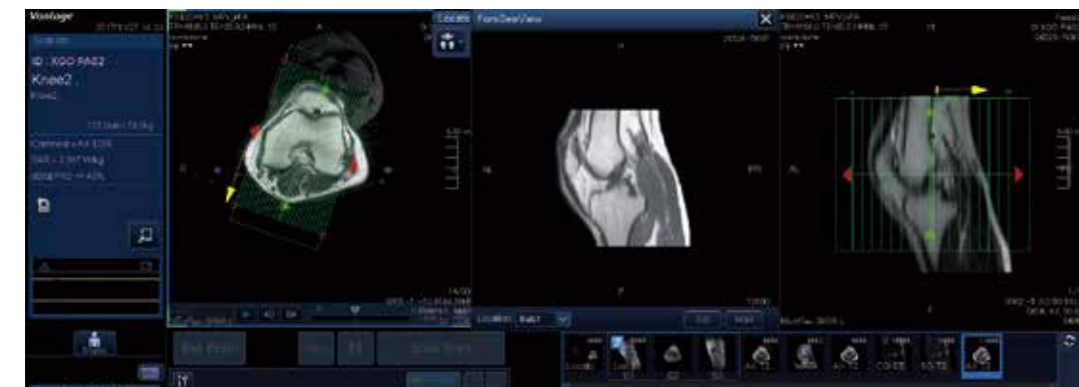
## ForeSee View

ForeSee View is an essential new scan planning tool designed to allow you to preview your slice planning in real time. This tool is particularly useful in anatomies that can be difficult to plan such as the pancreas, the heart, and certain orthopedic joints. This excellent new feature reduces the need for re-scanning and saves time on scan planning for all body regions.

### Normal



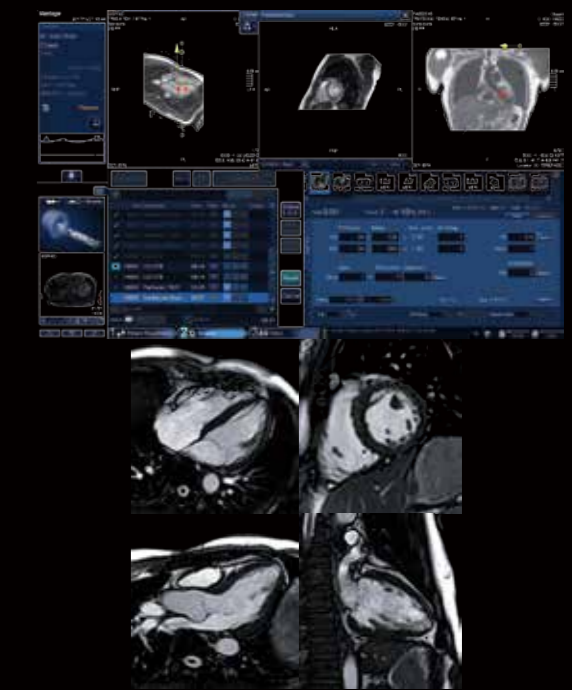
### ForeSee View



The desired cross section is displayed in real time in conjunction with the positioning operation.



### Planning for Cardiac



### Planning for Ankle





# EasyTech

With the complexity of scan planning, achieving scan plane reproducibility can be challenging and time-consuming. EasyTech technology takes away the variability and helps you improve workflow with automatic slice alignment for neuro, spine, knees and cardiac standardizing your workflow with automatic positioning.

## NeuroLine+

Achieve outstanding scan consistency for all your brain exams with NeuroLine+. The function's alignment algorithm allows you to automatically set up according to AC-PC or OM line.



*“Using this technique allows us to carry out a real follow-up on patients with multiple sclerosis and brain tumors. The reproducibility of the scan planes allows us to compare both the number of macrophages and their size. Measurements can also be replicated in the case of brain tumor treatment, and we can judge the effectiveness of the treatment. Today, 97% of exams for MS and tumors are carried out using this technique.”*  
 Marie Dominique BOESPFLUG, Radiologist and Doctor, GIE VAR OUEST, Ollioules

## SUREVOI Knee and KneeLine+

SUREVOI Knee supports the accurate alignment of the knee to the iso-center which reduces artifact related re-scans. KneeLine+ improves reproducibility and image quality.

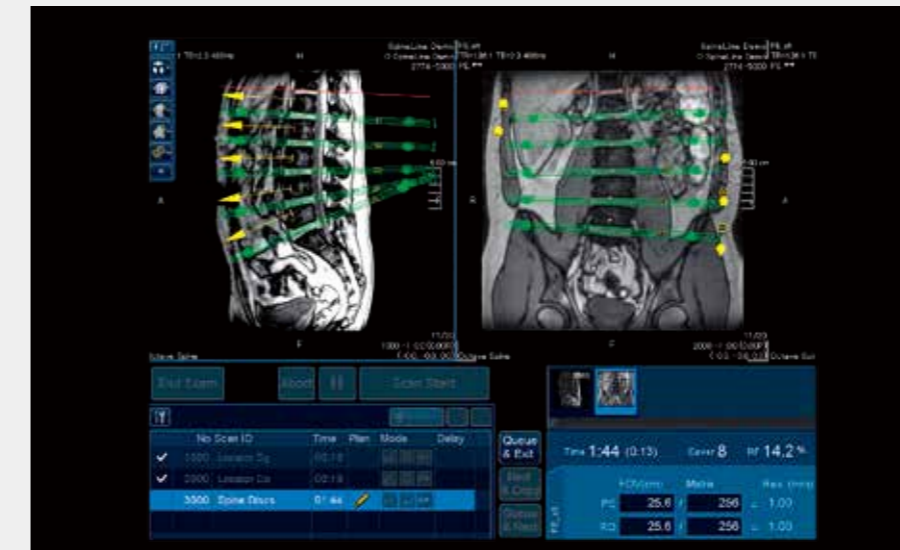


*“After 2 or 3 days of adaptation, the team has utmost confidence in the AI automatic positioning techniques, which allow them to concentrate on other, more rewarding tasks, such as post-processing tasks. Exam time is optimized and no time is wasted. Today, 85% of knee exams are performed using this technique”*  
 Frédéric MARTIN, Referring MRI technician, GIE VAR OUEST, Ollioules

*“Vantage Orian has delivered excellent consistency for our routine imaging procedures, improving confidence for staff and image readers. The range of EasyTech procedures has reduced workflow due to the automated technology, which in turn improves image consistency.”*  
 Dr. Xavier Alomar, Clinica Creu Blanca, Spain

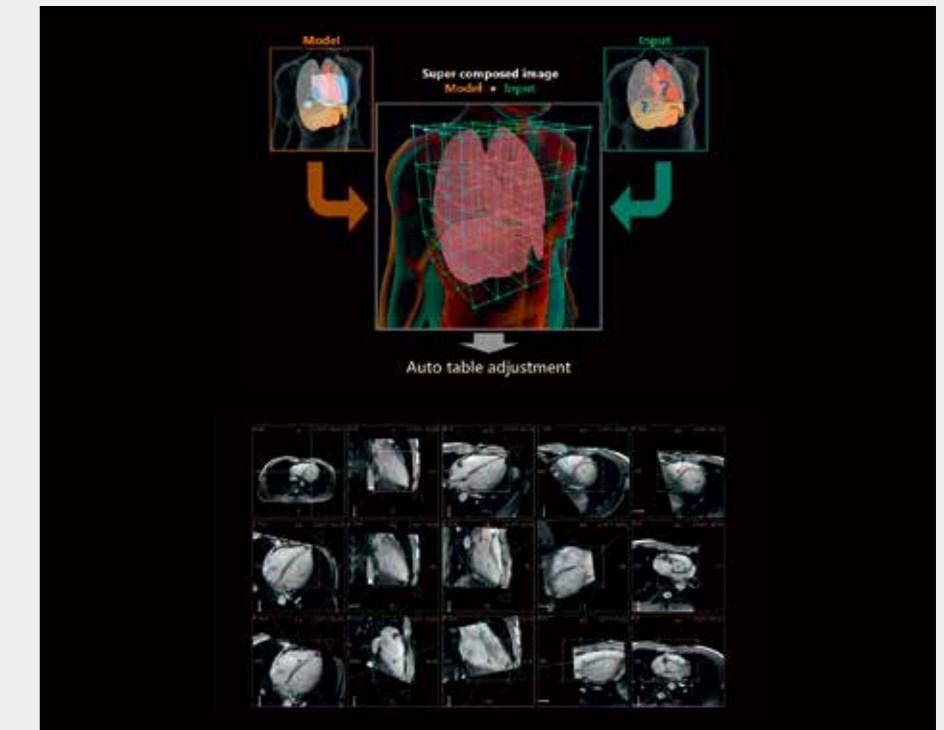
## SpineLine+

With its auto-locator functionality, SpineLine+ allows you to plan spine studies quickly and easily. Sagittal and coronal locators allow you to set double-oblique slices, enhancing the reproducibility of follow-up exams.

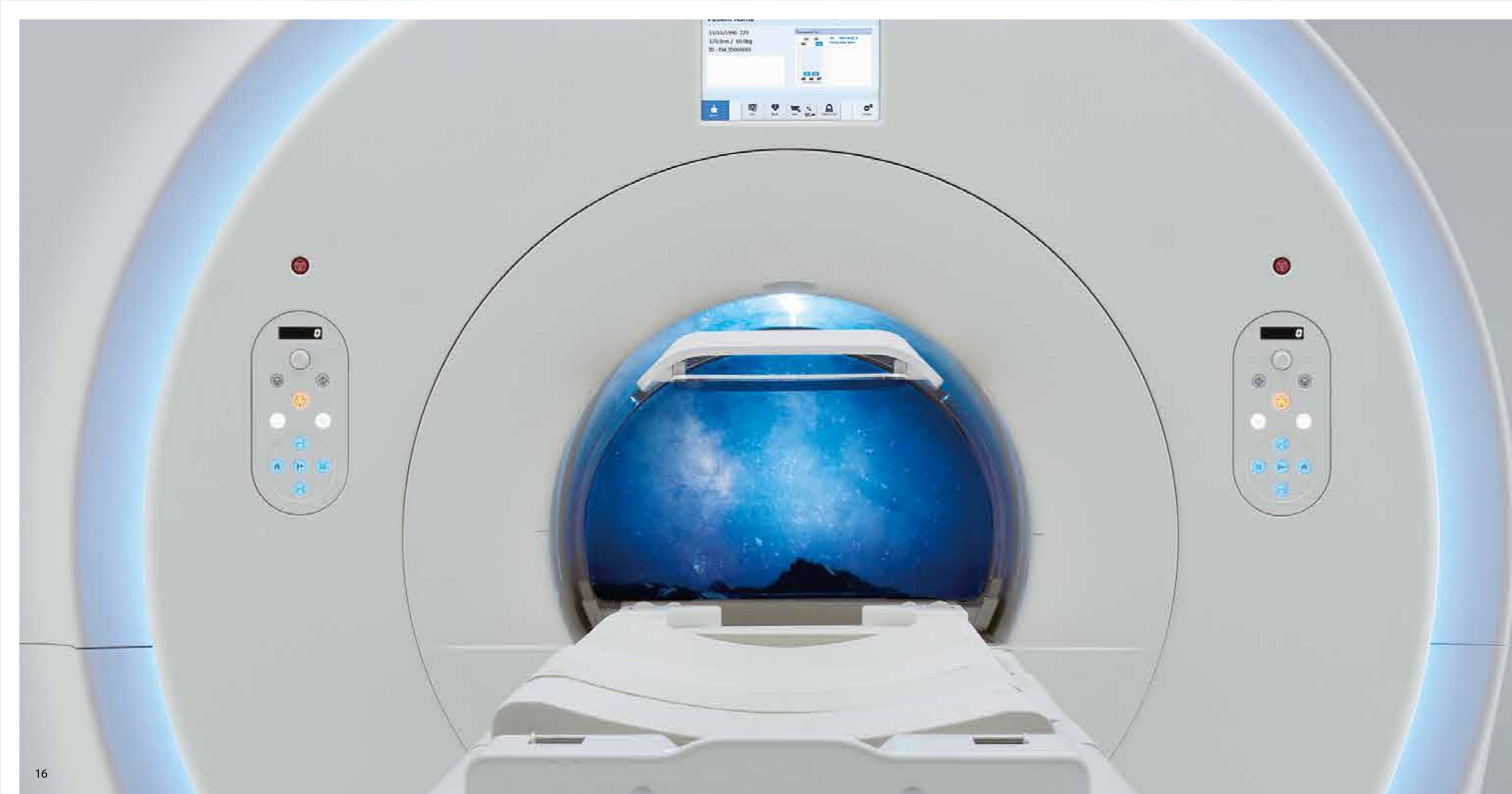


## SUREVOI Cardiac and CardioLine+

SUREVOI Cardiac and CardioLine+ improve reproducibility and image quality by supporting the alignment and centering of the heart to the magnet isocenter and the positioning of the exam's standard planes automatically.







## Give your patients a greater sense of freedom

### MR Theater and wide bore

The wide bore patient aperture and in-bore immersive virtual experience enhance patient comfort. The MR Theater encourages patients to relax and stay still, enabling clinicians to produce, high-quality imaging.



With a range of gantry ring color choices available at installation, your facility can create the mood and atmosphere you want to provide to your patients.

## Patient friendly features putting your patients first

Deliver whisper quiet exams with Pianissimo and Pianissimo Zen.

### Pianissimo and Pianissimo Zen

Pianissimo technology significantly reduces the noise in and around the MRI environment for every patient, every sequence, every time. And Pianissimo Zen quiet sequences further reduce noise to just above ambient noise level, making exams even more comfortable and easier to complete.

### Quiet examination

Vantage Orian's mUTE<sup>2</sup> application suppresses high-speed gradient field switching, making it possible to provide even quieter scanning.



3D Sg T1w Silent 1 mm isotropic TE = 0.12 ms

Co MPR

Ax MPR



Brain

Up To **99%**<sup>3</sup>  
Noise Reduction



<sup>2</sup> mUTE: minimized acoustic noise utilizing UTE

<sup>3</sup> Depending on the condition of usage and examination.



## Expand referrals by better managing challenging patients

Expand your patient referral opportunities with accelerated scans that help reduced breath hold times, along with free breathing and contrast free applications that can deliver a better and faster patient experience.

## Adaptive Scan Mode

Utilize adaptive scan mode to set imaging parameters in order to manage patients with implants. In addition, by saving parameter settings for each implant device you can improve workflow for future procedures.

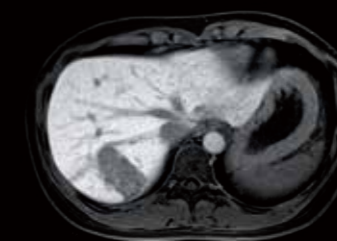
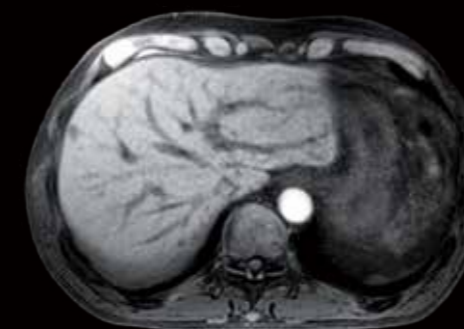
## Non-Contrast MR Angiography

An increasing awareness of the potential risks associated with gadolinium-based contrast agents has revealed the need for alternative, contrast-free MRA techniques. Non-Contrast MRA sequences minimize risk to patients with sensitivity to contrast while producing exceptional diagnostic images.



## Quick Star free breathing

Quick Star free breathing and motion reduction can be helpful for challenging patients that have difficulty holding their breath, especially for liver examinations or uncooperative patients like pediatrics.



Quick Star free breathing



MPR

Courtesy of Dr. Hamamoto, Jichi Medical University Saitama Medical Center, Japan

*"Quick Star allows us to obtain high resolution 3D T1 WI with free breathing and is very useful for visualizing the lesion in the abdominal area of the patient who has difficulty to hold their breath."  
Dr. Hamamoto, Jichi Medical University Saitama Medical Center, Japan*



### Dockable Table

The Dockable Table enhances workflow and provides easy patient handling allowing medical staff to respond to any patient requirement quickly and easily.

### Intelligent Monitor

The completely intelligent gantry interface has been re-designed to enhance workflow and save set-up time, displaying important patient related and coil information, and allowing you to ensure a proper and complete setup without leaving the patient's side.



## Vantage Orian – a truly smart investment choice

With outstanding productivity enhanced by high end migrated 3T technology, Vantage Orian keeps your staff moving. Combining industry leading patient friendly features, low energy consumption, a small footprint and outstanding Canon service offerings, Vantage Orian takes care of business.



### ECO Space

Minimize investment in valuable floor space with a 25 m<sup>2</sup> footprint that excels in the 1.5T wide bore market.<sup>4</sup>

### ECO Mode Plus

With new technology that automatically minimizes power consumption by up to 21% when the scanner is not being used with no effect on image quality.

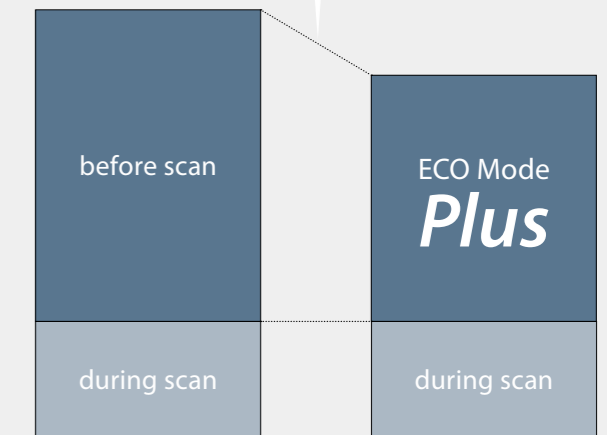
### ECO Table

ECO Table is automatically activated simply by lowering the couch to the home position (physically or at the console), when the Dockable Table is removed, or when the procedure is completed.

### ECO Cooling System

Further reduces power automatically when the system is not operating through the intelligent operation of the cooling compressor.

21% reduction



Conventional

Vantage Orian

Power consumption

<sup>4</sup> The 5 Gauss line is not confined within the Scan Room. Controlled access area should be taken into account by the facility when preparing for installation. The above specifications may not meet the local requirements. Please consult with your architectural and/or electric consultant for coding requirements. Some power equipment may be required to be placed in a dedicated electrical room. The minimum footprint may not be applied to some cases depending on each site.



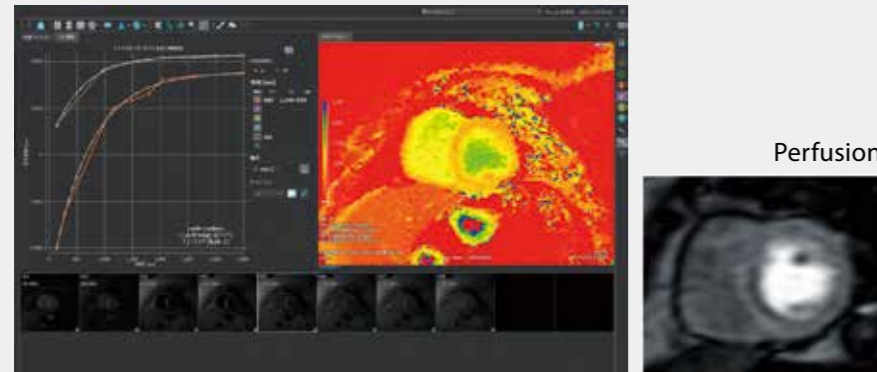
# Advanced post processing enhances diagnosis while helping to expand patient services

Access advanced applications with post processing tools.

## T1, T2, T2\* Mapping

Expand your cardiac toolset with T1, T2, T2\* mapping, allowing you to acquire a much more quantitative characterization of myocardial tissue.

### T1 Mapping

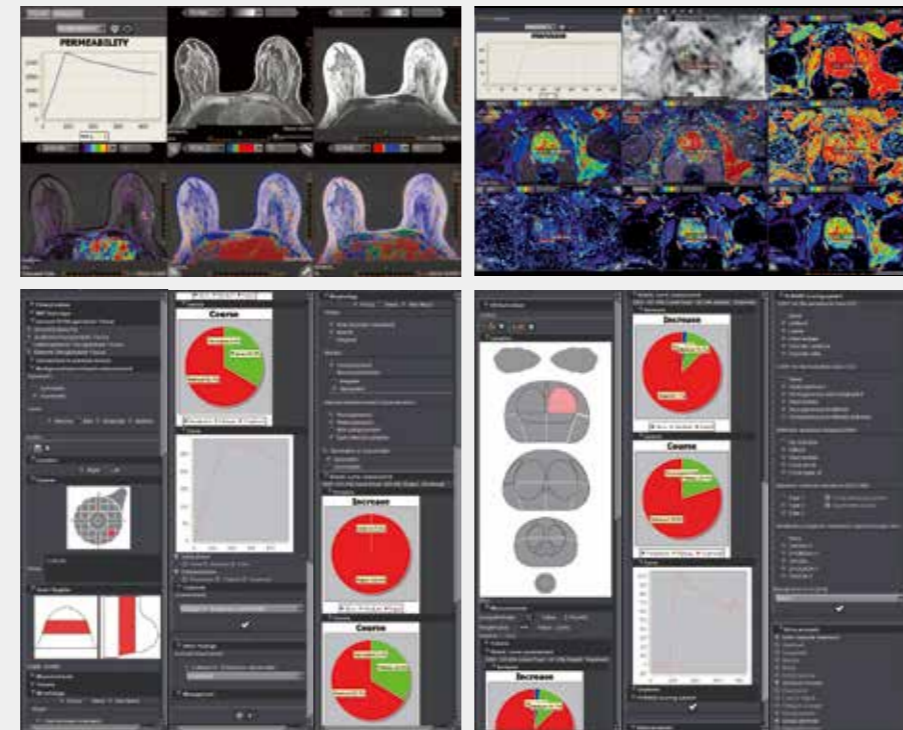


Courtesy of Dr. Nomura, Instituto do Coração, Brazil

*“T1 Mapping allows us to identify the pathologic area without the injection of contrast. In general, a prolonged native myocardial T1 signal is encountered in various disease states that result in edema or fibrosis, and in amyloid deposition”*  
 Dr. César Nomura, Instituto do Coração, Brazil

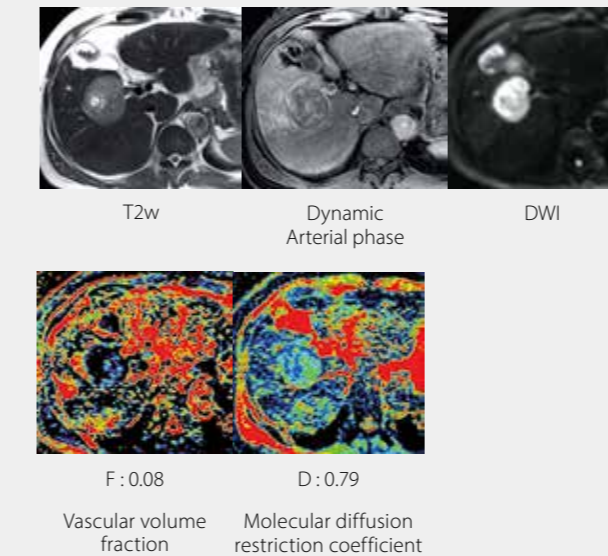
## Dedicated automatic reporting

Stroke, breast (BI-RADS®) and prostate (PI-RADS® v1 and v2) automatic compliant reports.



## Bayesian IVIM

Bayesian-based method provides a rigorous probabilistic estimation of parameters. It is fully adaptive, delay-insensitive and highlighted better results than other methods.



Courtesy of St. Marianna University School of Medicine, Japan

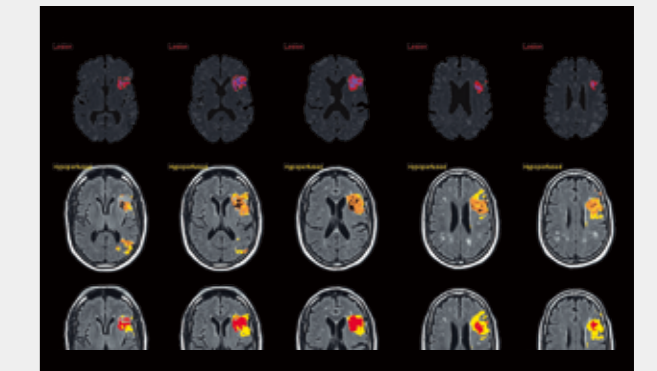
## Volume segmentation

Automatic or semi-automatic segmentation tools to compute volume of interests from various anatomical areas such as cartilage or brain.



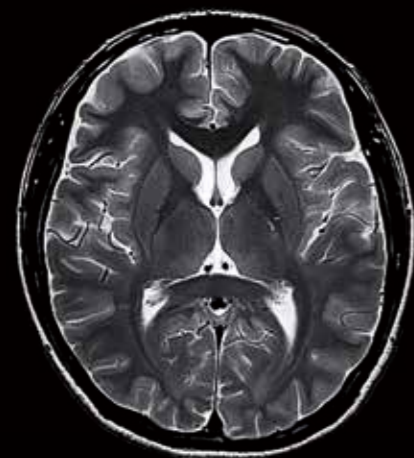
## Stroke analysis

Complete post-processing solution for stroke care with automatic mismatch assessment and volume computation.

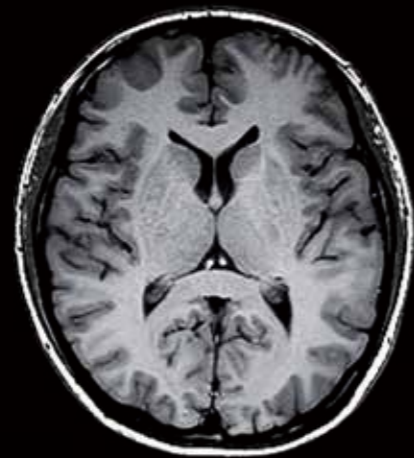


# Image gallery

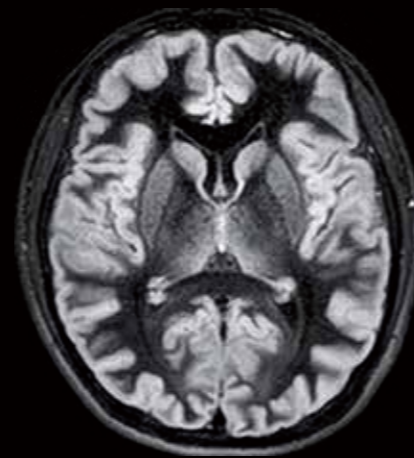
## Head



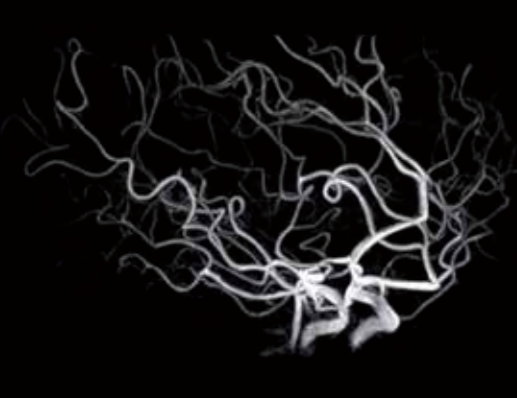
Ax T2w



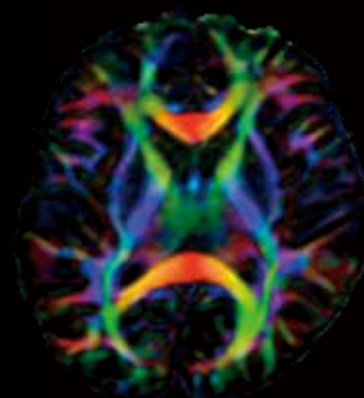
Ax T1w



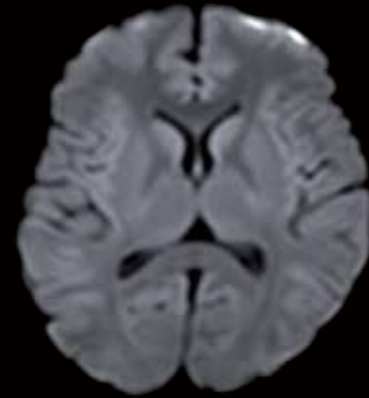
Ax DIR



3D TOF



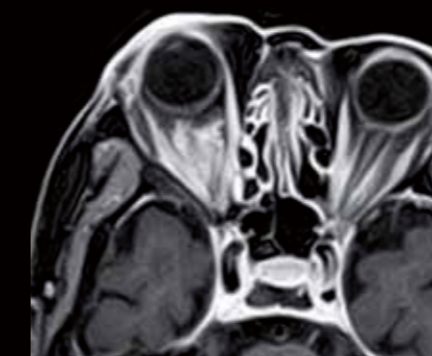
FA map



Iso DWI



## Orbit

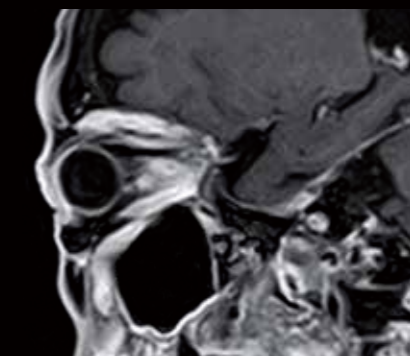


3D Ax T1w Post Contrast Enhancement

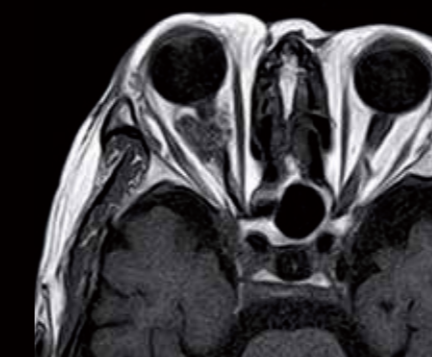
Right orbital tumor



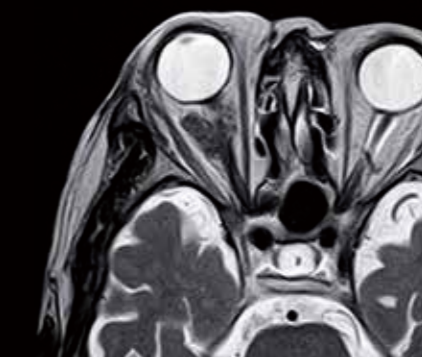
Reformat



Sg MPR



Ax T1w



Ax T2w

Courtesy of Dr. Hamamoto, Jichi Medical University Saitama Medical Center, Japan



# Image gallery

## C-Spine

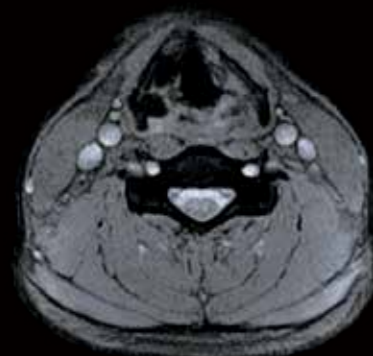


Sg T1w

Sg T2w

Sg STIR

*Courtesy of GIE Var Ovest, Ollioules, France*



3D Ax T2\*

## L-Spine

Carcinomatous meningitis WFS  
with Contrast Enhanced

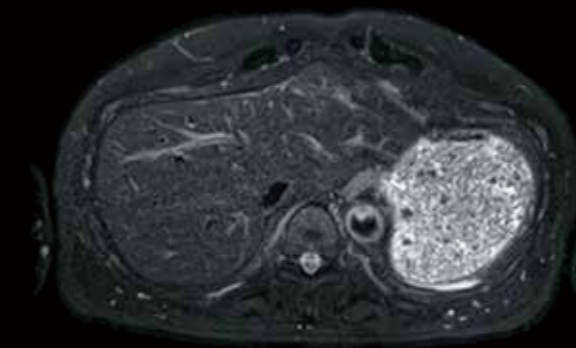


In phase

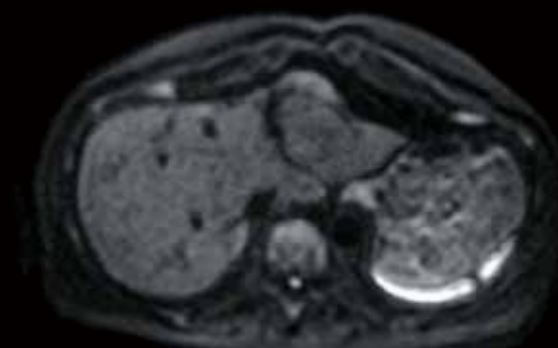
Water image

*Courtesy of Dr. Arakawa, Saiseikai Kumamoto Hospital, Japan*

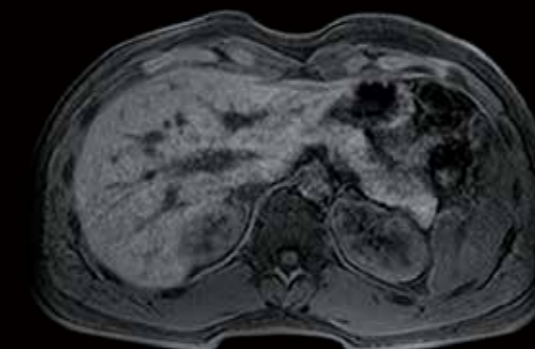
## Abdomen



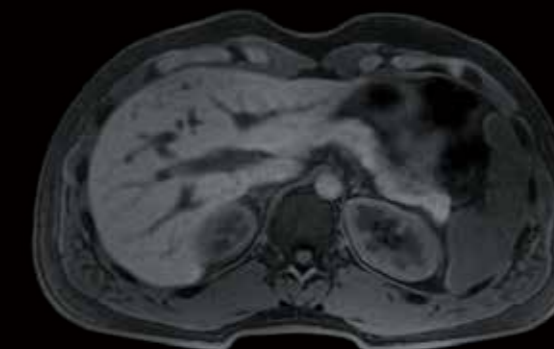
Ax T2w FatSat



Ax DWI / b800



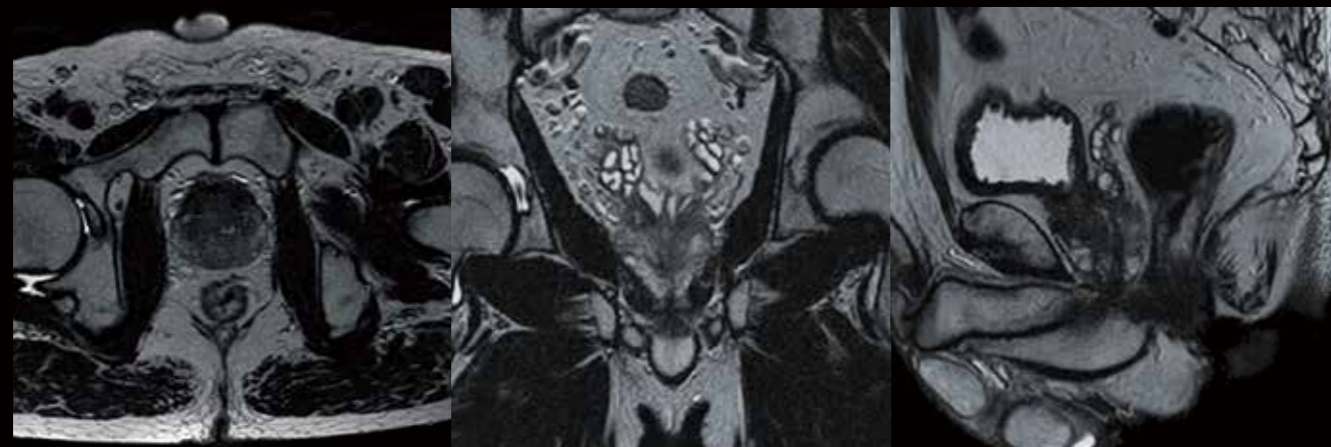
Ax FFE3D FatSat free breathing



Ax Quick Star FatSat free breathing

# Image gallery

## Prostate

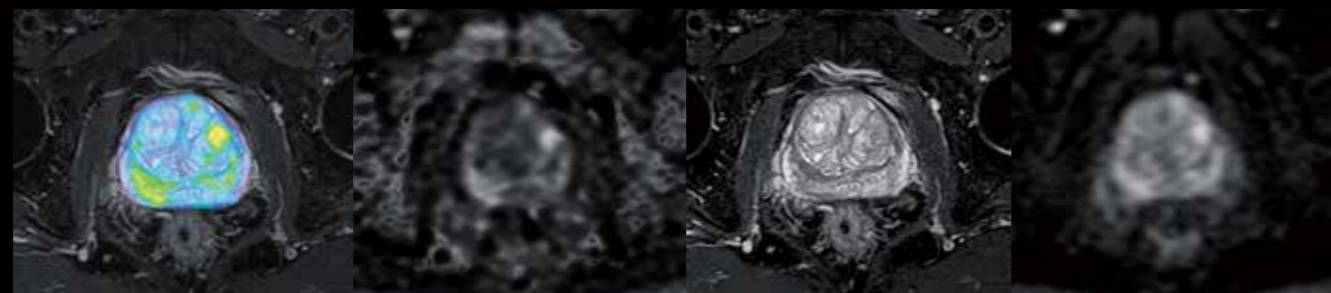


Ax T2w

Co T2w

Sg T2w

## Prostate Cancer Suspicion



T2w FatSat + cDWI / b2000  
Fusion

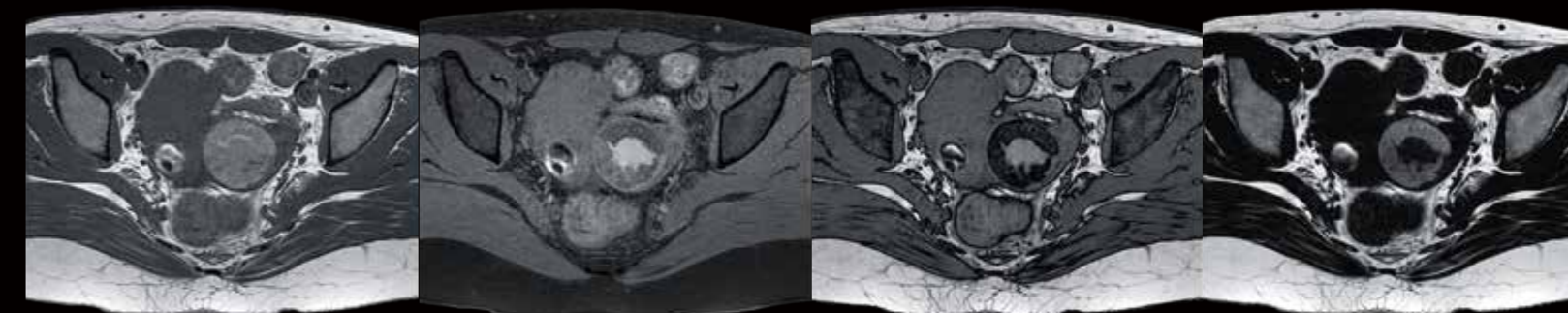
Ax cDWI / b2000

Ax T2w FatSat

IsoDWI / b=1000

*Courtesy of Rakusai New Town Hospital, Japan*

## Pelvis



In phase

Water image

Out of phase

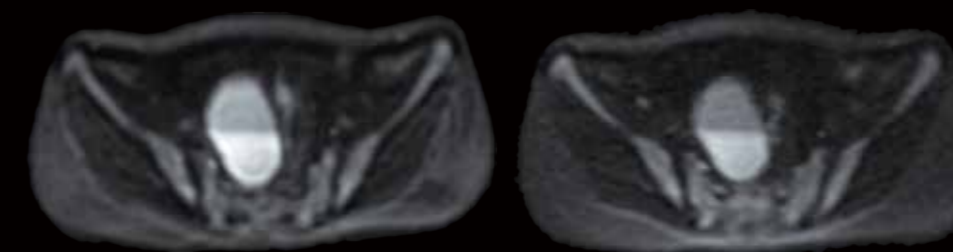
Fat image

Ax T1w Water Fat Separation

## Right Endometrial Cyst of the Ovary

Conventional DWI

**MultiBand SPEEDER**



5:36

3:07

IsoDWI / b800, Free Breath 34 slices

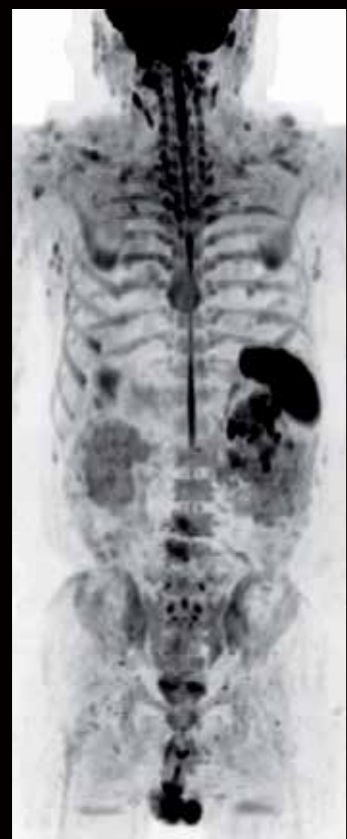
*Customer provided images*



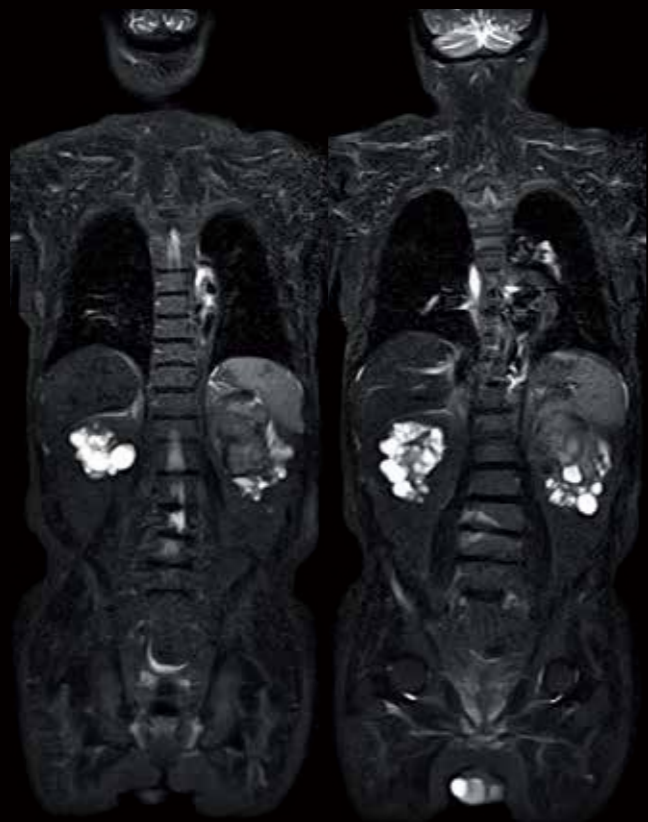
# Image gallery

## Whole Body DWI

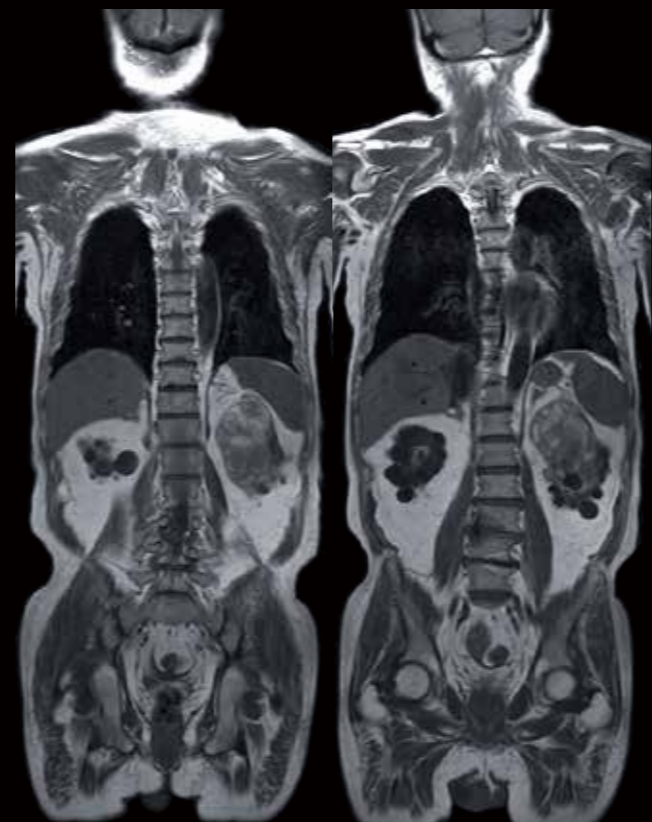
Left Renal Cancer (cT3aNOMO)



DWI



STIR



T1w

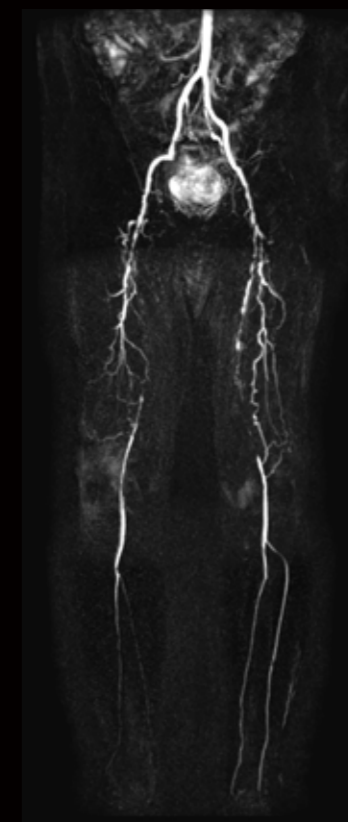
*Courtesy of North Kashiwa Rehabilitation Hospital, Japan*

## FS-FBI

ASO Suspicion



CTA



FS-FBI

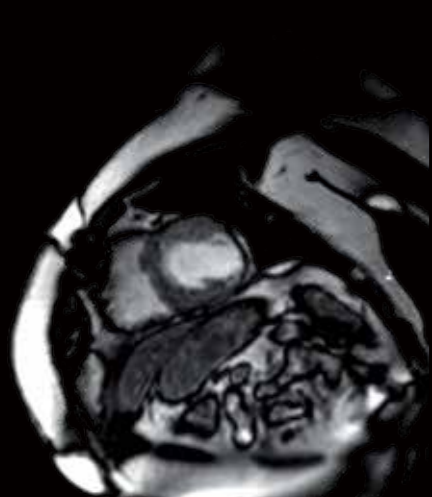
*Courtesy of Tobata Kyoritsu Hospital, Japan*

# Image gallery

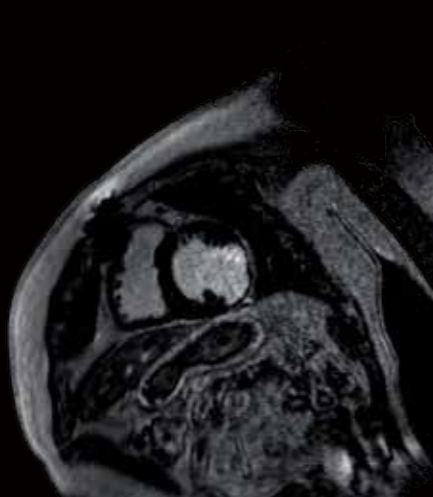
## Cardiac

### Cardiac Cine / LGE

Free breathing with k-t SPEEDER



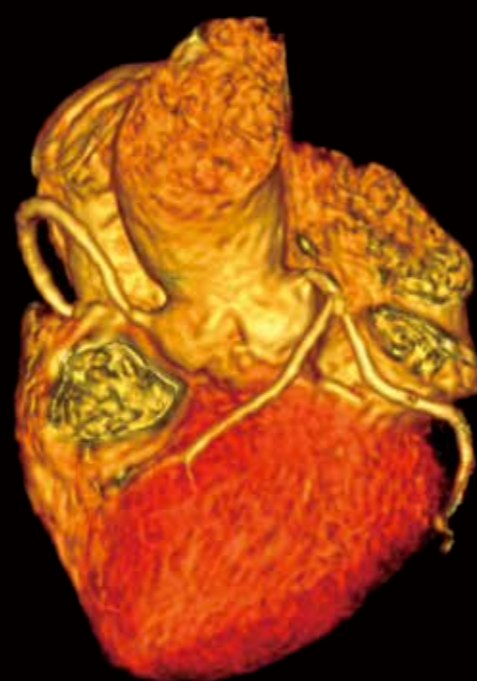
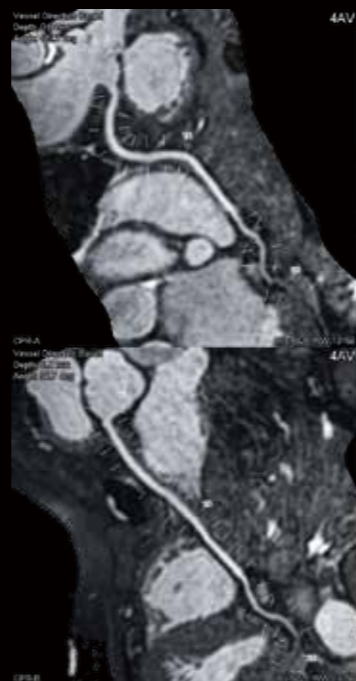
Lated Gadolinium Enhancement



Courtesy of Dr. Xavier Alomar, Clinica Creu Blanca, Spain

" This patient had difficulty suspending his breathing due to severe Cardiomyopathy demonstrated in the left lateral wall of the myocardium. Due to the high temporal resolution of k-t SPEEDER cine images could be acquired with free breathing while maintaining image quality ."  
Dr. Xavier Alomar, Clinica Creu Blanca, Spain

### Whole Heart Coronary



Courtesy of Sendai Kousei Hospital, Japan

## MSK

### Foot



Without CS 3:08



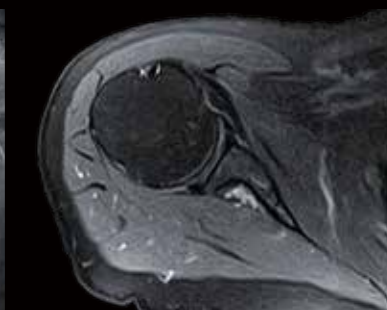
CS x4 0:49



### Fast shoulder



Co PDw FatSat 1:18



Ax PDw FatSat 1:28



Sg PDw FatSat 1:47



Sg T1w 1:28

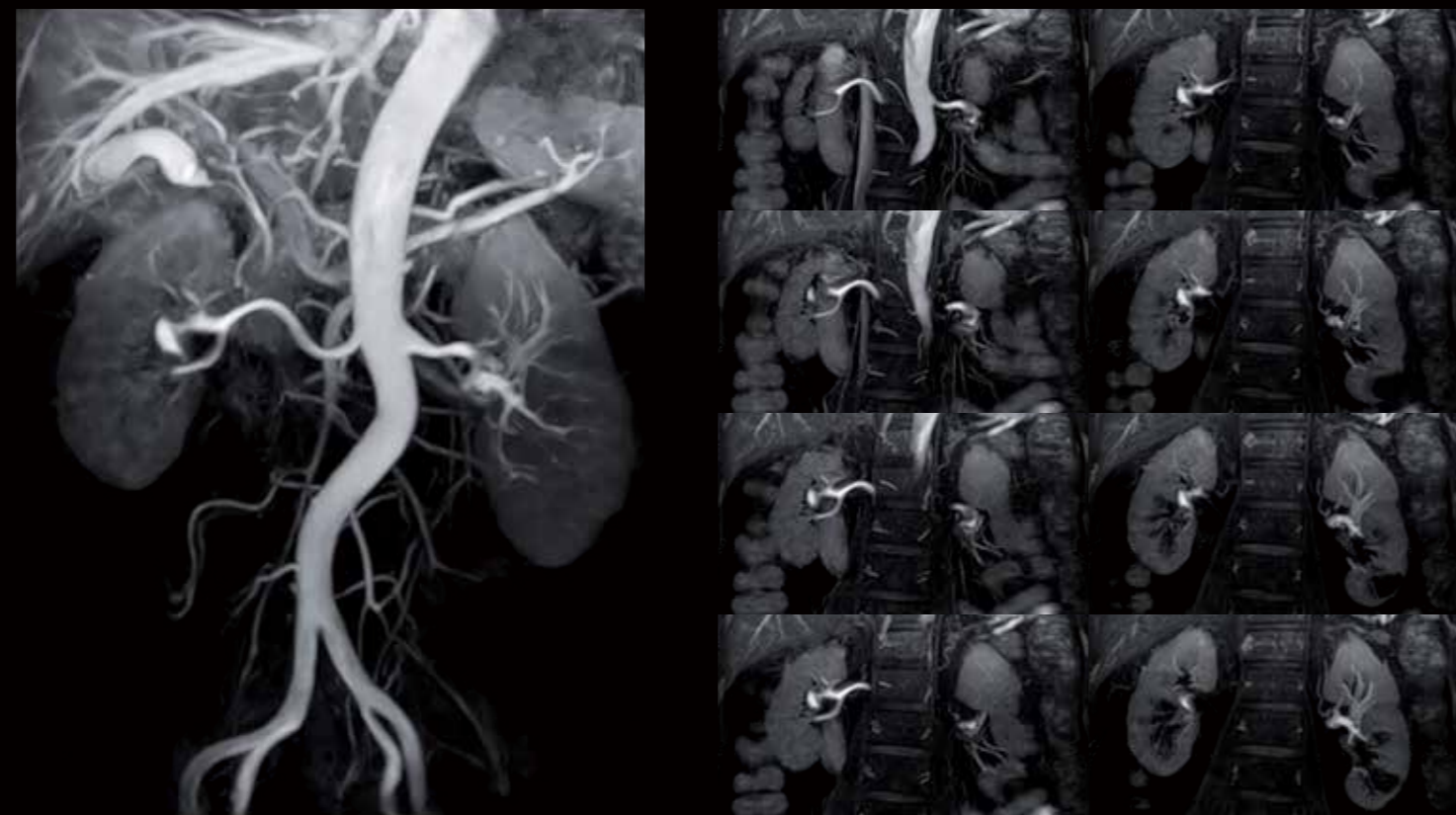
Courtesy of GIE Var Ouest, Ollioules, France



# Image gallery

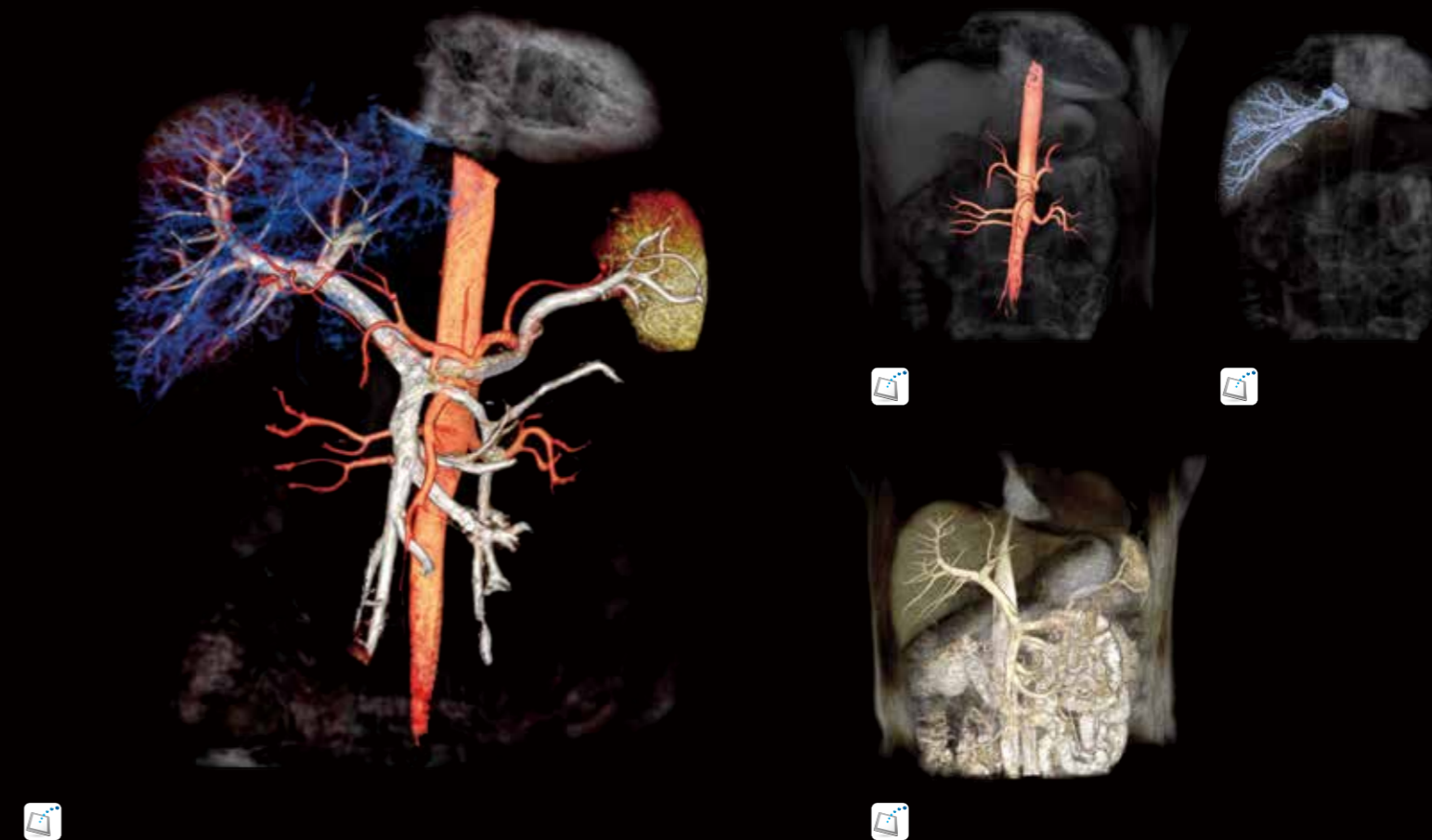
Time-SLIP

Right renal aneurysm



*Courtesy of Rakusai New Town Hospital*

Time-SLIP



Delivering productivity while taking care of your patients. That is the Vantage Orian difference.



## Delivering outstanding productivity, comfort and confidence at 1.5T MRI, powered by AI

Now with Advanced intelligent Clear IQ Engine (AiCE) that intelligently removes noise to increase SNR and enhance resolution, 1.5T imaging steps into the AI era.

With productivity boosted by a range of rapid scan applications including new Compressed SPEEDER, ForeSee View for enhanced scan planning and automated EasyTech technology to improve workflow, your facilities' imaging performance will meet the needs of staff and patients alike. Hospital administrators are sure to be kept happy with Vantage Orian's small footprint, low power consumption features, outstanding reliability and excellent maintenance programs.

A relaxed patient is key in MRI, and you can be assured that Vantage Orian takes care of this with industry-leading whisper-quiet scan sequences, 71 cm wide bore and MR Theater all designed to put patients at ease. And you can also manage challenging patients with reduced breath hold times, free breathing and contrast free applications.

And most importantly, stable and consistent imaging performance is delivered through our migrated <sup>PURE</sup>RF and Saturn Technology from our 3T portfolio, increasing diagnostic confidence for the staff and physician alike.

### Intelligent

- Advanced intelligent Clear-IQ Engine (AiCE) increases SNR which helps you to see through the noise to deliver clear, sharp and distinct images

### High Productivity

- Now with Compressed SPEEDER, rapid scan technologies reduce scan time
- Dockable Table, automated EasyTech and ForeSee View improve workflow
- Small footprint and low energy consumption minimizes operational costs

### Patient Comfort

- MR Theater helps relax patients with a virtual immersive experience
- Pianissimo technology delivers whisper quiet scanning
- Short magnet and 71 cm wide bore offers an open MRI scanning environment

### Clinical Confidence

- High resolution imaging with Saturn Technology
- Consistent imaging performance with <sup>PURE</sup>RF
- Outstanding diffusion imaging with Gmax of 45 mT/m and SR 200 T/m/sec
- Advanced diagnosis with Olea/Vitrea