SigmaVision® Advanced
Software for MR Hyperthermia in Clinical Oncology
### SigmaVision Advanced

Software for MR Hyperthermia in Clinical Oncology

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### At a glance

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This interdisciplarily-developed hyperthermia software is convincing due to its intelligent structure. It thus contributes to greater precision and an even higher treatment quality.
MRI SigmaVision Advanced

The software for image-guided hybrid hyperthermia

Hybrid hyperthermia is a further development of regional deep hyperthermia, which integrates magnetic resonance imaging (MRI) to form image-guided hyperthermia.

MR and CT image guidance are dominating all novel therapeutic approaches in radiation treatment, and our logical development of classical hyperthermia into image-guided hyperthermia using MRI offers physicians an advanced new instrument for adjuvant cancer treatment. This allows the user to efficiently carry out the hyperthermia treatment while simultaneously monitoring the therapy parameters.

MRI SigmaVision Advanced creates a visual image of the hybrid hyperthermia: the combination of hyperthermia and the MRI system provides a non-invasive, three-dimensional temperature imaging during the course of treatment leads to optimized therapeutic results.

SigmaVision Advanced is a completely new thermometry software enabling the user to measure, monitor, and document the temperature changes.

As with SigmaHyperPlan Advanced, this was also devised and developed using the latest scientific results and practical experience.

MR image-guided hyperthermia simplifies the clinical routine and takes into account the varied employee qualifications.

An intuitive GUI and color-coded thermal images allow for optimal therapeutic parameters in a few steps.

The thermometry process is based on an algorithm developed in close cooperation with the Klinik für Radioonkologie und Strahlentherapie, Charité Universitätsmedizin in Berlin.
MRI data import
Automatic recording

In every hybrid hyperthermia, an MRI protocol developed specially for MR thermometry is used for imaging.

An easily understandable user interface supports the user during the import of the patient data.

The input DICOM data of the MRI is automatically recorded and processed by SigmaVision Advanced.

Contouring
Efficient tumor contouring in 3D

This software makes all the graphical software tools available to the user, in order to guarantee precise and efficient segmentation.

Thanks to the three-dimensional MRI images, SigmaVision Advanced enables 3D editing of the contours.

The axial, sagittal, and coronal slices of the MRI images are displayed on the screen, as well as a perspective view.

This phase also includes automatic calibration of the MR thermometry to compensate for the magnetic field drift.
**MR thermometry**

**Non-invasive temperature monitoring in real-time**

This menu point allows for the calculation and visualization of the axial thermal images. Following each new MRI measurement, the user is supplied with the calculated, color-coded 3D temperature images. During treatment, the MR-image-guided hyperthermia records the MR volume at regular intervals – e.g., every 5 minutes – and color-coded isothermal regions represent the calculated thermal image on the resulting axial slices.

The temporal progression of the temperature changes in the tumor can be reconstructed via the timeline. The user can react to unexpected and undesired heating (hot spots) in real-time.

SigmaVision Advanced represents a highly professional tool for the real-time recording of heat changes in the patient.

**Documentation**

**Every detail saved**

SigmaVision Advanced, like SigmaHyperPlan, collates all treatment-relevant data and settings, from the patient data to the contouring of the tumor, right up to the applicator data and the graphical evaluation of the temperature measurement. These parameters can be archived and printed out properly formatted.
The features of SigmaVision Advanced at a glance:

- Non-invasive thermometry
- 3D temperature monitoring in realtime
- Greatest possible monitoring of the treatment
- Ergonomic, intuitive operating control with comprehensive, tried-and-tested plausibility checks

The functional structure results from long-standing, interdisciplinary research findings, as well as clinical studies and user surveys.
Please do not hesitate to contact us if you still have any questions.

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