

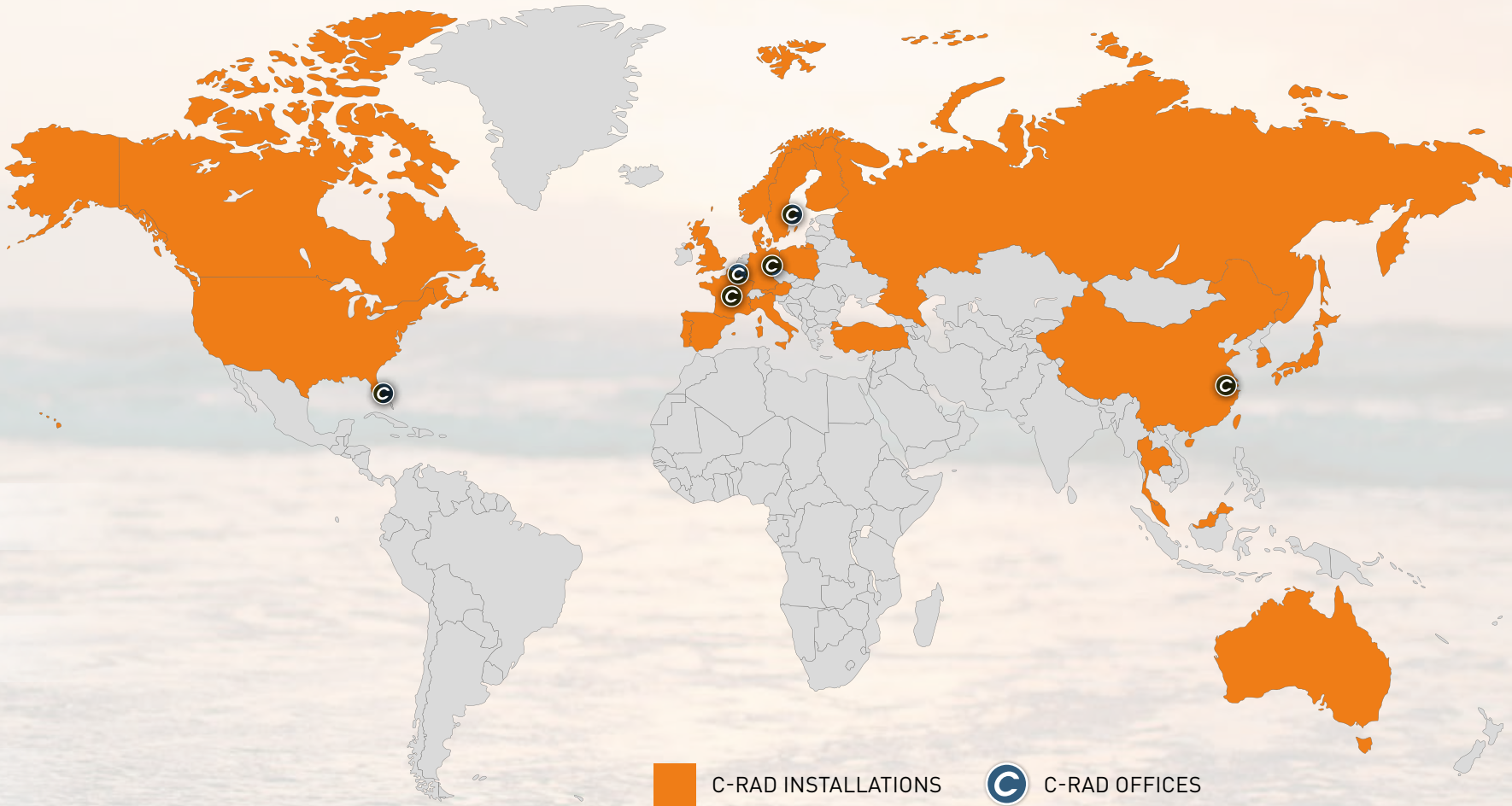


# REDEFINING PRECISION IN ADVANCED RADIATION THERAPY

C-RAD's cutting-edge solutions ensure exceptionally high precision, safety and efficiency in advanced radiation therapy, helping to cure more cancer patients and improve their quality of life.

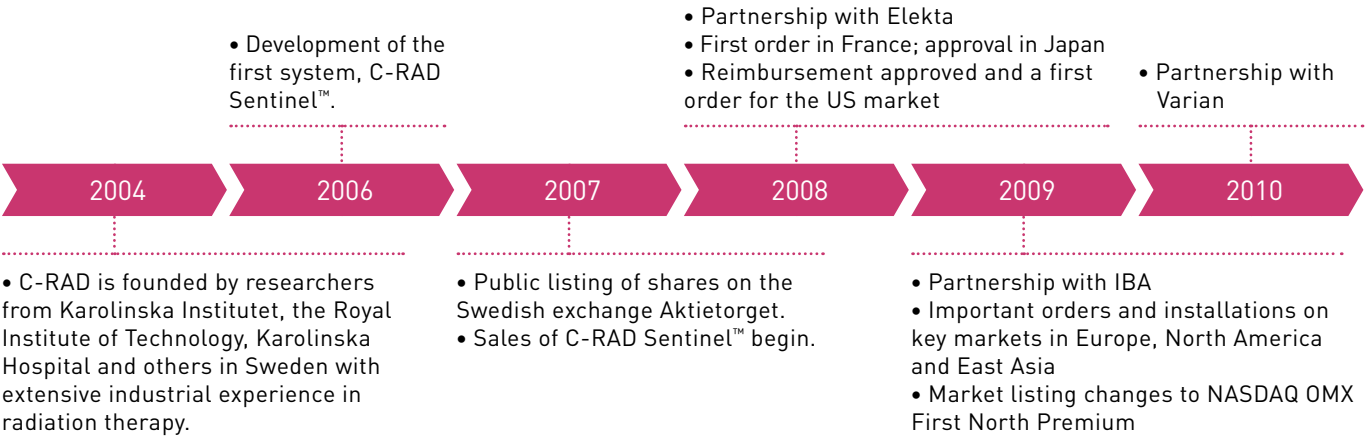
**C-RAD** addresses the two great clinical challenges posed by cancer today: improving the quality of treatment through increased precision, and increasing patient throughput by improving efficiency. Our customers are radiation treatment clinics and diagnostics departments in hospitals worldwide.

- Cancer is treated today with surgery, radiotherapy or chemotherapy – or a combination
- Radiotherapy cure rate is rising compared to other methods – a growing trend
- Our products interface and integrate seamlessly with major radiation therapy systems in clinical settings
- We ensure high levels of patient safety and user comfort and confidence
- Strategic partnerships with market leaders in radiation therapy systems
- Research Fellow Program with leading cancer research centers worldwide
- Continually developing more advanced solutions based on clinical practice

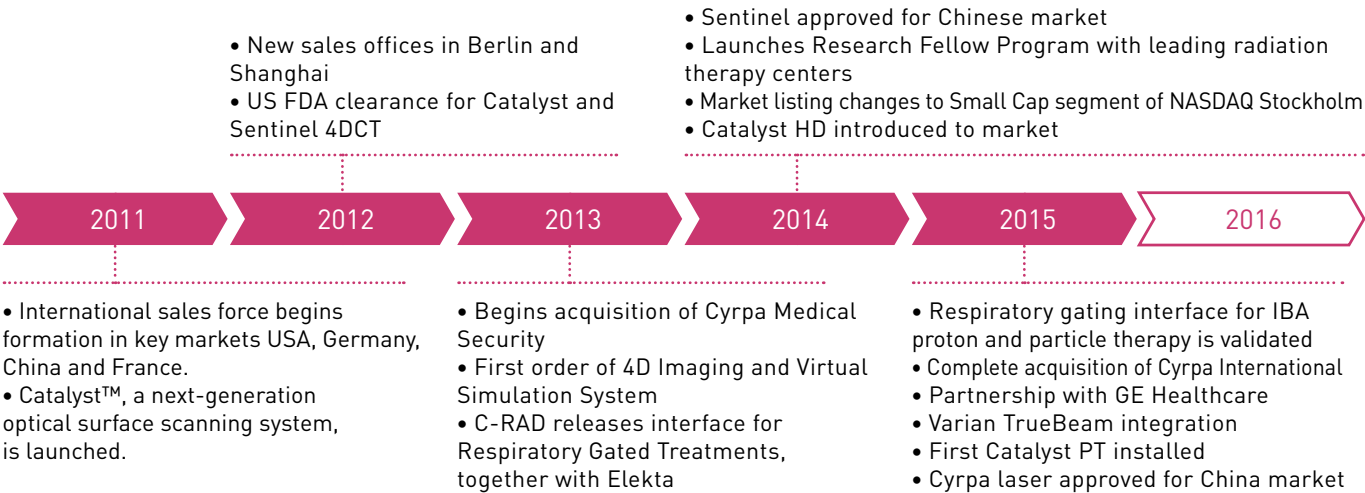


The C-RAD Group is headquartered in **Uppsala, Sweden**. It has additional sales and service offices in **Berlin, Germany**; **Shanghai, China**; and **Delray Beach, Florida, USA**. A wholly owned subsidiary, Cyrpa, is headquartered in **Brussels, Belgium**.

## CONTINUAL ADVANCES IN PRECISION,



## EFFICIENCY AND SAFETY





# SUPPORTING THE ENTIRE RADIATION THERAPY CHAIN

C-RAD's high-performance products support integration in end-to-end multi-vendor treatment workflows, from the computed tomography room to the treatment room. The c4D interface acts as a universal software interface to other vendors' systems. Support is assured for patient compliance and advanced quality assurance procedures.



## SENTINEL™ 4DCT

- Laser-based optical surface scanning system
- Functionality for 4D CT reconstruction and gated imaging in a CT room.
- Easy to use and integrate



- CATALYST
- Advanced IMRT
  - Optical surface scanning and back-projection
  - Highly optimized application software for workflow integration.
  - Automatically and independently verifies many critical parameters that were previously only possible to check manually
  - Real-time decision support system



- CATALYST HD
- For advanced stereotactic radiation therapy
  - Three cameras at optimal angles
  - Maximum patient coverage
  - Accurate positioning during non-coplanar treatments
  - Intra-fraction motion detection to help maintain initial patient position

REGISTRATION

CT  
SIMULATION

PLAN

PREPARATION

APPROVAL

SCHEDULING

TREATMENT

REVIEW



## CYRPA LASER

- Laser systems for virtual simulation required for CT, PET/CT, MR in radiotherapy
- Laser systems for Linac, Proton and Particle Therapy
- Double diodes for each laser line
- SmartPhantom™ intelligent calibration
- Only positioning system guaranteeing accuracy of 0.1mm



## CATALYST PT

- Dedicated proton and particle therapy solution
- Multiple cameras for full patient coverage, independent of couch rotational position.
- Automatic reference adjustments ensure uninterrupted motion monitoring
- Highly flexible with tailored, optimized mounting solutions



# CLINICAL BENEFITS

## STREAMLINED EVERY STEP OF THE WAY

Catalyst™ offers a complete solution for online patient tracking before and during treatment delivery, thus ensuring the best possible treatment outcome without non-prescribed doses. c4D software is integrated with major CT and radiation therapy suppliers to streamline workflow, including beam and couch control. A non-rigid algorithm improves accuracy and speed of clinical application.

### SETUP AND POSITIONING

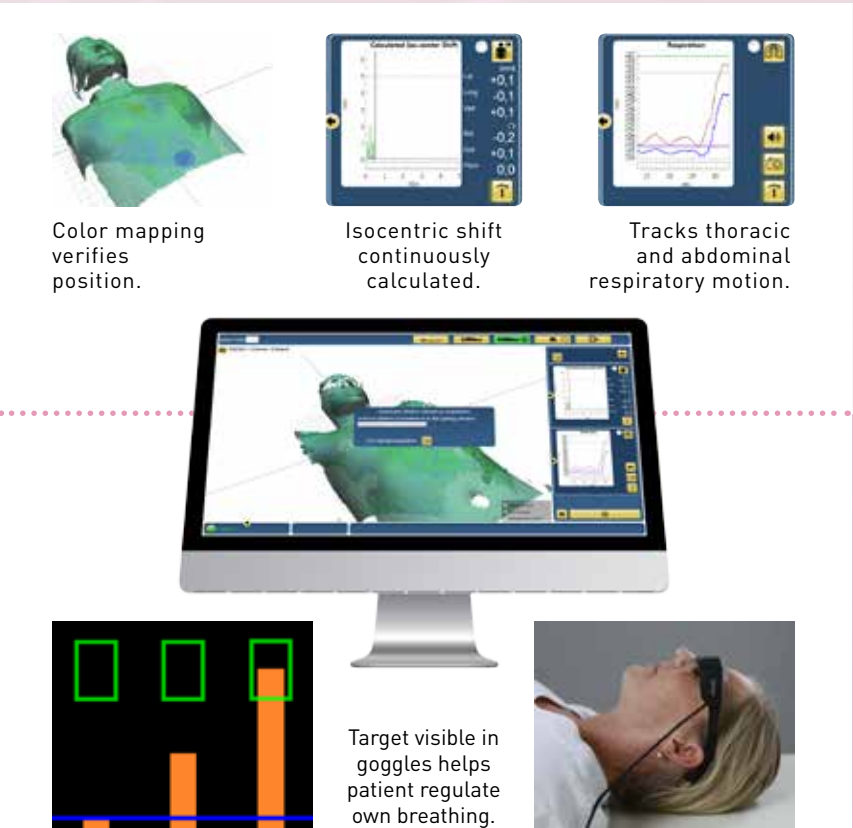
- Large surface coverage for Catalyst (1300 x 800 x 700)
- Optimal 360° coverage with Catalyst HD.
- Interactive visual guidance via color map projected on patient body.
- Correct any posture or positioning errors immediately.
- Auto couch correction in setup.
- Dose-free positioning, with no need for markers or other equipment on or around the patient.

### MOTION MANAGEMENT IN REAL TIME

- After setup, the Catalyst™ system will continue to monitor patient posture and position during treatment.
- Real-time intra-fraction motion monitoring.
- Dose-free motion management.
- Patient movements immediately trigger an alarm and/or beam hold.
- Continuous calculation of isocentric shift, enabling detection of slower relaxation or sliding movements.

### RESPIRATORY GATING

- Absolute value calculation with baseline monitoring capability.
- Tracking of both thoracic and abdominal respiratory motion in parallel.
- Breath-hold, deep inspiration and coached/free breathing modes are all supported.
- Optional audio-visual coaching help the patient follow optimal breathing patterns.



## TOP CLINICAL PRIORITIES

### BREAST CANCER

Represents 25% of all radiation therapy cases, with unique challenges presented by the proximity of target volumes to sensitive organs. Arm position influences treatment volume, but can't be visualized by ordinary IGRT systems. Typical movements are usually not detected by conventional cameras. For left-sided breast treatments, respiratory gating minimizes the dose to the heart muscle while maximizing the dose to the treatment volume.

### STEREOTACTIC TREATMENT

The Catalyst HD™ for advanced stereotactic radiation therapy – using hypo fractions and higher dosages – is appropriate for high-precision treatments. Three optimally mounted cameras for maximum patient coverage and accurate positioning during non-coplanar treatments. Intra-fraction motion detection permits maximum dose delivery within the target. Monitors extra-high doses used in ablative treatment, increasing confidence. Can be integrated with high-quality immobilization equipment for increased accuracy and maximum patient comfort.

**C-RAD AB (publ)**

Bredgränd 18, SE-753 20 Uppsala, Sweden  
Telephone +46 18-66 69 30  
[www.c-rad.com](http://www.c-rad.com)

**C-RAD Inc.**

70 SE 4th Ave, Delray Beach, FL 33483, USA  
Telephone: +1 561 742 9260  
Fax: +1 561 742 9259  
[www.c-rad.com](http://www.c-rad.com)

**C-RAD GmbH**

Wittestr. 30 K, 13509 Berlin, Germany  
Telephone: +49 30 609847560  
Fax: +49 30 609847569  
[www.c-rad.com](http://www.c-rad.com)

**C-RAD**

Suite 1308, Baohua Tower 13/F,  
No 1211 Changde Road,  
Putuo District 200060, Shanghai, China  
[www.c-rad.com](http://www.c-rad.com)

