



Innovative System for Advanced Deep Oncological Hyperthermia



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Andromedic is a leader in developing cutting-edge solutions for cancer treatment, offering an advanced oncological hyperthermia system that combines effectiveness, safety, and innovation. By integrating electromagnetic wave pulses in bio-resonance with neoplastic cells, our technology enhances the precision and selectivity of therapy, helping to maximize clinical outcomes.

Enhancing Therapies, Improving Quality of Life

Deep hyperthermia increases the effectiveness of radiotherapy and chemotherapy by using targeted heat to weaken tumor cells. This approach reduces side effects, strengthens the body's response to treatment, and contributes to better overall patient well-being.

Non-Invasive Technology, Maximum Precision

Our system is designed to integrate seamlessly with standard oncological protocols, offering personalized treatments tailored to each patient. Its non-invasive nature and advanced modulation capabilities make it a safe and effective tool in modern cancer therapy.

At Andromedic, innovation and research come together to shape a new vision for oncological care. We are committed to advancing cancer treatment through smarter, more effective technologies that open new possibilities in the fight against cancer.



HY-DEEP 600WM

Advanced Technology for Deep Oncological Hyperthermia

HY-Deep 600WM is an innovative device developed by Andromedic Srl for deep capacitive oncological hyperthermia using radiofrequency. Designed to offer highly targeted and effective treatment, it represents a non-invasive and personalized solution for the management of deep-seated tumors.

Precision and Therapeutic Power

By generating high-intensity electromagnetic pulses, HY-Deep 600WM increases the temperature within tumor tissues, enhancing the effectiveness of oncological therapies such as chemotherapy and radiotherapy, while improving the patient’s biological response.

Integrated Innovation

Thanks to the Thermal Modulation System (TMS) and advanced ASK modulation in OOK mode, the device:

- Amplifies the biological response of treated tissues
- Transmits specific therapeutic signals through bio-resonance frequencies
- Increases the precision and selectivity of each session

Smart and Safe Design

HY-Deep 600WM features:

- A temperature estimation system based on Kcal transfer
- An indirect temperature monitoring algorithm for real-time control
- An integrated cooling system to prevent burns and maximize comfort

Power supply: 230 V single-phase, 8.7 A
Main fuses: 10 A – 500 V ~ (Standard CH10)
Applied parts classification: BF
Machine weight: 170 kg
Emission frequency: 13.56 MHz
Maximum continuous power: 600 W in ASK (OOK mode) with a 77% Duty Cycle
Classification: Class II B – 93/42/EEC
Speed adaptation: 3 s
Maintenance: Standard every 600 treatments
Refrigerated antenna models: 170 mm, 270 mm
Compliance: EN 60601-1
Adjustable water cooling: 6–28 °C
Emission frequency: 13.56 MHz





High-Performance PC

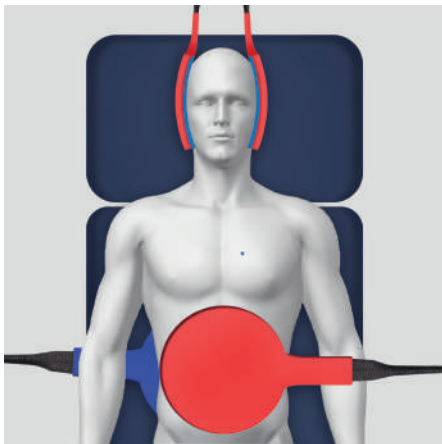
The included PC ensures precise control of treatment parameters, offering an intuitive interface to manage every phase of therapy with efficiency and reliability.

Integration of a medical record database allows quick access to treatment history, streamlining session setup. Remote support and cloud backups are enabled via network connection. Treatments follow standardized protocols based on pathology, with data collected for scientific research following "Romano" guidelines.



Antenna Spacers

The spacers ensure correct positioning between the antennas and the treatment area, promoting even energy distribution and preventing localized overheating.



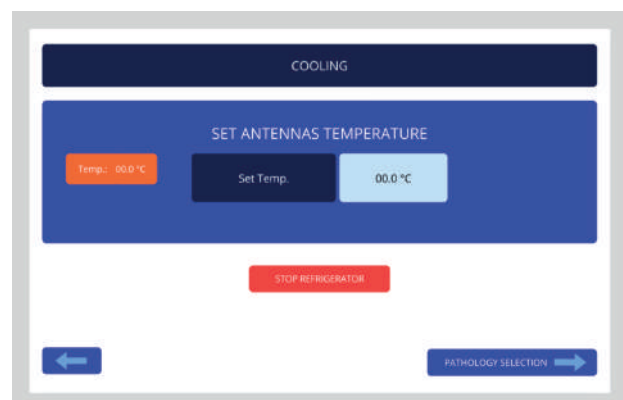
Antennas in Two Sizes

The antennas are available in 270 mm and 170 mm models, allowing treatment to be adapted to different areas of the body. Both are equipped with a water cooling system with adjustable temperatures between 6°C and 28°C, ensuring maximum comfort and safety during therapy.

Advanced Software

Its proprietary software and advanced algorithms ensure high-quality treatment. The software allows you to:

- Personalize the treatment based on patient-specific parameters
- Select the type of antenna and the treatment area



Advanced hyperthermia enhances cancer treatments by using heat to selectively damage tumor cells



Hyperthermia is a therapeutic technique used in oncology that exploits heat to selectively damage tumor cells. This treatment consists of raising the temperature of tumor tissue to a range between 39°C and 43°C, with the goal of weakening malignant cells and making them more sensitive to other therapies such as radiotherapy and chemotherapy.

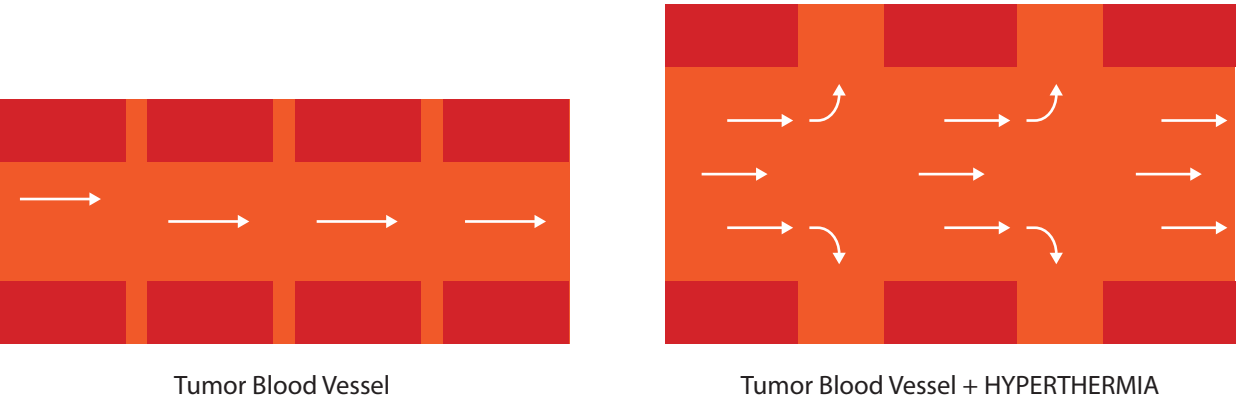
Hyperthermia can act in several ways:

- Directly on tumor cells, compromising their vital functions and inducing cell death.
- By altering the tumor microenvironment, reducing the supply of oxygen and nutrients that cancer cells need to proliferate.
- By enhancing the effects of other oncological treatments, increasing the effectiveness of chemotherapy and radiotherapy.



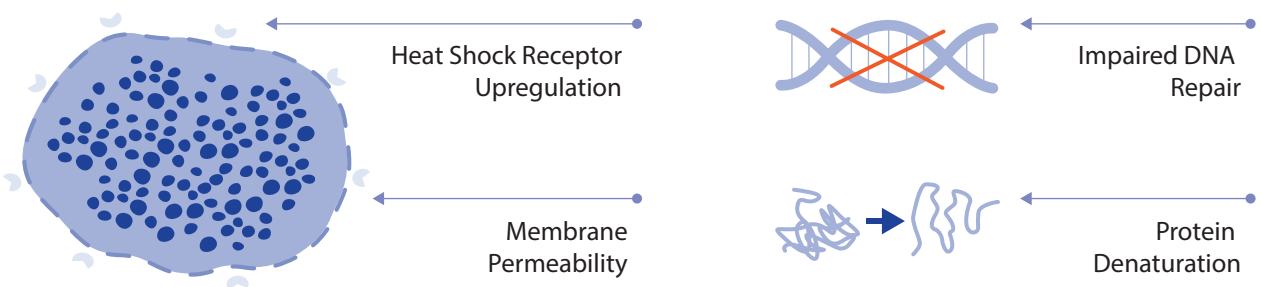
Vascular Effects

Regional deep hyperthermia heats tumor tissues to 39–43°C, enhancing the effectiveness of chemotherapy and radiotherapy. The heat causes blood vessel dilation, increasing oxygen and nutrient flow, which makes tumor cells more sensitive to treatment. Cancer cells struggle to release excess heat, while healthy cells manage it better—allowing for targeted action with fewer side effects. This makes deep hyperthermia a valuable option for treating deep tumors and improving overall therapy outcomes.



Cellular Effects

Regional deep hyperthermia exerts a multifaceted impact on cancer cells. The intense heat directly disrupts vital cellular functions, leading to the death of tumor cells, which are less efficient than healthy cells at dissipating heat. This thermal stress also enhances the sensitivity of tumor cells to chemotherapy and radiotherapy, as the heat damages proteins and cellular structures, making them more vulnerable to treatment. Additionally, hyperthermia alters the tumor microenvironment by limiting the supply of oxygen and nutrients, slowing cancer growth. It can also stimulate an immune response, increasing the activity of immune cells against the tumor. These combined effects make regional deep hyperthermia a promising therapeutic option in modern oncology.



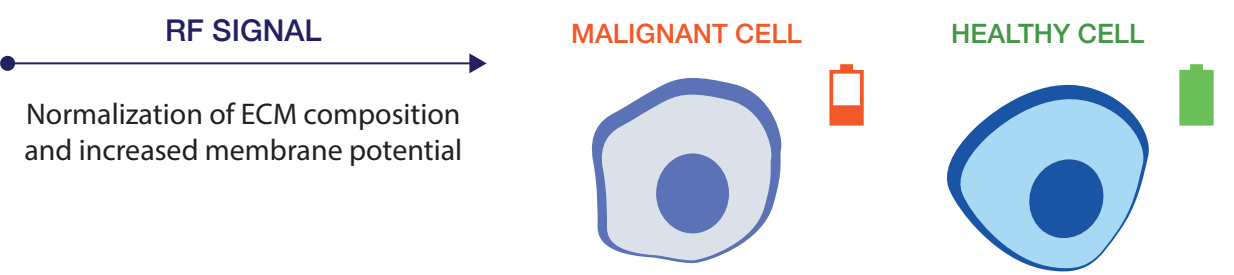
Cellular Repolarization and Electromagnetic Effect

The use of high-frequency electromagnetic fields is an advanced therapeutic approach that provides significant benefits for cellular health. One of the most notable effects is the repolarization of cells, a process that restores the membrane potential after depolarization—crucial for the proper function of cells.

High-frequency electromagnetic stimulation promotes the repolarization of cellular structures, helping to normalize membrane exchanges—particularly the sodium-potassium pump, which is essential for maintaining ionic balance. This leads to a reduction in both cellular and intercellular edema, decreased inflammation, and improved cellular activity and tissue health. Repolarization induced by electromagnetic fields supports inflammation reduction, enhances tissue regeneration, and helps restore proper ion exchange mechanisms. By acting on these fundamental processes, high-frequency electromagnetic therapy emerges as a promising solution to support conventional treatments and elevate patients' quality of life.

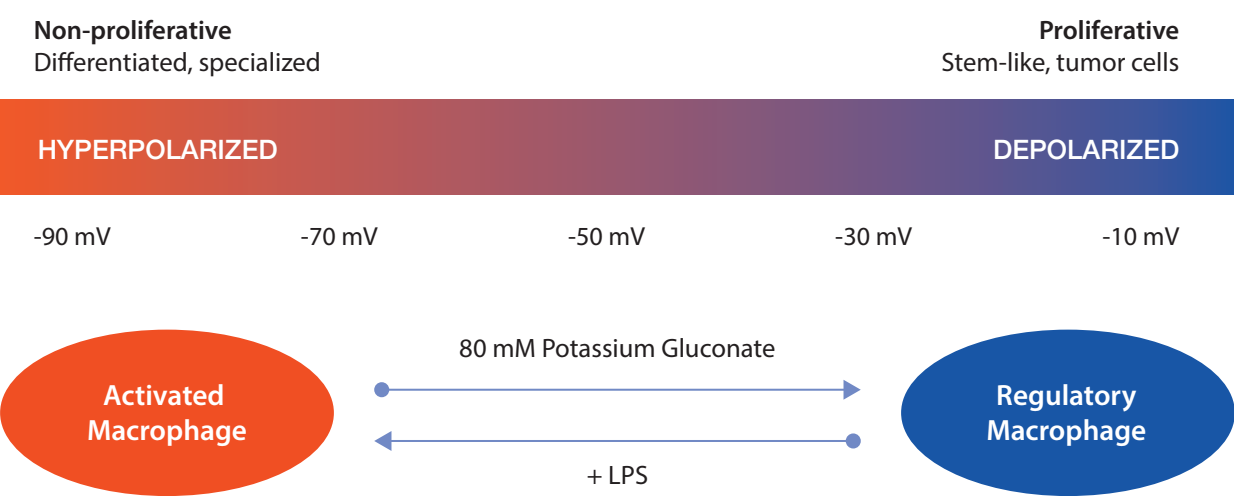
Electromagnetic Effect on Cells

Radiofrequency restores the low membrane potential of cancer cells, reactivating cellular functions and making them more responsive to treatment.



Repolarization

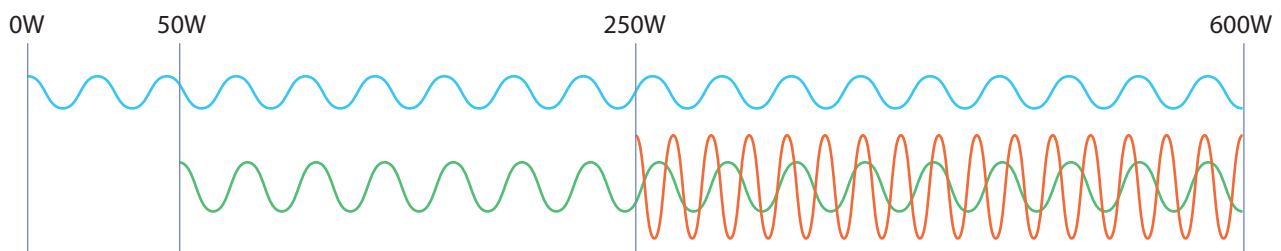
Membrane potential influences macrophage behavior: hyperpolarized cells are activated, while depolarization (e.g., via K^+) can shift them to a healing state.



Difference Between Oncological Hyperthermia and Oncothermia

Oncological Hyperthermia uses high-power radiofrequency to heat tumor tissues to 39–43°C, causing direct damage to cancer cells (membrane, DNA, cytoskeleton) and stimulating an immune response. In order to be effective, it requires a constant therapeutic temperature, which can only be achieved with a power of more than 250 W.

Oncothermia, on the other hand, operates at low to medium power, relying solely on the electromagnetic effect. It selectively targets tumor cells with low membrane potential, triggering apoptosis without significantly raising tissue temperature.



- Blue Line – Device Power (Watts):**
It represents the line of power that can be delivered by the device.
- Green Line – Electromagnetic Effect (Oncothermia):**
Active even at low power, this line represents heatless cell stimulation with repolarization of the cell membrane.
- Orange Line – Hyperthermic Effect:**
It begins around 250 W and increases with power, representing therapeutic heating of tissues, which causes direct tumor cell damage.

Advanced Heat Diffusion and Bio-Resonance in Oncological Hyperthermia

Oncological hyperthermia is an advanced therapeutic approach that uses controlled heat to enhance the effectiveness of conventional cancer treatments such as radiotherapy and chemotherapy. A key element in achieving both safety and therapeutic precision is the combination of radiofrequency (RF) as the carrier wave and low-frequency pulsed modulation (BF) as the control signal.

RF enables deep tissue penetration and delivers consistent thermal energy, while BF modulation ensures the precise and homogeneous distribution of heat across the targeted area. This prevents damage to surrounding healthy tissue and improves treatment outcomes by reaching and maintaining therapeutic temperatures between 39°C and 43°C.

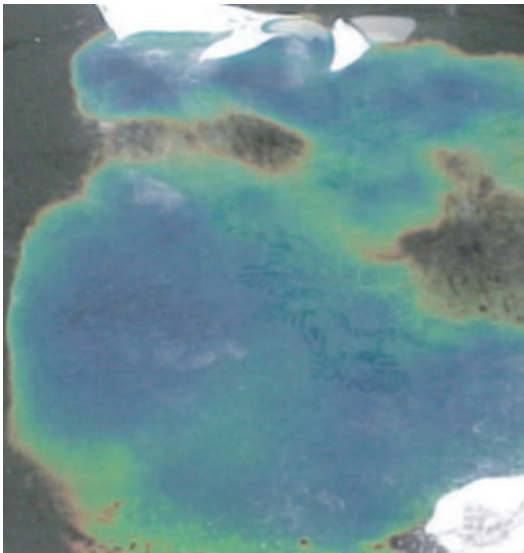
In the HY-Deep system, this thermal approach is combined with a bio-resonance modulation technique, which superimposes specific frequencies tuned to the natural oscillation of tumor cells. This increases the biological stress on malignant cells, making the therapy more targeted and selective.

Tumor cells, due to their rigid membrane structure and low membrane potential, are unable to dissipate accumulated energy. As a result, energy builds up inside the cell, leading to apoptosis (programmed cell death), while healthy cells remain unaffected.

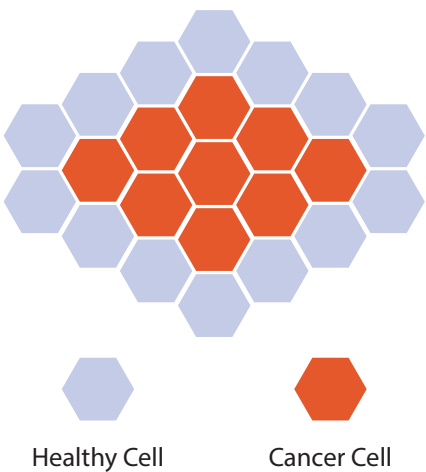
This dual-action approach —homogeneous heat diffusion and electromagnetic bio-resonance— allows HY-Deep to:

- Sensitize tumor cells to chemotherapy and radiotherapy
- Improve oxygenation and blood circulation in the tumor environment
- Reduce inflammation and patient discomfort
- Selectively target malignant tissues while preserving healthy ones

By integrating thermal precision and biological selectivity, HY-Deep offers a powerful, non-invasive solution to support and enhance traditional cancer therapies.



Thermal map

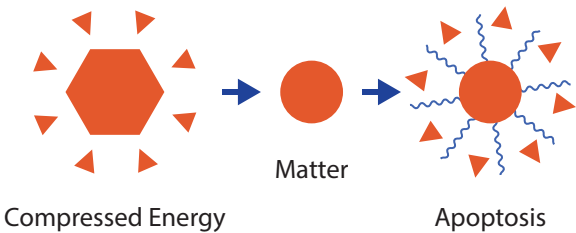


Bio-Resonance

- Each cell has a natural oscillation frequency.
- HY-Deep enhances therapy by matching tumor cells' frequency with bio-resonance signals, amplifying the effect and selectively stressing cancer cells.

Effect on Tumor Cells

Tumor cells have a rigid membrane that traps energy, causing internal buildup and triggering apoptosis (programmed cell death).





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