The DigniCap® Scalp Cooling System
Minimize the most visible side effect of chemotherapy

CLINICAL INTRODUCTION

Reduce hair loss in men and women with solid tumor cancers

Hair loss is no longer inevitable.

DIGNICAP®
Clinically superior scalp cooling
ABOUT DIGNITANA

Our mission is to provide cancer patients with dignity and control during a very challenging time. Working directly with both clinicians and patients, we provide an innovative medical device in combination with expertise, education and support throughout the scalp cooling process.

With operations based in Dallas, Texas, Dignitana AB is a publicly-traded medical technology company headquartered in Lund, Sweden. Dignitana produces the patented DigniCap Scalp Cooling System to counteract chemotherapy-related hair loss and contribute to improved patient well-being and quality of life.

The DigniCap Scalp Cooling System has been used around the world since 2001. In 2015, after a multi-center clinical trial, DigniCap became the first scalp cooling system to receive FDA clearance in the United States. It is indicated to reduce the likelihood of chemotherapy-induced alopecia in cancer patients with solid tumors.

Scalp Cooling Historical Timeline

1970s
First known use of manual gel caps for scalp cooling

1999
DigniCap invented in Sweden by nurse Yvonne Olofsson

2001
DigniCap available in Europe

2009
Dignitana publicly traded in Sweden

2010
DigniCap registered in Mexico, Russia and South Korea

2011
DigniCap registered in Canada and Colombia
WHAT IS SCALP COOLING?

Scalp cooling is a proven approach to reduce chemotherapy-induced alopecia that has been used successfully by thousands of patients worldwide for several decades. Reduced temperature results in a decreased blood flow to the scalp area so that less chemotherapy reaches the hair cells. Hair cells are therefore not exposed to the full dose of chemotherapy and may be able to survive the chemotherapy treatment. As a result, hair is less likely to fall out.

How Scalp Cooling Works

Two physiologic reactions occur during scalp cooling:

1. Reduced blood flow—vasoconstriction in the localized scalp area limits the amount of chemotherapy agent delivered to the scalp and hair follicles.

2. Reduced reaction rate—the lower scalp temperature decreases metabolism causing normal cellular activity in the localized scalp area to slow dramatically. Fewer chemotherapy agents are then absorbed by the hair cells and damage is significantly reduced.

Why Scalp Cooling Matters

A patient’s hair can be a major part of their identity, and many patients rate hair loss as one of the most devastating side effects of chemotherapy. Chemotherapy-induced alopecia is an unwelcome reminder of disease, one that can negatively affect self-image, confidence, overall sense of well-being and a patient’s attitude toward treatment.

Hair loss is no longer inevitable. The DigniCap Scalp Cooling System is a proven approach to reduce chemotherapy-induced alopecia, used successfully by thousands of patients worldwide to maintain privacy, self-esteem and control during a critical period of treatment.
DIGNICAP — THE INTELLIGENT SCALP COOLING SYSTEM

The DigniCap Scalp Cooling System consists of a computerized cooling unit managed through a touch screen display and an attached cooling cap with integrated sensors. Temperature-regulated coolant continuously circulates through specially designed channels in the cooling caps. Unlike other scalp cooling systems, the patented sensors ensure the proper scalp temperature is maintained throughout the treatment.

System Features

• System software detects temperature deviations and continuously makes adjustments based on sensor feedback throughout the cooling cap.
• Intuitive touch screen interface simplifies system operation and allows settings to be easily altered for various chemotherapy regimens.
• Independently controlled, continuous cooling systems enable simultaneous treatment of two patients.
• Gradual cool-down from room temperature provides patient comfort.
• The DigniStick™ flash drive provides easy access for software upgrades and troubleshooting, as well as non-identifiable treatment data and usage reports.

Cap Features

A key factor in the effectiveness of The DigniCap Scalp Cooling System is the ability to maintain continuous, direct contact between the cooling cap and the scalp for a consistent treatment temperature.

• Four cap sizes for individualized fit.
• Contoured shape leaves patient’s ears uncovered for comfort and ease of hearing.
• Smooth inner surface ensures optimal scalp contact.
• Outer neoprene cap creates secure fit and maintains ideal treatment temperature.
• Cap is first placed on the patient’s head at room temperature for a comfortable and controlled cooling transition.
• Caps can be easily detached for bathroom breaks.
• Two patented dual sensor-monitored cooling compartments ensure consistent, uniform cooling for temperature management.
• Built-in security sensor ensures scalp temperature always remains above 32° F/0° C.

DigniCap Treatment Cycle

The chemotherapy agent is still active in the patient’s bloodstream following the infusion. Therefore, the scalp cooling treatment continues for a cycle of post-infusion cooling. Depending on drug and dose, typically this will last from 60-150 minutes.

<table>
<thead>
<tr>
<th>Fitting of the cap</th>
<th>Pre-infusion cooling time 30 minutes</th>
<th>Infusion time xx minutes</th>
<th>Post-infusion cooling time xx minutes</th>
<th>Reacclimate 5-10 minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drug infusion start</td>
<td>Drug infusion end</td>
<td></td>
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<tr>
<td>TECHNICAL SPECIFICATIONS</td>
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<tr>
<td><strong>Dimensions</strong></td>
<td>58cm wide x 65cm deep x 110cm tall including wheels</td>
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<tr>
<td></td>
<td>23” wide x 25” deep x 43” tall including wheels</td>
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<tr>
<td><strong>Weight</strong></td>
<td>Approx. 75kg with empty tank / 165 pounds with empty tank</td>
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<tr>
<td><strong>Mobility</strong></td>
<td>Machine is on wheels and can be easily moved</td>
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<tr>
<td><strong>Power Supply</strong></td>
<td>230 VAC / 115 VAC</td>
<td></td>
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<td><strong>Fuse 115 VAC</strong></td>
<td>16 A</td>
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<tr>
<td><strong>Alarms</strong></td>
<td>Safety system</td>
<td></td>
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<tr>
<td></td>
<td>Low coolant level</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Temperature out of range</td>
<td></td>
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<td></td>
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<tr>
<td></td>
<td>DigniCap not connected</td>
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<td></td>
<td>Pause (when pause &gt; 8 min.)</td>
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<tr>
<td></td>
<td>Desired temperature in tank not reached</td>
<td></td>
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<tr>
<td></td>
<td>Tank temperature too high</td>
<td></td>
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<tr>
<td></td>
<td>Tank temperature too low (below -10° C / 14° F)</td>
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<tr>
<td></td>
<td>Malfunctioning sensor</td>
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<tr>
<td></td>
<td>Malfunctioning sensor cable contact</td>
<td></td>
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<tr>
<td></td>
<td>Service indicator</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>System failure</td>
<td></td>
<td></td>
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<tr>
<td><strong>Operating Conditions</strong></td>
<td>Temperature: 18 - 30° C / 64 - 86° F</td>
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<td></td>
<td>Humidity range: 30 – 90% RH</td>
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<tr>
<td></td>
<td>Altitude: ≤ 2000m / ≤ 6561 feet</td>
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<tr>
<td><strong>Refrigeration Unit</strong></td>
<td>Fully hermetically sealed unit, using CFC-free R404A refrigerant</td>
<td></td>
<td></td>
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<tr>
<td><strong>DigniCool (Coolant)</strong></td>
<td>Diluted monopropylene glycol</td>
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<td></td>
<td>Low toxicity under normal conditions of handling and use</td>
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<td></td>
<td>Combustible material and a slight eye irritant</td>
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<tr>
<td></td>
<td>MSDS Available</td>
<td></td>
<td></td>
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<tr>
<td><strong>Coolant Tank</strong></td>
<td>8.52 Liters / 2.25 Gallons</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Cap Material</strong></td>
<td>Silicone inner cap</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Neoprene outer cap</td>
<td></td>
<td></td>
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<tr>
<td><strong>Sensors in Cap</strong></td>
<td>2 temperature sensors (front &amp; back)</td>
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<td></td>
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<tr>
<td></td>
<td>1 safety sensor</td>
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</tbody>
</table>
PIVOTAL TRIAL – CLINICAL STUDY IN STAGE I AND II BREAST CANCER

In 2015, after a rigorous review by the FDA, DigniCap was the first scalp cooling system to receive clearance in the United States.

Summary

It was concluded that the DigniCap Scalp Cooling System prevented hair loss in 66.3% of patients with breast cancer receiving adjuvant chemotherapy, compared to a control group where all patients experienced significant hair loss. Scalp cooling treatment was well-tolerated and no scalp metastases have been observed.

Association Between Use of a Scalp Cooling Device and Alopecia After Chemotherapy for Breast Cancer

*Journal of the American Medical Association* 2017; 317(6):606-614
Rugo, H; Klein, P; Melin, S; et al.

SUCCESS BY CHEMOTHERAPY REGIMEN

<table>
<thead>
<tr>
<th>Regimen</th>
<th>Success Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Docetaxel</td>
<td>1/1</td>
</tr>
<tr>
<td>Paclitaxel</td>
<td>12/12</td>
</tr>
<tr>
<td>TCarbo</td>
<td>10/12</td>
</tr>
<tr>
<td>TC</td>
<td>48/76</td>
</tr>
</tbody>
</table>

1. TC: Docetaxel/cyclophosphamide x 4-6
2. TCarbo: Docetaxel/carboplatin + HER2 targeted therapy x 4-6
3. Paclitaxel: Paclitaxel weekly x 12
4. Docetaxel + HER2 targeted therapy x 4-6

Scalp cooling is dependent on several factors including the chemotherapy regimen, dose, duration of drug infusion, chemotherapy drug metabolism and concomitant comorbidities.

CONCLUSIONS

The DigniCap System is highly effective in reducing chemotherapy-induced alopecia with clinically meaningful benefit.

The DigniCap System prevented hair loss in 66.3% of patients with breast cancer receiving neo/adjuvant chemotherapy, compared to control where all patients experienced significant hair loss.

Treatment was safe and well tolerated.

View the complete description of the clinical trial at dignicapglobal.com/research
**RESEARCH OVERVIEWS**

**Solid Tumors**

The DigniCap Scalp Cooling System has been shown to be safe and effective in reducing chemotherapy-induced alopecia in cancer patients with solid tumors.

*As Published*

The influence of various parameters on the success of sensor-controlled scalp cooling in preventing chemotherapy-induced alopecia.

*Oncology Research and Treatment (Vol. 38, 2015, 489-495)*

Schaffrin-Nabe, D, et al.

**Scalp Metastases**

The incidence of scalp metastases was low regardless of scalp cooling. This analysis suggests that scalp cooling does not increase the incidence of scalp metastases.

*As Published*

Scalp cooling with adjuvant/neoadjuvant chemotherapy for breast cancer and the risk of scalp metastases: systematic review and meta-analysis.


Multiple articles have also appeared in industry publications including: *New England Journal of Medicine, Med Tech Intelligence, medGadget, Medical Plastic, and Oncology Nurse Advisor.*

**Quality of Life**

Minimizing hair loss helps patients to preserve personal identity and self-esteem and appear normal as opposed to sick. Additionally, scalp cooling patients gain a much-needed sense of control in an otherwise overwhelming experience – even eliminating its often long-term negative psychological and social effects.

*As Published*

Body image in women with breast cancer using a scalp cooling system to reduce chemotherapy induced alopecia.

*San Antonio Breast Cancer Symposium Abstract, December 2016*

Cigler, T, et al.

For more information on these and other studies, visit dignicapglobal.com/research
CONTRAINDICATIONS AND WARNINGS

Contraindications

The use of DigniCap is contraindicated in pediatric patients.
The use of DigniCap is contraindicated in adult patients with:
• Cold sensitivity
• Cold agglutinin disease
• Cryoglobulinemia
• Cryofibrinogenemia
• Cold urticaria
• CNS malignancies (either primary or metastatic)
• Squamous cell carcinoma of the lung
• Small cell carcinoma of the lung
• Cancers of the head and neck
• Skin cancers including melanoma, squamous cell carcinoma, and Merkel cell carcinoma
• Hematological malignancies treated with curative intent by chemotherapy
• Solid tumor malignancies with a high likelihood of metastases in transit
• Patients who are scheduled for bone marrow ablation chemotherapy
• Patients who are scheduled to undergo skull irradiation
• Patients who have previously received skull irradiation

Warnings

• Scalp and/or cutaneous metastases have been reported in patients with non-small cell lung cancer, colon cancer, renal cell carcinoma, ovarian cancer, and bladder cancer. Patients with advanced forms of these cancers may be more likely to experience scalp metastases with the scalp cooling system.
• Use of scalp cooling in the palliative setting in patients with metastatic cancer may also increase the risk for scalp metastases.
• Patients infused with taxanes and anthracyclines in the same infusion day have not been shown to respond to scalp cooling for reducing chemotherapeutic drug-induced alopecia. The DigniCap Scalp Cooling System should not be used in these patients.
• Scalp radiation can cause stenosis of small cutaneous vessels decreasing device effectiveness.
• The effectiveness of this device in patients who have received previous chemotherapy has not been evaluated.
• The risk of scalp cooling may outweigh the benefits in patients receiving chemotherapeutic agents with low incidence of inducing alopecia.
• Long-term effects of scalp cooling and risk of scalp metastasis have not been fully studied.
• Clinical studies have demonstrated variable success rates in patient reduction of chemotherapy-induced alopecia with scalp cooling since the outcome is dependent on multiple factors including chemotherapy regimen, dose, duration of drug infusion, chemotherapy drug metabolism, and concomitant comorbidities. Data have shown that women who experience hair loss in spite of using scalp cooling might have worse quality of life than women who did not have scalp cooling.

The DigniCap Scalp Cooling system is indicated to reduce the likelihood of chemotherapy-induced hair loss in cancer patients with solid tumors.
SCALP COOLING BIBLIOGRAPHY


7. Schaffrin-Nabe, D, et al. “Hair-mass-Index (HMI) as indicator for the efficacy of scalp cooling(SC)and the associated quality of life.” Journal of Clinical Oncology. 34. 2016. (suppl; abstr e21692)


THE DIGNITANA ADVANTAGE

Superior clinical results
In the pivotal trial for FDA clearance, DigniCap achieved 66.3% success with taxanes compared to the competitor’s success rate of 59% with taxanes and 50.5% overall.

Longer clinical trial treatment evaluation period
More hair loss will occur with a greater number of treatments. For accuracy, success must be measured at end of treatment. In the clinical trial DigniCap was evaluated one month after the end of all the patient’s chemotherapy cycles, whereas the competitor’s trial was evaluated after just four chemotherapy sessions.

Expanded clinical indications from the FDA
After an extensive review of worldwide studies, in 2017 the FDA expanded the clinical indication for DigniCap to include men and women with solid tumor cancers.

Wide range of cap sizes
DigniCap is available in four sizes to fit a wide range of head shapes and sizes.

Experienced clinical team provides ongoing training and support
Knowledgeable clinical staff assists facilities in developing a strong scalp cooling program.

In-cap sensors for superior temperature control and safety
DigniCap is the only scalp cooling system with patented dual sensors in the cooling compartments for consistent cooling and temperature management, plus a built-in safety sensor to ensure scalp temperature always stays above 0° C / 32° F.

“Integrating new technology into any medical facility requires planning, precision and clinical preparation. We have developed this program to provide comprehensive and ongoing training and support to our clinical partners, allowing for easy and efficient integration into their daily routines.”

- Bill Cronin, CEO, Dignitana
The DigniCap Scalp Cooling System incorporates a number of features and technological advances that combine to improve the patient experience.

Notes
1. The DigniCap Scalp Cooling System has two dedicated temperature regulation sensors in each cap to monitor scalp temperature, and a third safety sensor to ensure that the temperature on the scalp always remains above 32°F/0°C.

2. Manual gel caps must be refitted every 20 minutes throughout treatment. DigniCap is fitted once at the start of treatment and remains on until completion.

3. Since manual gel caps warm up during use, each cap must be at approximately -31°F/-35°C at time of fitting. DigniCap is cooled down gradually from room temperature for patient comfort. The safety sensors in the DigniCap ensure that the scalp cooling temperature never falls below 32°F/0°C.

4. Manual gel cap patients must typically acquire and return caps from a third-party supplier and have a capping assistant present throughout each treatment.

DigniCap vs Manual Gel Caps

<table>
<thead>
<tr>
<th>Feature</th>
<th>DigniCap</th>
<th>Manual Gel Caps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proven track record of efficacy</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>FDA clinical trial completed</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>FDA cleared</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>Continuous, consistent cooling</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>Dual sensor-monitored compartments for cooling efficacy</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>Cap sensors for temperature management</td>
<td>YES¹</td>
<td>NO</td>
</tr>
<tr>
<td>Temperature safety sensor</td>
<td>YES¹</td>
<td>NO</td>
</tr>
<tr>
<td>Single cap fitting per treatment</td>
<td>YES</td>
<td>NO²</td>
</tr>
<tr>
<td>Gradual cool down cycle</td>
<td>YES</td>
<td>NO³</td>
</tr>
<tr>
<td>Trained clinical staff administers treatment</td>
<td>YES</td>
<td>NO⁴</td>
</tr>
</tbody>
</table>

“For me, it’s a very personal thing and with the DigniCap, I’ve responded really well so people who see me have no clue that I had cancer. One of the things I’ve always had going for me was a good head of hair. When cancer patients lose their hair it dramatically affects the way people treat them. All my wife’s friends were just saying, ‘Allen has never looked better’.”

- Allen
DigniCap® is a product of Dignitana AB, a public, Swedish medical device company. DigniCap is a patented scalp cooling system that offers men and women with solid tumor cancers the ability to keep their hair during chemotherapy. DigniCap provides continuous cooling with high efficacy, safety and acceptable patient comfort. The company is the first FDA cleared provider of scalp cooling technology. Dignitana, DigniCap, DigniCard, DigniCool, DigniStick, DigniTherm, and DigniLife are trademarks of Dignitana AB (publ). Dignitana, DigniCap and DigniLife are registered trademarks owned by Dignitana AB (publ). The company is certified under ISO 13485 and DigniCap is CE certified as a Class IIa medical device.

After 4 rounds of Adriamycin/Cytoxan and 12 rounds of Paclitaxel in 135 days, I’ve finished chemo and saved my hair with DigniCap.

- Monika

Accepting the fact that I was going to lose my hair was very difficult because I felt as if I would be losing part of my identity. With the DigniCap, it allowed me to have control over something in a process where I really had no control.

- Angela

www.dignicapglobal.com

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