Celsion Announces IRB Approval to Begin a Clinical Study of ThermoDox® Plus High Intensity Focused Ultrasound in Breast Cancer Patients at University Medical Center Utrecht in the Netherlands

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An Investigator-SponsoredPhase I Safety and Feasibility Study Estimated to Begin Enrollment in the Second Half of 2019

The Study Further Reinforces the Broad Potential of ThermoDox to Treat a Range of Solid Tumors with Multiple Localized Heating Sources

LAWRENCEVILLE, N.J, June 20, 2019 (GLOBE NEWSWIRE) -- Celsion Corporation (NASDAQ: CLSN), an oncology drug-development company, announces that the University Medical Center Utrecht in the Netherlands has received Institutional Review Board (IRB) approval to begin a Phase I study to determine the safety, tolerability and feasibility of ThermoDox® (lyso-thermosensitive liposomal doxorubicin) in combination with Magnetic Resonance Guided High Intensity Focused Ultrasound (MR-HIFU) hyperthermia and cyclophosphamide therapy for the local treatment of the primary tumor in metastatic breast cancer (mBC). The secondary objective of this study is to assess radiological objective response of distant metastases and of the primary breast tumor.

The investigator sponsored study – image-guided targeted doxorubicin delivery with hyperthermia to optimize loco-regional control in breast cancer; the *i-GO Feasibility Study* – will be conducted at University Medical Center Utrecht and will enroll up to 12 newly diagnosed mBC patients. Study subjects will receive up to six cycles of the following regimen at three-week intervals:

- 60 minutes of MR-HIFU hyperthermia at 40^{o}C to 42^{o}C delivered to the primary tumor;
- 50 mg/m^2 of ThermoDox as a 30-minute intravenous (IV) infusion during hyperthermia; and
- 600 mg/m^2 of cyclophosphamide as a 15-minute IV infusion after hyperthermia.

Investigators will use the Profound Medical Sonalleve MR-HIFU Breast Tumour Therapy System, which integrates high-intensity phased array focused ultrasound transducers with a Philips Achieva MRI system. The study is being funded by the Dutch Cancer Society, the Center for Translational Molecular Medicine (a multimillion-dollar public-private partnership in the Netherlands) and Friends of the UMC Utrecht (the hospital's own charity).

"We are delighted that the global medical community continues to demonstrate its interest in ThermoDox® as a potential broad-based oncology therapeutic. We saw a strong signal in a prospective analysis of our Phase III HEAT Study in which primary liver cancer patients who were treated with an optimal 45 minutes or more of radiofrequency energy and ThermoDox® showed a significant survival benefit of more than two years," said Michael Tardugno, Celsion's chairman, president and chief executive officer. "Earlier this year the Oxford University Institute of Biomedical Engineering published a paper in the peer-reviewed journal *Radiology*, reporting Phase I TARDOX trial results demonstrating the local activity of ThermoDox® in liver cancer when administered in conjunction with HIFU. Additionally, Celsion has demonstrated that ThermoDox® in combination with mild hyperthermia in patients with recurrent chest wall breast cancer had a local response rate of 61.9% in its Phase I/II U.S. DIGNITY study.

"We believe ThermoDox® delivered in combination with a localized heat source holds potential to be an important therapeutic in multiple solid tumor indications. We are grateful so many thought leaders share our view and are willing to conduct their own studies to advance the treatment regimen for difficult indications with poor prognoses," Mr. Tardugno added.

For more information about the i-GO Study, please click: https://clinicaltrials.gov/ct2/show/NCT03749850?term=i-go+feasibility&rank=1 .

About ThermoDox®

Celsion's most advanced program is a heat-mediated drug delivery technology that employs a novel heat-sensitive liposome engineered to address a range of difficult-to-treat cancers. The first application of this platform is ThermoDox®, a lyso-thermosensitive liposomal doxorubicin (LTLD), whose novel mechanism of action delivers high concentrations of doxorubicin to a region targeted with the application of localized heat at 40°C, just above body temperature. ThermoDox® is positioned for use with multiple heating technologies and has the potential to treat of a broad range of cancers including metastatic liver, recurrent chest wall breast cancer and non-muscle invading bladder cancers.

Celsion's LTLD technology leverages two mechanisms of tumor biology to deliver higher concentrations of drug directly to the tumor site. In the first mechanism, rapidly growing tumors have leaky vasculature, which is permeable to liposomes and enables their accumulation within tumors. Leaky vasculature influences a number of factors within the tumor, including the access of therapeutic agents to tumor cells. Administered intravenously, ThermoDox® is engineered with a half-life to allow significant accumulation of liposomes at the tumor site as these liposomes recirculate in the blood stream. In the second mechanism, when an external heating device heats tumor tissue to a temperature of 40°C or greater, the heat-sensitive liposome rapidly changes structure and the liposomal membrane selectively dissolves, creating openings that can release a chemotherapeutic agent directly into the tumor and the surrounding vasculature. Drug concentration increases as a function of the accumulation of liposomes at the tumor site, but only where the heat is present. This method damages only the tumor and the area subject to tumor invasion, supporting more precise drug targeting.

About Celsion Corporation

Celsion is a fully-integrated oncology company focused on developing a portfolio of innovative cancer treatments, including directed chemotherapies,

immunotherapies and RNA- or DNA-based therapies. The Company's lead program is ThermoDox®, a proprietary heat-activated liposomal encapsulation of doxorubicin, currently in Phase III development for the treatment of primary liver cancer and in development for other cancer indications. The Company's product pipeline also includes GEN-1, a DNA-based immunotherapy for the localized treatment of ovarian cancer. Celsion has two platform technologies for the development of novel nucleic acid-based immunotherapies and other anti-cancer DNA or RNA therapies.

Forward-looking Statements

Forward-looking statements in this news release are made pursuant to the "safe harbor" provisions of the Private Securities Litigation Reform Act of 1995. Readers are cautioned that such forward-looking statements involve risks and uncertainties including, without limitation, unforeseen changes in the course of research and development activities and in clinical trials; the uncertainties of and difficulties in analyzing interim clinical data, particularly in small subgroups that are not statistically significant; FDA and regulatory uncertainties and risks; the significant expense, time and risk of failure of conducting clinical trials; the need for Celsion to evaluate its future development plans; possible acquisitions or licenses of other technologies, assets or businesses; possible actions by customers, suppliers, competitors or regulatory authorities; and other risks detailed from time to time in the Celsion's periodic filings with the Securities and Exchange Commission. Celsion assumes no obligation to update or supplement forward-looking statements that become untrue because of subsequent events, new information or otherwise.

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