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OncoSec Provides Encouraging Clinical Observations Related To Triple Negative Breast Cancer Study

SAN DIEGO, Jan. 18, 2018 /PRNewswire/ -- OncoSec Medical Incorporated ("OncoSec" or the "Company") (NASDAQ:ONCS), a company developing intratumoral cancer immunotherapies, today announced preliminary clinical observations related to its pilot biomarker OMS-I140 clinical trial of ImmunoPulse® IL-12 in patients with metastatic Triple Negative Breast Cancer (TNBC). The study is designed to assess whether a single cycle of ImmunoPulse IL-12 increases TNBC tumor immunogenicity by driving a pro-inflammatory cascade of events including activation of cytotoxic tumor-infiltrating lymphocytes (TILs).

To date, five patients with TNBC have been treated with a single cycle of ImmunoPulse IL-12 (intratumoral pIL-12 [tavokinogene telseplasmid or "tavo"] with electroporation). Two of these five patients were subsequently treated with single agent nivolumab (Opdivo®) - an anti-PD-1 checkpoint inhibitor treatment - as their immediate next therapy. Both of these patients, who were heavily pretreated metastatic TNBC patients with chemotherapy refractory disease, experienced robust objective responses in both ImmunoPulse IL-12 treated and untreated lesions. These clinical observations have prompted the Company to further commit to a more definitive evaluation of the combined therapies.

"Metastatic TNBC is a heterogeneous cancer with a poor prognosis where less than five percent of pre-treated patients achieve an objective response to PD-1/PD-L1 checkpoint treatments," explained Sharron Gargosky, Chief Clinical and Regulatory Officer of OncoSec. "The marked synergy shown in these patients strongly suggests that IL-12 may have primed the tumor microenvironment, impacting the clinical result. The combination of ImmunoPulse IL-12 and checkpoint inhibition represents a highly promising new therapeutic approach for TNBC and warrants a formal evaluation given the extremely low response rate in women who have failed multiple prior therapies."

Previous studies have demonstrated that breast cancer patients whose tumors are associated with markers of inflammation, such as the presence of TILs, achieve better clinical outcomes. In addition, the density of TILs is a key requirement for the anti-tumor activity of immune checkpoint inhibitors like anti-PD-1/PD-L1 antibodies. By augmenting the expansion of $CD8^+$ tumor infilatrating T cells, ImmunoPulse IL-12 may be an ideal candidate to combine with checkpoint inhibitors, which has demonstrated low and variable

activity as a monotherapy in TNBC.

Immunological examination of samples from all patients are currently being analyzed. These data, along with the full information regarding clinical observations and safety data, will be submitted for presentation at an upcoming medical meeting in 2018.

To learn more about the trial, visit www.oncosec.com. Additional details can also be found at www.clinicaltrials.gov via NCT02531425.

OPDIVO® is a registered trademark of Bristol-Myers Squibb Company.

ImmunoPulse® is a registered trademark of OncoSec Medical Incorporated, San Diego, CA, USA.

About Triple Negative Breast Cancer (TNBC)
Breast cancer cells that test negative for estrogen receptors (ER-), progesterone receptors (PR-), and HER2 (HER2-) means the cancer is triple negative.[1] Approximately 15-20 percent of US breast cancer cases are triple negative breast cancer (TNBC),[2] which disproportionately affects younger women as well as African-American women, followed by Hispanic women.[3]

TNBC remains a poor-prognosis breast cancer subtype, with limited treatment options for patients with advanced, recurrent disease. In the recurrent disease setting, chemotherapy remains the standard of care, and median survival is approximately 13 months from the time of disease recurrence.[4] Emerging evidence shows immunotherapy options may play an important role in the treatment paradigm for TNBC. Preliminary data demonstrated the anti-PD-1 antibody, pembrolizumab, led to an objective response in approximately 18 percent of TNBC patients;[5] and in the heavily pretreated population led to an objective overall response in approximately 4-8% of patients; [6] the anti-PD-L1 antibody, MPDL3280A, achieved an objective response in 33 percent of patients.[7] There is increasing evidence that tumors need TILs for anti-PD-1/PD-L1 therapies to be most effective. Data also show TILs promote better responses to chemotherapy and improve clinical outcomes in breast cancer, including TNBC.[8-13]

About OncoSec Medical Incorporated
OncoSec is a biotechnology company developing DNA-based intratumoral immunotherapies with an investigational technology, ImmunoPulse®, for the treatment of cancer. ImmunoPulse is designed to enhance the local delivery and uptake of DNA-based immune-targeting agents, such as plasmid encoded IL-12 (tavokinogene telseplasmid or "tavo"). In Phase 1 and 2 clinical trials, ImmunoPulse® IL-12 has demonstrated a favorable safety profile, evidence of anti-tumor activity in the treatment of various solid tumors, and the potential to reach beyond the site of local treatment to initiate a systemic immune response. OncoSec's lead program, ImmunoPulse IL-12, is currently in clinical development for metastatic melanoma and triple-negative breast cancer. The program's current focus is on the significant unmet medical need in patients with melanoma who are refractory or have relapsed on anti-PD-1 therapies. In addition to tavo, the Company is also identifying and developing new immune-targeting agents for use with the

ImmunoPulse platform. For more information, please visit www.oncosec.com.

Cautionary Note Regarding Forward-Looking Statements
This press release contains "forward-looking statements" within the meaning of the U.S. Private Securities Litigation Reform Act of 1995, including statements about OncoSec's business strategies, including advancement of its lead melanoma program and its broader clinical portfolio and plans to pursue collaborations with industry partners, as well as the potential contributions and impact of new directors on these strategies. In some cases, you can identify forward-looking statements by terminology such as "may", "should", "expects", "plans", "anticipates", "believes", "estimates", "predicts", "potential" or "continue" or the negative of these terms or other comparable terminology.

Forward-looking statements are neither historical facts nor assurances of future performance. Instead, they are based on management's current preliminary expectations and are subject to risks and uncertainties, which may cause OncoSec's results to differ materially and adversely from the statements contained herein. Potential risks and uncertainties that could cause actual results to differ from those predicted include, among others, the following: the status, progress and results of clinical programs; ability to obtain regulatory approvals for, and the level of market opportunity for, OncoSec's product candidates; OncoSec's business plans, strategies and objectives, including plans to pursue collaboration, licensing or other similar arrangements or transactions; expectations regarding OncoSec's liquidity and performance, including expense levels, sources of capital and ability to maintain operations as a going concern; the competitive landscape of OncoSec's industry; and general market, economic and political conditions; and the other factors discussed in OncoSec's filings with the Securities and Exchange Commission, including its annual report on Form 10-K for the year ended July 31, 2017.

Undue reliance should not be placed on forward-looking statements, which speak only as of the date they are made. OncoSec disclaims any obligation to update any forward-looking statements to reflect new information, events or circumstances after the date they are made, or to reflect the occurrence of unanticipated events.

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