

**Blue Earth Diagnostics Announces Results of Investigational Phase 3 Blinded Image Evaluation Study of <sup>18</sup>F-Fluciclovine PET Imaging in Glioma**

*– Presented at 23<sup>rd</sup> Annual Scientific Meeting of the Society for Neuro-Oncology –*

**BURLINGTON, Mass. and OXFORD, UK – Nov. 19, 2018** – Blue Earth Diagnostics, a molecular imaging diagnostics company, today announced results from an investigational Phase 3 blinded image evaluation (BIE) study of the diagnostic efficacy of <sup>18</sup>F-fluciclovine positron emission tomography (PET) imaging, as an adjunct to magnetic resonance imaging (MRI), in adults with glioma. The primary aim was to determine the diagnostic performance of <sup>18</sup>F-fluciclovine PET when combined with MRI (CE-T<sub>1</sub>W MRI), compared to that of MRI (CE-T<sub>1</sub>W MRI) alone. Results demonstrated that the overall ability of the readers to assess the diagnostic performance of <sup>18</sup>F-fluciclovine with MRI had a Positive Predictive Value (PPV) of more than 90%. <sup>18</sup>F-fluciclovine is a synthetic amino acid labeled with the radioisotope F 18, enabling PET imaging to visualize the increased amino acid transport that occurs in malignant tumors such as glioma. Glioma is a serious and life-threatening condition accounting for about 80% of all malignant brain tumors.

<sup>18</sup>F-fluciclovine under the tradename Axumin<sup>®</sup> (fluciclovine F 18 injection) is an FDA-approved molecular imaging agent indicated for PET imaging in men with suspected prostate cancer recurrence based on elevated blood levels of prostate specific antigen (PSA) following prior treatment. <sup>18</sup>F-fluciclovine PET imaging is being investigated for the detection and continuing assessment of glioma. (For additional product information please see the end of this news release.)

Results of the study were presented in a Poster Session, “A blinded image evaluation study to determine the diagnostic efficacy of <sup>18</sup>F-fluciclovine PET, as an adjunct to MRI imaging, in adults with glioma,” by Matthew P. Miller, PhD, Blue Earth Diagnostics, Oxford, UK at the 23<sup>rd</sup> Annual Scientific Meeting and Education Day of the Society for Neuro-Oncology, in New Orleans, La., from November 15 - 18, 2018.

“It is a great pleasure to share results from the <sup>18</sup>F-fluciclovine PET blinded image evaluation study in glioma with the prestigious clinical community at the Society of Neuro-Oncology,” said Jonathan Allis, D. Phil., CEO of Blue Earth Diagnostics. “<sup>18</sup>F-fluciclovine PET is designated as an Orphan Drug by the FDA and EMA for the diagnosis of glioma, and Blue Earth Diagnostics is investigating its potential use in adults with glioma as part of our mission to develop and commercialize innovative PET imaging agents to address unmet medical needs in cancer. We look forward to publishing the full results of this study in an upcoming peer-reviewed medical journal.”

“Glioma is a serious and potentially life-threatening disease, and the ability to identify the location and extent of a tumor is important in planning appropriate treatment for patients, in both initial diagnosis and subsequent monitoring for recurrence,” said Peter Gardiner, MB ChB, MRCP, FFPM, CMO of Blue Earth Diagnostics. “PET imaging provides additional insight beyond MRI into the biology and treatment response of gliomas<sup>1</sup>.”

“Guidelines from the Response Assessment in Neuro-Oncology (RANO) working group and the European Association for Neuro-Oncology (EANO) emphasize the clinical value of PET imaging with superiority of amino acid PET over glucose PET and provides a framework for the use of PET to assist in the management of patients with glioma<sup>1</sup>,” said Matthew P. Miller, PhD, Head of Imaging at Blue Earth Diagnostics and lead author on the BED006 study. “<sup>18</sup>F-fluciclovine is a synthetic amino acid taken up by certain cancer cells. This blinded image evaluation study examined the diagnostic performance of <sup>18</sup>F-fluciclovine PET imaging, in conjunction with various types of MRI, for imaging of suspected glioma when interpreted by readers unfamiliar with <sup>18</sup>F-fluciclovine PET. Results indicated a Positive Predictive Value (PPV) of more than 90% for each of the three blinded readers and consistent image interpretation across these readers. Additionally, <sup>18</sup>F-fluciclovine PET with MRI (CE-T<sub>1</sub>W MRI) identified additional regions suspicious for glioma that MRI alone was unable to identify, which subsequent biopsies confirmed as malignant.”

### **About the Phase 3 Blinded Image Evaluation (BIE) Study in Glioma (BED006)**

Study BED006 was a prospective, Phase 3, Blinded Image Evaluation (BIE) study of <sup>18</sup>F-fluciclovine PET data sets derived from a previous prospective Phase 2 study, designed to evaluate the efficacy of <sup>18</sup>F-fluciclovine PET combined with MRI imaging, as compared to MRI alone, in adults with glioma. The primary objective of the study was to determine the positive predictive value (PPV) of <sup>18</sup>F-fluciclovine PET when combined with MRI (CE-T<sub>1</sub>W MRI), compared to MRI (CE-T<sub>1</sub>W MRI) alone. Secondary objectives included determining the diagnostic performance of <sup>18</sup>F-fluciclovine PET and MRI compared with various types of MRI: CE-T<sub>1</sub>W MRI alone; fluid-attenuated inversion recovery (“FLAIR”) (or T<sub>2</sub>-weighted MRI) alone; and FLAIR (or T<sub>2</sub>W) MRI and CE-T<sub>1</sub>W MRI in combination. The study also assessed the reproducibility of interpretation of <sup>18</sup>F-fluciclovine PET with MRI (CE-T<sub>1</sub>W MRI) image evaluation when interpreted by naïve readers.

Thirty-five <sup>18</sup>F-fluciclovine PET and MRI (CE-T<sub>1</sub>W and FLAIR [or T<sub>2</sub>W]) image datasets with corresponding histopathological standard-of-truth data collected from patients who received <sup>18</sup>F-fluciclovine for the imaging of suspected glioma in a previously conducted, prospective Phase 2 clinical trial (JapicCTI-132289) were evaluated. Three independent, blinded readers assessed images captured by cranial PET scan, a mean of 13.1 minutes after the injection of <sup>18</sup>F-fluciclovine. Reader reproducibility was assessed by determining agreement in diagnostic performance parameters.

Results demonstrated the diagnostic performance of <sup>18</sup>F-fluciclovine PET imaging, in conjunction with MRI, with a PPV of more than 90% for each of the three readers, regardless of whether images were positive or negative on MRI. The sensitivity of <sup>18</sup>F-fluciclovine with MRI (CE-T<sub>1</sub>W MRI) (range 65.8 - 71.1%) was shown to be higher than that of MRI alone (CE-T<sub>1</sub>W MRI) (42.1%) but not as high as FLAIR (or T<sub>2</sub>W) MRI alone (86.8%). The 88.9% specificity of <sup>18</sup>F-fluciclovine with MRI (CE-T<sub>1</sub>W MRI) was equal to that of MRI (CE-T<sub>1</sub>W MRI) alone and higher than FLAIR (or T<sub>2</sub>W) MRI alone (33.3%). Agreement across readers indicated high concordance, with 89.4% of PET scans in agreement.

Blue Earth Diagnostics is pursuing regulatory filings for the use of <sup>18</sup>F-fluciclovine PET imaging in adults for the detection and continuing assessment of the disease. The compound has been

granted Orphan Drug status by both the U.S. Food and Drug Administration (FDA) and the European Medicines Agency for the diagnosis of glioma.

#### **About <sup>18</sup>F-fluciclovine PET in Glioma**

<sup>18</sup>F-fluciclovine PET is a diagnostic imaging radiopharmaceutical for PET imaging that consists of a synthetic amino acid labeled with the radioisotope F 18, enabling the visualization of the increased amino acid transport that occurs in malignant tumors. <sup>18</sup>F-fluciclovine, under the trade name Axumin<sup>®</sup>, is approved by the U.S. Food and Drug Administration (FDA) for PET imaging in men with biochemically recurrent prostate cancer. It is also under investigation by Blue Earth Diagnostics for use in adults for the detection and continuing assessment of glioma. <sup>18</sup>F-fluciclovine has been granted Orphan Drug status by both the FDA and the European Medicines Agency for the diagnosis of glioma. The compound was invented at Emory University in Atlanta, Ga., with much of the fundamental clinical development work carried out by physicians at Emory University's Department of Radiology and Imaging Sciences.

#### **About Glioma**

Glioma, the most commonly occurring type of primary brain tumor, is a serious and life-threatening condition. Cancer of the brain and central nervous system (CNS) is the twelfth most common cause of cancer death worldwide. Glioma accounts for about 25% of all brain tumors, and 80% of all malignant brain tumors. The most aggressive form of glioma, glioblastoma multiforme, is associated with significant morbidity and mortality with relatively low 5-year survival estimates after diagnosis. Current treatment options for patients with glioma include surgery, radiation and chemotherapy. Accurate evaluation of the location and extent of a glioma tumor is essential before or during surgery and radiotherapy and in assessing the continuing status of the disease. The detection and assessment of gliomas typically involves magnetic resonance imaging (MRI), which may be complemented by metabolic imaging using an appropriate amino acid-based PET radiopharmaceutical, as recommended in the Response Assessment in Neuro-Oncology (RANO) working group and European Association for Neuro-Oncology (EANO) guidelines.<sup>1</sup>

### **U.S. Indication and Important Safety Information About Axumin\***

#### **INDICATION**

Axumin<sup>®</sup> (fluciclovine F 18) injection is indicated for positron emission tomography (PET) imaging in men with suspected prostate cancer recurrence based on elevated blood prostate specific antigen (PSA) levels following prior treatment.

NOTE: Axumin (fluciclovine F 18) injection is not currently approved in the United States for treatment planning in men with biochemically recurrent prostate cancer.

#### **IMPORTANT SAFETY INFORMATION**

- Image interpretation errors can occur with Axumin PET imaging. A negative image does not rule out recurrent prostate cancer and a positive image does not confirm its presence. The performance of Axumin seems to be affected by PSA levels. Axumin uptake may occur with other cancers and benign prostatic hypertrophy in primary prostate cancer. Clinical correlation, which may include histopathological evaluation, is recommended.

- Hypersensitivity reactions, including anaphylaxis, may occur in patients who receive Axumin. Emergency resuscitation equipment and personnel should be immediately available.
- Axumin use contributes to a patient's overall long-term cumulative radiation exposure, which is associated with an increased risk of cancer. Safe handling practices should be used to minimize radiation exposure to the patient and health care providers.
- Adverse reactions were reported in  $\leq 1\%$  of subjects during clinical studies with Axumin. The most common adverse reactions were injection site pain, injection site erythema and dysgeusia.

To report suspected adverse reactions to Axumin, call 1-855-AXUMIN1 (1-855-298-6461) or contact FDA at 1-800-FDA-1088 or [www.fda.gov/medwatch](http://www.fda.gov/medwatch).

**Full U.S. Axumin prescribing information is available at [www.axumin.com](http://www.axumin.com).**

\*This press release is intended to provide information about Blue Earth Diagnostics' business in the United States. Please be aware that the approval status and product label for Axumin varies by country worldwide. Refer to the individual country product label for complete information or contact Blue Earth Diagnostics.

#### **About Blue Earth Diagnostics**

Blue Earth Diagnostics is a leading molecular imaging diagnostics company focused on the development and commercialization of novel PET imaging agents to inform clinical management and guide care for cancer patients in areas of unmet medical need. Formed in 2014, Blue Earth Diagnostics is led by recognized experts in the clinical development and commercialization of innovative nuclear medicine products. The company's first approved and commercially available product is Axumin<sup>®</sup> (fluciclovine F 18), a novel molecular imaging agent approved in the United States and European Union for use in PET imaging to detect and localize prostate cancer in men with a diagnosis of biochemical recurrence. The company's pipeline includes Prostate Specific Membrane Antigen (PSMA)-targeted radiohybrid ("rh") agents. rhPSMA is a clinical-stage, investigational class of theranostic compounds, with potential applications in both the imaging and treatment of prostate cancer. Blue Earth Diagnostics is backed by Syncona, an investment company listed on the London Stock Exchange (LON: SYNC). For more information, visit: <http://www.blueearthdiagnostics.com>.

#### **References**

<sup>1</sup>Albert NL, Weller M., Suchorska B, et al. Response Assessment in Neuro-Oncology working group and European Association for Neuro-Oncology recommendations for the clinical use of PET imaging in gliomas. *Neuro-Oncology* 2016;18(9):1199-1208.

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