

# **PYLARIFY- piflufolastat f-18 injection**

## **Progenics Pharmaceuticals, Inc.**

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### **HIGHLIGHTS OF PRESCRIBING INFORMATION**

**These highlights do not include all the information needed to use PYLARIFY® safely and effectively. See full prescribing information for PYLARIFY.**

**PYLARIFY® (piflufolastat F 18) injection, for intravenous use**  
**Initial U.S. Approval: 2021**

### **INDICATIONS AND USAGE**

PYLARIFY is a radioactive diagnostic agent indicated for positron emission tomography (PET) of prostate-specific membrane antigen (PSMA) positive lesions in men with prostate cancer:

- with suspected metastasis who are candidates for initial definitive therapy.
- with suspected recurrence based on elevated serum prostate-specific antigen (PSA) level. (1)

### **DOSAGE AND ADMINISTRATION**

- Recommended dose is 333 MBq (9 mCi) with an acceptable range of 296 MBq to 370 MBq (8 mCi to 10 mCi), administered as a bolus intravenous injection. (2.2)
- Initiate imaging approximately 60 minutes after PYLARIFY administration. The patient should void immediately prior to initiation of imaging. Image acquisition should start from mid-thigh and proceed to the skull vertex. (2.3, 2.4)
- See full prescribing information for additional preparation, handling, administration, imaging, and radiation dosimetry information. (2)

### **DOSAGE FORMS AND STRENGTHS**

Injection: clear, colorless solution in a multiple-dose vial containing 37 MBq/mL to 2,960 MBq/mL (1 mCi/mL to 80 mCi/mL) of piflufolastat F 18 at calibration date and time. (3)

### **CONTRAINDICATIONS**

None. (4)

### **WARNINGS AND PRECAUTIONS**

- **Risk of Image Misinterpretation:** PYLARIFY uptake can be seen in a variety of tumor types as well as in non-malignant processes and normal tissues. Image interpretation errors can occur with PYLARIFY imaging. (5.1)
- **Hypersensitivity Reactions:** Monitor patients for hypersensitivity reactions, particularly patients with a history of allergy to other drugs and foods. (5.2)
- **Radiation Risk:** Ensure safe drug handling to protect patients and health care workers from unintentional radiation exposure. (5.3)

### **ADVERSE REACTIONS**

The most common reported adverse reactions are headache, dysgeusia, and fatigue. (6.1)

**To report SUSPECTED ADVERSE REACTIONS, contact Progenics Pharmaceuticals, Inc. at 1-800-362-2668 or FDA at 1-800-FDA-1088 or [www.fda.gov/medwatch](http://www.fda.gov/medwatch).**  
**See 17 for PATIENT COUNSELING INFORMATION.**

**Revised: 3/2023**

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## **FULL PRESCRIBING INFORMATION**

### **1 INDICATIONS AND USAGE**

PYLARIFY is indicated for positron emission tomography (PET) of prostate-specific membrane antigen (PSMA) positive lesions in men with prostate cancer:

- with suspected metastasis who are candidates for initial definitive therapy.
- with suspected recurrence based on elevated serum prostate-specific antigen (PSA) level.

## **2 DOSAGE AND ADMINISTRATION**

### **2.1 Radiation Safety - Drug Handling**

PYLARIFY is a radioactive drug. Only authorized persons qualified by training and experience should receive, use, and administer PYLARIFY. Handle PYLARIFY with appropriate safety measures to minimize radiation exposure during administration [see *Warnings and Precautions (5.3)*]. Use waterproof gloves and effective radiation shielding, including syringe shields, when preparing and handling PYLARIFY.

### **2.2 Recommended Dosage and Administration Instructions**

#### Recommended Dose

The recommended amount of radioactivity to be administered for PET imaging is 333 MBq (9 mCi) with an acceptable range of 296 MBq to 370 MBq (8 mCi to 10 mCi) administered as a single bolus intravenous injection.

#### Preparation and Administration

- Use aseptic technique and radiation shielding when preparing and administering PYLARIFY.
- Visually inspect the radiopharmaceutical solution. Do not use if it contains particulate matter or if it is discolored (PYLARIFY is a clear, colorless solution).
- Calculate the necessary volume to administer based on calibration time and required dose. PYLARIFY may be diluted with 0.9% Sodium Chloride Injection, USP.
- Assay the dose in a suitable dose calibrator prior to administration.

#### Post Administration Instructions

- Follow the PYLARIFY injection with an intravenous flush of 0.9% Sodium Chloride Injection USP.
- Dispose of any unused PYLARIFY in compliance with applicable regulations.

### **2.3 Patient Preparation**

Instruct patients to drink water to ensure adequate hydration prior to administration of PYLARIFY and to continue drinking and voiding frequently for the first few hours following administration to reduce radiation exposure [see *Warnings and Precautions (5.3)*].

### **2.4 Image Acquisition**

The recommended start time for image acquisition is 60 minutes after PYLARIFY injection. Starting image acquisition more than 90 minutes after injection may adversely impact imaging performance. Patients should void immediately prior to image acquisition. Position the patient supine with arms above the head. Image acquisition should start from mid-thigh and proceed to the skull vertex. Scan duration is 12 minutes to 40 minutes depending on the number of bed positions (typically 6 to 8) and acquisition time per bed position (typically 2 minutes to 5 minutes).

### **2.5 Image Display and Interpretation**

PYLARIFY binds to prostate-specific membrane antigen (PSMA). Based on the intensity of the signals, PET images obtained using PYLARIFY indicate the presence of PSMA in

tissues. Lesions should be considered suspicious if uptake is greater than physiologic uptake in that tissue or greater than adjacent background if no physiologic uptake is expected. Tumors that do not express PSMA will not be visualized. Increased uptake in tumors is not specific for prostate cancer [see *Warnings and Precautions (5.1)*].

## 2.6 Radiation Dosimetry

Radiation absorbed dose estimates are shown in Table 1 for organs and tissues of adult male patients from intravenous administration of PYLARIFY. The radiation effective dose resulting from administration of 370 MBq (10 mCi) of PYLARIFY to an adult weighing 70 kg is estimated to be 4.3 mSv. The radiation doses for this administered dose to the critical organs, which are the kidneys, liver, and spleen, are 45.5 mGy, 13.7 mGy, and 10 mGy respectively. When PET/CT is performed, exposure to radiation will increase by an amount dependent on the settings used in the CT acquisition.

**Table 1. Estimated Radiation Absorbed Doses in Organs/Tissues in Adults who Received PYLARIFY**

Organ/Tissue	Mean Absorbed dose per Unit Administered Activity (mGy/MBq)	
	Mean	Standard Deviation
Adrenal glands	0.0131	0.0013
Brain	0.0021	0.0003
Breasts	0.0058	0.0007
Gallbladder wall	0.0141	0.0012
Lower large intestine wall	0.0073	0.001
Small intestine	0.0089	0.0009
Stomach wall	0.0092	0.0008
Upper large intestine wall	0.0091	0.0009
Heart wall	0.0171	0.0022
Kidneys	0.123	0.0434
Liver	0.037	0.0058
Lungs	0.0102	0.0016
Muscle	0.0069	0.0008
Pancreas	0.0124	0.0011
Red bone marrow	0.0071	0.0007
Osteogenic cells	0.0099	0.0012
Skin	0.0052	0.0006
Spleen	0.0271	0.0115
Testes	0.0059	0.0008
Thymus gland	0.007	0.0008
Thyroid	0.0062	0.0009
Urinary bladder wall	0.0072	0.001
<b>Effective dose</b>	<b>0.0116 (mSv/MBq)</b>	<b>0.0022 (mSv/MBq)</b>

### **3 DOSAGE FORMS AND STRENGTHS**

Injection: clear, colorless solution in a multiple-dose vial containing 37 MBq/mL to 2,960 MBq/mL (1 mCi/mL to 80 mCi/mL) of piflufolastat F 18 at calibration date and time.

### **4 CONTRAINDICATIONS**

None.

### **5 WARNINGS AND PRECAUTIONS**

#### **5.1 Risk of Image Misinterpretation**

Imaging interpretation errors can occur with PYLARIFY imaging. A negative image does not rule out the presence of prostate cancer and a positive image does not confirm the presence of prostate cancer. The performance of PYLARIFY for imaging of patients with biochemical evidence of recurrence of prostate cancer seems to be affected by serum PSA levels [see *Clinical Studies (14)*]. The performance of PYLARIFY for imaging of metastatic pelvic lymph nodes prior to initial definitive therapy seems to be affected by risk factors such as Gleason score and tumor stage [see *Clinical Studies (14)*]. PYLARIFY uptake is not specific for prostate cancer and may occur with other types of cancer as well as non-malignant processes and in normal tissues. Clinical correlation, which may include histopathological evaluation of the suspected prostate cancer site, is recommended.

#### **5.2 Hypersensitivity Reactions**

Monitor patients for hypersensitivity reactions, particularly patients with a history of allergy to other drugs and foods. Reactions may not be immediate. Always have trained staff and resuscitation equipment available.

#### **5.3 Radiation Risks**

Diagnostic radiopharmaceuticals, including PYLARIFY, expose patients to radiation [see *Dosage and Administration (2.6)*]. Radiation exposure is associated with a dose-dependent increased risk of cancer. Ensure safe handling and preparation procedures to protect patients and health care workers from unintentional radiation exposure. Advise patients to hydrate before and after administration and to void frequently after administration [see *Dosage and Administration (2.3)*].

### **6 ADVERSE REACTIONS**

#### **6.1 Clinical Trials Experience**

Because clinical trials are conducted under widely varying conditions, adverse reaction rates observed in the clinical trials of a drug cannot be directly compared to rates in the clinical trials of another drug and may not reflect the rates observed in practice.

The safety of PYLARIFY was evaluated in 593 patients, each receiving one dose of PYLARIFY. The average injected activity was  $340 \pm 26$  MBq ( $9.2 \pm 0.7$  mCi).

The adverse reactions reported in >0.5% of patients within the studies are shown in Table 2. In addition, a hypersensitivity reaction was reported in one patient (0.2%) with a history of allergic reaction.

**Table 2. Adverse Reactions with a Frequency >0.5% in Patients Who Received PYLARIFY (n = 593)**

<b>Adverse Reaction</b>	<b>n (%)</b>
Headache	13 (2%)
Dysgeusia	10 (2%)
Fatigue	7 (1%)

## **7 DRUG INTERACTIONS**

### Androgen deprivation therapy and other therapies targeting the androgen pathway

Androgen deprivation therapy (ADT) and other therapies targeting the androgen pathway, such as androgen receptor antagonists, may result in changes in uptake of PYLARIFY in prostate cancer. The effect of these therapies on performance of PYLARIFY PET has not been established.

## **8 USE IN SPECIFIC POPULATIONS**

### **8.1 Pregnancy**

#### Risk Summary

PYLARIFY is not indicated for use in females. There is no information on the risk of adverse developmental outcomes in pregnant women or animals with the use of piflufolastat F 18. All radiopharmaceuticals, including PYLARIFY, have the potential to cause fetal harm depending on the fetal stage of development and the magnitude of the radiation dose.

### **8.2 Lactation**

#### Risk Summary

PYLARIFY is not indicated for use in females. There is no information on the presence of piflufolastat F 18 in human milk, the effect on the breastfed infant, or the effect on milk production.

### **8.4 Pediatric Use**

The safety and effectiveness of PYLARIFY in pediatric patients have not been established.

### **8.5 Geriatric Use**

Of the 593 patients in completed clinical studies of PYLARIFY, 355 (60%) were  $\geq 65$  years old, while 76 (12.8%) were  $\geq 75$  years old. The efficacy and safety of PYLARIFY appear similar in adult and geriatric patients with prostate cancer, although the number of patients in the trials was not large enough to allow definitive comparison.

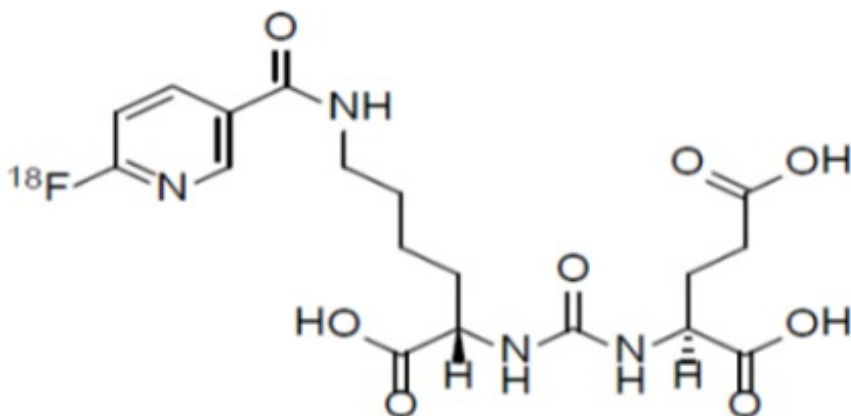
## 10 OVERDOSAGE

In the event of an overdose of PYLARIFY, reduce the radiation absorbed dose to the patient where possible by increasing the elimination of the drug from the body using hydration and frequent bladder voiding. A diuretic might also be considered. If possible, an estimate of the radiation effective dose administered to the patient should be made.

## 11 DESCRIPTION

### 11.1 Chemical Characteristics

PYLARIFY contains fluorine 18 (F 18), radiolabeled prostate-specific membrane antigen inhibitor imaging agent. Chemically piflufolastat F 18 is 2-(3-{1-carboxy-5-[(6-[<sup>18</sup>F]fluoro-pyridine-3-carbonyl)-amino]-pentyl}ureido)-pentanedioic acid. The molecular weight is 441.4 and the structural formula is:



The chiral purity of the unlabeled piflufolastat F 18 precursor is greater than 99% (S,S).

PYLARIFY is a sterile, non-pyrogenic, clear, colorless solution for intravenous injection. Each milliliter contains 37 to 2,960 MBq (1 to 80 mCi) piflufolastat F 18 with  $\leq 0.01$   $\mu\text{g}/\text{mCi}$  of piflufolastat at calibration time and date, and  $\leq 78.9$  mg ethanol in 0.9% sodium chloride injection USP. The pH of the solution is 4.5 to 7.0.

PYLARIFY has a radiochemical purity of at least 95% up to 10 hours following end of synthesis, and specific activity of at least 1000 mCi/ $\mu\text{mol}$  at the time of administration.

### 11.2 Physical Characteristics

PYLARIFY is radiolabeled with fluorine 18 (F 18), a cyclotron produced radionuclide that decays by positron emission to stable oxygen 18 with a half-life of 109.8 minutes. The principal photons useful for diagnostic imaging are the coincident pair of 511 keV gamma photons, resulting from the interaction of the emitted positron with an electron (Table 3).

**Table 3. Principal Radiation Produced from Decay of Fluorine 18**

	<b>Radiation Energy (keV)</b>	<b>Abundance (%)</b>
Positron	249.8	96.9
Gamma	511	193.5

### 11.3 External Radiation

The point source air-kerma coefficient for F 18 is  $3.75 \times 10^{-17}$  Gy m<sup>2</sup>/(Bq s). The first half-value thickness of lead (Pb) for F 18 gamma rays is approximately 6 mm. The relative reduction of radiation emitted by F 18 that results from various thicknesses of lead shielding is shown in Table 4. The use of 8 cm Pb decreases the radiation transmission (i.e. exposure) by a factor of about 10,000.

**Table 4. Radiation Attenuation of 511 keV Gamma Rays by Lead Shielding**

<b>Shield Thickness cm of Lead (Pb)</b>	<b>Coefficient of Attenuation</b>
0.6	0.5
2	0.1
4	0.01
6	0.001
8	0.0001

## 12 CLINICAL PHARMACOLOGY

### 12.1 Mechanism of Action

Piflufolastat F 18 binds to cells that express PSMA, including malignant prostate cancer cells, which usually overexpress PSMA. Fluorine-18 (F 18) is a  $\beta^+$  emitting radionuclide that enables positron emission tomography.

### 12.2 Pharmacodynamics

The relationship between piflufolastat F 18 plasma concentrations and image interpretation has not been studied.

### 12.3 Pharmacokinetics

#### Distribution

Following intravenous administration of piflufolastat F 18, blood levels decline in a biphasic fashion. The distribution half-life is  $0.17 \pm 0.044$  hours and the elimination half-life is  $3.47 \pm 0.49$  hours.

Piflufolastat F 18 distributes to the kidneys (16.5% of administered activity), liver (9.3%), and lung (2.9%), within 60 minutes of intravenous administration.

#### Elimination



Elimination is by urinary excretion. In the first 8 hours post-injection, approximately 50% of administered radioactivity is excreted in the urine.

## **13 NONCLINICAL TOXICOLOGY**

### **13.1 Carcinogenesis, Mutagenesis, Impairment of Fertility**

Animal studies to assess the carcinogenicity or mutagenic potential of piflufolastat have not been conducted. However, piflufolastat has the potential to be mutagenic because of the F 18 radioisotope.

No animal studies with piflufolastat have been performed to evaluate the potential impairment of fertility in males or females.

## **14 CLINICAL STUDIES**

The safety and efficacy of PYLARIFY were evaluated in two prospective, open-label, multi-center clinical studies in men with prostate cancer: OSPREY (NCT02981368) and CONDOR (NCT03739684).

### OSPREY

OSPREY enrolled a cohort of 268 men with biopsy-proven prostate cancer who were considered candidates for radical prostatectomy and pelvic lymph node dissection. These patients were all considered to have high risk disease based on criteria such as Gleason score, PSA level, and tumor stage. Each patient received a single PYLARIFY PET/CT from mid-thigh to skull vertex.

Three central readers independently interpreted each PET scan for the presence of abnormal PYLARIFY uptake in pelvic lymph nodes in multiple subregions, including the common iliac lymph nodes. The readers were blinded to all clinical information. While readers also recorded the presence of PYLARIFY PET-positive lesions in the prostate gland and outside the pelvis, those results were not included in the primary efficacy analysis.

A total of 252 patients (94%) underwent standard-of-care prostatectomy and template pelvic lymph node dissection and had sufficient histopathology data for evaluation of the pelvic lymph nodes. Surgical specimens were separated into three regions: left hemipelvis, right hemipelvis, and other. For each patient, PYLARIFY PET results and histopathology results obtained from dissected pelvic lymph nodes were compared by surgical region. PET results in locations that were not dissected were excluded from analysis.

For the 252 evaluable patients, the mean age was 64 years (range 46 to 84 years), and 87% were white. The median serum PSA was 9.3 ng/mL. The total Gleason score was 7 for 19%, 8 for 46%, and 9 for 34% of the patients, with the remainder of the patients having Gleason scores of 6 or 10.

Table 5 shows PYLARIFY PET performance by reader through comparison to pelvic lymph node histopathology at the patient-level with region matching, such that at least one true positive region defines a true positive patient. Approximately 24% of the evaluable patients had pelvic lymph node metastases based on histopathology (95% confidence interval: 19%, 29%).

**Table 5: Patient-Level, Region-Matched Performance of PYLARIFY PET for Detection of Pelvic Lymph Node Metastasis in OSPREY (n=252)**

	<b>Reader 1</b>	<b>Reader 2</b>	<b>Reader 3</b>
True Positive	23	17	23
False Positive	7	4	9
False Negative	36	43	37
True Negative	186	188	183
Sensitivity, % (95% CI)	39 (27, 51)	28 (17, 40)	38 (26, 51)
Specificity, % (95% CI)	96 (94, 99)	98 (95, 99)	95 (92, 98)
PPV, % (95% CI)	77 (62, 92)	81 (59, 93)	72 (56, 87)
NPV, % (95% CI)	84 (79, 89)	81 (76, 86)	83 (78, 88)

Abbreviations: CI = confidence interval, PPV = positive predictive value, NPV = negative predictive value

In exploratory analyses, there were numerical trends towards more true positive results among patients with total Gleason score of 8 or higher and among patients with tumor stage of T2c or higher relative to those patients with lower Gleason score or tumor stage.

### CONDOR

CONDOR enrolled 208 patients with biochemical evidence of recurrent prostate cancer, defined by serum PSA of at least 0.2 ng/mL after radical prostatectomy (with confirmatory PSA level also at least

0.2 ng/mL) or by an increase in serum PSA of at least 2 ng/mL above the nadir after other therapies. The mean age was 68 years (range 43 to 91 years), and 90% of patients were white. The median serum PSA was 0.82 ng/mL. Prior treatment included radical prostatectomy in 85% of the patients.

All enrolled patients had conventional imaging evaluation (for most patients, CT or MRI) within 60 days prior to receiving PYLARIFY PET, and this evaluation was negative or equivocal for prostate cancer. All patients received a single PYLARIFY PET/CT from mid-thigh to skull vertex with optional imaging of the lower extremities.

Three central readers independently evaluated each PYLARIFY PET scan for the presence and location of positive lesions. Location of each lesion was categorized in one of 19 subregions that were grouped into 5 regions (prostate/prostate bed, pelvic lymph nodes, other lymph nodes, soft tissue, bone). The readers were blinded to all clinical information.

Depending on the reader, a total of 123 to 137 patients (59% to 66%) had at least one lesion that was identified as PYLARIFY PET-positive (Table 6, TP + FP + PET-Positive Without Reference Standard). The region most commonly observed to have a PYLARIFY PET-positive finding was pelvic lymph nodes (40% to 42% of all PET-positive regions) and the least common region was soft tissue (6% to 7%).

Depending on the reader, 99 to 104 patients with a PYLARIFY PET-positive region had location-matched composite reference standard information available (Evaluable Set, Table 6, TP + FP) that consisted of histopathology, imaging (CT, MRI, ultrasound, fluciclovine PET, choline PET, or bone scan) obtained within 60 days of the PYLARIFY PET scan, or response of serum PSA level to targeted radiotherapy. Reference standard information for PET-negative regions was not systematically collected in this study.

Table 6 shows patient-level performance results of PYLARIFY PET by reader, including location -matched positive predictive value [true positive / (true positive + false positive)], also known as Correct Localization Rate (CLR). For these results, a patient was considered true positive if they had at least one matching location positive on both PYLARIFY PET and the composite reference standard. In addition to calculating location-matched positive predictive value in the Evaluable Set (CLR), an exploratory analysis of positive predictive value in all scanned patients (Imputed CLR) was performed in which PYLARIFY PET-positive patients who lacked reference standard information were imputed using an estimated likelihood that at least one PET-positive lesion was reference standard positive, based on patient-specific factors.

**Table 6: Patient-Level Performance of PYLARIFY PET in CONDOR (n=208)**

	<b>Reader 1</b>	<b>Reader 2</b>	<b>Reader 3</b>
True Positive (TP)	89	87	84
False Positive (FP)	15	13	15
PET-Positive Without Reference Standard	33	24	24
PET-Negative	71	84	85
CLR % (95% CI)	86 (79, 92)	87 (80, 94)	85 (78, 92)
Imputed CLR % (95% CI)	78 (71, 85)	81 (74, 88)	79 (72, 86)

Abbreviations: TP = true positive, FP = false positive, CLR = location-matched positive predictive value in the Evaluable Set [TP/(TP + FP)], Imputed CLR = location-matched positive predictive value in all scanned patients using an imputation approach based on patient-specific factors for PET-Positive Without Reference Standard, CI = confidence interval

An exploratory analysis of region-level positive predictive value using only PET-positive regions that had sufficient composite reference standard information to determine true positive or false positive status demonstrated results of 67% to 70% with the lower bound of the 95% confidence interval ranging from 59% to 63%.

The percentage of patients categorized as true positive in a location-matched analysis out of all patients scanned with PYLARIFY was an additional exploratory endpoint. Using the same imputation approach for PET-positive patients who lacked reference standard information as in Table 6 above, this value was 47% to 51%, with the lower bound of the 95% confidence interval ranging from 40% to 45%.

Table 7 shows patient-level PYLARIFY PET results from the majority read stratified by

serum PSA level. Percent PET positivity was calculated as the proportion of patients with a positive PYLARIFY PET out of all patients scanned. Percent PET positivity includes patients determined to be either true positive or false positive as well as those in whom such determination was not made due to lack of composite reference standard information. The likelihood of a patient having at least one PYLARIFY PET-positive lesion generally increased with higher serum PSA level.

**Table 7: Patient-Level PYLARIFY PET Results and Percent PET Positivity\* Stratified by Serum PSA Level in the CONDOR Study Using Majority Result Among Three Readers (n=199)†**

PSA (ng/mL)	PET positive patients			PET negative patients	Percent PET positivity, (95% CI)
	Total	TP With reference standard	FP Without reference standard		
<0.5	24	11 15	4 9	45	35 (24, 46)
≥0.5 and <1	18	12 15	3 3	18	50 (34, 66)
≥1 and <2	21	15 18	3 3	10	68 (51, 84)
≥2	57	50 53	3 4	6	90 (83, 98)
Total	120	88 101	13 19	79	60 (54, 67)

Abbreviations: TP = true positive, FP = false positive, CI = confidence interval

\* Percent PET positivity = PET positive patients/total patients scanned. PET positive patients include true positive and false positive patients as well as those who did not have reference standard information.

† Six patients were excluded from this table due to lack of baseline PSA level. Three patients were excluded from this table due to lack of majority result among the categories true positive, false positive, PET positive without reference standard, and PET negative.

## 16 HOW SUPPLIED/STORAGE AND HANDLING

### 16.1 How Supplied

PYLARIFY injection is supplied in a 50 mL multiple-dose glass vial (NDC# 71258-022-01) containing a clear, colorless solution at a strength of 37 MBq/mL to 2,960 MBq/mL (1 mCi/mL to 80 mCi/mL) piflufolastat F 18 at calibration time and date.

### 16.2 Storage and Handling

#### Storage

Store PYLARIFY at controlled room temperature (USP) 20°C to 25°C (68°F to 77°F). PYLARIFY does not contain a preservative. Store PYLARIFY in the original container with radiation shielding. The expiration date and time are provided on the container label. Use

PYLARIFY within 10 hours from the time of end of synthesis.

### Handling

This preparation is approved for use by persons under license by the Nuclear Regulatory Commission or the relevant regulatory authority of an Agreement State.

## **17 PATIENT COUNSELING INFORMATION**

### Adequate Hydration

Instruct patients to drink a sufficient amount of water to ensure adequate hydration before their PET study and urge them to drink and urinate as often as possible during the first hours following the administration of PYLARIFY, in order to reduce radiation exposure [see *Dosage and Administration (2.3) and Warnings and Precautions (5.3)*].

Manufactured for:

Progenics Pharmaceuticals, Inc., a Lantheus company  
331 Treble Cove Road  
N. Billerica, MA 01862

PYLARIFY® is a trademark of Progenics Pharmaceuticals, Inc.

Patent: <http://www.lantheus.com/patents/index.html>

516091-0323

## **PRINCIPAL DISPLAY PANEL - 80 mCi/mL Vial Label**

Sterile

PYLARIFY®

(piflufolastat F 18) injection

Non-pyrogenic

37 MBq/mL to 2,960 MBq/mL (1 mCi/mL to 80 mCi/mL)  
at end of synthesis (EOS)

Diagnostic - For Intravenous Use Only

Expires within 10 hours from EOS

Batch #: \_\_\_\_\_


EOS Date: \_\_\_\_\_ EOS Time: \_\_\_\_\_

Activity @ EOS: \_\_\_\_\_ mCi

Concentration: \_\_\_\_\_ mCi/mL

Volume: \_\_\_\_\_ mL

Exp. Date: \_\_\_\_\_ Exp. Time: \_\_\_\_\_

<p>Sterile <b>PYLARIFY<sup>®</sup></b> Non-pyrogenic (piflufolastat F 18) injection</p> <p>37 MBq/mL to 2,960 MBq/mL (1 mCi/mL to 80 mCi/mL) at end of synthesis (EOS) <b>Diagnostic – For Intravenous Use Only</b> Expires within 10 hours from EOS</p> <p>Batch #: _____</p> <p>EOS Date: _____ EOS Time: _____</p> <p>Activity @ EOS: _____ mCi</p> <p>Concentration: _____ mCi/mL</p> <p>Volume: _____ mL</p> <p>Exp. Date: _____ Exp. Time: _____</p>	<p><b>NDC: 71258-022-01</b></p>	<p><b>Multiple-Dose Vial</b></p>
	<p>Each ml contains 37 MBq to 2,960 MBq (1 mCi to 80 mCi) piflufolastat F 18 at EOS, and ≤ 78.9 mg ethanol in 0.9% sodium chloride injection, USP</p>	<p>Store PYLARIFY upright in a shielded container at controlled room temperature (USP) 20°C to 25°C (68°F to 77°F)</p>
<p>Do not use if discolored or if it contains particulate matter. Calculate correct dosage from date and time of calibration. Recommended Dosage: See Prescribing Information</p> <p><b>CAUTION: RADIOACTIVE MATERIAL</b> </p> <p>Manufactured for: Progenics Pharmaceuticals, Inc., a Lantheus company N, Billerica, MA 01862</p> <p><sup>18</sup>F Half-life = 109.8 minutes    <b>RX Only</b>    516109-1222</p>		

# PYLARIFY

piflufolastat f-18 injection

## Product Information

<b>Product Type</b>	HUMAN PRESCRIPTION DRUG	<b>Item Code (Source)</b>	NDC:71258-022
<b>Route of Administration</b>	INTRAVENOUS		

## Active Ingredient/Active Moiety

Ingredient Name	Basis of Strength	Strength
<b>PIFLUFOLASTAT F-18</b> (UNII: 3934EF02T7) (PIFLUFOLASTAT F-18 - UNII:3934EF02T7)	PIFLUFOLASTAT F-18	80 mCi in 1 mL

## Inactive Ingredients

Ingredient Name	Strength
<b>ALCOHOL</b> (UNII: 3K9958V90M)	
<b>ISOTONIC SODIUM CHLORIDE SOLUTION</b> (UNII: VR5Y7PDT5W)	

## Packaging

#	Item Code	Package Description	Marketing Start Date	Marketing End Date
1	NDC:71258-022-01	50 mL in 1 VIAL, MULTI-DOSE; Type 0: Not a Combination Product	05/26/2021	

## Marketing Information

Marketing Category	Application Number or Monograph Citation	Marketing Start Date	Marketing End Date
NDA	NDA214793	05/26/2021	

**Labeler** - Progenics Pharmaceuticals, Inc. (195551247)

### Establishment

Name	Address	ID/FEI	Business Operations
Asymchem Life Science (Tianjin) Co., Ltd.		528176699	API MANUFACTURE(71258-022)

### Establishment

Name	Address	ID/FEI	Business Operations
PETNET SOLUTIONS, INC.		134146484	POSITRON EMISSION TOMOGRAPHY DRUG PRODUCTION(71258-022)

### Establishment

Name	Address	ID/FEI	Business Operations
SOFIE Co. dba SOFIE		079854636	POSITRON EMISSION TOMOGRAPHY DRUG PRODUCTION(71258-022)

### Establishment

Name	Address	ID/FEI	Business Operations
PETNET Solutions, Inc.		026659644	POSITRON EMISSION TOMOGRAPHY DRUG PRODUCTION(71258-022)

### Establishment

Name	Address	ID/FEI	Business Operations
N-Molecular Inc. dba SOFIE		079932600	POSITRON EMISSION TOMOGRAPHY DRUG PRODUCTION(71258-022)

### Establishment

Name	Address	ID/FEI	Business Operations
PETNET Solutions, Inc.		961682551	POSITRON EMISSION TOMOGRAPHY DRUG PRODUCTION(71258-022)

### Establishment

Name	Address	ID/FEI	Business Operations
PETNET Solutions, Inc.		961592982	POSITRON EMISSION TOMOGRAPHY DRUG PRODUCTION(71258-022)

### Establishment

Name	Address	ID/FEI	Business Operations
PETNET Solutions, Inc.		101387665	POSITRON EMISSION TOMOGRAPHY DRUG PRODUCTION(71258-022)

### Establishment

Name	Address	ID/FEI	Business Operations
PETNET Solutions, Inc.		965557486	POSITRON EMISSION TOMOGRAPHY DRUG PRODUCTION(71258-022)

### Establishment

Name	Address	ID/FEI	Business Operations
PETNET Solutions, Inc.		603833208	POSITRON EMISSION TOMOGRAPHY DRUG PRODUCTION(71258-022)

### Establishment

Name	Address	ID/FEI	Business Operations
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SOFIE Co. dba SOFIE		032324142	POSITRON EMISSION TOMOGRAPHY DRUG PRODUCTION(71258-022)
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## Establishment

Name	Address	ID/FEI	Business Operations
SOFIE Co. dba SOFIE		928455851	POSITRON EMISSION TOMOGRAPHY DRUG PRODUCTION(71258-022)

## Establishment

Name	Address	ID/FEI	Business Operations
PETNET Solutions, Inc.		128523862	POSITRON EMISSION TOMOGRAPHY DRUG PRODUCTION(71258-022)

## Establishment

Name	Address	ID/FEI	Business Operations
PETNET Solutions, Inc.		033883716	POSITRON EMISSION TOMOGRAPHY DRUG PRODUCTION(71258-022)

## Establishment

Name	Address	ID/FEI	Business Operations
PETNET Solutions, Inc.		103781071	POSITRON EMISSION TOMOGRAPHY DRUG PRODUCTION(71258-022)

## Establishment

Name	Address	ID/FEI	Business Operations
N-Molecular, Inc. dba SOFIE		079932640	POSITRON EMISSION TOMOGRAPHY DRUG PRODUCTION(71258-022)

## Establishment

Name	Address	ID/FEI	Business Operations
SOFIE Co. dba SOFIE		118258354	POSITRON EMISSION TOMOGRAPHY DRUG PRODUCTION(71258-022)

## Establishment

Name	Address	ID/FEI	Business Operations
PETNET Solutions, Inc.		961593337	POSITRON EMISSION TOMOGRAPHY DRUG PRODUCTION(71258-022)

## Establishment

Name	Address	ID/FEI	Business Operations
SOFIE Co. dba SOFIE		025600556	POSITRON EMISSION TOMOGRAPHY DRUG PRODUCTION(71258-022)

## Establishment

Name	Address	ID/FEI	Business Operations
SOFIE Co. dba SOFIE		829109441	POSITRON EMISSION TOMOGRAPHY DRUG PRODUCTION(71258-022)

## Establishment

Name	Address	ID/FEI	Business Operations
Precision Nuclear, LLC		879283633	POSITRON EMISSION TOMOGRAPHY DRUG PRODUCTION(71258-022)

## Establishment

Name	Address	ID/FEI	Business Operations
SOFIE Co. dba SOFIE		078623800	POSITRON EMISSION TOMOGRAPHY DRUG PRODUCTION(71258-022)



## Establishment

Name	Address	ID/FEI	Business Operations
SOFIE Co. dba SOFIE		832599976	POSITRON EMISSION TOMOGRAPHY DRUG PRODUCTION(71258-022)

## Establishment

Name	Address	ID/FEI	Business Operations
PETNET Solutions, Inc.		117843428	POSITRON EMISSION TOMOGRAPHY DRUG PRODUCTION(71258-022)

## Establishment

Name	Address	ID/FEI	Business Operations
PETNET Solutions, Inc.		123562576	POSITRON EMISSION TOMOGRAPHY DRUG PRODUCTION(71258-022)

## Establishment

Name	Address	ID/FEI	Business Operations
N-Molecular, Inc. dba SOFIE		079932634	POSITRON EMISSION TOMOGRAPHY DRUG PRODUCTION(71258-022)

## Establishment

Name	Address	ID/FEI	Business Operations
PharmaLogic Colorado, LLC		117608150	POSITRON EMISSION TOMOGRAPHY DRUG PRODUCTION(71258-022)

## Establishment

Name	Address	ID/FEI	Business Operations
The University of Utah DBA Cyclotron Radiochemistry Lab Huntsman Cancer Institute		018432646	POSITRON EMISSION TOMOGRAPHY DRUG PRODUCTION(71258-022)

## Establishment

Name	Address	ID/FEI	Business Operations
PETNET Solutions, Inc.		780624719	POSITRON EMISSION TOMOGRAPHY DRUG PRODUCTION(71258-022)

## Establishment

Name	Address	ID/FEI	Business Operations
PETNET Solutions, Inc.		840517945	POSITRON EMISSION TOMOGRAPHY DRUG PRODUCTION(71258-022)

## Establishment

Name	Address	ID/FEI	Business Operations
Hot Shots Nuclear Medicine, LLC dba Midwest Positron Technology, LLC		622386605	POSITRON EMISSION TOMOGRAPHY DRUG PRODUCTION(71258-022)

## Establishment

Name	Address	ID/FEI	Business Operations
Essential Isotopes, LLC		010753961	POSITRON EMISSION TOMOGRAPHY DRUG PRODUCTION(71258-022)

## Establishment

Name	Address	ID/FEI	Business Operations
PETNET Solutions, Inc.		796129646	POSITRON EMISSION TOMOGRAPHY DRUG PRODUCTION(71258-022)

## Establishment

Name	Address	ID/FEI	Business Operations
PETNET Solutions, Inc.		079262099	POSITRON EMISSION TOMOGRAPHY DRUG PRODUCTION(71258-022)

## Establishment

Name	Address	ID/FEI	Business Operations
PETNET Solutions, Inc.		961593386	POSITRON EMISSION TOMOGRAPHY DRUG PRODUCTION(71258-022)

## Establishment

Name	Address	ID/FEI	Business Operations
PETNET Solutions Inc.		078575242	POSITRON EMISSION TOMOGRAPHY DRUG PRODUCTION(71258-022)

## Establishment

Name	Address	ID/FEI	Business Operations
Wisconsin Medical Radiopharmacy, LLC		117749860	POSITRON EMISSION TOMOGRAPHY DRUG PRODUCTION(71258-022)

## Establishment

Name	Address	ID/FEI	Business Operations
Pharmalogic Puerto Rico, Inc.		832856756	POSITRON EMISSION TOMOGRAPHY DRUG PRODUCTION(71258-022)

## Establishment

Name	Address	ID/FEI	Business Operations
PETNET Solutions, Inc.		111110727	POSITRON EMISSION TOMOGRAPHY DRUG PRODUCTION(71258-022)

## Establishment

Name	Address	ID/FEI	Business Operations
PETNET Solutions, Inc.		154173350	POSITRON EMISSION TOMOGRAPHY DRUG PRODUCTION(71258-022)

## Establishment

Name	Address	ID/FEI	Business Operations
PETNET Solutions, Inc.		788930480	POSITRON EMISSION TOMOGRAPHY DRUG PRODUCTION(71258-022)

## Establishment

Name	Address	ID/FEI	Business Operations
PETNET Solutions, Inc.		118120165	POSITRON EMISSION TOMOGRAPHY DRUG PRODUCTION(71258-022)

## Establishment

Name	Address	ID/FEI	Business Operations
PETNET Solutions, Inc.		961597221	POSITRON EMISSION TOMOGRAPHY DRUG PRODUCTION(71258-022)

## Establishment

Name	Address	ID/FEI	Business Operations
PETNET Solutions, Inc.		961597122	POSITRON EMISSION TOMOGRAPHY DRUG PRODUCTION(71258-022)

## Establishment

Name	Address	ID/FEI	Business Operations
PETNET Solutions, Inc.		799246256	POSITRON EMISSION TOMOGRAPHY DRUG PRODUCTION(71258-022)

## Establishment

Name	Address	ID/FEI	Business Operations
PETNET Solutions, Inc.		080547824	POSITRON EMISSION TOMOGRAPHY DRUG PRODUCTION(71258-022)

## Establishment

Name	Address	ID/FEI	Business Operations
PETNET Solutions, Inc.		798775214	POSITRON EMISSION TOMOGRAPHY DRUG PRODUCTION(71258-022)

## Establishment

Name	Address	ID/FEI	Business Operations
PETNET Solutions, Inc.		961597072	POSITRON EMISSION TOMOGRAPHY DRUG PRODUCTION(71258-022)

## Establishment

Name	Address	ID/FEI	Business Operations
PETNET Solutions, Inc.		018537881	POSITRON EMISSION TOMOGRAPHY DRUG PRODUCTION(71258-022)

## Establishment

Name	Address	ID/FEI	Business Operations
PETNET Solutions, Inc.		004201823	POSITRON EMISSION TOMOGRAPHY DRUG PRODUCTION(71258-022)

## Establishment

Name	Address	ID/FEI	Business Operations
SOFIE Co. dba SOFIE		008017970	POSITRON EMISSION TOMOGRAPHY DRUG PRODUCTION(71258-022)

## Establishment

Name	Address	ID/FEI	Business Operations
PETNET Solutions, Inc.		102326340	POSITRON EMISSION TOMOGRAPHY DRUG PRODUCTION(71258-022)

## Establishment

Name	Address	ID/FEI	Business Operations
P.E.T.NET Houston, LLC		621380547	POSITRON EMISSION TOMOGRAPHY DRUG PRODUCTION(71258-022)

## Establishment

Name	Address	ID/FEI	Business Operations
PETNET Solutions, Inc.		798884966	POSITRON EMISSION TOMOGRAPHY DRUG PRODUCTION(71258-022)

## Establishment

Name	Address	ID/FEI	Business Operations
Pharmalogic New York City LLC		118410433	POSITRON EMISSION TOMOGRAPHY DRUG PRODUCTION(71258-022)

## Establishment

<b>Name</b>	<b>Address</b>	<b>ID/FEI</b>	<b>Business Operations</b>
Pharmalogic Holdings Corp.		118408248	POSITRON EMISSION TOMOGRAPHY DRUG PRODUCTION(71258-022)

## **Establishment**

<b>Name</b>	<b>Address</b>	<b>ID/FEI</b>	<b>Business Operations</b>
Pharmalogic Los Angeles, LLC		119024924	POSITRON EMISSION TOMOGRAPHY DRUG PRODUCTION(71258-022)

Revised: 6/2024

Progenics Pharmaceuticals, Inc.