

FOLOTYN[®] is indicated for the treatment of patients with relapsed or refractory peripheral T-cell lymphoma (PTCL). The indication for FOLOTYN is based on overall response rate. Clinical benefit such as improvement in progression-free survival or overall survival has not been demonstrated.

LEARNING ABOUT YOUR TREATMENT

Learning about your treatment

PATIENT'S GUIDE TO FOLOTYN

Please see Important Safety Information on pages 22-23 and accompanying Patient Information within full Prescribing Information for FOLOTYN.



Contents

What is PTCL?	6
Why did my doctor prescribe FOLOTYN?	10
What are the possible side effects of FOLOTYN?	12
How is FOLOTYN administered?	18
Important safety information about FOLOTYN	22
Glossary	24
What resources are available to me?	26



Introduction

You've received this booklet so that you can learn more about FOLOTYN and why the doctor has chosen this treatment for you or your loved one.

*FOLOTYN is used to treat a type of cancer called relapsed or refractory **peripheral T-cell lymphoma (PTCL)**, which is PTCL that does not go away, gets worse, or comes back after other cancer treatment.*

The indication for FOLOTYN is based on overall response rate. Clinical benefit such as improvement in progression-free survival or overall survival has not been demonstrated.

After you and your family have read the information in this booklet, please talk with your healthcare team. Every person is unique and only your team can provide answers that are right for you.

For your convenience, please see the “Records and Personal Information” booklet for some questions that might help you start a conversation with your doctor or nurse (found at www.FOLOTYN.com).



Introduction (cont.)

FOLOTYN (pralatrexate injection) is a chemotherapy approved by the US Food & Drug Administration (FDA) for the treatment of relapsed or refractory PTCL.

- **Relapsed**—There was initial tumor shrinkage, but the cancer cells now resist chemotherapy and have grown again
- **Refractory**—Cancer cells did not respond to treatment

The indication for FOLOTYN is based on overall response rate. Clinical benefit such as improvement in progression-free survival or overall survival has not been demonstrated.





*It was a relief to learn
about relapsed or
refractory PTCL and
to begin a treatment
plan for it.*

FOLOTYN 
(pralatrexate injection)

What is peripheral T-cell lymphoma (PTCL)?

PTCL is a form of lymphoma. Lymphoma is a cancer of the white blood cells in the lymphatic system. This system carries lymph fluid and white blood cells throughout the body and helps to fight infection.

You may hear healthcare professionals talking about two different types of lymphoma: Hodgkin's and non-Hodgkin's. PTCL is classified as one of the many non-Hodgkin's lymphomas (NHL). NHL affects two particular types of white blood cells: lymphocytes called B cells and T cells. PTCL occurs when T cells develop and grow abnormally. Usually, no one knows why a person develops PTCL.

*10%-15%
of all newly
diagnosed
cases of
NHL will be
identified
as a type
of PTCL.*

FOLOTYN 
(pralatrexate injection)
20 mg/1 mL and 40 mg/2 mL single-dose vials

Different types of PTCL

There are many types of PTCL, some of which include the following:

- PTCL-NOS (not otherwise specified)
- Anaplastic large-cell lymphoma, primary systemic type
- Angioimmunoblastic T-cell lymphoma
- Transformed MF
- Adult T-cell lymphoma/leukemia (HTLV1+)
- T/NK-cell lymphoma – nasal
- Subcutaneous panniculitis T-cell lymphoma
- Enteropathy-type intestinal lymphoma
- Hepatosplenic T-cell lymphoma

From the World Health Organization (WHO)



Your healthcare team has determined that you have PTCL and can confirm how advanced your disease is after performing some tests. These tests usually include a biopsy, which involves a doctor removing a small piece of tissue and examining the cells under a microscope. You might also have blood tests, X-rays, and scans.

Other tests may include:

- Immunophenotyping
- Flow cytometry
- Cytogenetics
- Gene studies

Some of the tests you had in order to diagnose PTCL will continue throughout therapy to see how your body is responding to treatment.

FOLOTYN 
(pralatrexate injection)
20 mg/1 mL and 40 mg/2 mL single-dose vials



FOLOTYN
(pralatrexate injection) 

*Why did
my doctor
prescribe
FOLOTYN
and how
does it
work?*

Why did my doctor prescribe FOLOTYN?

There are many different types of lymphoma and there are just as many types of therapies used to treat them. It is very important for your healthcare team to select the drug that is effective for the disease being treated.

FOLOTYN (pralatrexate injection) is a chemotherapy approved by the US Food & Drug Administration (FDA) for the treatment of relapsed or refractory PTCL.

- **Relapsed**—There was initial tumor shrinkage, but the cancer cells now resist chemotherapy and have grown again
- **Refractory**—Cancer cells did not respond to treatment

The indication for FOLOTYN is based on overall response rate. Clinical benefit such as improvement in progression-free survival or overall survival has not been demonstrated.

*FOLOTYN
is approved
by the FDA
for PTCL
that does
not go away,
gets worse,
or comes
back after
another
cancer
treatment.*

FOLOTYN 
(pralatrexate injection)
20 mg/1 mL and 40 mg/2 mL single-dose vials



*We learned
that my
treatment
did not
require an
overnight
stay in the
hospital.*

FOLOTYN
(pralatrexate injection)



What are the possible side effects of FOLOTYN?

FOLOTYN may cause serious side effects, including:

Low Blood Cell Counts: FOLOTYN can affect your bone marrow and cause you to have low blood cell counts. Your doctor will do blood tests as needed to check your blood cell counts.

Low Platelet Count (thrombocytopenia): Tell your doctor right away if you have any unusual bleeding, such as nosebleeds, or bruising under your skin.

Low White Blood Cell Count (neutropenia): A low white blood cell count can cause you to get infections, which may be serious. Serious illness or death can happen if an infection is not treated right away when white blood cell counts are very low.

Tell your doctor right away if you have any of the following signs or symptoms of an infection:

- fever
- shortness of breath
- cough
- chills
- pain or burning on urination



What are the possible side effects of FOLOTYN? (cont.)

Low Red Blood Cell Count (anemia): Tell your doctor if you have any of these symptoms of anemia during treatment with FOLOTYN:

- feeling weak, tired, or you get tired easily
- you look pale
- you feel short of breath

Redness and sores of the mucous membrane lining of the mouth, lips, throat, digestive tract, and genitals (mucositis). Discomfort or pain due to mucositis may happen as early as a few days after treatment with FOLOTYN. Your doctor should tell you about ways to reduce your risk of getting mucositis, and how to maintain nutrition and control the discomfort from mucositis.

FOLOTYN 
(pralatrexate injection)
20 mg/1 mL and 40 mg/2 mL single-dose vials

What are the possible side effects of FOLOTYN? (cont.)

Severe Skin Reactions. Severe skin reactions may happen after treatment with FOLOTYN, especially if you have lymphoma in or under your skin. If your skin reactions are severe, they may lead to serious illness or death.

Tell your doctor right away if you have any of the following skin reactions:

- rash
- sores
- peeling and loss of skin
- blisters

Tumor Lysis Syndrome (TLS). FOLOTYN can cause the fast breakdown of certain types of cancer cells. This can lead to TLS. Your doctor may do blood tests to check you for TLS and treat you for TLS if needed.

Harm to an unborn baby. Females should avoid becoming pregnant while being treated with FOLOTYN. Talk to your doctor about how to avoid pregnancy while taking FOLOTYN.



What are the possible side effects of FOLOTYN? (cont.)

Fever. Fever is often one of the most common and earliest signs of infection. Follow your doctor's instructions about how often to take your temperature, especially during the days after treatment with FOLOTYN. If you have a fever, tell your doctor or nurse right away.

Loss of too much fluid from the body (dehydration). If you feel tired and weak this could be a sign of dehydration. Follow your doctor's instructions for what to do to help prevent or treat dehydration.

Shortness of breath. Tell your doctor if this is a problem for you.

Common side effects of FOLOTYN include:

- nausea
- tiredness
- swelling
- nosebleed
- vomiting
- constipation
- cough
- diarrhea

Tell your doctor about any side effect that bothers you or that does not go away.

These are not all the possible side effects of FOLOTYN. For more information, ask your doctor or pharmacist. Call your doctor for medical advice about side effects. You can report side effects to the FDA at 1-800-FDA-1088.



What can I do about mucositis symptoms?

Your doctor will advise you on the best ways to help with your mucositis symptoms. He or she will instruct you to take folic acid and receive vitamin B₁₂ to potentially reduce your mucositis symptoms.

General tips your doctor may recommend:

- See your dentist and make sure that your mouth and teeth are healthy
- If you wear dentures, be sure they fit well to avoid irritation
- It is very important to eat well and stay hydrated (drink water)
- Use a soft-bristle toothbrush and non-abrasive toothpaste to clean your teeth and mouth
- Rinse your mouth—after meals, before bed, and more often, if possible—with a mixture of 1 teaspoon salt with 1 teaspoon baking soda in 1 pint of water
- Apply lip moisturizer
- Avoid irritants such as mouthwash or medicines containing alcohol; alcoholic beverages; tobacco; or foods that are acidic, spicy, very hot or cold, crunchy, or rough-textured


It is important to let your healthcare team know right away if you develop mucositis.

To keep it from getting worse, your healthcare team may choose to reduce or stop your dose of FOLOTYN.

FOLOTYN 
(pralatrexate injection)
20 mg/1 mL and 40 mg/2 mL single-dose vials



*I've been
taking extra
good care of
myself these
days, and
I think it's
making a
difference.*

FOLOTYN 
(pralatrexate injection)
20 mg/1 mL and 40 mg/2 mL single-dose vials

How is FOLOTYN administered?

FOLOTYN is given once a week over a period of 6 weeks, with no treatment during the 7th week. These 7-week treatment cycles with FOLOTYN can be continued for as long as you and your healthcare team agree that the treatment is working for you and is being tolerated.

FOLOTYN is an “outpatient” treatment so you do not need to be hospitalized. It is administered as an intravenous (IV) infusion that can last up to 5 minutes. That means that a healthcare professional will insert a needle and FOLOTYN will be delivered into your vein through a small tube.

While you are taking FOLOTYN, you should also take vitamin B₁₂ and folic acid, two important nutrients that may help to reduce your chances of mucositis and low blood counts. (These side effects are discussed on pages 12-15 of this booklet.)



How is FOLOTYN administered? (cont.)

Your healthcare team will instruct you to take folic acid by mouth every day starting 10 days before your first dose of FOLOTYN. Your doctor will tell you when it is okay to stop taking folic acid.

You will also receive a vitamin B₁₂ injection (into a muscle) prior to your first dose of FOLOTYN, as well as every 8-10 weeks while you are getting treatment with FOLOTYN. Subsequent vitamin B₁₂ injections may be given the same day as treatment with FOLOTYN. You will also have weekly blood tests, so that your healthcare team can monitor your health.



Cycle 1: Outpatient Dosing Schedule

Week 1	3 to 5 min. treatment
Week 2	3 to 5 min. treatment
Week 3	3 to 5 min. treatment
Week 4	3 to 5 min. treatment
Week 5	3 to 5 min. treatment
Week 6	3 to 5 min. treatment
Week 7	No treatment


It is important to take vitamin B₁₂ and folic acid, as directed by your doctor.

FOLOTYN (pralatrexate injection) is given once a week over a period of 6 weeks, with no treatment during the 7th week. These 7-week treatment cycles with FOLOTYN can be continued for as long as you and your healthcare team agree that the treatment is working for you and is being tolerated.

FOLOTYN 
(pralatrexate injection)
20 mg/1 mL and 40 mg/2 mL single-dose vials



*You don't have
to go through this
alone. Talking to
your healthcare
team, your family,
friends, and
neighbors is good
medicine too.*

FOLOTYN 
(pralatrexate injection)
20 mg/1 mL and 40 mg/2 mL single-dose vials

IMPORTANT SAFETY INFORMATION ABOUT FOLOTYN

Low Blood Cell Counts—Patients may experience low blood cell counts. Your doctor will do weekly blood tests to check your blood counts.

Low Platelet Count: Lower platelets may cause unusual bleeding, such as nosebleeds, or abnormal bruising. Talk to your doctor right away if this happens.

Low White Blood Cell Count: Lower white blood cell counts can reduce the body's defenses against infection. If you have any of the following signs or symptoms of infection (fever, chills, cough, shortness of breath, pain or burning on urination), tell your doctor right away. Serious illness or death could result if such infections are not treated when white blood cell counts are very low.

Low Red Blood Cell Count: Lower red blood cell counts may make you feel weak, feel tired, and get tired easily. You may appear pale and be short of breath. Contact your doctor if you experience any of these symptoms following treatment with FOLOTYN.

Mucositis: Patients may develop mucositis, which is redness and/or sores in the mucous membranes including the mouth, lips, throat, and other areas along the digestive tract and genitals. Discomfort or pain due to mucositis may occur as early as a few days after treatment with FOLOTYN. Talk with your doctor about ways to reduce your risk of

developing mucositis, and/or ways to maintain nutrition and control the discomfort if you develop it. It is important to take folic acid and vitamin B₁₂ during your treatment with FOLOTYN. Your doctor will give you specific instructions for vitamin supplementation.

Severe Skin Reactions: Severe skin reactions may happen after treatment with FOLOTYN, which can be fatal. Tell your doctor right away if you have any of the following skin reactions: rash, peeling and loss of skin, sores, or blisters.

Tumor Lysis Syndrome (TLS): FOLOTYN can cause the fast breakdown of certain types of cancer cells. This can lead to TLS. Your doctor may do blood tests to check you for TLS and treat you for TLS if needed.

Pregnancy and Nursing: Tell your doctor if you are pregnant or plan to become pregnant. FOLOTYN can harm your unborn baby. FOLOTYN has not been studied in pregnant women. Tell your doctor if you are breast-feeding or plan to breast-feed. It is not known if FOLOTYN will pass into your breast milk. Talk to your doctor about whether you should discontinue breast-feeding.

FOLOTYN 
(pralatrexate injection)
20 mg/1 mL and 40 mg/2 mL single-dose vials

IMPORTANT SAFETY INFORMATION ABOUT FOLOTYN (cont.)

Fever: Fever is often one of the most common and earliest signs of infection. Follow your doctor's instructions about how often to take your temperature, especially during the days after treatment with FOLOTYN. If you have a fever, tell your doctor or nurse right away.

Loss of too much fluid from the body (dehydration): If you feel tired and weak this could be a sign of dehydration. Follow your doctor's instructions for what to do to help prevent or treat dehydration.

Shortness of breath: Tell your doctor if this is a problem for you.

Nausea, Vomiting, Diarrhea, and Constipation: Patients may experience nausea, vomiting, abdominal pain, diarrhea, and/or constipation. Medicines can be given that may help reduce these symptoms. If you experience any of these symptoms, tell your doctor.

Other side effects may include:

- Dizziness, lightheadedness, and fainting spells
- Fatigue, weakness, and lethargy
- Rash, itching, or swelling
- Loss of appetite and weight loss
- Joint and muscle pain

These are not all of the potential side effects of FOLOTYN. If you have any side effect that bothers you or that doesn't go away, be sure to talk with your healthcare professional.

Tell your doctor about your medical conditions, including liver and kidney problems.

Tell your doctor about all the medicines you take, including prescription and non-prescription medicines, vitamins, and herbal supplements. Some medicines may affect how FOLOTYN works, and FOLOTYN may affect how other medicines work. Especially tell your doctor if you take: sulfamethoxazole trimethoprim (Bactrim[®], Septra[®], Septra DS, Sulfatrim Pediatric, Sulfamethoprim, Sulfamethoprim-DS), non-steroidal anti-inflammatory drugs (NSAIDs), probenecid (Probalan, Col-Probenecid). Ask your doctor or pharmacist if you are not sure if your medicine is listed above. Know the medicines you take. Keep a list of them and show it to your doctor or pharmacist each time you start a new medicine.



Glossary

Biopsy—The surgical removal of tissue or a tumor sample for testing to determine the type and stage of cancer.

Cancer—A term for a group of diseases in which abnormal cells divide without control and can invade nearby tissues.

Chemotherapy—The treatment of cancer by drugs designed to kill cancer cells or stop them from growing.

Folic acid—Folic acid is one of the B vitamins. It is used by the body to help make new cells.

Intravenous (IV)—Within or through a vein. Chemotherapy is often given intravenously.

Lymph—The clear fluid that travels through the lymphatic system and carries cells that help fight infections and other diseases. Also called lymphatic fluid.

Lymphatic system—The tissues and organs that produce, store, and carry white blood cells that fight infections and other diseases. This system includes the bone marrow, spleen, thymus, lymph nodes, and lymphatic vessels (a network of thin tubes that carry lymph and white blood cells into all the tissues of the body).

Lymphoma—Cancer that begins in the lymphatic system. There are two basic categories of lymphoma: Hodgkin's lymphoma and non-Hodgkin's lymphoma (NHL); NHL includes a large, diverse group of cancers.



Glossary (cont.)

Mucositis—Redness, swelling, pain and/or the development of sores in the mucous membranes of the body. This includes the tissue lining the mouth or throat and can include the genital area as well. Mucositis is sometimes a side effect of chemotherapy or radiation.

Peripheral T-cell lymphoma (PTCL)—One of a group of fast-growing non-Hodgkin's lymphomas that begins in the T cells. Also called mature T-cell lymphoma.

Platelets—Cells necessary to help form a clot and stop a wound from bleeding.

Red blood cells—Cells that carry oxygen throughout the body.

Refractory—A term used to describe cancer that does not respond to treatment. The cancer

may be resistant at the beginning of treatment or it may become resistant during treatment.

Relapse—The tumor cells start growing again after a period of improvement.

T cells—A group of white blood cells that are of key importance in fighting infection.

Tumor lysis syndrome (TLS)—Complication that results from the fast breakdown of certain types of cancer cells.

Vitamin B₁₂—Vitamin B₁₂ helps maintain healthy nerve cells and red blood cells.

White blood cells—Cells that help the body fight against infections and other diseases.



What resources are available to me?

- www.FocusOnPTCL.com
- www.FOLOTYN.com
- Lymphoma Research Foundation (LRF)
Helpline: 1-800-500-9976
www.lymphoma.org
- Leukemia & Lymphoma Society
1-800-955-4572
www.lls.org
- American Cancer Society
1-800-ACS-2345 (1-800-227-2345)
www.cancer.org
- Cancer.Net
1-888-651-3038
www.cancer.net
- National Cancer Institute
1-800-4-CANCER (1-800-422-6237)
www.cancer.gov
- www.clinicaltrials.gov



Please write additional notes here



Spectrum is committed to helping you and your patients access FOLOTYN

Spectrum Therapy Access Resources (STAR®)

STAR is a reimbursement support, co-pay assistance, and patient assistance program designed to help patients and health care professionals gain appropriate access to certain Spectrum products.

Spectrum Pharmaceuticals, Inc.® does not guarantee coverage and/or reimbursement for its products. Coverage, coding, and reimbursement policies vary significantly by payer, patient, and setting of care. Actual coverage and reimbursement decisions are made by individual payers following the receipt of claims. Healthcare professionals should always verify coverage, coding, and reimbursement guidelines on a payer and patient-specific basis. Spectrum Pharmaceuticals, Inc. reserves the right to change eligibility guidelines, terminate, or modify the STAR program at any time for any reason.



Learn more by visiting the STAR website:
<http://www.spectrumpatientaccess.com/>



and its wholly-owned subsidiary **ALLOS**
THERAPEUTICS

11500 South Eastern Ave., Suite 240
Henderson, NV 89052

11000 Westmoor Circle, Suite 150
Westminster, CO 80021

www.sppirx.com

©2018 Spectrum Pharmaceuticals Inc., and its wholly-owned subsidiary
Allos Therapeutics, Inc. 08/18 PP-FOL-00-0047

www.FOLOTYN.com

FOLOTYN 
(pralatrexate injection)

HIGHLIGHTS OF PRESCRIBING INFORMATION

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

FOLOTYN (pralatrexate injection), for intravenous use
Initial U.S. Approval: 2009

-----RECENT MAJOR CHANGES-----

Dosage and Administration (2.1, 2.2) 05/2016

-----INDICATIONS AND USAGE-----

FOLOTYN is a folate analog metabolic inhibitor indicated for the treatment of patients with relapsed or refractory peripheral T-cell lymphoma (PTCL). This indication is based on overall response rate. Clinical benefit such as improvement in progression-free survival or overall survival has not been demonstrated. (1)

-----DOSAGE AND ADMINISTRATION-----

- The recommended dose of FOLOTYN is 30 mg/m² administered as an intravenous push over 3 to 5 minutes once weekly for 6 weeks in 7-week cycles. (2.1)
- For patients with severe renal impairment (eGFR 15 to < 30 mL/min/1.73 m²), the recommended dose of FOLOTYN is 15 mg/m² (2.1).
- Prior to initiating FOLOTYN, supplement patients with vitamin B₁₂ 1 mg intramuscularly every 8-10 weeks and folic acid 1.0-1.25 mg orally on a daily basis. (2.1)
- Dose omissions and/or dose reductions may be needed to manage adverse drug reactions. (2.2)

-----DOSAGE FORMS AND STRENGTHS-----

- Sterile, single-dose vials containing pralatrexate at a concentration of 20 mg/mL in the following presentations:
 - 20 mg of pralatrexate in 1 mL solution in a vial (20 mg / 1 mL) (3)
 - 40 mg of pralatrexate in 2 mL solution in a vial (40 mg / 2 mL) (3)

-----CONTRAINDICATIONS-----

- None. (4)

-----WARNINGS AND PRECAUTIONS-----

- Thrombocytopenia, neutropenia, and anemia: Monitor blood counts and omit and/or reduce dose for hematologic toxicities. (2.2, 5.1)
- Mucositis: Monitor at least weekly. If ≥ Grade 2 mucositis is observed, omit and/or reduce dose. (2.2, 5.2)

- Dermatologic reactions: Reactions, including fatal reactions, have occurred and may be progressive and increase in severity with further treatment. Monitor closely, and omit and/or reduce dose or discontinue FOLOTYN. (2.2, 5.3)
- Tumor lysis syndrome: Anticipate, monitor, and treat promptly. (5.4)
- Hepatic toxicity: Monitor for toxicity. For liver function test abnormalities Grade 3 or greater, omit until recovery then reduce dose or discontinue therapy as required. (2.2, 5.5)
- Risk of increased toxicity with renal impairment: Patients with moderate to severe renal function impairment may be at greater risk for increased exposure and toxicity. Monitor patients for renal function and systemic toxicity and adjust dosing accordingly. Avoid FOLOTYN use in patients with end stage renal disease including those undergoing dialysis unless the potential benefit justifies the potential risk. (2.1, 2.2, 5.6, 6.2)
- Embryo-Fetal toxicity: Women should avoid becoming pregnant while being treated with FOLOTYN. Inform pregnant women of the potential harm to the fetus. (5.7, 8.1)

-----ADVERSE REACTIONS-----

Most common adverse reactions (>35%) are mucositis, thrombocytopenia, nausea, and fatigue. Most common serious adverse reactions are pyrexia, mucositis, sepsis, febrile neutropenia, dehydration, dyspnea, and thrombocytopenia. (6.1)

To report SUSPECTED ADVERSE REACTIONS, contact Allos Therapeutics, Inc at 1-888-ALLOS88 (1-888-255-6788) or www.FOLOTYN.com or FDA at 1-800-FDA-1088 or www.fda.gov/medwatch

-----DRUG INTERACTIONS-----

- Co-administration with probenecid or other drugs that may affect relevant transporter systems (eg, NSAIDs) requires close monitoring for signs of systemic toxicity. (7)

-----USE IN SPECIFIC POPULATIONS-----

- Women should be advised against breastfeeding while being treated with FOLOTYN. (8.3)
- Dose is reduced for patients with severe renal impairment (eGFR 15 to < 30 mL/min/1.73 m²) (2.1, 8.7)

See 17 for PATIENT COUNSELING INFORMATION and FDA-approved patient labeling.

Revised: 11/2016

FULL PRESCRIBING INFORMATION: CONTENTS*

1 INDICATIONS AND USAGE

2 DOSAGE AND ADMINISTRATION

- 2.1 General Dosing and Administration
- 2.2 Monitoring and Dose Modifications
- 2.3 Special Handling Precautions

3 DOSAGE FORMS AND STRENGTHS

4 CONTRAINDICATIONS

5 WARNINGS AND PRECAUTIONS

- 5.1 Bone Marrow Suppression
- 5.2 Mucositis
- 5.3 Dermatologic Reactions
- 5.4 Tumor Lysis Syndrome
- 5.5 Hepatic Toxicity
- 5.6 Risk of Increased Toxicity in the Presence of Impaired Renal Function
- 5.7 Embryo-Fetal Toxicity

6 ADVERSE REACTIONS

- 6.1 Clinical Trials Experience
- 6.2 Post Marketing Experience

7 DRUG INTERACTIONS

8 USE IN SPECIFIC POPULATIONS

- 8.1 Pregnancy
- 8.3 Nursing Mothers
- 8.4 Pediatric Use
- 8.5 Geriatric Use
- 8.6 Hepatic Impairment
- 8.7 Renal Impairment

10 OVERDOSAGE

11 DESCRIPTION

12 CLINICAL PHARMACOLOGY

- 12.1 Mechanism of Action
- 12.3 Pharmacokinetics

13 NONCLINICAL TOXICOLOGY

- 13.1 Carcinogenesis, Mutagenesis, Impairment of Fertility

14 CLINICAL STUDIES

15 REFERENCES

16 HOW SUPPLIED/STORAGE AND HANDLING

17 PATIENT COUNSELING INFORMATION

- 17.1 Need for Folic Acid and Vitamin B₁₂
- 17.2 Low Blood Cell Counts
- 17.3 Mucositis
- 17.4 Fatal Dermatologic Reactions
- 17.5 Tumor Lysis Syndrome
- 17.6 Concomitant Medications
- 17.7 Pregnancy/Nursing

*Sections or subsections omitted from the full prescribing information are not listed.

FULL PRESCRIBING INFORMATION

1 INDICATIONS AND USAGE

FOLOTYN is indicated for the treatment of patients with relapsed or refractory peripheral T-cell lymphoma (PTCL). This indication is based on overall response rate. Clinical benefit such as improvement in progression-free survival or overall survival has not been demonstrated.

2 DOSAGE AND ADMINISTRATION

2.1 General Dosing and Administration

Pretreatment Vitamin Supplementation

Folic Acid: Patients should take folic acid 1.0-1.25 mg orally once daily beginning 10 days before the first dose of FOLOTYN. Continue folic acid during the full course of therapy and for 30 days after the last dose of FOLOTYN [see *Warnings and Precautions* (5.1, 5.2)].

Vitamin B₁₂: Administer vitamin B₁₂ 1 mg intramuscularly within 10 weeks prior to the first dose of FOLOTYN and every 8-10 weeks thereafter. Subsequent vitamin B₁₂ injections may be given the same day as treatment with FOLOTYN [see *Warnings and Precautions* (5.1, 5.2)].

Dosing and Administration

The recommended dose of FOLOTYN is 30 mg/m² administered as an intravenous push over 3-5 minutes via the side port of a free-flowing 0.9% Sodium Chloride Injection, intravenous line once weekly for 6 weeks in 7-week cycles until progressive disease or unacceptable toxicity. The calculated dose of FOLOTYN should be aseptically withdrawn into a syringe for immediate use. Do not dilute FOLOTYN.

For patients with severe renal impairment (eGFR 15 to < 30 mL/min/1.73 m²), the recommended dose of FOLOTYN is 15 mg/m².

FOLOTYN is a clear, yellow solution. Parenteral drug products should be inspected visually for particulate matter and discoloration prior to administration, whenever solution and container permit. Do not use any vials exhibiting particulate matter or discoloration.

2.2 Monitoring and Dose Modifications

Management of severe or intolerable adverse reactions may require dose omission, reduction, or discontinuation of FOLOTYN therapy.

Monitoring

Monitor complete blood cell counts and severity of mucositis at baseline and weekly. Perform serum chemistry tests, including renal and hepatic function, prior to the start of the first and fourth dose of each cycle.

Dose Modification Recommendations

Prior to administering any dose of FOLOTYN:

- Mucositis should be ≤ Grade 1.
- Platelet count should be ≥ 100,000/mcL for first dose and ≥ 50,000/mcL for all subsequent doses.
- Absolute neutrophil count (ANC) should be ≥ 1,000/mcL.

Doses may be omitted or reduced based on patient tolerance. Omitted doses will not be made up at the end of the cycle; once a dose reduction occurs for toxicity, do not re-escalate. For dose modifications and omissions, use the guidelines in Tables 1, 2, and 3.

For patients with severe renal impairment (eGFR 15 to < 30 mL/min/1.73 m²), the recommended starting dose of FOLOTYN is 15 mg/m² with dose modification to 10 mg/m² for the toxicities specified in Tables 1, 2 and 3.

Table 1 FOLOTYN Dose Modifications for Mucositis

Mucositis Grade ^a on Day of Treatment	Action	Dose upon Recovery to ≤ Grade 1	Dose Upon Recovery in Patients with Severe Renal Impairment
Grade 2	Omit dose	Continue prior dose	Continue prior dose
Grade 2 recurrence	Omit dose	20 mg/m ²	10 mg/m ²
Grade 3	Omit dose	20 mg/m ²	10 mg/m ²
Grade 4	Stop therapy		

^a Per National Cancer Institute-Common Terminology Criteria for Adverse Events (NCI CTCAE, Version 3.0)

Table 2 FOLOTYN Dose Modifications for Hematologic Toxicities

Blood Count on Day of Treatment	Duration of Toxicity	Action	Dose upon Restart	Dose Upon Recovery in Patients with Severe Renal Impairment
Platelet < 50,000/mcL	1 week	Omit dose	Continue prior dose	Continue prior dose
	2 weeks	Omit dose	20 mg/m ²	10 mg/m ²
	3 weeks	Stop therapy		
ANC 500-1,000/mcL and no fever	1 week	Omit dose	Continue prior dose	Continue prior dose
ANC 500-1,000/mcL with fever or ANC < 500/mcL	1 week	Omit dose, give G-CSF or GM-CSF support	Continue prior dose with G-CSF or GM-CSF support	Continue prior dose with G-CSF or GM-CSF support
	2 weeks or recurrence	Omit dose, give G-CSF or GM-CSF support	20 mg/m ² with G-CSF or GM-CSF support	10 mg/m ² with G-CSF or GM-CSF support
	3 weeks or 2 nd recurrence	Stop therapy		

G-CSF=granulocyte colony-stimulating factor; GM-CSF=granulocyte macrophage colony-stimulating factor

Table 3 FOLOTYN Dose Modifications for All Other Treatment-related Toxicities

Toxicity Grade ^a on Day of Treatment	Action	Dose upon Recovery to ≤ Grade 2	Dose Upon Recovery in Patients with Severe Renal Impairment
Grade 3	Omit dose	20 mg/m ²	10 mg/m ²
Grade 4	Stop therapy		

^a Per National Cancer Institute-Common Terminology Criteria for Adverse Events (NCI CTCAE, Version 3.0)

2.3 Special Handling Precautions

FOLOTYN is a cytotoxic anticancer agent. Caution should be exercised in handling, preparing, and administering of the solution. The use of gloves and other protective clothing is recommended. If FOLOTYN comes in contact with the skin, immediately and thoroughly wash with soap and water. If FOLOTYN comes in contact with mucous membranes, flush thoroughly with water.

Several published guidelines for handling and disposal of anticancer agents are available¹⁻⁴.

- FOLOTYN vials should be refrigerated at 2-8°C (36-46°F) until use.

- FOLOTYN vials should be stored in original carton to protect from light until use.
- FOLOTYN vials contain no preservatives and are intended for single use only. After withdrawal of dose, discard vial including any unused portion.
- Unopened vial(s) of FOLOTYN are stable if stored in the original carton at room temperature for 72 hours. Any vials left at room temperature for greater than 72 hours should be discarded.

3 DOSAGE FORMS AND STRENGTHS

FOLOTYN is available as a clear yellow solution in sterile, single-dose vials containing pralatrexate at a concentration of 20 mg/mL in the following presentations:

20 mg of pralatrexate in 1 mL solution in a vial (20 mg / 1 mL)

40 mg of pralatrexate in 2 mL solution in a vial (40 mg / 2 mL)

4 CONTRAINDICATIONS

None

5 WARNINGS AND PRECAUTIONS

5.1 Bone Marrow Suppression

FOLOTYN can cause bone marrow suppression, manifested by thrombocytopenia, neutropenia, and/or anemia. Monitor complete blood counts and omit and/or reduce the dose based on ANC and platelet count prior to each dose as outlined in Section 2.2 Table 2. Administer vitamin B₁₂ and instruct patients to take folic acid to reduce the risk of treatment-related hematological toxicity [*see Dosage and Administration (2.1, 2.2) and Adverse Reactions (6.1)*].

5.2 Mucositis

FOLOTYN can cause mucositis. Monitor for mucositis weekly and if \geq Grade 2 mucositis is observed, omit and/or reduce the dose as outlined in Section 2.2 Table 1. Administer vitamin B₁₂ and instruct patients to take folic acid to reduce the risk of mucositis [*see Dosage and Administration (2.1, 2.2) and Adverse Reactions (6.1)*].

5.3 Dermatologic Reactions

FOLOTYN can cause severe dermatologic reactions, which may result in death. These dermatologic reactions have been reported in clinical studies (14/663 patients [2.1%]) and post marketing experience, and have included skin exfoliation, ulceration, and toxic epidermal necrolysis (TEN). They may be progressive and increase in severity with further treatment, and may involve skin and subcutaneous sites of known lymphoma. Monitor patients with dermatologic reactions closely, and if severe, withhold or discontinue FOLOTYN [*see Adverse Reactions (6.2) and Use in Specific Populations (8.7)*].

5.4 Tumor Lysis Syndrome

FOLOTYN can cause tumor lysis syndrome (TLS). Monitor patients who are at increased risk of TLS and treat promptly.

5.5 Hepatic Toxicity

FOLOTYN can cause hepatic toxicity and liver function test abnormalities. Persistent liver function test abnormalities may be indicators of hepatic toxicity and require dose modification or discontinuation. Monitor liver function tests. Omit dose until recovery, adjust or discontinue therapy based on the severity of the hepatic toxicity [*see Dosage and Administration (2.2) and Use in Specific Populations (8.6)*].

5.6 Risk of Increased Toxicity in the Presence of Impaired Renal Function

Patients with moderate to severe renal function impairment may be at greater risk for increased exposure and toxicity. Monitor patients for renal function and systemic toxicity and adjust dosing accordingly.

Serious adverse drug reactions including toxic epidermal necrolysis and mucositis were reported in patients with end stage renal disease (ESRD) undergoing dialysis who were administered FOLOTYN therapy. Avoid FOLOTYN use in patients with end stage renal disease including those undergoing dialysis unless the potential benefit justifies the potential risk [*see Dosage and Administration (2.2), Adverse Reactions (6.2), Use in Specific Populations (8.7), and Clinical Pharmacology (12.3)*].

5.7 Embryo-Fetal Toxicity

FOLOTYN can cause fetal harm when administered to a pregnant woman. FOLOTYN was embryotoxic and fetotoxic in rats and rabbits. If this drug is used during pregnancy, or if the patient becomes pregnant while taking this drug, the patient should be apprised of the potential hazard to the fetus [*see Use in Specific Populations (8.1)*].

6 ADVERSE REACTIONS

The following serious adverse reactions are described below and elsewhere in the labeling:

- Bone Marrow Suppression [*see Warnings and Precautions (5.1)*]
- Mucositis [*see Warnings and Precautions (5.2)*]
- Dermatologic Reactions [*see Warnings and Precautions (5.3)*]
- Tumor Lysis Syndrome [*see Warnings and Precautions (5.4)*]
- Hepatic Toxicity [*see Warnings and Precautions (5.5)*]

The most common adverse reactions observed in patients with peripheral T-cell lymphoma (PTCL) treated with FOLOTYN were mucositis, thrombocytopenia, nausea, and fatigue.

6.1 Clinical Trials Experience

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

The safety of FOLOTYN was evaluated in 111 PTCL patients in a single-arm clinical study in which patients received a starting dose of 30 mg/m² once weekly for 6 weeks in 7-week cycles. The median duration of treatment was 70 days (range 1-540 days).

Most Frequent Adverse Reactions

Table 4 summarizes the most frequent adverse reactions, regardless of causality, using the National Cancer Institute-Common Terminology Criteria for Adverse Events (NCI CTCAE, version 3.0).

Table 4 Adverse Reactions Occurring in PTCL Patients (Incidence \geq 10% of patients)

Preferred Term	N=111					
	Total		Grade 3		Grade 4	
	N	%	N	%	N	%
Any Adverse Event	111	100	48	43	34	31
Mucositis ^a	78	70	19	17	4	4
Thrombocytopenia ^b	45	41	15	14	21	19 ^b
Nausea	44	40	4	4	0	0
Fatigue	40	36	5	5	2	2
Anemia	38	34	17	15	2	2
Constipation	37	33	0	0	0	0
Pyrexia	36	32	1	1	1	1
Edema	33	30	1	1	0	0
Cough	31	28	1	1	0	0
Epistaxis	29	26	0	0	0	0
Vomiting	28	25	2	2	0	0
Neutropenia	27	24	14	13	8	7
Diarrhea	23	21	2	2	0	0
Dyspnea	21	19	8	7	0	0
Anorexia	17	15	3	3	0	0
Hypokalemia	17	15	4	4	1	1
Rash	17	15	0	0	0	0
Pruritus	16	14	2	2	0	0
Pharyngolaryngeal pain	15	14	1	1	0	0
Liver function test abnormal ^c	14	13	6	5	0	0
Abdominal pain	13	12	4	4	0	0
Pain in extremity	13	12	0	0	0	0
Back pain	12	11	3	3	0	0
Leukopenia	12	11	3	3	4	4
Night sweats	12	11	0	0	0	0
Asthenia	11	10	1	1	0	0
Tachycardia	11	10	0	0	0	0
Upper respiratory tract infection	11	10	1	1	0	0

^aStomatitis or mucosal inflammation of the gastrointestinal and genitourinary tracts.

^bFive patients with platelets < 10,000/mcL

^cAlanine aminotransferase, aspartate aminotransferase, and transaminases increased

Serious Adverse Events

Forty-four percent of patients (n = 49) experienced a serious adverse event while on study or within 30 days after their last dose of FOLOTYN. The most common serious adverse events (> 3%), regardless of causality, were pyrexia, mucositis, sepsis, febrile neutropenia, dehydration, dyspnea, and thrombocytopenia. One death from cardiopulmonary arrest in a patient with mucositis and febrile neutropenia was reported in this trial. Deaths from mucositis, febrile neutropenia, sepsis, and pancytopenia occurred in 1.2% of patients treated on all FOLOTYN trials at doses ranging from 30 to 325 mg/m².

Discontinuations

Twenty-three percent of patients (n = 25) discontinued treatment with FOLOTYN due to adverse reactions. The adverse reactions reported most frequently as the reason for discontinuation of treatment were mucositis (6%, n = 7) and thrombocytopenia (5%, n = 5).

Dose Modifications

The target dose of FOLOTYN was 30 mg/m² once weekly for 6 weeks in 7-week cycles. The majority of patients (69%, n = 77) remained at the target dose for the duration of treatment. Overall, 85% of scheduled doses were administered.

6.2 Post Marketing Experience

Because these reactions are reported voluntarily from a population of uncertain size, it is not always possible to reliably estimate their frequency or establish a causal relationship to drug exposure.

Dermatologic Reactions

Toxic epidermal necrolysis, sometimes fatal, has been reported during post-marketing use of FOLOTYN. Fatal cases have been reported following the first dose of FOLOTYN, including when a reduced dose is given, and have been reported in patients with end-stage renal disease undergoing dialysis [*see Warnings and Precautions (5.3), Use in Specific Populations (8.7), and Clinical Pharmacology (12.3)*].

7 DRUG INTERACTIONS

No formal clinical assessments of pharmacokinetic drug-drug interactions between FOLOTYN and other drugs have been conducted. The effect of co-administration of the uricosuric drug probenecid (an inhibitor of multiple transporter systems including the multidrug resistance-associated protein 2 (MRP2) efflux transporter) on pralatrexate pharmacokinetics was investigated in a Phase 1 clinical study. Co-administration of increasing doses of probenecid resulted in delayed clearance of pralatrexate and a commensurate increase in exposure [*see Clinical Pharmacology (12.3)*].

When administering FOLOTYN to patients receiving probenecid or other drugs that may affect relevant transporter systems (eg, NSAIDs), monitor patients closely for signs of systemic toxicity due to increased drug exposure.

8 USE IN SPECIFIC POPULATIONS

8.1 Pregnancy

Pregnancy Category D [*see Warnings and Precautions (5.7)*]

Embryo-Fetal Toxicity

FOLOTYN can cause fetal harm when administered to a pregnant woman. Pralatrexate was embryotoxic and fetotoxic in rats at IV doses of 0.06 mg/kg/day (0.36 mg/m²/day or about 1.2% of the clinical dose on a mg/m²

basis) given on gestation days 7 through 20. Treatment with pralatrexate caused a dose-dependent decrease in fetal viability manifested as an increase in late, early, and total resorptions. There was also a dose-dependent increase in post-implantation loss. In rabbits, IV doses of 0.03 mg/kg/day (0.36 mg/m²/day) or greater given on gestation days 8 through 21 also caused abortion and fetal lethality. This toxicity manifested as early and total resorptions, post-implantation loss, and a decrease in the total number of live fetuses. If this drug is used during pregnancy, or if the patient becomes pregnant while taking this drug, the patient should be apprised of the potential hazard to the fetus.

8.3 Nursing Mothers

It is not known whether pralatrexate is excreted in human milk. Because many drugs are excreted in human milk, and because of the potential for serious adverse reactions in nursing infants from this drug, a decision should be made whether to discontinue nursing or to discontinue FOLOTYN, taking into account the importance of FOLOTYN to the mother.

8.4 Pediatric Use

Pediatric patients were not included in clinical studies with FOLOTYN. The safety and effectiveness of FOLOTYN in pediatric patients have not been established.

8.5 Geriatric Use

In the PTCL efficacy study, 36% of patients (n = 40) were 65 years of age and over. No overall differences in efficacy and safety were observed in patients based on age (< 65 years compared with ≥ 65 years). Due to the contribution of renal excretion to overall clearance of pralatrexate (approximately 34%), age-related decline in renal function may lead to a reduction in clearance and a commensurate increase in plasma exposure. In general, dose selection for an elderly patient should be cautious, reflecting the greater frequency of decreased hepatic, renal, or cardiac function, and of concomitant disease or other drug therapy. Since elderly patients may be at higher risk, monitor more closely. Omit dose and subsequently adjust or discontinue therapy for exposure related toxicity [*see Dosage and Administration (2.2), Warnings and Precautions (5.5, 5.6), Use in Specific Populations (8.6, 8.7), and Clinical Pharmacology (12.3)*].

8.6 Hepatic Impairment

The safety, efficacy and pharmacokinetics of FOLOTYN have not been evaluated in patients with hepatic impairment. Patients with the following laboratory values were excluded from the pralatrexate lymphoma clinical trials: total bilirubin > 1.5 mg/dL; aspartate aminotransferase (AST) or alanine aminotransferase (ALT) > 2.5 × upper limit of normal (ULN); and AST or ALT > 5 × ULN if documented hepatic involvement with lymphoma. Treatment with FOLOTYN can cause hepatic toxicity and liver function test abnormalities [*see Dosage and Administration (2.2) and Warnings and Precautions (5.6)*].

8.7 Renal Impairment

For patients with severe renal impairment (eGFR 15 to < 30 mL/min/1.73 m²), the recommended dose of FOLOTYN is 15 mg/m². For patients with mild to moderate renal impairment, dose reduction is not necessary.

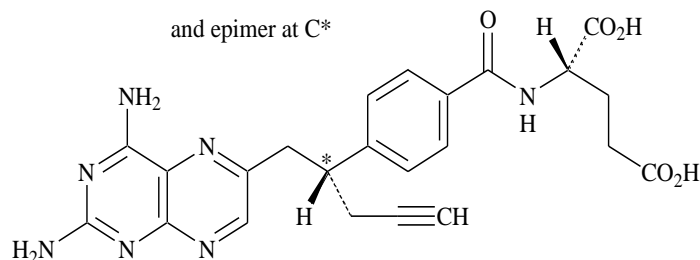
Serious adverse drug reactions, including TEN and mucositis have been reported in patients with ESRD undergoing dialysis. Monitor patients for renal function and for systemic toxicity due to increased drug exposure and adjust dosing accordingly. Avoid the use of FOLOTYN in patients with end stage renal disease undergoing dialysis unless the potential benefit justifies the potential risk [*see Dosage and Administration (2.1, 2.2), Warnings and Precautions (5.3, 5.6), Adverse Reactions (6.2), and Clinical Pharmacology (12.3)*].

10 OVERDOSAGE

No specific information is available on the treatment of overdose of FOLOTYN. If an overdose occurs, general supportive measures should be instituted as deemed necessary by the treating physician. Based on FOLOTYN's mechanism of action, consider the prompt administration of leucovorin.

11 DESCRIPTION

FOLOTYN (pralatrexate injection) contains pralatrexate, which is an antineoplastic folate analog. Pralatrexate has the chemical name (2*S*)-2-[[4-[(1*RS*)-1-[(2, 4-diaminopteridin-6-yl)methyl]but-3-ynyl]benzoyl]amino]pentanedioic acid. The structural formula is as follows:



Pralatrexate is a 1:1 racemic mixture of *S*- and *R*- diastereomers at the C10 position (indicated with *).

The molecular formula is C₂₃H₂₃N₇O₅ and the molecular weight is 477.48 g/mol.

Pralatrexate is an off-white to yellow solid. It is soluble in aqueous solutions at pH 6.5 or higher. Pralatrexate is practically insoluble in chloroform and ethanol. The pKa values are 3.25, 4.76, and 6.17.

FOLOTYN is supplied as a preservative-free, sterile, isotonic, non-pyrogenic clear yellow aqueous parenteral solution contained in a single-dose clear glass vial (Type I) for intravenous administration. Each 1 mL of solution contains 20 mg of pralatrexate, sufficient sodium chloride to achieve an isotonic (280-300 mOsm) solution, and sufficient sodium hydroxide, and hydrochloric acid if needed, to adjust and maintain the pH at 7.5-8.5. FOLOTYN is supplied as either 20 mg (1 mL) or 40 mg (2 mL) single-dose vials at a concentration of 20 mg/mL.

12 CLINICAL PHARMACOLOGY

12.1 Mechanism of Action

Pralatrexate is a folate analog metabolic inhibitor that competitively inhibits dihydrofolate reductase. It is also a competitive inhibitor for polyglutamylation by the enzyme folylpolyglutamyl synthetase. This inhibition results in the depletion of thymidine and other biological molecules the synthesis of which depends on single carbon transfer.

12.3 Pharmacokinetics

Absorption

The pharmacokinetics of pralatrexate administered as a single agent at a dose of 30 mg/m² administered as an intravenous push over 3-5 minutes once weekly for 6 weeks in 7-week cycles have been evaluated in 10 patients with PTCL. The total systemic clearance of pralatrexate diastereomers was 417 mL/min (*S*-diastereomer) and 191 mL/min (*R*-diastereomer). The terminal elimination half-life of pralatrexate was 12-18 hours (coefficient of variance [CV] = 62-120%). Pralatrexate total systemic exposure (AUC) and maximum plasma concentration (C_{max}) increased proportionally with dose (dose range 30-325 mg/m², including pharmacokinetics data from

high-dose solid tumor clinical studies). The pharmacokinetics of pralatrexate did not change significantly over multiple treatment cycles, and no accumulation of pralatrexate was observed.

Distribution

Pralatrexate diastereomers showed a steady-state volume of distribution of 105 L (*S*-diastereomer) and 37 L (*R*-diastereomer). *In vitro* studies indicate that pralatrexate is approximately 67% bound to plasma proteins.

Elimination

Metabolism

In vitro studies using human hepatocytes, liver microsomes and S9 fractions, and recombinant human CYP450 isozymes showed that pralatrexate is not significantly metabolized by the phase I hepatic CYP450 isozymes or phase II hepatic glucuronidases.

Excretion

The mean fraction of unchanged pralatrexate diastereomers excreted in urine following a pralatrexate dose of 30 mg/m² administered as an intravenous push over 3-5 minutes was 31% (*S*-diastereomer) (CV = 47%) and 38% (*R*-diastereomer) (CV = 45%), respectively. In a mass balance study conducted in patients with advanced cancer, an average of 39% (CV = 28%) of the administered radiolabeled pralatrexate dose was excreted in urine as parent, racemic pralatrexate (f_e). An average of 34% (CV = 88%) of the administered dose was recovered in feces as total radiation (f_e^{TR}) which included both parent pralatrexate and/or any metabolites. An average of 10% (CV = 95%) of total dose was exhaled as total radioactivity over 24 hours.

Pharmacokinetics in Specific Populations

Renal Impairment

In patients with cancer without renal impairment, approximately 34% of pralatrexate was excreted unchanged into urine following a single dose of 30 mg/m² administered as an intravenous push over 3-5 minutes. The pharmacokinetics of FOLOTYN was studied in patients with varying degrees of renal impairment. In patients with severe renal impairment (eGFR 15 to <30 mL/min/1.73 m²), the FOLOTYN dose was 15 mg/m². Patients with normal renal clearance, mild renal impairment, and moderate renal impairment were all dosed with 30 mg/m². Mean exposures of the pralatrexate *S*-diastereomer and *R*-diastereomer were comparable across cohorts. The mean fraction of the administered dose excreted as unchanged diastereomers in urine (f_e) decreased with declining renal function. The non-renal clearance and volume of distribution of pralatrexate were unaffected by renal impairment [*see Use in Specific Populations (8.7)*].

Hepatic Impairment

Pralatrexate has not been studied in patients with hepatic impairment.

Gender

There was no significant effect of gender on pharmacokinetics.

Drug Interactions

In vitro studies indicated that pralatrexate does not induce or inhibit the activity of CYP450 isozymes at concentrations of pralatrexate that can be reasonably expected clinically.

In vitro, pralatrexate is a substrate for the breast cancer resistance protein (BCRP), MRP2, multidrug resistance-associated protein 3 (MRP3), and organic anion transport protein 1B3 (OATP1B3) transporter systems at concentrations of pralatrexate that can be reasonably expected clinically. Pralatrexate is not a substrate of the P

glycoprotein (P-gp), organic anion transport protein 1B1 (OATP1B1), organic cation transporter 2 (OCT2), organic anion transporter 1 (OAT1), and organic anion transporter 3 (OAT3) transporter systems.

In vitro, pralatrexate inhibits MRP2 and MRP3 transporter systems ($[I]/IC_{50} > 0.1$) at concentrations of pralatrexate that can be reasonably expected clinically. MRP3 is a transporter that may affect the transport of etoposide and teniposide.

In vitro, pralatrexate did not significantly inhibit the P-gp, BCRP, OCT2, OAT1, OAT3, OATP1B1, and OATP1B3 transporter systems at concentrations of pralatrexate that can be reasonably expected clinically.

13 NONCLINICAL TOXICOLOGY

13.1 Carcinogenesis, Mutagenesis, Impairment of Fertility

Carcinogenesis

Carcinogenicity studies have not been performed with pralatrexate.

Mutagenesis

Pralatrexate did not cause mutations in the Ames test or the Chinese hamster ovary cell chromosome aberration assay. Nevertheless, these tests do not reliably predict genotoxicity for this class of compounds. Pralatrexate did not cause mutations in the mouse micronucleus assay.

Impairment of Fertility

No fertility studies have been performed.

14 CLINICAL STUDIES

Peripheral T-cell Lymphoma (PTCL)

The safety and efficacy of FOLOTYN was evaluated in an open-label, single-arm, multi-center, international trial that enrolled 115 patients with relapsed or refractory PTCL. One hundred and eleven patients were treated with FOLOTYN at 30 mg/m² once weekly by IV push over 3-5 minutes for 6 weeks in 7-week cycles until disease progression or unacceptable toxicity. Of the 111 patients treated, 109 patients were evaluable for efficacy. Evaluable patients had histologically confirmed PTCL by independent central review using the Revised European American Lymphoma (REAL) World Health Organization (WHO) disease classification, and relapsed or refractory disease after at least one prior treatment.

The primary efficacy endpoint was overall response rate (complete response, complete response unconfirmed, and partial response) as assessed by International Workshop Criteria (IWC). The key secondary efficacy endpoint was duration of response. Response assessments were scheduled at the end of cycle 1 and then every other cycle (every 14 weeks). Duration of response was measured from the first day of documented response to disease progression or death. Response and disease progression were evaluated by independent central review using the IWC.

The median age of treated patients was 59.0 years (range 21-85); 68% were male and 32% were female. Most patients were White (72%) and other racial origins included: Black (13%), Hispanic (8%), Asian (5%), other and unknown (<1% each). Patients had an Eastern Cooperative Oncology Group (ECOG) performance status at study entry of 0 (39%), 1 (44%), or 2 (17%). The median time from initial diagnosis to study entry was 15.6 months (range 0.8 – 322.3).

The median number of prior systemic therapies was 3 (range 1-12). Approximately one-fourth of patients (24%, n = 27) did not have evidence of response to any previous therapy. Approximately two-thirds of patients (63%, n = 70) did not have evidence of response to their most recent prior therapy before entering the study.

In all evaluable patients (n = 109) treated with FOLOTYN, the response rate, as determined by independent central review by IWC, was 27% (n = 29) (Table 5).

Table 5 Response Analysis per Independent Central Review (IWC)

	Evaluable Patients (N=109)		Median Duration of Response	Range of Duration of Response
	N (%)	95% CI		
Overall Response				
CR+CRu+PR	29 (27)	19, 36	287 days (9.4 months)	1-503 days
CR/CRu	9 (8)			
PR	20 (18)			
Responses ≥ 14 weeks				
CR+CRu+PR	13 (12)	7, 20	Not Reached	98-503 days
CR/CRu	7 (6)			
PR	6 (6)			

Fourteen patients went off treatment in cycle 1; 2 patients were unevaluable for response by IWC due to insufficient materials provided to central review.

CR = Complete Response, CRu = Complete Response unconfirmed, PR = Partial Response

The initial response assessment was scheduled at the end of cycle 1. Of the responders, 66% responded within cycle 1. The median time to first response was 45 days (range 37-349 days).

15 REFERENCES

- 1 Preventing Occupational Exposures to Antineoplastic and Other Hazardous Drugs in Health Care Settings. NIOSH Alert 2004-165.
- 2 OSHA Technical Manual, TED 1-0.15A, Section VI: Chapter 2. Controlling Occupational Exposure to Hazardous Drugs. OSHA, 1999. http://www.osha.gov/dts/osta/otm/otm_vi/otm_vi_2.html
- 3 American Society of Health-System Pharmacists. ASHP guidelines on handling hazardous drugs. Am J Health-Syst Pharm. 2006;63:1172-1193.
- 4 Polovich, M., White, J. M., & Kelleher, L. O. (eds.) 2005. Chemotherapy and biotherapy guidelines and recommendations for practice (2nd. ed.) Pittsburgh, PA: Oncology Nursing Society.

16 HOW SUPPLIED/STORAGE AND HANDLING

FOLOTYN is available in single-dose clear glass vials containing pralatrexate at a concentration of 20 mg/mL as a preservative-free, sterile, clear yellow solution individually packaged for intravenous use in the following presentations:

NDC 48818-001-01: 20 mg of pralatrexate in 1 mL solution in a vial (20 mg / 1 mL)

NDC 48818-001-02: 40 mg of pralatrexate in 2 mL solution in a vial (40 mg / 2 mL)

Vials must be stored refrigerated at 2-8°C (36-46°F) (*see* USP Controlled Cold Temperature) in original carton to protect from light.

Handle and dispose of FOLOTYN according to guidelines issued for cytotoxic drugs, including the use of gloves and other protective clothing to prevent skin contact [*see References (15)*].

Each vial of FOLOTYN is intended for single use only. Any unused drug remaining after injection must be discarded.

17 PATIENT COUNSELING INFORMATION

See FDA-approved labeling (Patient Information).

Patients should be instructed to read the Patient Information carefully.

17.1 Need for Folic Acid and Vitamin B₁₂

Advise patients treated with FOLOTYN to take folic acid and vitamin B₁₂ as a prophylactic measure to reduce the risk of possible side effects [*see Dosage and Administration (2.1)*].

17.2 Low Blood Cell Counts

Inform patients of the risk of low blood cell counts and to immediately contact their physician should any signs of infection develop, including fever. Inform patients to contact their physician if bleeding or symptoms of anemia occur.

17.3 Mucositis

Inform patients of the signs and symptoms of mucositis. Instruct patients on ways to reduce the risk of its development, and on ways to maintain nutrition and control discomfort from mucositis if it occurs.

17.4 Fatal Dermatologic Reactions

Advise patients about the risks for and the signs and symptoms of dermatologic reactions. Instruct patients to immediately notify their physician if any skin reactions occur [*see Warnings and Precautions (5.3)*].

17.5 Tumor Lysis Syndrome

Inform patients about the risk of and the signs and symptoms of tumor lysis syndrome. Patients should be instructed to notify their physician if they experience these symptoms [*see Warnings and Precautions (5.4)*].

17.6 Concomitant Medications

Patients should be instructed to inform their physician if they are taking any concomitant medications including prescription drugs (such as trimethoprim/sulfamethoxazole) and nonprescription drugs (such as nonsteroidal anti-inflammatory drugs) [*see Drug Interactions (7)*].

17.7 Pregnancy/Nursing

Patients should be instructed to tell their physician if they are pregnant or plan to become pregnant due to the risk of fetal harm. Patients should be instructed to tell their physician if they are nursing.



ALLOS®
THERAPEUTICS

Manufactured for:

Spectrum Pharmaceuticals, Inc. and its wholly-owned subsidiary Allos Therapeutics, Inc.

Westminster, CO 80021

1-888-ALLOS88 (1-888-255-6788)

FOLOTYN, ALLOS, and the mobius triangle symbol are all registered trademarks of Allos Therapeutics, Inc.

U.S. Patents: 6,028,071, 7,622,470 and 8,299,078

Rev. November 2016

© 2016 Spectrum Pharmaceuticals, Inc. and its wholly-owned subsidiary Allos Therapeutics, Inc. All rights reserved.

Patient Information

FOLOTYN® (FOH-loh-tin) (pralatrexate injection)

Read the Patient Information that comes with FOLOTYN before you start treatment and each time you get treated with FOLOTYN. There may be new information. This leaflet does not take the place of talking to your doctor about your medical condition or treatment. Talk to your doctor if you have any questions about FOLOTYN.

What is FOLOTYN?

FOLOTYN is a prescription anti-cancer (chemotherapy) medicine. FOLOTYN is used to treat people with a type of cancer called Peripheral T-cell Lymphoma (PTCL) that does not go away, gets worse, or comes back after use of another cancer treatment.

What should I tell my doctor before receiving FOLOTYN?

Before you receive FOLOTYN, tell your doctor if you:

- have liver problems.
- have kidney problems.
- have any other medical conditions.
- are pregnant or plan to become pregnant. FOLOTYN can harm your unborn baby. Talk to your doctor about the best way to prevent pregnancy while taking FOLOTYN. Tell your doctor right away if you become pregnant while taking FOLOTYN.
- are breast-feeding or plan to breast-feed. It is not known if FOLOTYN passes into breast milk. You and your doctor should decide if you will take FOLOTYN or breast-feed. You should not do both. Talk to your doctor about the best way to feed your baby while you are being treated with FOLOTYN.

Tell your doctor about all the medicines you take, including prescription and non-prescription medicines, vitamins, and herbal supplements. Some medicines may affect how FOLOTYN works, and FOLOTYN may affect how other medicines work. Especially tell your doctor if you take:

- sulfamethoxazole trimethoprim (Bactrim®, Septra®, Septra DS, Sulfatrim Pediatric, Sulfamethoprim, Sulfamethoprim-DS)
- non-steroidal anti-inflammatory drugs (NSAIDs)
- probenecid (Probalan, Col-Probenecid)

Ask your doctor or pharmacist if you are not sure if your medicine is listed above.

Know the medicines you take. Keep a list of them and show it to your doctor or pharmacist each time you start a new medicine.

How will I receive FOLOTYN?

- FOLOTYN will be given to you as directed by your doctor, as an intravenous (IV) injection into your vein over 3 to 5 minutes.
- FOLOTYN is usually given in cycles, one time each week for 6 weeks, with no treatment on the 7th week. Treatment with FOLOTYN may be continued as long as it is helpful to you.

To lower your chances of harmful side effects, it is important that you take folic acid and vitamin B₁₂ during your treatment with FOLOTYN. Your doctor will give you specific instructions for vitamin supplementation.

- You will take folic acid by mouth for 10 days before your first dose of FOLOTYN. Do not take more or less folic acid than your doctor tells you to take. Continue taking folic acid every day until your doctor tells you to stop.
- Your doctor will give you a vitamin B₁₂ injection into your muscle (intramuscular) before your first dose of FOLOTYN and about every 8 to 10 weeks during treatment with FOLOTYN.

You should have regular blood tests before and during your treatment with FOLOTYN. Your doctor may change your dose of FOLOTYN or delay treatment based on the results of your blood tests and on your general condition.

What are the possible side effects of FOLOTYN?

FOLOTYN may cause serious side effects, including:

- **Low Blood Cell Counts:** FOLOTYN can affect your bone marrow and cause you to have low blood cell counts. Your doctor will do blood tests as needed to check your blood cell counts.
- **Low Platelet Count (thrombocytopenia):** Tell your doctor right away if you have any unusual bleeding, such as nosebleeds, or bruising under your skin.
- **Low White Blood Cell Count (neutropenia):** A low white blood cell count can cause you to get infections, which may be serious. Serious illness or death can happen if an infection is not treated right away when white blood cell counts are very low. Tell your doctor right away if you have any of the following signs or symptoms of an infection:
 - fever
 - chills
 - cough
 - shortness of breath
 - pain or burning on urination

- **Low Red Blood Cell Count (anemia):** Tell your doctor if you have any of these symptoms of anemia during treatment with FOLOTYN:
 - feeling weak, tired, or you get tired easily
 - you look pale
 - you feel short of breath

- **Redness and sores of the mucous membrane lining of the mouth, lips, throat, digestive tract, and genitals (mucositis).** Discomfort or pain due to mucositis may happen as early as a few days after treatment with FOLOTYN. Your doctor should tell you about ways to reduce your risk of getting mucositis, and how to maintain nutrition and control the discomfort from mucositis.

- **Severe skin reactions.** Severe skin reactions may happen after treatment with FOLOTYN, especially if you have lymphoma in or under your skin. If your skin reactions are severe, they may lead to serious illness or death. Tell your doctor right away if you have any of the following skin reactions:
 - rash
 - peeling and loss of skin
 - sores
 - blisters

- **Tumor Lysis Syndrome (TLS).** FOLOTYN can cause the fast breakdown of certain types of cancer cells. This can lead to TLS. Your doctor may do blood tests to check you for TLS and treat you for TLS if needed.

- **Harm to an unborn baby.** Females should avoid becoming pregnant while being treated with FOLOTYN. Talk to your doctor about how to avoid pregnancy while taking FOLOTYN.

- **Fever.** Fever is often one of the most common and earliest signs of infection. Follow your doctor's instructions about how often to take your temperature, especially during the days after treatment with FOLOTYN. If you have a fever, tell your doctor or nurse right away.

- **Loss of too much fluid from the body (dehydration).** If you feel tired and weak this could be a sign of dehydration. Follow your doctor's instructions for what to do to help prevent or treat dehydration.

- **Shortness of breath.** Tell your doctor if this is a problem for you.

Common side effects of FOLOTYN include:

- | | |
|----------------|-------------|
| • nausea | • swelling |
| • vomiting | • cough |
| • tiredness | • nosebleed |
| • constipation | • diarrhea |

Tell your doctor about any side effect that bothers you or that does not go away.

These are not all the possible side effects of FOLOTYN. For more information, ask your doctor or pharmacist.

Call your doctor for medical advice about side effects. You can report side effects to FDA at 1-800-FDA-1088.

General information about FOLOTYN

Medicines are sometimes prescribed for purposes other than those listed in a Patient Information leaflet. This patient information leaflet summarizes the most important information about FOLOTYN. If you would like more information, talk with your doctor. You can ask your pharmacist or doctor for information about FOLOTYN that is written for health professionals. For more information, go to www.FOLOTYN.com or call 1-888-255-6788.

What are the ingredients in FOLOTYN?

Active ingredient: pralatrexate

Inactive ingredients: sodium chloride, sodium hydroxide, and hydrochloric acid

What is PTCL?

PTCL is a rare type of non-Hodgkin's lymphoma, a cancer of the lymphatic system. It happens when a type of T-cell (a kind of white blood cell) grows too much. PTCL may be found in different parts of the body, such as the lymph nodes, skin, bone marrow, liver, or spleen.



ALLOS[®]
THERAPEUTICS

Spectrum Pharmaceuticals, Inc. and its wholly-owned subsidiary Allos Therapeutics, Inc.

Westminster, CO 80021

Issued: May 2010

Revised: November 2016



FOLOTYN, ALLOS, the mobius triangle symbol, and the flower symbol are all registered trademarks of Allos Therapeutics, Inc.

© 2016 Spectrum Pharmaceuticals, Inc. and its wholly-owned subsidiary Allos Therapeutics, Inc. All rights reserved.