

**PRODUCT INFORMATION**

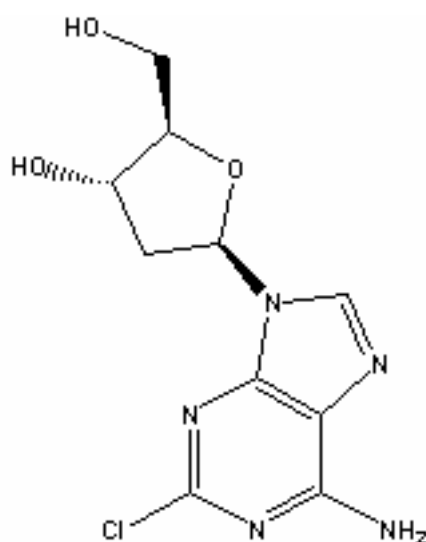
**LITAK<sup>®</sup>**  
**2 mg/mL solution for injection**

**NAME OF DRUG**

Cladribine

 $C_{10}H_{12}ClN_5O_3 = 285.7$ 

CAS Registry Number: 4291-63-8

**DESCRIPTION**

LITAK (cladribine) is a synthetic antineoplastic agent for subcutaneous injection and intravenous infusion. Cladribine is a chlorinated purine nucleoside analogue (cytostatic agent) with the chemical name 2-chloro-2'-deoxy- $\beta$ -D-adenosine or 2-chloro-6-amino-9-(2-deoxy- $\beta$ -D-erythropento-furanosyl)-purine.

LITAK solution for injection is presented as clear, colourless, sterile, preservative-free, isotonic solution. LITAK is available in single-use vials containing 10 mg of cladribine in 5 mL of solution, ready-to-use for subcutaneous injection without dilution or can be diluted for intravenous infusion. Each mL of the solution contains 2 mg of cladribine and 9 mg of sodium chloride. LITAK also contains water for injections to make the solution up to 5 mL. The product may also contain sodium hydroxide or hydrochloric acid to adjust the pH. The pH range of LITAK solution is 6.5 - 7.5.

## PHARMACOLOGY

### Pharmacodynamic Properties

LITAK contains cladribine as active ingredient, a purine nucleoside analogue acting as an antimetabolite. The single substitution of chlorine for hydrogen at position 2 distinguishes cladribine from its natural counterpart 2'-deoxyadenosine and renders the molecule resistant to deamination by adenosine deaminase.

#### *Cellular resistance and sensitivity*

Cladribine is a prodrug, which is taken up rapidly into cells after parenteral administration, and is phosphorylated intracellularly to the active nucleotide 2-chlorodeoxyadenosine-5'-triphosphate (CdATP), initially by deoxycytidine kinase (dCK). An accumulation of active CdATP is observed predominantly in cells with a high dCK activity and a low deoxynucleotidase activity, particularly in lymphocytes and in other haematopoietic cells. The cytotoxicity of cladribine is dose-dependent. Non-haematological tissues seem to be less affected, explaining the low incidence of non-haematopoietic toxicity of the cytostatic drug.

Unlike other nucleoside analogues cladribine is toxic in rapidly proliferating cells as well as in resting cells. The mechanism of action of cladribine is attributed to the incorporation of CdATP into DNA strands: The synthesis of new DNA in dividing cells is blocked and the DNA repair mechanism is inhibited resulting in an accumulation of DNA strand breaks and a decrease of NAD and ATP concentration even in resting cells. Furthermore CdATP inhibits ribonucleotide reductase, the enzyme responsible for the conversion of ribonucleotides into deoxyribonucleotides. Cell death occurs from energy depletion and apoptosis.

### Pharmacokinetics Properties

#### **Absorption**

Cladribine shows comparable bioavailability after subcutaneous or intravenous administration.

#### **Distribution**

In a study using a dose of 0.10 mg/kg body weight/day, the maximum plasma concentration  $C_{max}$  after continuous intravenous infusion was 5.1 ng/mL ( $t_{max}$ : 12 hours) compared to 51 ng/mL after subcutaneous bolus injection ( $t_{max}$ : 25 minutes).

Intracellular concentration of cladribine exceeds plasma drug concentration by 128 to 375 times.

The mean volume of distribution of cladribine is 9.2 L/kg. Plasma protein binding of cladribine accounts on average 25% with a wide inter-individual variation (5 - 50%). Intrathecal concentrations of cladribine average 25% of plasma concentrations. Peak cerebrospinal fluid concentrations of 6 and 2 ng/mL, respectively, could be measured after intermittent 2-hour infusion or continuous intravenous infusion (dose: 0.12 mg/kg body weight/day).

### **Metabolism**

Intracellular cladribine is metabolised predominantly by deoxycytidine kinase to 2-chlorodeoxyadenosine-5'-monophosphate that is further phosphorylated to the diphosphate by nucleoside monophosphate kinase and to the active metabolite 2-chlorodeoxyadenosine-5'-triphosphate (CdATP) by nucleoside diphosphate kinase.

### **Elimination**

The terminal elimination half-life ( $t_{1/2}$ ) of cladribine was approximately 10 hours after both intravenous infusion and subcutaneous bolus injection. The intracellular retention time of cladribine nucleotides *in vivo* is clearly prolonged as compared to the retention time in the plasma: Half-lives  $t_{1/2}$  of initially 15 hours and subsequently more than 30 hours were measured in leukaemic cells.

Cladribine is eliminated mainly by the kidneys. The renal excretion of unmetabolised cladribine occurs within 24 hours and accounts 15% and 18% of the dose after 2-hour intravenous and subcutaneous administration, respectively. The fate of the remainder is unknown. The mean plasma clearance amounts to 794 mL/min after intravenous infusion and to 814 mL/min after subcutaneous bolus injection at a dose of 0.10 mg/kg body weight/day.

#### *Pharmacokinetics in special clinical situations*

There are no studies available using LITAK in patients with renal or hepatic impairment (see **PRECAUTIONS**). The use of LITAK in children and patients older than 75 years has not been investigated.

## **CLINICAL TRIALS**

### **Hairy cell leukaemia**

Cladribine is particularly effective for the treatment of hairy cell leukaemia (HCL) capable of inducing long-term responses in the majority of patients after one cycle of a 7-day infusion only. The subcutaneous bolus injection for 5 days is clinically equivalent to continuous intravenous infusion for 7 days. The antimetabolite has been established as first line chemotherapy for this rare disorder.

In two non-randomised multicentre studies with LITAK solution the feasibility of the subcutaneous administration in comparison to the established and commonly used continuous intravenous application has been investigated. Twenty-three patients with evidence of active HCL disease were treated with one cycle of LITAK solution according to the standard regimen of 0.1 mg/kg/day as a continuous intravenous (i.v.) infusion for 7 days (control group). A second group of 62 HCL patients was treated with a single course of LITAK solution given by subcutaneous bolus injection for 5 consecutive days at a dose of 0.14 mg/kg/day. The total dose per treatment and cycle was 0.7 mg/kg in both groups. The patient characteristics were comparable in the two studies. Half of the patients have been pretreated with either chemotherapy and/or interferon- $\alpha$  at study entry, the other half had partly undergone splenectomy as the only prior treatment.

The overall response rate for patients with HCL was 96% and 97% in the control group (continuous i.v. administration) and the population receiving subcutaneous cladribine, respectively. Two patients of the control group with partial remission (PR) required a second cycle after 2 and 6 months, respectively in order to achieve a complete remission (CR). Two patients not achieving CR after the first cycle of s.c. 2-CdA, received a second or third cycle, respectively. The patient receiving a second s.c.

bolus injection on 5 days achieved CR, whereas the patient treated with 2 additional continuous i.v. infusions of cladribine for 7 days remained in long-term PR.

After a median follow-up of 54 months, 5 patients of the control group had relapsed (22%). One patient of the control group died on day 28 due to infection. Twelve of the subcutaneously treated patients (19%) relapsed after a median follow-up time of 36 months.

LITAK solution is active in previously treated patients, although the overall CR rate decreases in pretreated versus non-pretreated patients (70% versus 76%).

Myelosuppression (neutropenia WHO grade >2) was comparable in both groups: 90% versus 98%, respectively. Opportunistic infections (WHO grade >1) were statistically not significantly different, i.e. 14% in patients treated with intravenously administered cladribine and 26% in patients receiving subcutaneous cladribine. Thrombocytopenia was more pronounced in patients receiving LITAK solution as a s.c. bolus injection (50% versus 19% of the control group). The significant variation of the platelet counts could be explained by the highly differing values at prestudy. It has to be considered that the incidence of haematological complications, such as myelosuppression, infections and thrombocytopenia, is influenced by the baseline pancytopenia, which is often regularly present in patients with hairy cell leukaemia. Furthermore, haematological recovery is dependent on pretreatment levels of peripheral blood counts.

The overall response rates and percentage of remissions after long-term follow-up obtained in the non-randomised multicentre 2-cohort study using LITAK are comparable with the results described in the literature.

#### **Lymphoplasmacytic Lymphoma (Waldenström's Macroglobulinaemia)**

Twenty-five patients with lymphoplasmacytic lymphoma (LL) at Ann Arbor stage IV received 0.5 mg/kg/cycle of LITAK solution as subcutaneous bolus injections. All patients except one were pretreated (median number of prior treatments: 2), 6 patients were in relapse and 18 were refractory to the last chemotherapy. Altogether 67 cycles of 2-CdA were administered. The median number of cycles was 3 (range 1-6). Ten out of 25 patients (40%) responded to the therapy (95%-CI: 21-61%).

The IgM-counts are significantly decreased after 3 cycles as compared to the values measured before the therapy with 2-CdA ( $p=0.02$ ).

The median time to treatment failure (TTF) was 4.4 months (range 0.5-33). The median follow-up time of all responding patients from therapy start to relapse or cut-off was 13.4 months (range 1-29). The median remission duration (RD) was 8 months (range 1-29).

Severe neutropenia and thrombocytopenia (WHO grade >2) was observed in 30% and 10% of the cases and opportunistic infections occurred in 19% of the cycles. No long-lasting haematological toxicities were observed.

The overall response rates and remission duration obtained in the clinical trial using LITAK solution are comparable with results described in the literature.

## INDICATIONS

LITAK is indicated for the treatment of hairy cell leukaemia and the second line treatment of lymphoplasmacytic lymphoma (Waldenström's Macroglobulinaemia), i.e. after failure of alkylating agents.

## CONTRAINDICATIONS

LITAK is contraindicated in patients with a history of hypersensitivity to cladribine or any of its excipients.

LITAK is also contraindicated during pregnancy and lactation.

## PRECAUTIONS

Cladribine is an antineoplastic and immunosuppressive substance that can induce considerable toxic adverse effects, like myelo- and immunosuppression, long-lasting lymphocytopenia, and opportunistic infections. Patients undergoing treatment with cladribine should be closely monitored for signs of haematologic and non-haematologic toxicities.

Particular caution is advised and risks/benefits should be carefully evaluated, if administration of LITAK is considered in patients with increased infection risk, manifested renal and hepatic insufficiency. Patients with active infection should be treated for the underlying condition prior to receiving therapy with LITAK. Patients who are or who become Coombs' positive should be monitored closely for occurrence of haemolysis.

Acute, irreversible neuro- and nephrotoxicity have only been observed at high doses of cladribine ( $\geq 4$  times the recommended dose).

### **Haematology**

Haematological toxicity may be more pronounced with subcutaneous compared to intravenous administration (see Adverse Reactions). During the first month following treatment, myelosuppression is most notable and red blood cell or platelet transfusions may be required. Patients with a manifestation of bone marrow depression should be treated with caution since further suppression of bone marrow function should be anticipated. Therapeutic risks and benefits should be carefully evaluated in patients with active or suspected infections. The risk of severe myelotoxicity and long-lasting immunosuppression is increased in patients with a disease-related bone marrow infiltration or a previous myelosuppressive treatment. A dose reduction and a regular monitoring of the patient is required in such cases. Increased haematological toxicity (myelosuppression, infections) has been observed in patients receiving repeated cycles of LITAK. Therefore, it is recommended that the dosage regimen of LITAK should not exceed 0.5 mg/kg body weight per cycle in patients receiving multiple treatment courses. A discontinuation of the therapy may be necessary depending on the severity and intensity of the complications. Pancytopenia is normally reversible and the intensity of bone marrow aplasia is dose dependent. An increased incidence of opportunistic infections is expected during and 6 months following therapy with LITAK. Careful and regular monitoring of peripheral blood counts is essential during and 2 to 4 months following treatment with LITAK to detect potential side effects and consequent complications (anaemia, neutropenia, thrombocytopenia, infections, haemolysis or bleedings), and to survey haematologic recovery. Fever of unknown

origin frequently occurs in patients treated for hairy cell leukaemia but rarely in patients with other neoplasias, and is manifested predominantly during the first 4 weeks of therapy. The origin of febrile events should be investigated by appropriate laboratory and radiologic tests. Less than a third of febrile events are associated with a documented infection. In case of fever related to infections or agranulocytosis an antibiotic treatment is indicated.

#### ***Impaired bone marrow, renal and hepatic impairment***

Inadequate data is available on dosing of patients with renal or hepatic insufficiency. Patients with known or suspected renal insufficiency as well as patients with a manifestation of bone marrow impairment related to multiple pre-treatments, tumour infiltration or due to any other aetiology should be treated carefully and monitored regularly for haematologic and non-haematologic toxicity. There is no experience in patients with hepatic impairment.

For all patients treated with LITAK, periodic assessment of renal and hepatic function is advised as clinically indicated.

#### ***Prevention of tumour lysis syndrome***

Prophylactic allopurinol therapy to control the serum levels of uric acid, adequate hydration, and close monitoring of renal function are recommended in patients with a high tumour burden. The allopurinol prophylaxis usually starts at the first day of chemotherapy. A daily oral dose of 100 mg of allopurinol is recommended for a period of 2 weeks. In case of an accumulation of the serum uric acid above the normal range, the dose of allopurinol may be increased to 300 mg/day.

#### ***Carcinogenicity, Mutagenicity and Impairment of Fertility***

Long-term studies in animals to evaluate the carcinogenic potential of cladribine have not been conducted. On the basis of available data, no evaluation can be made of the carcinogenic risk of LITAK to humans.

Cladribine is a cytotoxic drug, which has been shown to cause DNA damage. Cladribine is incorporated into DNA strands and inhibits DNA synthesis and repair. Exposure to cladribine induces DNA fragmentation and cell death in various normal and leukaemic cells and cell lines *in vitro*.

The effects of cladribine on fertility have not been studied in animals. However, a toxicity study conducted with *Cynomolgus* monkeys has shown that cladribine suppresses maturation of rapidly generating cells, including testicular cells. The effect of cladribine on human fertility is unknown. Antineoplastic agents, such as cladribine, which interfere with DNA, RNA and protein synthesis, might be expected to have adverse effects on human gametogenesis.

#### ***Use in Pregnancy – Category D***

Cladribine may cause serious birth defects when administered during pregnancy. Animal studies have demonstrated the teratogenicity of cladribine. LITAK is contraindicated in pregnancy (see **CONTRAINDICATIONS**). Women of childbearing potential must use effective contraception during treatment with cladribine. In case of pregnancy during therapy with cladribine, the women should be informed about the potential hazard to the foetus.

**Use in Lactation**

It is unknown whether cladribine is excreted in human milk. Because of the potential for serious adverse reactions in suckling infants, discontinuation of breastfeeding in treated mothers is advised.

**Use in Children**

The safety and efficacy of LITAK in children have not been established.

**Interactions with Other Drugs**

Interactions with other medicinal products are not known.

Due to a potential increase of haematological toxicity and bone marrow suppression, LITAK should not be used concomitantly with other myelosuppressive drugs. Cross reactions with other antineoplastic agents *in vitro* (e.g. doxorubicin, vincristine, cytarabine) and *in vivo* have not been observed.

**Effects on Ability to Drive and Use Machines**

LITAK may strongly impair the patient's performance. In case of drowsiness, driving a vehicle or operating machines should be avoided.

**ADVERSE REACTIONS**

Very common side effects observed during the three most relevant clinical trials with LITAK in 279 patients treated for various indications and in 62 patients with hairy cell leukaemia (HCL) are:

**Table 1**

<b>Side Effect</b>	<b>No. of patients effected</b>	<b>Total no. of patients</b>	<b>% effected</b>
<b>Myelosuppression</b> (severe)			
<i>Neutropenia</i>	113	279	41%
<i>Thrombocytopenia</i>	61 (HCL)	62 (HCL)	98% (HCL)
<i>Anaemia</i>	58	279	21%
<i>Immunosuppression/   Lymphopenia</i>	31 (HCL)	62 (HCL)	50% (HCL)
<i>Infections</i>	21	150	14%
<i>Fever</i>	34 (HCL)	62 (HCL)	55% (HCL)
<i>(all grades)</i>	176	279	63%
<i>(all grades)</i>	59 (HCL)	62 (HCL)	95% (HCL)
<i>(all grades)</i>	110	279	39%
<i>(all grades)</i>	36 (HCL)	62 (HCL)	58% (HCL)
<i>(all grades)</i>			Up to 64%

Haematological toxicity may be more pronounced with subcutaneous compared to intravenous administration (see Table 2).

**Table 2: Comparison of Haematological Toxicity of HCL Patients in Study PS 1 (i.v.) and SAKK Study 32.93 (s.c.)**

	Worst haematological toxicity by WHO Grade III and IV (% of patients)	
	Study PS 1 (i.v.) n=21 *	SAKK Study 32/93 (s.c.) n=62
Anaemia	not analysed	48.4%
Neutropenia	85.7%	98.4%
Lymphocytopenia	76.2%	95.2%
Thrombocytopenia	19.0%	50.0%

\*, one of the 22 HCL patients of study PS 1 was not evaluable for haematotoxicity since no blood values from day 14 were available

Culture-negative fever following treatment with LITAK occurs in 10 - 40% of patients with hairy cell leukaemia and is rarely observed in patients with other neoplastic disorders. Skin rashes (2 - 31%) are mainly described in patients with other concomitant medications known to cause rash (antibiotics and/or allopurinol). Gastrointestinal side effects like nausea (5 - 28%), vomiting (1 - 13%), and diarrhoea (3 - 12%) as well as fatigue (2 - 48%), headache (1 - 23%), and decreased appetite (1 - 22%) have been reported during treatment with LITAK. There are only isolated reports of alopecia, mucositis or conjunctivitis.

Most non-haematological adverse reactions are mild to moderate in severity. Treatment with antiemetics is usually not necessary.

Since patients with an active hairy cell leukaemia mostly present with low blood counts, especially low neutrophil counts, more than 90% of the cases have transient severe neutropenias ( $< 1.0 \times 10^9/L$ ). The use of haematopoietic growth factors neither improves the recovery of neutrophil counts nor decreases the incidence of fever. Severe thrombocytopenias ( $< 50 \times 10^9/L$ ) are observed in about 20% to 30% of all patients. Lymphocytopenia lasting for several months and immunosuppression with an increased risk for infections are expected. The recovery of cytotoxic T-lymphocytes and natural killer cells occurs within 3 to 12 months. A complete recovery of T-helper cells and B-lymphocytes is delayed for up to 2 years.

Cladribine induces a remarkable and prolonged reduction of CD4+ and CD8+ T-lymphocytes. At present there exists no experience on possible long-term consequences of this immunosuppression.

Serious long-term lymphocytopenias are reported occasionally which, however, could not be associated with late infectious complications. The most common severe complications with partially fatal outcome are opportunistic infections (e.g. pneumocystis carinii, toxoplasmosis gondii, listeria, candida, herpes viruses, cytomegalovirus and atypical mycobacteria). Forty percent of the patients who were treated with LITAK at a dose of 0.7 mg/kg body weight per cycle suffered from infections. These were on average more severe than the infections manifested in 27% of all patients receiving a reduced dose of 0.5 mg/kg body weight per cycle. Forty-three percent of patients with hairy cell leukaemia experienced infectious complications at standard dosage regimen. One third of these infections has to be considered as serious (e.g. septicaemia, pneumonia). At least 10 cases with acute autoimmune

haemolytic anaemia are known. All patients have been successfully treated by corticosteroids.

Individual serious complications like ileus, cardiac failure, atrial fibrillation, cardiac decompensation, apoplexy, neurological disturbances in speech and swallowing, tumour lysis syndrome with acute renal failure, transfusion-related graft-versus-host disease, Stevens-Johnson syndrome / Lyell syndrome (toxic epidermal necrolysis), haemolytic anaemia, hypereosinophilia (with erythematous skin rash, pruritus, and facial oedema) are noticed.

The majority of drug-related deaths are due to infectious complications. Further rare cases with fatal outcome, reported in association with LITAK chemotherapy, were second malignancy, cerebro- and cardiovascular infarctions, graft-versus-host disease caused by multiple transfusions of non-irradiated blood, as well as tumour lysis syndrome with hyperuricaemia, metabolic acidosis, and acute renal failure.

Like other nucleoside analogues, treatment with cladribine is associated with myelosuppression and profound and prolonged immunosuppression. Treatment with these agents is associated with the occurrence of second malignancies. Secondary malignancies are expected to occur in patients with hairy cell leukaemia. Their frequency varies widely, ranging from 2% to 21%. The peak risk is at 2 years after diagnosis with a median between 40 and 66 months. The cumulative frequencies of second malignancy are 5%, 10-12% and 13-14% following 5, 10 and 15 years respectively after diagnosis of hairy cell leukaemia. Following cladribine, the incidence of second malignancies ranges from 0% to 9.5% after a median observation period of 2.8 to 8.5 years. The frequency of second malignancy following treatment with LITAK was 3.4% in all 232 hairy cell leukaemia patients treated during a 10-year period. The highest incidence of second malignancy with LITAK was 6.5% after a median follow up of time of 8.4 years. Therefore, patients treated with cladribine should be regularly monitored.

Adverse reactions that have been reported including information on frequency (*very common* > 10%, *common* > 1 - 10%, *uncommon* > 0.1 - 1%) are listed below:

**Body as a Whole:**

*Very common:* Asthenia, chills, fatigue, fever, infections\* (e.g. pneumonia\*, septicaemia\*)  
*Common:* Malaise, pain  
*Uncommon:* Amyloidosis (single case), cachexia

**Cardiovascular Disorders:**

*Common:* Myocardial ischaemia\*, heart murmur, hypotension, oedema

**Central & Peripheral Nervous System Disorders:**

*Very common:* Dizziness, headache  
*Common:* Anxiety, insomnia  
*Uncommon:* Ataxia, confusion, lethargy, paraesthesia, polyneuropathy, somnolence, weakness, single cases: depression, epileptic seizure

**Gastrointestinal Disorders:**

*Very common:* Constipation, diarrhoea, nausea, vomiting  
*Common:* Flatulence, gastrointestinal pain

**Heart Rate and Rhythm Disorders:**

*Common:* Tachycardia

**Liver & Biliary System Disorders:**

*Common:* Reversible, mostly mild increases in bilirubin and transaminases

*Uncommon:* Cholecystitis (single case)

**Metabolic and Nutritional Disorders:**

*Very common:* Decreased appetite

**Musculoskeletal System Disorders:**

*Common:* Arthralgia, arthritis, bone pain, myalgia

**Neoplasms:**

*Common:* Second malignancies\*

**Platelet, Bleeding & Clotting Disorders:**

*Very common:* Purpura

*Common:* Petechiae, haemorrhages\*

**Red Blood Cell Disorders:**

*Uncommon:* Haemolytic anaemia\*, single cases: graft versus host disease\*

**Respiratory System Disorders:**

*Very common:* Abnormal breath sounds, abnormal chest sounds, cough

*Common:* Pulmonary interstitial infiltrates mostly due to infectious aetiology, shortness of breath

*Uncommon:* Lung embolism (single case), mucositis, pharyngitis

**Skin & Appendages Disorders:**

*Very common:* Diaphoresis, injection site reaction, localised exanthema, rash

*Common:* Erythema, pruritus, skin pain, urticaria

*Uncommon:* Blepharitis (single case), phlebitis

**White Cell & Reticuloendothelial System Disorders:**

*Very common:* Immunosuppression, pancytopenia/myelosuppression\*, tumour lysis syndrome\*

\* see descriptive section above.

**DOSAGE AND ADMINISTRATION**

Therapy with LITAK should be initiated by a qualified physician with experience in cancer chemotherapy.

LITAK contains no antimicrobial agent. Product is for single use in one patient only. Opened vials should be used immediately to assure sterility. Discard any residue. LITAK is supplied as ready-to-use solution for subcutaneous bolus injection or can be diluted for intravenous infusion. Aseptic technique and proper environment precautions must be observed while handling LITAK solution and preparing infusions.

For *subcutaneous bolus injection*, the recommended dose is directly withdrawn by a syringe and injected without dilution. Allow LITAK to warm up to room temperature prior to administration.

For *intravenous infusion*, the fresh infusion should be prepared daily. The recommended dose is diluted in 500 mL of 0.9% sodium chloride. The ready-to-use solution should be used immediately; if storage is necessary refrigerate between 2°C and 8°C for not more than 8 hours prior to administration.

#### Hairy cell leukaemia

##### *Subcutaneous bolus injection*

The recommended treatment of hairy cell leukaemia is a single course of LITAK given by subcutaneous bolus injection at a dose of 0.14 mg/kg body weight/day for 5 consecutive days.

##### *Intravenous infusion*

The recommended treatment of hairy cell leukaemia is a single course of LITAK given by 0.10 mg/kg body weight/day for 7 consecutive days.

Under certain haematological conditions (recovery of severe myelosuppression) a small proportion of patients may require a second cycle and occasionally a third cycle of LITAK in order to achieve a stable and prolonged response.

#### Lymphoplasmacytic lymphoma

##### *Subcutaneous bolus injection*

The recommended treatment of lymphoplasmacytic lymphoma is 0.10 mg/kg body weight/day of LITAK for 5 consecutive days at monthly intervals given by subcutaneous bolus injection. Experience at dosages exceeding 3 cycles is limited.

Deviations from the dosage regimens indicated above are not advised (see **OVERDOSAGE**). The physician should consider delaying or discontinuing LITAK if severe toxicity occurs until serious complications resolve. In case of infections, antibiotic treatment should be initiated as required.

#### ***Instruction for Handling and Disposal***

Procedures for proper handling and disposal of antineoplastic drugs should be considered. Cytotoxic drugs should be handled with caution. Avoid contact by pregnant women and keep out of the reach of children.

The use of disposable gloves and protective garments is recommended when handling and administering LITAK. If LITAK contacts the skin or mucous membranes, rinse the involved surface immediately with copious amounts of water.

Parenteral drug products should be inspected visually for particulate matter and discoloration prior to administration. A precipitate may occur during the storage of LITAK at low temperatures. Precipitates can be resolubilised by exposure to room temperature and by shaking vigorously. Do not heat or microwave.

#### ***Incompatibilities***

The use of glucose 5% as diluent is not recommended due to an expected degradation of cladribine. No data about incompatibilities with other parenteral diluents, additives, infusion systems, and cytostatic drugs are available. LITAK solution should not be

diluted with other applicable drugs or additives for IV use. If the same infusion tube is used for consequent administration of several different drugs, the tubes should be rinsed by a compatible diluent prior to and after application of cladribine.

## OVERDOSAGE

Common symptoms after overdosage are nausea, vomiting, diarrhoea, severe bone marrow depression (including anaemia, thrombocytopenia, leukopenia, and agranulocytosis), acute renal insufficiency as well as irreversible neurologic toxicity (paraparesis / quadriparesis), Guillan-Barré syndrome, and Brown-Séquard syndrome. The neurological complications have been described in individual patients treated at a dose, which was  $\geq 4$  times higher than the recommended regimen for hairy cell leukaemia.

No specific antidotal therapy exists. Immediate discontinuation of therapy, careful observation, and initiation of appropriate supportive measures (blood transfusions, dialysis, haemofiltration, antiinfectious therapy, etc.) are the indicated treatment of overdosage of LITAK. Patients who have been exposed to overdosage of LITAK should be monitored haematologically for at least four weeks.

## STORAGE

Store below 25°C. Vials for single use only. Discard any residue.

## PRESENTATION

LITAK is supplied as 5 mL sterile, preservative-free, isotonic solution containing 10 mg of cladribine in a single-use, 10 mL neutral glass type I vial with a teflonised rubber closure and clip-off aluminium cap.

LITAK is available in pack sizes of 1 vial or 5 vials.

## SPONSOR

Orphan Australia Pty. Ltd.  
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Product Information approved by the TGA on 12 January 2005.