



This information is intended for use by health professionals

# AZAPAN

(Azacitidine Lyophilised Powder for Suspension for Injection)  
100mg/vial

## DESCRIPTION

White to off white lyophilized cake or powder in 50ml clear glass vial with double slotted stopper and white color flip off seal. Description after reconstitution: each mL of suspension contains 25 mg Azacitidine.

## QUALITATIVE AND QUANTITATIVE COMPOSITION

Each Lyophilized vial contains  
Azacitidine ..... 100 mg  
Mannitol USP ..... 100 mg

For full list of excipients, see section pharmaceutical particulars

## PHARMACEUTICAL FORM

Powder for suspension for injection.

White to off white lyophilized cake or powder

## ROUTE OF ADMINISTRATION

For Subcutaneous use only

## CLINICAL PARTICULARS

### Therapeutic indications

Azacitidine is indicated for the treatment of adult patients who are not eligible for haematopoietic stem cell transplantation (HSCT) with:

- intermediate-2 and high-risk myelodysplastic syndromes (MDS) according to the International Prognostic Scoring System (IPSS),
- chronic myelomonocytic leukaemia (CMML) with 10-29% marrow blasts without myeloproliferative disorder,
- acute myeloid leukaemia (AML) with 20-30% blasts and multi-lineage dysplasia, according to World Health Organisation (WHO) classification,

### Posology and method of administration

Azacitidine treatment should be initiated and monitored under the supervision of a physician experienced in the use of chemotherapeutic agents. Patients should be premedicated with anti-emetics for nausea and vomiting.

### Posology

The recommended starting dose for the first treatment cycle, for all patients regardless of baseline haematology laboratory values, is 75 mg/m<sup>2</sup> of body surface area, injected subcutaneously, daily for 7 days, followed by a rest period of 21 days (28-day treatment cycle).

It is recommended that patients be treated for a minimum of 6 cycles. Treatment should be continued for as long as the patient continues to benefit or until disease progression.

Patients should be monitored for haematologic response/toxicity and renal toxicities; a delay in starting the next cycle or a dose reduction as described below may be necessary.

### Laboratory tests

Liver function tests, serum creatinine and serum bicarbonate should be determined prior to initiation of therapy and prior to each treatment cycle. Complete blood counts should be performed prior to initiation of therapy and as needed to monitor response and toxicity, but at a minimum, prior to each treatment cycle.

### Dose adjustment due to haematological toxicity

Haematological toxicity is defined as the lowest count reached (nadir) in a given cycle if platelets  $\leq 50.0 \times 10^9/L$  and/or absolute neutrophil count (ANC)  $\leq 1 \times 10^9/L$ .

Recovery is defined as an increase of cell line(s) where haematological toxicity was observed of at least half of the absolute difference of nadir and the baseline count plus the nadir count (i.e. blood count at recovery  $\geq$  nadir count + (0.5 x [baseline count - nadir count])).

Patients without reduced baseline blood counts (i.e. White Blood Cells (WBC)  $\geq 3.0 \times 10^9/L$  and ANC  $\geq 1.5 \times 10^9/L$ , and platelets  $\geq 75.0 \times 10^9/L$ ) prior to the first treatment

If haematological toxicity is observed following Azacitidine treatment, the next cycle of the therapy should be delayed until the platelet count and the ANC have recovered. If recovery is achieved within 14 days, no dose adjustment is necessary. However, if recovery has not been achieved within 14 days, the dose should be reduced according to the following table. Following dose modifications, the cycle duration should return to 28 days.

Cycle Nadir counts		Dose in the next cycle, if recovery* is not achieved within 14 days (%)
ANC ( $\times 10^9/L$ )	Platelets ( $\times 10^9/L$ )	
$\leq 1.0$	$\leq 50.0$	50 %
$> 1.0$	$> 50.0$	100 %

\*Recovery = counts  $\geq$  nadir count + (0.5 x [baseline count - nadir count])

Patients with reduced baseline blood counts (i.e. WBC  $< 3.0 \times 10^9/L$  or ANC  $< 1.5 \times 10^9/L$  or platelets  $< 75.0 \times 10^9/L$ ) prior to the first treatment

Following Azacitidine treatment, if the decrease in WBC or ANC or platelets from that prior to treatment is  $\leq 50\%$ , or greater than 50% but with an improvement in any cell line differentiation, the next cycle should not be delayed and no dose adjustment made.

If the decrease in WBC or ANC or platelets is greater than 50% from that prior to treatment, with no improvement in cell line differentiation, the next cycle of Azacitidine therapy should be delayed until the platelet count and the ANC have recovered. If recovery is achieved within 14 days, no dose adjustment is necessary. However, if recovery has not been achieved within 14 days, bone marrow cellularity should be determined. If the bone marrow cellularity is  $> 50\%$ , no dose adjustments should be made. If bone marrow cellularity is  $\leq 50\%$ , treatment should be delayed and the dose reduced according to the following table:

Bone marrow cellularity	Dose in the next cycle if recovery is not achieved within 14 days (%)	
	Recovery* $\leq 21$ days	Recovery* $> 21$ days
15-50%	100%	50 %
$< 15\%$	100%	33 %

\*Recovery = counts  $\geq$  nadir count + (0.5 x [baseline count - nadir count])

Following dose modifications, the next cycle duration should return to 28 days.

## Special populations

### Elderly patients

No specific dose adjustments are recommended for the elderly. Because elderly patients are more likely to have decreased renal function, it may be useful to monitor renal function.

### Patients with renal impairment

Azacitidine can be administered to patients with renal impairment without initial dose adjustment. If unexplained reductions in serum bicarbonate levels to less than 20 mmol/L occur, the dose should be reduced by 50% on the next cycle. If unexplained elevations in serum creatinine or blood urea nitrogen (BUN) to  $\geq 2$ -fold above baseline values and above upper limit of normal (ULN) occur, the next cycle should be delayed until values return to normal or baseline and the dose should be reduced by 50% on the next treatment cycle.

### Patients with hepatic impairment

No formal studies have been conducted in patients with hepatic impairment. Patients with severe hepatic organ impairment should be carefully monitored for adverse events. No specific modification to the starting dose is recommended for patients with hepatic impairment prior to starting treatment; subsequent dose modifications should be based on haematology laboratory values. Azacitidine is contraindicated in patients with advanced malignant hepatic tumours.

### Paediatric population

The safety and efficacy of Azacitidine in children aged 0-17 years have not yet been established. Currently available data are described in but no recommendation on a posology can be made.

### Method of administration

Reconstituted Azacitidine should be injected subcutaneously into the upper arm, thigh or abdomen. Injection sites should be rotated. New injections should be given at least 2.5 cm from the previous site and never into areas where the site is tender, bruised, red, or hardened.

After reconstitution, the suspension should not be filtered. For instructions on reconstitution of the medicinal product before administration.

### Contraindications

Hypersensitivity to the active substance or to any of the excipients listed.

Advanced malignant hepatic tumours.

Breast-feeding.

### Special warnings and precautions for use

#### Haematological toxicity

Treatment with azacitidine is associated with anaemia, neutropenia and thrombocytopenia, particularly during the first 2 cycles. Complete blood counts should be performed as needed to monitor response and toxicity, but at least prior to each treatment cycle. After administration of the recommended dose for the first cycle, the dose for subsequent cycles should be reduced or its administration delayed based on nadir counts and haematological response. Patients should be advised to promptly report febrile episodes. Patients and physicians are also advised to be observant for signs and symptoms of bleeding.

#### Hepatic impairment

No formal studies have been conducted in patients with hepatic impairment. Patients with extensive tumour burden due to metastatic disease have been reported to experience progressive hepatic coma and death during azacitidine treatment, especially in such patients with baseline serum albumin  $< 30$  g/L. Azacitidine is contraindicated in patients with advanced malignant hepatic tumours.

#### Renal impairment

Renal abnormalities ranging from elevated serum creatinine to renal failure and death were reported in patients treated with intravenous azacitidine in combination with other chemotherapeutic agents. In addition, renal tubular acidosis, defined as a fall in serum bicarbonate to  $< 20$  mmol/L in association with an alkaline urine and hypokalaemia (serum potassium  $< 3$  mmol/L) developed in 5 subjects with chronic myelogenous leukaemia (CML) treated with azacitidine and etoposide. If unexplained reductions in serum bicarbonate ( $< 20$  mmol/L) or elevations of serum creatinine or BUN occur, the dose should be reduced or administration delayed.

Patients should be advised to report oliguria and anuria to the health care provider immediately.

Although no clinically relevant differences in the frequency of adverse reactions were noted between subjects with normal renal function compared to those with renal impairment, patients with renal impairment should be closely monitored for toxicity since azacitidine and/or its metabolites are primarily excreted by the kidney.

#### Laboratory tests

Liver function tests, serum creatinine and serum bicarbonate should be determined prior to initiation of therapy and prior to each treatment cycle. Complete blood counts should be performed prior to initiation of therapy and as needed to monitor response and toxicity, but at a minimum, prior to each treatment cycle.

#### Cardiac and pulmonary disease

Patients with a history of severe congestive heart failure, clinically unstable cardiac disease or pulmonary disease were excluded from the pivotal registration studies (AZA PH GL 2003 CL 001 and AZA-AML-001) and therefore the safety and efficacy of azacitidine in these patients has not been established. Recent data from a clinical study in patients with a known history of cardiovascular or pulmonary disease showed a significantly increased incidence of cardiac events with azacitidine. It is therefore advised to exercise caution when prescribing azacitidine to these patients. Cardiopulmonary assessment before and during the treatment should be considered.

#### Necrotising fasciitis

Necrotising fasciitis, including fatal cases, have been reported in patients treated with Azacitidine. Azacitidine therapy should be discontinued in patients who develop necrotising fasciitis and appropriate treatment should be promptly initiated.

#### Tumour lysis syndrome

The patients at risk of tumour lysis syndrome are those with high tumour burden prior to treatment. These patients should be monitored closely and appropriate precautions taken.

### Interaction with other medicinal products and other forms of interaction

Based on *in vitro* data, azacitidine metabolism does not appear to be mediated by cytochrome P450 isoenzymes (CYPs), UDP-glucuronosyltransferases (UGTs), sulfotransferases (SULTs), and glutathione transferases (GSTs); interactions related to these metabolizing enzymes *in vivo* are therefore considered unlikely.

Clinically significant inhibitory or inductive effects of azacitidine on

cytochrome P450 enzymes are unlikely.

No formal clinical drug interaction studies with azacitidine have been conducted.

### Fertility, pregnancy and lactation

Women of childbearing potential / Contraception in males and females

Women of childbearing potential and men have to use effective contraception during and up to 3 months after treatment.

### Pregnancy

There are no adequate data from the use of azacitidine in pregnant women. Studies in mice have shown reproductive toxicity. The potential risk for humans is unknown. Based on results from animal studies and its mechanism of action, azacitidine should not be used during pregnancy, especially during the first trimester, unless clearly necessary. The advantages of treatment should be weighed against the possible risk for the foetus in every individual case.

### Breast-feeding

It is unknown whether azacitidine/metabolites are excreted in human milk. Due to the potential serious adverse reactions in the nursing child, breast-feeding is contraindicated during azacitidine therapy.

### Fertility

There are no human data on the effect of azacitidine on fertility. In animals, adverse reactions with azacitidine use on male fertility have been documented. Men should be advised not to father a child while receiving treatment and must use effective contraception during and up to 3 months after treatment. Before starting treatment, male patients should be advised to seek counselling on sperm storage.

### Effects on ability to drive and use machines

Azacitidine has minor or moderate influence on the ability to drive and use machines. Fatigue has been reported with the use of azacitidine. Therefore, caution is recommended when driving or operating machines.

### Undesirable effects

#### Summary of the safety profile

Adverse reactions considered to be possibly or probably related to the administration of Azacitidine have occurred in 97% of patients.

The most common serious adverse reactions noted from the pivotal study (AZA PH GL 2003 CL 001) included febrile neutropenia (8.0%) and anaemia (2.3%), which were also reported in the supporting studies (CALGB 9221 and CALGB 8921). Other serious adverse reactions from these 3 studies included infections such as neutropenic sepsis (0.8%) and pneumonia (2.5%) (some with fatal outcome), thrombocytopenia (3.5%), hypersensitivity reactions (0.25%) and haemorrhagic events (e.g. cerebral haemorrhage [0.5%], gastrointestinal haemorrhage [0.8%] and intracranial haemorrhage [0.5%]).

The most commonly reported adverse reactions with azacitidine treatment were haematological reactions (71.4%) including thrombocytopenia, neutropenia and leukopenia (usually Grade 3-4), gastrointestinal events (60.6%) including nausea, vomiting (usually Grade 1-2) or injection site reactions (77.1%; usually Grade 1-2).

#### Tabulated list of adverse reactions

Table 1 below contains adverse reactions associated with azacitidine treatment obtained from the main clinical studies in MDS and AML and post marketing surveillance.

Frequencies are defined as: very common ( $\geq 1/10$ ), common ( $\geq 1/100$  to  $< 1/10$ ); uncommon ( $\geq 1/1,000$  to  $< 1/100$ ); rare ( $\geq 1/10,000$  to  $< 1/1,000$ ); very rare ( $< 1/10,000$ ); not known (cannot be estimated from the available data). Within each frequency grouping, undesirable effects are presented in order of decreasing seriousness. Adverse reactions are presented in the table below according to the highest frequency observed in any of the main clinical studies.

Table 1: Adverse reactions reported in patients with MDS or AML treated with azacitidine (clinical studies and post-marketing)

<b>Infections and infestations</b>
<b>Very common:</b> pneumonia* (including bacterial, viral and fungal), nasopharyngitis
<b>Common:</b> sepsis* (including bacterial, viral and fungal), neutropenic sepsis*, respiratory tract infection (includes upper and bronchitis), urinary tract infection, cellulitis, diverticulitis, oral fungal infection, sinusitis, pharyngitis, rhinitis, herpes simplex, skin infection
<b>Not Known:</b> necrotising fasciitis*
<b>Blood and lymphatic system disorders</b>
<b>Very common:</b> febrile neutropenia*, neutropenia, leukopenia, thrombocytopenia, anaemia
<b>Common:</b> pancytopenia*, bone marrow failure
<b>Immune system disorders</b>
<b>Uncommon:</b> hypersensitivity reactions
<b>Metabolism and nutrition disorders</b>
<b>Very common:</b> anorexia, decreased appetite, hypokalaemia
<b>Common:</b> dehydration
<b>Rare:</b> tumour lysis syndrome
<b>Psychiatric disorders</b>
<b>very common:</b> insomnia
<b>Common:</b> confusional state, anxiety
<b>Nervous system disorders</b>
<b>Very common:</b> dizziness, headache
<b>Common:</b> intracranial haemorrhage*, syncope, somnolence, lethargy
<b>Eye disorders</b>
<b>Common:</b> eye haemorrhage, conjunctival haemorrhage
<b>Cardiac disorders</b>
<b>Common:</b> pericardial effusion
<b>Uncommon:</b> pericarditis
<b>Vascular disorders</b>
<b>Common:</b> hypotension*, hypertension, orthostatic hypotension, haematoma
<b>Respiratory, thoracic and mediastinal disorders</b>
<b>Very common:</b> dyspnoea, epistaxis
<b>Common:</b> pleural effusion, dyspnoea exertional, pharyngolaryngeal pain
<b>Rare:</b> interstitial lung disease
<b>Gastrointestinal disorders</b>
<b>Very common:</b> diarrhoea, vomiting, constipation, nausea, abdominal pain (includes upper and abdominal discomfort)
<b>Common:</b> gastrointestinal haemorrhage* (includes mouth haemorrhage), haemorrhoidal haemorrhage, stomatitis, gingival bleeding, dyspepsia

**Hepatobiliary disorders****Uncommon:** hepatic failure\*, progressive hepatic coma**Skin and subcutaneous tissue disorders****Very Common:** petechiae, pruritus (includes generalized), rash, ecchymosis**Common:** purpura, alopecia, urticaria, erythema, rash macular**Uncommon:** acute febrile neutrophilic dermatosis, pyoderma gangrenosum**Musculoskeletal and connective tissue disorders****Very common:** arthralgia, musculoskeletal pain (includes back, bone and pain in extremity)**Common:** muscle spasms, myalgia**Renal and urinary disorders****Common:** renal failure\*, haematuria, elevated serum creatinine**Uncommon:** renal tubular acidosis**General disorders and administration site conditions****Very common:** pyrexia\*, fatigue, asthenia, chest pain, injection site erythema, injection site pain, injection site reaction (unspecified)**Common:** bruising, haematoma, induration, rash, pruritus, inflammation, discoloration, nodule and haemorrhage (at injection site), malaise, chills, catheter site hemorrhage**Rare:** injection site necrosis (at injection site)**Investigations****Very common:** weight decreased

\* = rarely fatal cases have been reported

**Description of selected adverse reactions****Haematologic adverse reactions**

The most commonly reported ( $\geq 10\%$ ) haematological adverse reactions associated with azacitidine treatment include anaemia, thrombocytopenia, neutropenia, febrile neutropenia and leukopenia, and were usually Grade 3 or 4. There is a greater risk of these events occurring during the first 2 cycles, after which they occur with less frequency in patients with restoration of haematological function. Most haematological adverse reactions were managed by routine monitoring of complete blood counts and delaying azacitidine administration in the next cycle, prophylactic antibiotics and/or growth factor support (e.g. G-CSF) for neutropenia and transfusions for anaemia or thrombocytopenia as required.

**Infections**

Myelosuppression may lead to neutropenia and an increased risk of infection. Serious adverse reactions such as sepsis, including neutropenic sepsis, and pneumonia were reported in patients receiving azacitidine, some with a fatal outcome. Infections may be managed with the use of anti-infectives plus growth factor support (e.g. G-CSF) for neutropenia.

**Bleeding**

Bleeding may occur with patients receiving azacitidine. Serious adverse reactions such as gastrointestinal haemorrhage and intracranial haemorrhage have been reported. Patients should be monitored for signs and symptoms of bleeding, particularly those with pre-existing or treatment-related thrombocytopenia.

**Hypersensitivity**

Serious hypersensitivity reactions have been reported in patients receiving azacitidine. In case of an anaphylactic-like reaction, treatment with azacitidine should be immediately discontinued and appropriate symptomatic treatment initiated.

**Skin and subcutaneous tissue adverse reactions**

The majority of skin and subcutaneous adverse reactions were associated with the injection site. None of these adverse reactions led to discontinuation of azacitidine, or reduction of azacitidine dose in the pivotal studies. The majority of adverse reactions occurred during the first 2 cycles of treatment and tended to decrease with subsequent cycles. Subcutaneous adverse reactions such as injection site rash/inflammation/pruritus, rash, erythema and skin lesion may require management with concomitant medicinal products, such as antihistamines, corticosteroids and non-steroidal anti-inflammatory medicinal products (NSAIDs). These cutaneous reactions have to be distinguished from soft tissue infections, sometimes occurring at injection site. Soft tissue infections, including cellulitis and necrotising fasciitis in rare cases leading to death, have been reported with azacitidine in the post marketing setting. For clinical management of infectious adverse reactions.

**Gastrointestinal adverse reactions**

The most commonly reported gastrointestinal adverse reactions associated with azacitidine treatment included constipation, diarrhoea, nausea and vomiting. These adverse reactions were managed symptomatically with anti-emetics for nausea and vomiting, anti-diarrhoeals for diarrhoea and laxatives and/or stool softeners for constipation.

**Renal adverse reactions**

Renal abnormalities, ranging from elevated serum creatinine and haematuria to renal tubular acidosis, renal failure and death were reported in patients treated with azacitidine.

**Hepatic adverse reactions**

Patients with extensive tumour burden due to metastatic disease have been reported to experience hepatic failure, progressive hepatic coma and death during azacitidine treatment.

**Cardiac events**

Data from a clinical study allowing enrolment of patients with known history of cardiovascular or pulmonary disease showed an increase in cardiac events in patients with newly diagnosed AML treated with azacitidine.

**Reporting of suspected adverse reactions**

Reporting suspected adverse reactions after authorisation of the medicinal product is important. It allows continued monitoring of the benefit/risk balance of the medicinal product.

**Overdose**

One case of overdose with Azacitidine was reported during clinical trials. A patient experienced diarrhea, nausea, and vomiting after receiving a single IV dose of approximately 290 mg/m<sup>2</sup>, almost 4 times the recommended starting dose. The events resolved without sequelae, and the correct dose was resumed the following day. In the event of overdose the patient should be monitored with appropriate blood counts and should receive supportive treatment, as necessary. There is no known specific antidote for Azacitidine overdose.

**PHARMACOLOGICAL PROPERTIES**

Pharmacotherapeutic group: Antineoplastic agents, pyrimidine analogues;

ATC code: L01BC07

**Mechanism of action**

Azacitidine is believed to exert its antineoplastic effects by multiple mechanisms including cytotoxicity on abnormal haematopoietic cells in the bone marrow and hypomethylation of DNA. The cytotoxic effects of azacitidine may result from multiple mechanisms, including inhibition of DNA, RNA and protein synthesis, incorporation into RNA and DNA, and activation of DNA damage pathways. Non-proliferating cells are relatively insensitive to azacitidine. Incorporation of azacitidine into DNA results in the inactivation of DNA methyltransferases, leading to hypomethylation of DNA. DNA hypomethylation of aberrantly methylated genes involved in normal cell cycle regulation, differentiation and death pathways may result in gene re-expression and restoration of cancer-suppressing functions to cancer cells. The relative importance of DNA hypomethylation versus cytotoxicity or other activities of azacitidine to clinical outcomes has not been established.

**Pharmacokinetic properties****Absorption**

Following subcutaneous administration of a single 75 mg/m<sup>2</sup> dose, azacitidine was rapidly absorbed with peak plasma concentrations of 750 ± 403 ng/mL occurring at 0.5 h after dosing (the first sampling point). The absolute bioavailability of azacitidine after subcutaneous relative to intravenous administration (single 75 mg/m<sup>2</sup> dose) was approximately 89% based on area under the curve (AUC).

Area under the curve and maximum plasma concentration (C<sub>max</sub>) of subcutaneous administration of azacitidine were approximately proportional within the 25 to 100 mg/m<sup>2</sup> dose range.

**Distribution**

Following intravenous administration, the mean volume of distribution was 76 ± 26 L, and systemic clearance was 147 ± 47 L/h.

**Biotransformation**

Based on *in vitro* data, azacitidine metabolism does not appear to be mediated by cytochrome P450 isoenzymes (CYPs), UDP-glucuronosyltransferases (UGTs), sulfotransferases (SULTs), and glutathione transferases (GSTs).

Azacitidine undergoes spontaneous hydrolysis and deamination mediated by cytidine deaminase. In human liver S9 fractions, formation of metabolites was independent of NADPH implying that azacitidine metabolism was not mediated by cytochrome P450 isoenzymes. An *in vitro* study of azacitidine with cultured human hepatocytes indicates that at concentrations of 1.0 µM to 100 µM (i.e. up to approximately 30-fold higher than clinically achievable concentrations), azacitidine does not induce CYP 1A2, 2C19, or 3A4 or 3A5. In studies to assess inhibition of a series of P450 isoenzymes (CYP 1A2, 2B6, 2C8, 2C9, 2C19, 2D6, 2E1 and 3A4) azacitidine up to 100 µM did not produce inhibition. Therefore, CYP enzyme induction or inhibition by azacitidine at clinically achievable plasma concentrations is unlikely.

**Elimination**

Azacitidine is cleared rapidly from plasma with a mean elimination half-life (t<sub>1/2</sub>) after subcutaneous administration of 41 ± 8 minutes. No accumulation occurs after subcutaneous administration of 75 mg/m<sup>2</sup> azacitidine once daily for 7 days. Urinary excretion is the primary route of elimination of azacitidine and/or its metabolites. Following intravenous and subcutaneous administration of <sup>14</sup>C-azacitidine, 85 and 50% of the administered radioactivity was recovered in urine respectively, while < 1% was recovered in faeces.

**Special populations**

The effects of hepatic impairment, gender, age, or race on the pharmacokinetics of azacitidine have not been formally studied.

**Renal impairment**

Renal impairment has no major effect on the pharmacokinetic exposure of azacitidine after single and multiple subcutaneous administrations. Following subcutaneous administration of a single 75 mg/m<sup>2</sup> dose, mean exposure values (AUC and C<sub>max</sub>) from subjects with mild, moderate and severe renal impairment were increased by 11-21%, 15-27%, and 41-66%, respectively, compared to normal renal function subjects. However, exposure was within the same general range of exposures observed for subjects with normal renal function. Azacitidine can be administered to patients with renal impairment without initial dose adjustment provided these patients are monitored for toxicity since azacitidine and/or its metabolites are primarily excreted by the kidney.

**Pharmacogenomics**

The effect of known cytidine deaminase polymorphisms on azacitidine metabolism has not been formally investigated.

**PHARMACEUTICAL PARTICULARS****List of excipients**

Mannitol (Pearlitol) (Pyrogen Free Injectable Grade), Nitrogen and Water for injection.

**Incompatibilities**

This medicinal product must not be mixed with other medicinal products.

**Shelf life**

Unopened Vials: 2 Years

**Special precautions for storage**

Store below 30°C. Protect from light.

Jauhi daripada kanak-kanak Keep out of reach of children.

Azacitidine reconstituted with non-refrigerated water for injection for subcutaneous administration may be stored for up to 1 hour at 25°C or for up to 8 hours between 2°C and 8°C; when reconstituted with refrigerated (2°C-8°C) water for injection, it may be stored for 22 hours between 2°C and 8°C.

**Nature and contents of container**

50ml Clear Lyo Vial is packed in a Mono carton along with package insert.

**Calculation of an individual dose**

The total dose, according to the body surface area (BSA) can be calculated as follows:

$$\text{Total dose (mg)} = \text{Dose (mg/m}^2\text{)} \times \text{BSA (m}^2\text{)}$$

The following table is provided only as an example of how to calculate individual azacitidine doses based on an average BSA value of 1.8 m<sup>2</sup>.

Dose mg/m <sup>2</sup> (% of recommended starting dose)	Total dose based on BSA value of 1.8 m <sup>2</sup>	Number of vials required	Total volume of reconstituted suspension required
75 mg/m <sup>2</sup> (100%)	135 mg	2 vials	5.4 mL
37.5 mg/m <sup>2</sup> (50%)	67.5 mg	1 vial	2.7 mL
25 mg/m <sup>2</sup> (33%)	45 mg	1 vial	1.8 mL

**Special precautions for disposal and other handling****Recommendations for safe handling**

Azacitidine is a cytotoxic medicinal product and, as with other potentially toxic compounds, caution should be exercised when handling and preparing azacitidine suspensions. Procedures for proper handling and disposal of anticancer medicinal products should be applied.

If reconstituted azacitidine comes into contact with the skin, immediately and thoroughly wash with soap and water. If it comes into contact with mucous membranes, flush thoroughly with water.

**Reconstitution procedure**

Azacitidine should be reconstituted with water for injections. The shelf life of the reconstituted medicinal product can be extended by reconstituting with refrigerated (2°C to 8°C) water for injections. Details on storage of the reconstituted product are provided below.

- The following supplies should be assembled:  
Vial(s) of azacitidine; vial(s) of water for injections; non-sterile surgical gloves; alcohol wipes; 5 mL injection syringe(s) with needle(s).
- 4 mL of water for injections should be drawn into the syringe, making sure to purge any air trapped within the syringe.
- The needle of the syringe containing the 4 mL of water for injections should be inserted through the rubber top of the azacitidine vial followed by injection of the water for injections into the vial.
- Following removal of the syringe and needle, the vial should be vigorously shaken until a uniform cloudy suspension is achieved. After reconstitution each mL of suspension will contain 25 mg of azacitidine (100 mg/4 mL). The reconstituted product is a homogeneous, cloudy suspension, free of agglomerates. The product should be discarded if it contains large particles or agglomerates. Do not filter the suspension after reconstitution since this could remove the active substance. It must be taken into account that filters are present in some adaptors, spikes and closed systems; therefore such systems should not be used for administration of the drug after reconstitution.
- The rubber top should be cleaned and a new syringe with needle inserted into the vial. The vial should then be turned upside down, making sure the needle tip is below the level of the liquid. The plunger should then be pulled back to withdraw the amount of medicinal product required for the proper dose, making sure to purge any air trapped within the syringe. The syringe with needle should then be removed from the vial and the needle disposed of.
- A fresh subcutaneous needle (recommended 25-gauge) should then be firmly attached to the syringe. The needle should not be purged prior to injection, in order to reduce the incidence of local injection site reactions.
- When more than 1 vial is needed all the above steps for preparation of the suspension should be repeated. For doses requiring more than 1 vial, the dose should be equally divided e.g., dose 150 mg = 6 mL, 2 syringes with 3 mL in each syringe. Due to retention in the vial and needle, it may not be feasible to withdraw all of the suspension from the vial.
- The contents of the dosing syringe must be re-suspended immediately prior to administration. The syringe filled with reconstituted suspension should be allowed up to 30 minutes prior to administration to reach a temperature of approximately 20°C-25°C. If the elapsed time is longer than 30 minutes, the suspension should be discarded appropriately and a new dose prepared. To re-suspend, vigorously roll the syringe between the palms until a uniform, cloudy suspension is achieved. The product should be discarded if it contains large particles or agglomerates.

**Instructions for Subcutaneous Administration**

Azacitidine should be reconstituted aseptically with 4 ml sterile water for injection. The diluent should be injected slowly into the vial. Vigorously shake or roll the vial until a uniform suspension is achieved. The suspension will be cloudy. The resulting suspension will contain azacitidine 25 mg/mL. Do not filter the suspension after reconstitutions. Do not remove the active substance.

**Preparation for Immediate Subcutaneous Administration**

Doses greater than 4 ml should be divided equally into 2 syringes. The product may be held at room temperature for up to 1 hour, but must be administered within 1 hour after reconstitution.

**Preparation for Delayed Subcutaneous Administration****Subcutaneous Administration**

The reconstituted product may be kept in vial or drawn in syringe. Doses greater than 4 mL should be divided equally into 2 syringes. The product must be refrigerated immediately. When Azacitidine is reconstituted using water for injection that has not been refrigerated, the reconstituted product may be held under refrigerated conditions (2°C – 8°C) for up to 8 hours. When Azacitidine is reconstituted using refrigerated conditions (2°C – 8°C) for up to 22 hours. After removal from refrigerated conditions, the suspension may be allowed to equilibrate to room temperature for up to 30 minutes prior to administration.

**Subcutaneous Administration**

To provide a homogeneous suspension, the contents of the dosing syringe must be resuspended immediately prior to administration. To re-suspend, vigorously roll the syringe between the palms until a uniform, cloudy suspension is achieved.

Azacitidine suspension is administered subcutaneously. Doses greater than 4 ml should be divided equally into 2 syringes and injected into 2 separate sites. Rotate sites for each injection (thigh, abdomen, or upper arm). New injections should be given at least one inch from an old site and never into areas where the site is tender, bruised, red, or hard.

**Suspension Stability**

Azacitidine reconstituted with non-refrigerated water for injection for subcutaneous administration may be stored for up to 1 hour at 25°C or for up to 8 hours between 2°C and 8°C; when reconstituted with refrigerated (2°C-8°C) water for injection, it may be stored for 22 hours between 2°C and 8°C.

**Manufactured by: Panacea Biotec Pharma Ltd.**

Malpur, Baddi, Distt. Solan (H.P.) - 173 205, India.

**Product Registration Holder: Biocare Pharmaceutical (M) Sdn. Bhd.**

No.28G,28-1 &amp;28-2, Pusat Dagangan, PJCC Jalan PJS 5/28 46150

Petaling Jaya, Selangor, Malaysia.

**DATE OF FIRST AUTHORISATION/RENEWAL OF THE AUTHORIZATION****Revise Date**

October 2023