SUMMARY OF PRODUCT CHARACTERISTICS

1 NAME OF THE MEDICINAL PRODUCT

Azacitidine betapharm 25 mg/mL powder for suspension for injection

2 QUALITATIVE AND QUANTITATIVE COMPOSITION

Each vial of powder contains 100 mg azacitidine.

After reconstitution, each mL of suspension contains 25 mg azacitidine.

For the full list of excipients, see section 6.1.

3 PHARMACEUTICAL FORM

Powder for suspension for injection.
White to off-white lyophilised powder.

4 CLINICAL PARTICULARS

4.1 Therapeutic indications

Azacitidine betapharm 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 % to 29 % marrow blasts without myeloproliferative disorder,
- acute myeloid leukaemia (AML) with 20 % to 30 % blasts and multi-lineage dysplasia, according to World Health Organization (WHO) classification,
- AML with > 30 % marrow blasts according to the WHO classification.

4.2 Posology and method of administration

Azacitidine betapharm 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^2 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 (see section 4.4); a delay in starting the next cycle or a dose reduction as described below may be necessary.

Azacitidine betapharm should not be used interchangeably with oral azacitidine. Due to differences in the exposure, the dose and schedule recommendations for oral azacitidine are different from those for injectable azacitidine. Healthcare professionals are recommended to verify the name of the medicinal product, dose and administration route.

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 difference of nadir and the baseline count plus the nadir count (i.e. blood count at recovery ≥ nadir count + (0.5 × [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 betapharm 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 count		Dose in the next cycle, if recovery* is not achieved within 14 days (%)
ANC (× 10^9/L)	Platelets (× 10^9/L)	
≤ 1.0	≤ 50.0	50 %
> 1.0	> 50.0	100 %

*Recovery = counts ≥ nadir count + (0.5 × [baseline count – nadir count])

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

Following Azacitidine betapharm treatment, if the decrease in WBC or ANC or platelets from that prior to treatment is ≤ 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 betapharm 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 ≤ 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* ≤ 21 days	Recovery* > 21 days
15-50 %	100 %	50 %
< 15 %	100 %	33 %

*Recovery = counts ≥ nadir count + (0.5 × [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 (see section 5.2). 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 ≥ 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 (see section 4.4).

Patients with hepatic impairment

No formal studies have been conducted in patients with hepatic impairment (see section 4.4). 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 betapharm is contraindicated in patients with advanced malignant hepatic tumours (see sections 4.3 and 4.4).

Paediatric population

The safety and efficacy of Azacitidine betapharm in children aged 0 to 17 years have not yet been established. Currently available data are described in sections 4.8, 5.1 and 5.2 but no recommendation on a posology can be made.

Method of administration

Azacitidine betapharm is for subcutaneous use. Reconstituted Azacitidine betapharm 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, see section 6.6.

4.3 Contraindications

Hypersensitivity to the active substance or to any of the excipients listed in section 6.1.
Advanced malignant hepatic tumours (see section 4.4).
Breast-feeding (see section 4.6).

4.4 Special warnings and precautions for use

Haematological toxicity

Treatment with azacitidine is associated with anaemia, neutropenia and thrombocytopenia, particularly during the first 2 cycles (see section 4.8). 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 (see section 4.2). 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 (see section 4.3).

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 (see section 4.2).

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 (see section 4.2).

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, see also section 4.8.

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 trial in patients with a known history of cardiovascular or pulmonary disease showed a significantly increased incidence of cardiac events with azacitidine (see section 4.8). 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.

Differentiation syndrome
Cases of differentiation syndrome (also known as retinoic acid syndrome) have been reported in patients receiving injectable azacitidine. Differentiation syndrome may be fatal and symptoms and clinical findings include respiratory distress, pulmonary infiltrates, fever, rash, pulmonary oedema, peripheral oedema, rapid weight gain, pleural effusions, pericardial effusions, hypotension and renal dysfunction (see section 4.8). Treatment with high-dose IV corticosteroids and haemodynamic monitoring should be considered at first onset of symptoms or signs suggestive of differentiation syndrome. Temporary discontinuation of injectable azacitidine should be considered until resolution of symptoms and if resumed, caution is advised.

4.5 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 (see section 5.2).

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

4.6 Fertility, pregnancy and lactation

Women of childbearing potential/Contraception in males and females

Women of childbearing potential have to use effective contraception during and for at least 6 months after treatment. Men should be advised not to father a child while receiving treatment and must use effective contraception during and for at least 3 months after treatment.

Pregnancy

There are no or adequete data from the use of azacitidine in pregnant women. Studies in mice have shown reproductive toxicity (see section 5.3). 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 (see section 5.3). Before starting treatment, male patients should be advised to seek counselling on sperm storage.

4.7 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.

4.8 Undesirable effects

Summary of the safety profile

Adult population with MDS, CMML and AML (20 % to 30 % marrow blasts)

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 to 4), gastrointestinal events (60.6 %) including nausea, vomiting (usually Grade 1 to 2) or injection site reactions (77.1 %; usually Grade 1 to 2).

Adult population aged 65 years or older with AML with > 30 % marrow blasts

The most common serious adverse reactions (≥ 10 %) noted from AZA-AML-001 within the azacitidine treatment arm included febrile neutropenia (25.0 %), pneumonia (20.3 %), and pyrexia (10.6 %). Other less frequently reported serious adverse reactions in the azacitidine treatment arm included sepsis (5.1 %), anaemia (4.2 %), neutropenic sepsis (3.0 %), urinary tract infection (3.0 %), thrombocytopenia (2.5 %), neutropenia (2.1 %), cellulitis (2.1 %), dizziness (2.1 %) and dyspnoea (2.1 %).

The most commonly reported (≥ 30 %) adverse reactions with azacitidine treatment were gastrointestinal events, including constipation (41.9 %), nausea (39.8 %), and diarrhoea (36.9 %), (usually Grade 1 to 2), general disorders and administration site conditions including pyrexia (37.7 %; usually Grade 1 to 2) and haematological events, including febrile neutropenia (32.2 %) and neutropenia (30.1 %), (usually Grade 3-4).

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 (≥ 1/10), common (≥ 1/100 to < 1/10); uncommon (≥ 1/1,000 to < 1/100); rare (≥ 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)

System organ class	Very common	Common	Uncommon	Rare	Not known

System organ class	Very common	Common	Uncommon	Rare	Not known
Infections and infestations	pneumonia* (including bacterial, viral and fungal), nasopharyngitis	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			necrotising fasciitis *
Neoplasms benign, malignant and unspecified (including cysts and polyps)					differentiation syndrome[*,a]
Blood and lymphatic system disorders	febrile neutropenia*, neutropenia, leukopenia, thrombocytopenia, anaemia	pancytopenia*, bone marrow failure			
Immune system disorders			hypersensitivity reactions		
Metabolism and nutrition disorders	anorexia, decreased appetite, hypokalemia	dehydration		tumour lysis syndrome	
Psychiatric disorders	insomnia	confusional state, anxiety			
Nervous system disorders	dizziness, headache	intracranial haemorrhage*, syncope, somnolence, lethargy			
Eye disorders		eye haemorrhage, conjunctival haemorrhage			
Cardiac disorders		pericardial effusion	pericarditis		
Vascular disorders		hypotension*, hypertension, orthostatic hypotension, haematoma			

System organ class	Very common	Common	Uncommon	Rare	Not known
Respiratory, thoracic and mediastinal disorders	dyspnoea, epistaxis	pleural effusion, dyspnoea exertional, pharyngolaryngeal pain		interstitial lung disease	
Gastrointestinal disorders	diarrhoea, vomiting, constipation, nausea, abdominal pain (includes upper and abdominal discomfort)	gastrointestinal haemorrhage* (includes mouth haemorrhage), haemorrhoidal haemorrhage, stomatitis, gingival bleeding, dyspepsia			
Hepatobiliary disorders			hepatic failure*, progressive hepatic coma		
Skin and subcutaneous tissue disorders	petechiae, pruritus (includes generalized), rash, ecchymosis	purpura, alopecia, urticaria, erythema, rash macular	acute febrile neutrophilic dermatosis, pyoderma gangrenosum		cutaneous vasculitis
Musculoskeletal and connective tissue disorders	arthralgia, musculoskeletal pain (includes back, bone and pain in extremity)	muscle spasms, myalgia			
Renal and urinary disorders		renal failure*, haematuria, elevated serum creatinine	renal tubular acidosis		
General disorders and administration site conditions	pyrexia*, fatigue, asthenia, chest pain, injection site erythema, injection site pain, injection site reaction (unspecified)	bruising, haematoma, induration, rash, pruritus, inflammation, discoloration, nodule and haemorrhage (at injection site), malaise, chills, catheter site hemorrhage		injection site necrosis (at injection site)	
Investigations	weight decreased				

* = rarely fatal cases have been reported

[a] = see section 4.4

<u>Description of selected adverse reactions</u>

Haematologic adverse reactions

The most commonly reported (≥ 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, see section 4.8 infections.

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 (see section 4.4).

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 (see section 4.4).

Cardiac events

Data from a clinical trial 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 (see section 4.4).

Elderly population

There is limited safety information available with azacitidine in patients ≥ 85 years (with 14 [5.9 %] patients ≥ 85 years treated in AZA-AML-001 study).

Paediatric population

In Study AZA-JMML-001, 28 paediatric patients (1 month to less than 18 years of age) were treated with azacitidine for MDS (n = 10) or juvenile myelomonocytic leukaemia (JMML) (n = 18) (see section 5.1).

All 28 patients experienced at least 1 adverse event and 17 (60.7%) experienced at least 1 treatment-related event. The most commonly reported adverse events in the overall paediatric population were pyrexia, haematologic events including anaemia, thrombocytopenia and febrile neutropenia, and gastrointestinal events including constipation and vomiting.

Three (3) subjects experienced a treatment emergent event leading to drug discontinuation (pyrexia, disease progression and abdominal pain).

In Study AZA-AML-004, 7 paediatric patients (aged 2 to 12 years) were treated with azacitidine for AML in molecular relapse after first complete remission [CR1] (see section 5.1).

All 7 patients experienced at least 1 treatment-related adverse event. The most commonly reported adverse events were neutropenia, nausea, leukopenia, thrombocytopenia, diarrhoea and increased alanine aminotransferase (ALT). Two patients experienced a treatment-related event leading to dose interruption (febrile neutropenia, neutropenia)

No new safety signals were identified in the limited number of paediatric patients treated with azacitidine during the course of the clinical study. The overall safety profile was consistent with that of the adult population.

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. Healthcare professionals are asked to report any suspected adverse reactions via the Yellow Card Scheme website www.mhra.gov.uk/yellowcard or search for MHRA Yellow Card in the Google Play or Apple App Store.

4.9 Overdose

One case of overdose with azacitidine was reported during clinical trials. A patient experienced diarrhoea, nausea, and vomiting after receiving a single intravenous dose of approximately 290 mg/m^2, almost 4 times the recommended starting dose.

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.

5 PHARMACOLOGICAL PROPERTIES

5.1 Pharmacodynamic 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.

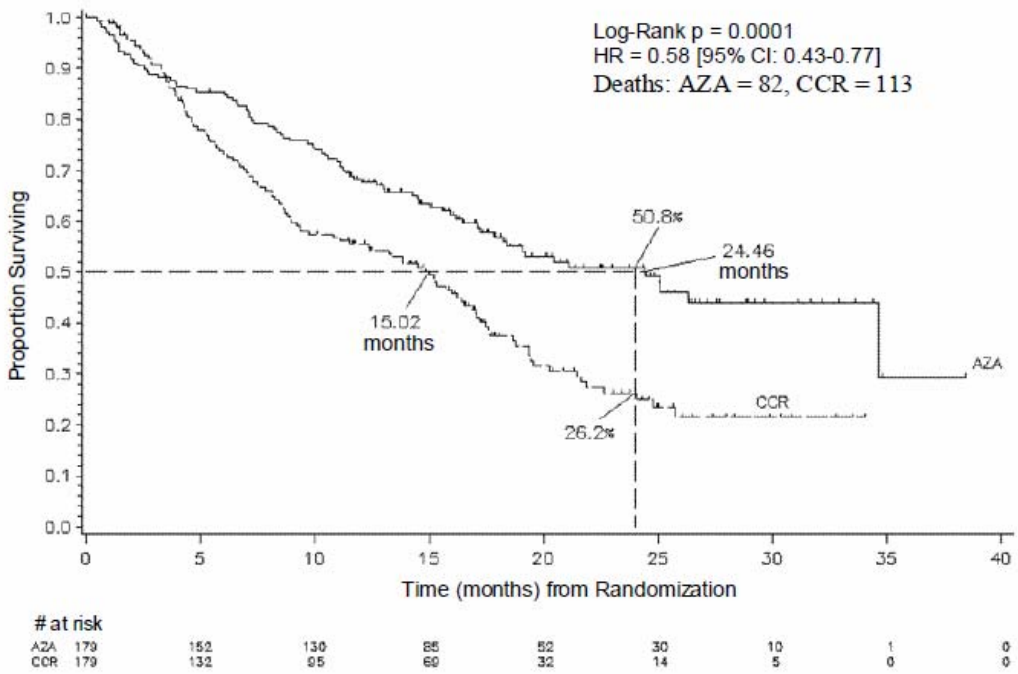
Clinical efficacy and safety

Adult population (MDS, CMML and AML [20 % to 30 % marrow blasts])

The efficacy and safety of Azacitidine were studied in an international, multicentre, controlled, open-label, randomised, parallel-group, Phase 3 comparative study (AZA PH GL 2003 CL 001) in adult patients with: intermediate-2 and high-risk MDS according to the International Prognostic Scoring System (IPSS), refractory anaemia

with excess blasts (RAEB), refractory anaemia with excess blasts in transformation (RAEB-T) and modified chronic myelomonocytic leukaemia (mCMML) according to the French American British (FAB) classification system. RAEB-T patients (21 % to 30 % blasts) are now considered to be AML patients under the current WHO classification system. Azacitidine plus best supportive care (BSC) (n = 179) was compared to conventional care regimens (CCR). CCR consisted of BSC alone (n = 105), low-dose cytarabine plus BSC (n = 49) or standard induction chemotherapy plus BSC (n = 25). Patients were pre-selected by their physician to 1 of the 3 CCR prior to randomisation. Patients received this pre-selected regimen if not randomised to Azacitidine. As part of the inclusion criteria, patients were required to have an Eastern Cooperative Oncology Group (ECOG) performance status of 0 to 2. Patients with secondary MDS were excluded from the study. The primary endpoint of the study was overall survival (OS). Azacitidine was administered at a subcutaneous dose of 75 mg/m^2 daily for 7 days, followed by a rest period of 21 days (28-day treatment cycle) for a median of 9 cycles (range = 1 to 39) and a mean of 10.2 cycles. Within the Intent to Treat population (ITT), the median age was 69 years (range 38 to 88 years).

In the ITT analysis of 358 patients (179 azacitidine and 179 CCR), Azacitidine treatment was associated with a median survival of 24.46 months versus 15.02 months for those receiving CCR treatment, a difference of 9.4 months, with a stratified log-rank p-value of 0.0001. The hazard ratio (HR) for the treatment effect was 0.58 (95 % CI: 0.43, 0.77). The two-year survival rates were 50.8 % in patients receiving azacitidine *versus* 26.2 % in patients receiving CCR (p < 0.0001).



KEY: AZA = azacitidine; CCR = conventional care regimens; CI = confidence interval; HR = hazard ratio

The survival benefits of Azacitidine were consistent regardless of the CCR treatment option (BSC alone, low-dose cytarabine plus BSC or standard induction chemotherapy plus BSC) utilised in the control arm.

When IPSS cytogenetic subgroups were analysed, similar findings in terms of median overall survival were observed in all groups (good, intermediate, poor cytogenetics, including monosomy 7).

On analyses of age subgroups, an increase in median overall survival was observed for all groups (< 65 years, ≥ 65 years and ≥ 75 years).

Azacitidine treatment was associated with a median time to death or transformation to AML of 13.0 months versus 7.6 months for those receiving CCR treatment, an improvement of 5.4 months with a stratified log-rank p-value of 0.0025.

Azacitidine treatment was also associated with a reduction in cytopenias, and their related symptoms. Azacitidine treatment led to a reduced need for red blood cell (RBC) and platelet transfusions. Of the patients in the azacitidine group who were RBC transfusion dependent at baseline, 45.0 % of these patients became RBC transfusion independent during the treatment period, compared with 11.4 % of the patients in the combined CCR groups (a statistically significant ($p < 0.0001$) difference of 33.6 % (95 % CI: 22.4, 44.6). In patients who were RBC transfusion dependent at baseline and became independent, the median duration of RBC transfusion independence was 13 months in the azacitidine group.

Response was assessed by the investigator or by the Independent Review Committee (IRC). Overall response (complete remission [CR] + partial remission [PR]) as determined by the investigator was 29 % in the azacitidine group and 12 % in the combined CCR group ($p = 0.0001$). Overall response (CR + PR) as determined by the IRC in AZA PH GL 2003 CL 001 was 7 % (12/179) in the azacitidine group compared with 1 % (2/179) in the combined CCR group ($p = 0.0113$). The differences between the IRC and investigator assessments of response were a consequence of the International Working Group (IWG) criteria requiring improvement in peripheral blood counts and maintenance of these improvements for a minimum of 56 days. A survival benefit was also demonstrated in patients that had not achieved a complete/partial response following azacitidine treatment. Haematological improvement (major or minor) as determined by the IRC was achieved in 49 % of patients receiving azacitidine compared with 29 % of patients treated with combined CCR ($p < 0.0001$).

In patients with one or more cytogenetic abnormalities at baseline, the percentage of patients with a major cytogenetic response was similar in the azacitidine and combined CCR groups. Minor cytogenetic response was statistically significantly ($p = 0.0015$) higher in the azacitidine group (34 %) compared with the combined CCR group (10 %).

Adult population aged 65 years or older with AML with > 30 % marrow blasts
The results presented below represent the intent-to-treat population studied in AZA-AML-001 (see section 4.1 for the approved indication).

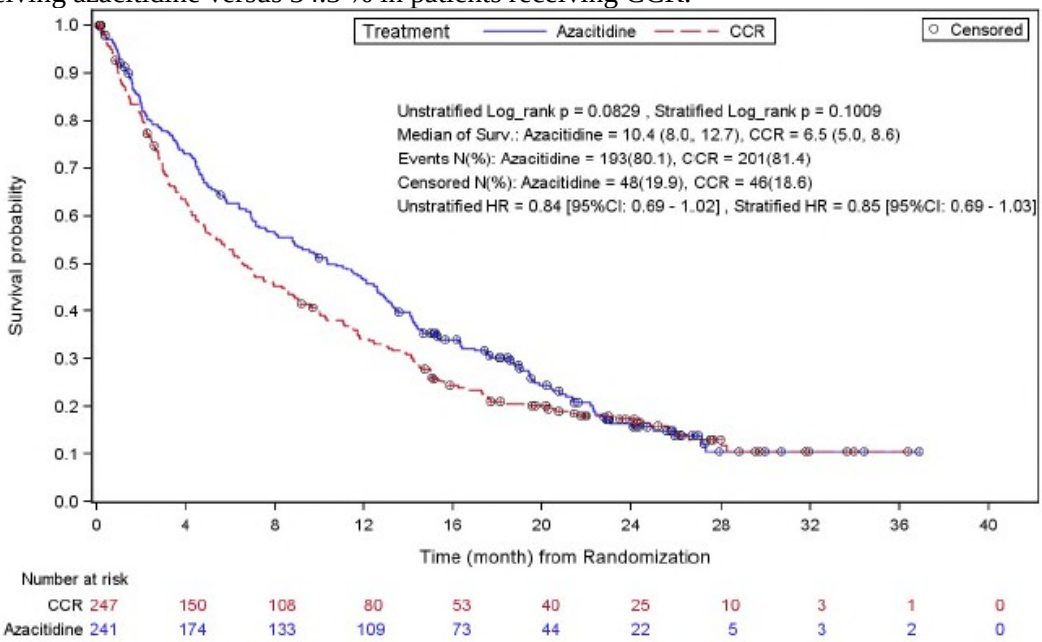
The efficacy and safety of azacitidine was studied in an international, multicentre, controlled, open-label, parallel group Phase 3 study in patients 65 years and older with newly diagnosed de novo or secondary AML with > 30 % bone marrow blasts according to the WHO classification, who were not eligible for HSCT. Azacitidine plus BSC (n = 241) was compared to CCR. CCR consisted of BSC alone (n = 45), low- dose cytarabine plus BSC (n = 158), or standard intensive chemotherapy with cytarabine and anthracycline plus BSC (n = 44). Patients were pre-selected by their physician to 1 of the 3 CCRs prior to randomisation. Patients received the pre-selected regimen if not randomised to azacitidine. As part of the inclusion criteria,

patients were required to have an ECOG performance status of 0 to 2 and intermediate- or poor-risk cytogenetic abnormalities. The primary endpoint of the study was overall survival.

Azacitidine was administered at a SC dose of 75 mg/m^2/day for 7 days, followed by a rest period of 21 days (28 day treatment cycle), for a median of 6 cycles (range: 1 to 28), BSC- only patients for a median of 3 cycles (range: 1 to 20), low-dose cytarabine patients for a median of 4 cycles (range 1 to 25) and standard intensive chemotherapy patients for a median of 2 cycles (range: 1 to 3, induction cycle plus 1 or 2 consolidation cycles).

The individual baseline parameters were comparable between the azacitidine and CCR groups. The median age of the subjects was 75.0 years (range: 64 to 91 years), 75.2 % were Caucasian and 59.0 % were male. At baseline 60.7 % were classified as AML not otherwise specified, 32.4 % AML with myelodysplasia-related changes, 4.1 % therapy-related myeloid neoplasms and 2.9 % AML with recurrent genetic abnormalities according to the WHO classification.

In the ITT analysis of 488 patients (241 azacitidine and 247 CCR), azacitidine treatment was associated with a median survival of 10.4 months versus 6.5 months for those receiving CCR treatment, a difference of 3.8 months, with a stratified log-rank p-value of 0.1009 (two- sided). The hazard ratio for the treatment effect was 0.85 (95 % CI= 0.69, 1.03). The one-year survival rates were 46.5 % in patients receiving azacitidine versus 34.3 % in patients receiving CCR.



The Cox PH model adjusted for pre-specified baseline prognostic factors defined a HR for azacitidine versus CCR of 0.80 (95 % CI= 0.66, 0.99; p = 0.0355).

In addition, although the study was not powered to demonstrate a statistically significant difference when comparing azacitidine to the preselection CCR treatment groups, the survival of azacitidine treated patients was longer when compared to CCR treatment options BSC alone, low-dose cytarabine plus BSC and were similar when compared to standard intensive chemotherapy plus BSC.

In all pre- specified subgroups age [(< 75 years & ≥ 75 years), gender, race, ECOG performance status (0 or 1 & 2) , baseline cytogenetic risk (intermediate & poor) , geographic region, WHO classification of AML (including AML with myelodysplasia-related changes), baseline WBC count (≤ 5×10^9/L & > 5×10^9/L), baseline bone marrow blasts (≤ 50 % & > 50 %) and prior history of MDS] there was a trend in OS benefit in favour of azacitidine. In a few pre-specified subgroups, the OS HR reached statistical significance including patients with poor cytogenetic risk, patients with AML with myelodysplasia-related changes, patients < 75 years, female patients and white patients.

Haematologic and cytogenetic responses were assessed by the investigator and by the IRC with similar results. Overall response rate (complete remission [CR] + complete remission with incomplete blood count recovery [CRi]) as determined by the IRC was 27.8 % in the azacitidine group and 25.1 % in the combined CCR group (p = 0.5384). In patients who achieved CR or CRi, the median duration of remission was 10.4 months (95 % CI = 7.2, 15.2) for the azacitidine subjects and 12.3 months (95 % CI = 9.0, 17.0) for the CCR subjects. A survival benefit was also demonstrated in patients that had not achieved a complete response for azacitidine compared to CCR.

Azacitidine treatment improved peripheral blood counts and led to a reduced need for RBC and platelet transfusions. A patient was considered RBC or platelet transfusion dependent at baseline if the subject had one or more RBC or platelet transfusions during the 56 days (8 weeks) on or prior to randomisation, respectively. A patient was considered RBC or platelet transfusion independent during the treatment period if the subject had no RBC or platelet transfusions during any consecutive 56 days during the reporting period, respectively.

Of the patients in the azacitidine group who were RBC transfusion dependent at baseline, 38.5 % (95 % CI = 31.1, 46.2) of these patients became RBC transfusion independent during the treatment period, compared with 27.6 % of (95 % CI = 20.9, 35.1) patients in the combined CCR groups. In patients who were RBC transfusion dependent at baseline and achieved transfusion independence on treatment, the median duration of RBC transfusion independence was 13.9 months in the azacitidine group and was not reached in the CCR group.

Of the patients in the azacitidine group who were platelet transfusion dependent at baseline, 40.6 % (95 % CI = 30.9, 50.8) of these patients became platelet transfusion independent during the treatment period, compared with 29.3 % of (95 % CI = 19.7, 40.4) patients in the combined CCR groups. In patients who were platelet transfusion dependent at baseline and achieved transfusion independence on treatment, the median duration of platelet transfusion independence was 10.8 months in the azacitidine group and 19.2 months in the CCR group.

Health-Related Quality of Life (HRQoL) was assessed using the European Organisation for Research and Treatment of Cancer Core Quality of Life Questionnaire (EORTC QLQ-C30). HRQoL data could be analysed for a subset of the full trial population. While there are limitations in the analysis, the available data suggest that patients do not experience meaningful deterioration in quality of life during treatment with azacitidine.

Paediatric population
Study AZA-JMML-001 was a Phase 2, international, multicentre, open-label study to evaluate the pharmacokinetics, pharmacodynamics, safety and activity of azacitidine prior to HSCT in paediatric patients with newly diagnosed advanced MDS or JMML.

The primary objective of the clinical study was to evaluate the effect of azacitidine on response rate at Cycle 3, Day 28.
Patients (MDS, n = 10; JMML, n = 18, 3 months to 15 years; 71% male) were treated with intravenous azacitidine 75 mg/m², daily on Days 1 to 7 of a 28-day cycle for a minimum of 3 cycles and a maximum of 6 cycles.
Enrolment in the MDS study arm was stopped after 10 MDS patients due to a lack of efficacy: no confirmed responses were recorded in these 10 patients.
In the JMML study arm, 18 patients (13 PTPN11, 3 NRAS, 1 KRAS somatic mutations and 1 clinical diagnosis of neurofibromatosis type 1 [NF 1]) were enrolled. Sixteen patients completed 3 cycles of therapy and 5 of them completed 6 cycles. A total of 11 JMML patients had a clinical response at Cycle 3, Day 28, of these 11 subjects, 9 (50%) subjects had a confirmed clinical response (3 subjects with cCR and 6 subjects with cPR). Among the cohort of JMML patients treated with azacitidine 7 (43.8%) patients had a sustained platelet response (counts ≥ 100 × 109/L) and 7 (43.8%) patients required transfusions at HSCT. 17 of 18 patients proceeded to HSCT.
Because of the study design (small patient numbers and various confounding factors), it cannot be concluded from this clinical study whether azacitidine prior to HSCT improves survival outcome in JMML patients.
Study AZA-AML-004 was a Phase 2, multicentre, open-label study to evaluate the safety, pharmacodynamics and efficacy of azacitidine compared to no anti-cancer treatment in children and young adults with AML in molecular relapse after CR1. Seven patients (median age 6.7 years [range 2 to 12 years]; 71.4% male) were treated with intravenous azacitidine 100 mg/m^2, daily on Days 1 to 7 of each 28-day cycle for a maximum of 3 cycles.
Five patients had minimal residual disease (MRD) assessment at Day 84 with 4 patients achieving either molecular stabilization (n = 3) or molecular improvement (n = 1) and 1 patient had clinical relapse. Six of 7 patients (90% [95% CI = 0.4, 1.0]) treated with azacitidine underwent HSCT.
Due to the small sample size, the efficacy of azacitidine in paediatric AML cannot be established.
See section 4.8 for safety information.

5.2 Pharmacokinetic properties

Absorption
Following subcutaneous administration of a single 75 mg/m^2 dose, azacitidine was rapidly absorbed with peak plasma concentrations of 750 ng/mL ± 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^2 doses) was approximately 89 % based on area under the curve (AUC). Area under the curve and maximum plasma concentration (C_{max}) of subcutaneous administration of azacitidine were approximately proportional within the 25 to 100 mg/m^2 dose range.

Distribution
Following intravenous administration, the mean volume of distribution was 76 L ± 26 L, and systemic clearance was 147 L/h ± 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 ($t_{½}$) after subcutaneous administration of 41 ± 8 minutes. No accumulation occurs after subcutaneous administration of 75 mg/m^2 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 ^{14}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 (see section 4.2), gender, age, or race on the pharmacokinetics of azacitidine have not been formally studied.

Paediatric population

In Study AZA-JMML-001, pharmacokinetic analysis was determined from 10 MDS and 18 JMML paediatric patients on Day 7 of Cycle 1 (see section 5.1). The median age (range) of the MDS patients was 13.3 (1.9-15) years and 2.1 (0.2-6.9) years for JMML patients.

Following intravenous administration of a 75 mg/m2 dose, azacitidine rapidly reached Cmax within 0.083 hours in both MDS and JMML populations. The geometric mean Cmax were 1797.5 and 1066.3 ng/mL, and the geometric mean AUC0-∞ were 606.9 and 240.2 ng·h/mL, for MDS and JMML patients, respectively. The geometric mean volume of distribution in MDS and JMML subjects were 103.9 and 61.1 L, respectively. It appeared that the total plasma exposure of azacitidine was higher in MDS subjects; however, moderate to high between-patient variability was noted for both AUC and Cmax.

The geometric mean t½ were 0.4 and 0.3 hours, and the geometric mean clearances were 166.4 and 148.3 L/h for MDS and JMML, respectively.

Pharmacokinetic data from Study AZA-JMML-001 were pooled together and compared to pharmacokinetic data from 6 adult subjects with MDS administered 75 mg/m2 azacitidine intravenously in Study AZA 2002-BA-002. Mean Cmax and AUC0-t of azacitidine were similar between adult patients and paediatric patients after intravenous administration (2750 ng/mL versus 2841 ng/mL and 1025 ng·h/mL versus 882.1 ng·h/mL, respectively).

In Study AZA-AML-004, pharmacokinetic analysis was determined from 6 of the 7 paediatric patients, which had at least one measurable postdose pharmacokinetic concentration (see section 5.1). The median age (range) of the AML patients was 6.7 (2-12) years.

Following multiple doses of 100 mg/m^2, the geometric means for C_{max} and $AUC_{0\text{-}tau}$ on Cycle 1 Day 7 were 1557 ng/mL and 899.6 ng·h/mL, respectively, with high inter-subject variability (CV% of 201.6% and 87.8%, respectively) observed. Azacitidine rapidly reached C_{max}, with a median time of 0.090 hours post-intravenous administration and declined with a geometric mean $t_{1/2}$ of 0.380 hours. The geometric

means for clearance and volume of distribution were 127.2 L/h and 70.2 L, respectively.
Pharmacokinetic (azacitidine) exposure observed in children with AML at molecular relapse after CR1 was comparable to exposure from pooled data of 10 children with MDS and 18 children with JMML and also comparable to azacitidine exposure in adults with MDS.

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^2 dose, mean exposure values (AUC and C_{max}) from subjects with mild, moderate and severe renal impairment were increased by 11 % to 21 %, 15 % to 27 %, and 41 % to 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.

5.3 Preclinical safety data

Azacitidine induces both gene mutations and chromosomal aberrations in bacterial and mammalian cell systems *in vitro*. The potential carcinogenicity of azacitidine was evaluated in mice and rats. Azacitidine induced tumours of the haematopoietic system in female mice, when administered intraperitoneally 3 times per week for 52 weeks. An increased incidence of tumours in the lymphoreticular system, lung, mammary gland, and skin was seen in mice treated with azacitidine administered intraperitoneally for 50 weeks. A tumorigenicity study in rats revealed an increased incidence of testicular tumours.

Early embryotoxicity studies in mice revealed a 44 % frequency of intrauterine embryonal death (increased resorption) after a single intraperitoneal injection of azacitidine during organogenesis. Developmental abnormalities in the brain have been detected in mice given azacitidine on or before closure of the hard palate. In rats, azacitidine caused no adverse reactions when given pre-implantation, but it was clearly embryotoxic when given during organogenesis. Foetal abnormalities during organogenesis in rats included: CNS anomalies (exencephaly/encephalocele), limb anomalies (micromelia, club foot, syndactyly, oligodactyly) and others (microphthalmia, micrognathia, gastroschisis, oedema, and rib abnormalities).

Administration of azacitidine to male mice prior to mating with untreated female mice resulted in decreased fertility and loss of offspring during subsequent embryonic and postnatal development. Treatment of male rats resulted in decreased weight of the testes and epididymides, decreased sperm counts, decreased pregnancy rates, an

increase in abnormal embryos and increased loss of embryos in mated females (see section 4.6).

6 PHARMACEUTICAL PARTICULARS

6.1 List of excipients

Mannitol (E 421)

6.2 Incompatibilities

This medicinal product must not be mixed with other medicinal products except those mentioned in section 6.6.

6.3 Shelf life

Unopened powder vial:
3 years.

After reconstitution:
When Azacitidine betapharm is reconstituted using water for injections that has not been refrigerated, chemical and physical in-use stability of the reconstituted medicinal product has been demonstrated at 25 °C for 45 minutes and at 2 °C to 8 °C for 8 hours.

The shelf life of the reconstituted medicinal product can be extended by reconstituting with refrigerated (2 °C to 8 °C) water for injections. When Azacitidine betapharm is reconstituted using refrigerated (2 °C to 8 °C) water for injections, the chemical and physical in-use stability of the reconstituted medicinal product has been demonstrated at 2 °C to 8 °C for 22 hours.

From a microbiological point of view, the reconstituted product should be used immediately. If not used immediately, in-use storage times and conditions prior to use are the responsibility of the user and must not be longer than 8 hours at 2 °C to 8 °C when reconstituted using water for injections that has not been refrigerated or not longer than 22 hours when reconstituted using refrigerated (2 °C to 8 °C) water for injections.

6.4 Special precautions for storage

This medicinal product does not require any special storage conditions.
For storage conditions after reconstitution of the medicinal product, see section 6.3.

6.5 Nature and contents of container

Clear glass vial (type I) sealed with bromobutyl rubber stopper and flip-off-seal, containing 100 mg of azacitidine.

Not all pack sizes may be marketed.

6.6 Special precautions for disposal

Recommendations for safe handling
Azacitidine betapharm 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 betapharm 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.

1. 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 25-gauge needle(s).
2. The appropriate volume of water for injections (see table below) should be drawn into the syringe, making sure to purge any air trapped within the syringe.

Vial containing	Volume of water for injections	Final concentration
100 mg	4 mL	25 mg/mL

3. The needle of the syringe containing the 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.
4. 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 medicinal product after reconstitution.
5. The rubber top should be cleaned and a new syringe with 25-gauge 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.
6. A fresh subcutaneous 25-gauge needle 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.
7. 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 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.
8. 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 to 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.

Storage of the reconstituted product

For storage conditions after reconstitution of the medicinal product, see section 6.3.

Calculation of an individual dose

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

Total dose (mg) = dose (mg/m^2) × BSA (m^2)

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^2.

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

25 mg/m^2 (33 %)	45 mg	1 vial	1.8 mL

Method of administration
Reconstituted Azacitidine betapharm should be injected subcutaneously (insert the needle at a 45° to 90° angle) using a 25-gauge needle into the upper arm, thigh or abdomen.
Doses greater than 4 mL should be injected into two separate sites.
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.

Disposal
Any unused medicinal product or waste material should be disposed of in accordance with local requirements.

7 MARKETING AUTHORISATION HOLDER

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United Kingdom

8 MARKETING AUTHORISATION NUMBER(S)

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9 DATE OF FIRST AUTHORISATION/RENEWAL OF THE AUTHORISATION

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10 DATE OF REVISION OF THE TEXT

09/01/2026