

HIGHLIGHTS OF PRESCRIBING INFORMATION

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

VENCLEXTA® (venetoclax tablets) for oral use

Initial U.S. Approval: 2016

RECENT MAJOR CHANGES

Indications and Usage (1) 06/2018
Dosage and Administration (2.1) 06/2018

INDICATIONS AND USAGE

VENCLEXTA is a BCL-2 inhibitor indicated for the treatment of patients with chronic lymphocytic leukemia (CLL) or small lymphocytic lymphoma (SLL), with or without 17p deletion, who have received at least one prior therapy. (1)

DOSAGE AND ADMINISTRATION

- Initiate therapy with VENCLEXTA at 20 mg once daily for 7 days, followed by a weekly ramp-up dosing schedule to the recommended daily dose of 400 mg. (2.1)
- For VENCLEXTA in combination with rituximab, administer rituximab after the 5-week ramp-up schedule with VENCLEXTA. Continue VENCLEXTA for 24 months from Cycle 1 Day 1 of rituximab. (2.1)
- VENCLEXTA tablets should be taken orally once daily with a meal and water. Do not chew, crush, or break tablets. (2.1)
- Perform prophylaxis for tumor lysis syndrome. (2.2)

DOSAGE FORMS AND STRENGTHS

Tablets: 10 mg, 50 mg, 100 mg (3)

CONTRAINDICATIONS

Concomitant use of VENCLEXTA with strong inhibitors of CYP3A at initiation and during ramp-up phase is contraindicated. (2.4, 4, 7.1)

WARNINGS AND PRECAUTIONS

- Tumor Lysis Syndrome (TLS): Anticipate TLS; assess risk in all patients. Premedicate with anti-hyperuricemics and ensure adequate hydration. Employ more intensive measures (intravenous hydration, frequent monitoring, hospitalization) as overall risk increases. (2.2, 5.1)

- Neutropenia: Monitor blood counts and for signs of infection; manage as medically appropriate. (2.3, 5.2)
- Immunization: Do not administer live attenuated vaccines prior to, during, or after VENCLEXTA treatment. (5.3)
- Embryo-Fetal Toxicity: May cause embryo-fetal harm. Advise females of reproductive potential of the potential risk to a fetus and to use effective contraception during treatment. (5.4)

ADVERSE REACTIONS

The most common adverse reactions (≥20%) with VENCLEXTA in combination with rituximab were neutropenia, diarrhea, upper respiratory tract infection, fatigue, cough, and nausea. (6.1)

The most common adverse reactions (≥20%) with VENCLEXTA in the monotherapy studies were neutropenia, diarrhea, nausea, upper respiratory tract infection, anemia, fatigue, thrombocytopenia, musculoskeletal pain, edema, and cough. (6.1)

To report SUSPECTED ADVERSE REACTIONS, contact AbbVie Inc. at 1-800-633-9110 or FDA at 1-800-FDA-1088 or www.fda.gov/medwatch.

DRUG INTERACTIONS

Avoid concomitant use of VENCLEXTA with moderate CYP3A inhibitors, strong or moderate CYP3A inducers, P-gp inhibitors, or narrow therapeutic index P-gp substrates. (2.4, 7.1, 7.2)

- If a moderate CYP3A inhibitor or a P-gp inhibitor must be used, reduce the VENCLEXTA dose by at least 50%. (2.4, 7.1)
- If a strong CYP3A inhibitor must be used after the ramp-up phase, reduce the VENCLEXTA dose by at least 75%. (2.4, 7.1)
- If a narrow therapeutic index P-gp substrate must be used, it should be taken at least 6 hours before VENCLEXTA. (7.2)

USE IN SPECIFIC POPULATIONS

- Lactation: Discontinue breastfeeding. (8.2)

See 17 for PATIENT COUNSELING INFORMATION and Medication Guide.

Revised: 9/2018

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FULL PRESCRIBING INFORMATION

1 INDICATIONS AND USAGE

VENCLEXTA is indicated for the treatment of patients with chronic lymphocytic leukemia (CLL) or small lymphocytic lymphoma (SLL), with or without 17p deletion, who have received at least one prior therapy.

2 DOSAGE AND ADMINISTRATION

2.1 Recommended Dosage

Instruct patients to take VENCLEXTA tablets with a meal and water at approximately the same time each day. VENCLEXTA tablets should be swallowed whole and not chewed, crushed, or broken prior to swallowing.

All VENCLEXTA dose regimens begin with a 5-week ramp-up.

VENCLEXTA 5-week Dose Ramp-Up Schedule

Assess patient-specific factors for level of risk of tumor lysis syndrome (TLS) and provide prophylactic hydration and anti-hyperuricemics to patients prior to first dose of VENCLEXTA to reduce risk of TLS [see *Dosage and Administration (2.2)* and *Warnings and Precautions (5.1)*]. Administer the VENCLEXTA dose according to a weekly ramp-up schedule over 5 weeks to the recommended daily dose of 400 mg as shown in [Table 1](#). The 5-week ramp-up dosing schedule is designed to gradually reduce tumor burden (debulk) and decrease the risk of TLS.

Table 1. Dosing Schedule for Ramp-Up Phase

Week	VENCLEXTA Daily Dose
1	20 mg
2	50 mg
3	100 mg
4	200 mg
5	400 mg

The CLL/SLL Starting Pack provides the first 4 weeks of VENCLEXTA according to the ramp-up schedule. The 400 mg dose is achieved using 100 mg tablets supplied in bottles [see *How Supplied/Storage and Handling (16)*].

VENCLEXTA in Combination with Rituximab

Start rituximab administration after the patient has completed the 5-week dose ramp-up schedule with VENCLEXTA (see [Table 1](#)) and has received the 400 mg dose of VENCLEXTA for 7 days. Administer rituximab on Day 1 of each 28-day cycle for 6 cycles, with rituximab dosed at 375 mg/m² intravenously for Cycle 1 and 500 mg/m² intravenously for Cycles 2-6.

Patients should continue VENCLEXTA 400 mg once daily for 24 months from Cycle 1 Day 1 of rituximab.

VENCLEXTA as Monotherapy

The recommended dose of VENCLEXTA is 400 mg once daily after the patient has completed the 5-week dose ramp-up schedule. VENCLEXTA should be taken orally once daily until disease progression or unacceptable toxicity is observed.

2.2 Risk Assessment and Prophylaxis for Tumor Lysis Syndrome

VENCLEXTA can cause rapid reduction in tumor and thus poses a risk for TLS in the initial 5-week ramp-up phase. Changes in blood chemistries consistent with TLS that require prompt management can occur as early as 6 to 8 hours following the first dose of VENCLEXTA and at each dose increase.

The risk of TLS is a continuum based on multiple factors, including tumor burden and comorbidities. Reduced renal function (creatinine clearance [CrCl] <80 mL/min) further increases the risk. Perform tumor burden assessments, including radiographic evaluation (e.g., CT scan), assess blood chemistry (potassium, uric acid, phosphorus, calcium, and creatinine) in all patients and correct pre-existing abnormalities prior to initiation of treatment with VENCLEXTA. The risk may decrease as tumor burden decreases [see *Warnings and Precautions (5.1) and Use in Specific Populations (8.6)*].

Table 2 below describes the recommended TLS prophylaxis and monitoring during VENCLEXTA treatment based on tumor burden determination from clinical trial data.

Table 2. Recommended TLS Prophylaxis Based on Tumor Burden From Clinical Trial Data (consider all patient co-morbidities before final determination of prophylaxis and monitoring schedule)

Tumor Burden		Prophylaxis		Blood Chemistry Monitoring ^{c,d}
		Hydration ^a	Anti-hyperuricemics	Setting and Frequency of Assessments
Low	All LN <5 cm AND ALC <25 x10 ⁹ /L	Oral (1.5-2 L)	Allopurinol ^b	Outpatient <ul style="list-style-type: none"> • For first dose of 20 mg and 50 mg: Pre-dose, 6 to 8 hours, 24 hours • For subsequent ramp-up doses: Pre-dose

Medium	Any LN 5 cm to <10 cm OR ALC $\geq 25 \times 10^9/L$	Oral (1.5-2 L) and consider additional intravenous	Allopurinol	Outpatient <ul style="list-style-type: none"> For first dose of 20 mg and 50 mg: Pre-dose, 6 to 8 hours, 24 hours For subsequent ramp-up doses: Pre-dose For first dose of 20 mg and 50 mg: Consider hospitalization for patients with CrCl <80ml/min; see below for monitoring in hospital
High	Any LN ≥ 10 cm OR ALC $\geq 25 \times 10^9/L$ AND any LN ≥ 5 cm	Oral (1.5-2L) and intravenous (150-200 mL/hr as tolerated)	Allopurinol; consider rasburicase if baseline uric acid is elevated	In hospital <ul style="list-style-type: none"> For first dose of 20 mg and 50 mg: Pre-dose, 4, 8, 12 and 24 hours Outpatient <ul style="list-style-type: none"> For subsequent ramp-up doses: Pre-dose, 6 to 8 hours, 24 hours

ALC = absolute lymphocyte count; LN = lymph node.

^aAdminister intravenous hydration for any patient who cannot tolerate oral hydration.

^bStart allopurinol or xanthine oxidase inhibitor 2 to 3 days prior to initiation of VENCLEXTA.

^cEvaluate blood chemistries (potassium, uric acid, phosphorus, calcium, and creatinine); review in real time.

^dFor patients at risk of TLS, monitor blood chemistries at 6 to 8 hours and at 24 hours at each subsequent ramp-up dose.

2.3 Dose Modifications Based on Toxicities

Interrupt dosing or reduce dose for toxicities. See [Table 3](#) and [Table 4](#) for recommended dose modifications for toxicities related to VENCLEXTA. For patients who have had a dosing interruption greater than 1 week during the first 5 weeks of ramp-up phase or greater than 2 weeks after completing the ramp-up phase, reassess for risk of TLS to determine if reinitiation with a reduced dose is necessary (e.g., all or some levels of the dose ramp-up schedule) [*see Dosage and Administration (2.1, 2.2)*].

Table 3. Recommended VENCLEXTA Dose Modifications for Toxicities^a

Event	Occurrence	Action
Tumor Lysis Syndrome		
Blood chemistry changes or symptoms suggestive of TLS	Any	Withhold the next day's dose. If resolved within 24 to 48 hours of last dose, resume at the same dose.
		For any blood chemistry changes requiring more than 48 hours to resolve, resume at a reduced dose (see Table 4) [<i>see Dosage and Administration (2.2)</i>].
		For any events of clinical TLS, ^b resume at a reduced dose following resolution (see Table 4) [<i>see Dosage and Administration (2.2)</i>].
Non-Hematologic Toxicities		
Grade 3 or 4 non-hematologic toxicities	1 st occurrence	Interrupt VENCLEXTA. Once the toxicity has resolved to Grade 1 or baseline level, VENCLEXTA therapy may be resumed at the same dose. No dose modification is required.
	2 nd and subsequent occurrences	Interrupt VENCLEXTA. Follow dose reduction guidelines in Table 4 when resuming treatment with VENCLEXTA after resolution. A larger dose reduction may occur at the discretion of the physician.
Hematologic Toxicities		
Grade 3 neutropenia with infection or fever; or Grade 4 hematologic toxicities (except lymphopenia) [<i>see Warnings and Precautions (5.2)</i>]	1 st occurrence	Interrupt VENCLEXTA. To reduce the infection risks associated with neutropenia, granulocyte-colony stimulating factor (G-CSF) may be administered with VENCLEXTA if clinically indicated. Once the toxicity has resolved to Grade 1 or baseline level, VENCLEXTA therapy may be resumed at the same dose.
	2 nd and subsequent occurrences	Interrupt VENCLEXTA. Consider using G-CSF as clinically indicated. Follow dose reduction guidelines in Table 4 when resuming treatment with VENCLEXTA after resolution. A larger dose reduction may occur at the discretion of the physician.
Consider discontinuing VENCLEXTA for patients who require dose reductions to less than 100 mg for more than 2 weeks.		
^a Adverse reactions were graded using NCI CTCAE version 4.0.		
^b Clinical TLS was defined as laboratory TLS with clinical consequences such as acute renal failure, cardiac arrhythmias, or sudden death and/or seizures [<i>see Adverse Reactions (6.1)</i>].		

Table 4. Dose Reduction for Toxicity During VENCLEXTA Treatment

Dose at Interruption, mg	Restart Dose, mg ^a
400	300
300	200
200	100
100	50
50	20
20	10

^aDuring the ramp-up phase, continue the reduced dose for 1 week before increasing the dose.

2.4 Dose Modifications for Use with CYP3A and P-gp Inhibitors

Concomitant use of VENCLEXTA with *strong* CYP3A inhibitors at initiation and during ramp-up phase is contraindicated. Concomitant use of VENCLEXTA with strong CYP3A inhibitors increases venetoclax exposure (i.e., C_{max} and AUC) and may increase the risk for TLS at initiation and during ramp-up phase [see *Contraindications (4)*]. For patients who have completed the ramp-up phase and are on a steady daily dose of VENCLEXTA, reduce the VENCLEXTA dose by at least 75% when *strong* CYP3A inhibitors must be used concomitantly.

Avoid concomitant use of VENCLEXTA with *moderate* CYP3A inhibitors or P-gp inhibitors. Consider alternative treatments. If a moderate CYP3A inhibitor or a P-gp inhibitor must be used, reduce the VENCLEXTA dose by at least 50%. Monitor these patients more closely for signs of toxicities [see *Dosage and Administration (2.3)*].

Resume the VENCLEXTA dose that was used prior to initiating the CYP3A inhibitor or P-gp inhibitor 2 to 3 days after discontinuation of the inhibitor [see *Dosage and Administration (2.3)* and *Drug Interactions (7.1)*].

The recommendations for managing drug-drug interactions are summarized in [Table 5](#).

Table 5. Management of Potential VENCLEXTA Interactions with CYP3A and P-gp Inhibitors

Inhibitors	Initiation and Ramp-Up Phase	Steady Daily Dose (After Ramp-Up Phase)
Strong CYP3A inhibitor	Contraindicated	Avoid inhibitor use or reduce the VENCLEXTA dose by at least 75%
Moderate CYP3A inhibitor	Avoid inhibitor use or reduce the VENCLEXTA dose by at least 50%	
P-gp inhibitor		

2.5 Missed Dose

If the patient misses a dose of VENCLEXTA within 8 hours of the time it is usually taken, the patient should take the missed dose as soon as possible and resume the normal daily dosing schedule. If a patient misses a dose by more than 8 hours, the patient should not take the missed dose and should resume the usual dosing schedule the next day.

If the patient vomits following dosing, no additional dose should be taken that day. The next prescribed dose should be taken at the usual time.

3 DOSAGE FORMS AND STRENGTHS

Table 6. VENCLEXTA Tablet Strength and Description

Tablet Strength	Description of Tablet
10 mg	Round, biconvex shaped, pale yellow film-coated tablet debossed with “V” on one side and “10” on the other side
50 mg	Oblong, biconvex shaped, beige film-coated tablet debossed with “V” on one side and “50” on the other side
100 mg	Oblong, biconvex shaped, pale yellow film-coated tablet debossed with “V” on one side and “100” on the other side

4 CONTRAINDICATIONS

Concomitant use of VENCLEXTA with *strong* CYP3A inhibitors at initiation and during ramp-up phase is contraindicated due to the potential for increased risk of tumor lysis syndrome [see *Dosage and Administration (2.4)* and *Drug Interactions (7.1)*].

5 WARNINGS AND PRECAUTIONS

5.1 Tumor Lysis Syndrome

Tumor lysis syndrome (TLS), including fatal events and renal failure requiring dialysis, has occurred in patients with previously treated CLL with high tumor burden when treated with VENCLEXTA [see *Adverse Reactions (6.1)*]. With the current (5 week) dose ramp-up, TLS prophylaxis and monitoring, the rate of TLS was 2% in the VENCLEXTA monotherapy studies. The rate of TLS remained consistent with VENCLEXTA in combination with rituximab. With a 2-3 week dose ramp-up and higher starting dose in patients with CLL, the TLS rate was 13% and included deaths and renal failure.

VENCLEXTA can cause rapid reduction in tumor and thus poses a risk for TLS in the initial 5-week ramp-up phase. Changes in blood chemistries consistent with TLS that require prompt

management can occur as early as 6 to 8 hours following the first dose of VENCLEXTA and at each dose increase.

The risk of TLS is a continuum based on multiple factors, including tumor burden (see [Table 2](#)) and comorbidities. Reduced renal function (CrCl <80 mL/min) further increases the risk. Patients should be assessed for risk and should receive appropriate prophylaxis for TLS, including hydration and anti-hyperuricemics. Monitor blood chemistries and manage abnormalities promptly. Interrupt dosing if needed. Employ more intensive measures (intravenous hydration, frequent monitoring, hospitalization) as overall risk increases [*see Dosage and Administration (2.2, 2.3) and Use in Specific Populations (8.6)*].

Concomitant use of VENCLEXTA with strong or moderate CYP3A inhibitors and P-gp inhibitors increases venetoclax exposure, may increase the risk of TLS at initiation and during ramp-up phase and may require VENCLEXTA dose adjustment [*see Dosage and Administration (2.4) and Drug Interactions (7.1)*].

5.2 Neutropenia

Grade 3 or 4 neutropenia developed in 64% (124/194) of patients and Grade 4 neutropenia developed in 31% of patients treated with VENCLEXTA in combination with rituximab (see [Table 8](#)). Grade 3 or 4 neutropenia developed in 63% (216/344) of patients and Grade 4 neutropenia developed in 33% of patients treated with VENCLEXTA monotherapy (see [Table 10](#)). Febrile neutropenia occurred in 4% of patients treated with VENCLEXTA in combination with rituximab and in 6% of patients treated with VENCLEXTA monotherapy [*see Adverse Reactions (6.1)*].

Monitor complete blood counts throughout the treatment period. Interrupt dosing or reduce dose for severe neutropenia. Consider supportive measures including antimicrobials for signs of infection and use of growth factors (e.g., G-CSF) [*see Dosage and Administration (2.3)*].

5.3 Immunization

Do not administer live attenuated vaccines prior to, during, or after treatment with VENCLEXTA until B-cell recovery occurs. The safety and efficacy of immunization with live attenuated vaccines during or following VENCLEXTA therapy have not been studied. Advise patients that vaccinations may be less effective.

5.4 Embryo-Fetal Toxicity

Based on its mechanism of action and findings in animals, VENCLEXTA may cause embryo-fetal harm when administered to a pregnant woman. In an embryo-fetal study conducted in mice, administration of venetoclax to pregnant animals at exposures equivalent to that observed in patients at the recommended dose of 400 mg daily resulted in post-implantation loss and decreased fetal weight. There are no adequate and well-controlled studies in pregnant women using VENCLEXTA. Advise females of reproductive potential to avoid pregnancy during treatment. If VENCLEXTA is used during pregnancy or if the patient becomes pregnant while taking VENCLEXTA, the patient should be apprised of the potential hazard to the fetus [*see Use in Specific Populations (8.1)*].

6 ADVERSE REACTIONS

The following serious adverse events are discussed in greater detail in other sections of the labeling:

- Tumor Lysis Syndrome [see *Warnings and Precautions (5.1)*]
- Neutropenia [see *Warnings and Precautions (5.2)*]

6.1 Clinical Trial Experience

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

MURANO

The safety of VENCLEXTA in combination with rituximab (VEN+R) versus bendamustine in combination with rituximab (B+R), was evaluated in an open-label randomized study, in patients with CLL who had received at least one prior therapy.

Patients randomized to VEN+R completed the scheduled ramp-up (5 weeks) and received VENCLEXTA 400 mg once daily in combination with rituximab for 6 cycles followed by single agent VENCLEXTA for a total of 24 months after ramp-up. Patients randomized to B+R received 6 cycles (28 days per cycle) for a total of 6 months. Details of the study treatment are described in Section 14 [see *Clinical Studies (14.1)*].

At the time of analysis, the median duration of exposure was 22 months in the VEN+R arm compared with 6 months in the B+R arm.

In the VEN+R arm, fatal adverse reactions that occurred in the absence of disease progression and within 30 days of the last VENCLEXTA treatment and/or 90 days of last rituximab were reported in 2% (4/194) of patients. Serious adverse reactions were reported in 46% of patients in the VEN+R arm, with most frequent ($\geq 5\%$) being pneumonia (9%).

In the VEN+R arm, adverse reactions led to treatment discontinuation in 16% of patients, dose reduction in 15%, and dose interruption in 71%. In the B+R arm, adverse reactions led to treatment discontinuation in 10% of patients, dose reduction in 15%, and dose interruption in 40%. In the VEN+R arm, neutropenia led to dose interruption of VENCLEXTA in 46% of patients and discontinuation in 3%, and thrombocytopenia led to discontinuation in 3% of patients.

Table 7 and Table 8 present adverse reactions and laboratory abnormalities, respectively, identified in the MURANO trial. The MURANO trial was not designed to demonstrate a statistically significant difference in adverse reaction rates for VEN+R as compared with B+R, for any specific adverse reaction or laboratory abnormality.

Table 7. Common ($\geq 10\%$) Adverse Reactions Reported with $\geq 5\%$ Higher All-Grade or $\geq 2\%$ Higher Grade ≥ 3 Incidence in Patients Treated with VEN+R Compared with B+R

Adverse Reaction by Body System	VENCLEXTA + Rituximab Followed by Single Agent VENCLEXTA (N=194)		Bendamustine + Rituximab (N=188)	
	All Grades (%)	Grade ≥ 3 (%)	All Grades (%)	Grade ≥ 3 (%)
Blood & lymphatic system disorders				
Neutropenia ^a	65	62	50	44
Gastrointestinal disorders				
Diarrhea	40	3	17	1
Infections & infestations				
Upper respiratory tract infection ^a	39	2	23	2
Lower respiratory tract infection ^a	18	2	10	2
Musculoskeletal and connective tissue disorders				
Musculoskeletal pain ^a	19	1	13	0
Metabolism and nutrition disorders				
Tumor lysis syndrome	3	3	1	1

^aIncludes multiple adverse reaction terms.

Other adverse reactions (all Grades) reported in $\geq 10\%$ of patients in the VEN+R arm in MURANO, and other important adverse reactions are presented below:

Blood & lymphatic system disorders: anemia (16%), thrombocytopenia (15%), febrile neutropenia (4%)

Gastrointestinal disorders: nausea (21%), constipation (14%), abdominal pain (13%), mucositis (10%), vomiting (8%)

Respiratory disorders: cough (22%)

General disorders and administration site conditions: fatigue (22%), pyrexia (15%)

Skin disorders: rash (13%)

Nervous system and psychiatric disorders: headache (11%), insomnia (11%)

Infections & infestations: pneumonia (10%)

During treatment with single agent VENCLEXTA after completion of VEN+R combination treatment, the most common all grade adverse reactions ($\geq 10\%$ patients) reported were upper respiratory tract infection (21%), diarrhea (19%), neutropenia (16%), and lower respiratory tract infections (11%). The most common grade 3 or 4 adverse reaction ($\geq 2\%$ patients) were neutropenia (12%) and anemia (3%).

Laboratory Abnormalities

Table 8 describes common treatment-emergent laboratory abnormalities identified in the MURANO trial.

Table 8. Common ($\geq 10\%$) New or Worsening Laboratory Abnormalities Occurring at $\geq 5\%$ (Any Grade) or $\geq 2\%$ (Grade 3 or 4) Higher Incidence with VEN+R compared with B+R

Laboratory Abnormality	VENCLEXTA + Rituximab N=194		Bendamustine + Rituximab N=188	
	All Grades ^a (%)	Grade 3 or 4 (%)	All Grades ^a (%)	Grade 3 or 4 (%)
Hematology				
Leukopenia	89	46	81	35
Lymphopenia	87	56	79	55
Neutropenia	86	64	84	59
Chemistry				
Hypocalcemia	62	5	51	2
Hypophosphatemia	57	14	35	4
AST/SGOT increased	46	2	31	3
Hyperuricemia	36	36	33	33
Alkaline phosphatase increased	35	1	20	1
Hyperbilirubinemia	33	4	26	3
Hyponatremia	30	6	20	3
Hypokalemia	29	6	18	3
Hyperkalemia	24	3	19	2
Hypernatremia	24	1	13	0
Hypoglycemia	16	2	7	0
^a Includes laboratory abnormalities that were new or worsening, or with worsening from baseline unknown.				

New Grade 4 laboratory abnormalities reported in $\geq 2\%$ of patients treated with VEN+R included neutropenia (31%), lymphopenia (16%), leukopenia (6%), thrombocytopenia (6%), hyperuricemia (4%), hypocalcemia (2%), hypoglycemia (2%), and hypermagnesemia (2%).

Monotherapy Studies (M13-982, M14-032, and M12-175)

The safety of single agent VENCLEXTA at the 400 mg recommended daily dose following a dose ramp-up schedule is based on pooled data from three single-arm trials (M13-982, M14-032, and M12-175). In the pooled dataset, consisting of 352 patients with previously treated CLL or SLL, the median age was 66 years (range: 28 to 85 years), 93% were white, and 68% were male. The median number of prior therapies was 3 (range: 0 to 15). The median duration of treatment with VENCLEXTA at the time of data analysis was 14.5 months (range: 0 to 50 months). Fifty-two percent of patients received VENCLEXTA for more than 60 weeks.

Fatal adverse reactions that occurred in the absence of disease progression and within 30 days of venetoclax treatment were reported in 2% of patients in the VENCLEXTA monotherapy studies, most commonly (2 patients) from septic shock. Serious adverse reactions were reported in 52% of patients, with the most frequent ($\geq 5\%$) being pneumonia (9%), febrile neutropenia (5%), and sepsis (5%).

Adverse reactions led to treatment discontinuation in 9% of patients, dose reduction in 13%, and dose interruption in 36%. The most frequent adverse reactions leading to drug discontinuation were thrombocytopenia and autoimmune hemolytic anemia. The most frequent adverse reaction ($\geq 5\%$) leading to dose reductions or interruptions was neutropenia (8%).

Adverse reactions identified in these trials of single-agent VENCLEXTA are presented in Table 9.

Table 9. Adverse Reactions Reported in $\geq 10\%$ (Any Grade) or $\geq 5\%$ (Grade ≥ 3) of Patients with Previously Treated CLL (VENCLEXTA Monotherapy)

Body System	Adverse Reaction	Any Grade (%) N=352	Grade ≥ 3 (%) N=352
Blood and lymphatic system disorders	Neutropenia ^a	50	45
	Anemia ^a	33	18
	Thrombocytopenia ^a	29	20
	Lymphopenia ^a	11	7
	Febrile neutropenia	6	6
Gastrointestinal disorders	Diarrhea	43	3
	Nausea	42	1
	Abdominal pain ^a	18	3
	Vomiting	16	1
	Constipation	16	<1
	Mucositis ^a	13	<1
General disorders and administration site conditions	Fatigue ^a	32	4
	Edema ^a	22	2
	Pyrexia	18	<1
Infections and infestations	Upper respiratory tract infection ^a	36	1
	Pneumonia ^a	14	8
	Lower respiratory tract infection ^a	11	2
Musculoskeletal and connective tissue disorders	Musculoskeletal pain ^a	29	2
	Arthralgia	12	<1
Nervous system disorders	Headache	18	<1
	Dizziness ^a	14	0
Respiratory, thoracic, and	Cough ^a	22	0

mediastinal disorders	Dyspnea ^a	13	1
Skin and subcutaneous tissue disorders	Rash ^a	18	<1
Adverse Reactions graded using NCI Common Terminology Criteria for Adverse Events version 4.0.			
^a Includes multiple adverse reaction terms.			

Laboratory Abnormalities

Table 10 describes common laboratory abnormalities reported throughout treatment that were new or worsening from baseline. The most common (>5%) grade 4 laboratory abnormalities observed with VENCLEXTA monotherapy were hematologic laboratory abnormalities, including neutropenia (33%), leukopenia (11%), thrombocytopenia (15%), and lymphopenia (9%).

Table 10. New or Worsening Laboratory Abnormalities with VENCLEXTA Monotherapy (≥40% Any Grade or ≥10% Grade 3 or 4)

Laboratory Abnormality	All Grades^a (%) N=352	Grade 3 or 4 (%) N=352
Hematology		
Leukopenia	89	42
Neutropenia	87	63
Lymphopenia	74	40
Anemia	71	26
Thrombocytopenia	64	31
Chemistry		
Hypocalcemia	87	12
Hyperglycemia	67	7
Hyperkalemia	59	5
AST increased	53	3
Albumin decreased	49	2
Hypophosphatemia	45	11
Hyponatremia	40	9
^a Includes laboratory abnormalities that were new or worsening, or worsening from baseline unknown.		

Important Adverse Reactions

Tumor Lysis Syndrome

Tumor lysis syndrome is an important identified risk when initiating VENCLEXTA.

MURANO

In the open-label randomized phase 3 study, the incidence of TLS was 3% (6/194) in patients treated with VEN+R. After 77/389 patients were enrolled in the study, the protocol was amended to incorporate the current TLS prophylaxis and monitoring measures described in sections 2.1 and 2.2 [see *Dosage and Administration (2.1, 2.2)*]. All events of TLS occurred during the VENCLEXTA ramp-up period and were resolved within two days. All six patients completed the ramp-up and reached the recommended daily dose of 400 mg of VENCLEXTA. No clinical TLS was observed in patients who followed the current 5-week ramp-up schedule and TLS prophylaxis and monitoring measures described in sections 2.1 and 2.2 [see *Dosage and Administration (2.1, 2.2)*]. Rates of laboratory abnormalities relevant to TLS for patients treated with VEN+R are presented in [Table 8](#).

Monotherapy Studies (M13-982 and M14-032)

In 168 patients with CLL treated according to recommendations described in sections 2.1 and 2.2, the rate of TLS was 2% [see *Dosage and Administration (2.1, 2.2)*]. All events either met laboratory TLS criteria (laboratory abnormalities that met ≥ 2 of the following within 24 hours of each other: potassium >6 mmol/L, uric acid >476 $\mu\text{mol/L}$, calcium <1.75 mmol/L, or phosphorus >1.5 mmol/L); or were reported as TLS events. The events occurred in patients who had a lymph node(s) ≥ 5 cm and/or ALC $\geq 25 \times 10^9/\text{L}$. All events resolved within 5 days. No TLS with clinical consequences such as acute renal failure, cardiac arrhythmias or sudden death and/or seizures was observed in these patients. All patients had CrCl ≥ 50 mL/min. Laboratory abnormalities relevant to TLS were hyperkalemia (17% all Grades, 1% Grade ≥ 3), hyperphosphatemia (14% all Grades, 2% Grade ≥ 3), hypocalcemia (16% all Grades, 2% Grade ≥ 3), and hyperuricemia (10% all Grades, $<1\%$ Grade ≥ 3).

In the initial Phase 1 dose-finding trials, which had shorter (2-3 week) ramp-up phase and higher starting doses, the incidence of TLS was 13% (10/77; 5 laboratory TLS, 5 clinical TLS), including 2 fatal events and 3 events of acute renal failure, 1 requiring dialysis. After this experience, TLS risk assessment, dosing regimen, TLS prophylaxis and monitoring measures were revised [see *Dosage and Administration (2.1, 2.2)*].

7 DRUG INTERACTIONS

7.1 Effects of Other Drugs on VENCLEXTA

Venetoclax is predominantly metabolized by CYP3A4/5.

Strong CYP3A Inhibitors

Concomitant use of VENCLEXTA with strong CYP3A inhibitors (e.g., ketoconazole, conivaptan, clarithromycin, indinavir, itraconazole, lopinavir, ritonavir, telaprevir, posaconazole and voriconazole) at initiation and during ramp-up phase is contraindicated [see *Contraindications (4) and Clinical Pharmacology (12.3)*].

For patients who have completed the ramp-up phase and are on a steady daily dose of VENCLEXTA, reduce the VENCLEXTA dose by at least 75% when used concomitantly with strong CYP3A inhibitors. Resume the VENCLEXTA dose that was used prior to initiating the

CYP3A inhibitor 2 to 3 days after discontinuation of the inhibitor [see *Dosage and Administration (2.3, 2.4)* and *Clinical Pharmacology (12.3)*].

Co-administration of ketoconazole increased venetoclax C_{\max} by 2.3-fold and AUC_{∞} by 6.4-fold.

Co-administration of ritonavir increased venetoclax C_{\max} by 2.4-fold and AUC by 7.9-fold.

Moderate CYP3A Inhibitors and P-gp Inhibitors

Avoid concomitant use of moderate CYP3A inhibitors (e.g., erythromycin, ciprofloxacin, diltiazem, dronedarone, fluconazole, verapamil) or P-gp inhibitors (e.g., amiodarone, captopril, carvedilol, cyclosporine, felodipine, quercetin, quinidine, ranolazine, ticagrelor) with VENCLEXTA. Consider alternative treatments. If a moderate CYP3A inhibitor or a P-gp inhibitor must be used, reduce the VENCLEXTA dose by at least 50%. Monitor patients more closely for signs of VENCLEXTA toxicities [see *Dosage and Administration (2.3, 2.4)* and *Clinical Pharmacology (12.3)*].

Resume the VENCLEXTA dose that was used prior to initiating the CYP3A inhibitor or P-gp inhibitor 2 to 3 days after discontinuation of the inhibitor [see *Dosage and Administration (2.4)* and *Clinical Pharmacology (12.3)*].

Avoid grapefruit products, Seville oranges, and starfruit during treatment with VENCLEXTA, as they contain inhibitors of CYP3A.

Co-administration of a single dose of rifampin, a P-gp inhibitor, increased venetoclax C_{\max} by 106% and AUC_{∞} by 78%.

CYP3A Inducers

Avoid concomitant use of VENCLEXTA with strong CYP3A inducers (e.g., carbamazepine, phenytoin, rifampin, St. John's wort) or moderate CYP3A inducers (e.g., bosentan, efavirenz, etravirine, modafinil, nafcillin). Consider alternative treatments with less CYP3A induction [see *Clinical Pharmacology (12.3)*].

Co-administration of multiple doses of rifampin, a strong CYP3A inducer, decreased venetoclax C_{\max} by 42% and AUC_{∞} by 71%.

7.2 Effects of VENCLEXTA on Other Drugs

Warfarin

In a drug-drug interaction study in healthy subjects, administration of a single dose of venetoclax with warfarin resulted in an 18% to 28% increase in C_{\max} and AUC_{∞} of R-warfarin and S-warfarin. Because venetoclax was not dosed to steady state, it is recommended that the international normalized ratio (INR) be monitored closely in patients receiving warfarin.

P-gp substrates

Administration of a single 100 mg dose of venetoclax with digoxin resulted in a 35% increase in digoxin C_{\max} and a 9% increase in AUC_{∞} . Therefore, co-administration of narrow therapeutic index P-gp substrates (e.g., digoxin, everolimus, and sirolimus) with VENCLEXTA should be avoided. If a narrow therapeutic index P-gp substrate must be used, it should be taken at least 6 hours before VENCLEXTA.

8 USE IN SPECIFIC POPULATIONS

8.1 Pregnancy

Risk Summary

There are no available data on VENCLEXTA use in pregnant women to inform a drug-associated risk of major birth defects and miscarriage. Based on toxicity observed in mice, VENCLEXTA may cause fetal harm when administered to pregnant women. In mice, venetoclax was fetotoxic at exposures 1.2 times the human clinical exposure based on AUC at the recommended human dose of 400 mg daily. If VENCLEXTA is used during pregnancy or if the patient becomes pregnant while taking VENCLEXTA, the patient should be apprised of the potential risk to a fetus.

The estimated background risk of major birth defects and miscarriage for the indicated population is unknown. All pregnancies have a background risk of birth defect, loss, or other adverse outcomes. The background risk in the U.S. general population of major birth defects is 2% to 4% and of miscarriage is 15% to 20% of clinically recognized pregnancies.

Data

Animal data

In embryo-fetal development studies, venetoclax was administered to pregnant mice and rabbits during the period of organogenesis. In mice, venetoclax was associated with increased post-implantation loss and decreased fetal body weight at 150 mg/kg/day (maternal exposures approximately 1.2 times the human AUC exposure at the recommended dose of 400 mg daily). No teratogenicity was observed in either the mouse or the rabbit.

8.2 Lactation

Risk Summary

There are no data on the presence of VENCLEXTA in human milk, the effects of VENCLEXTA on the breastfed child, or the effects of VENCLEXTA on milk production. Because many drugs are excreted in human milk and because the potential for serious adverse reactions in a breastfed child from VENCLEXTA is unknown, advise nursing women to discontinue breastfeeding during treatment with VENCLEXTA.

8.3 Females and Males of Reproductive Potential

VENCLEXTA may cause fetal harm [*see Warnings and Precautions (5.4) and Use in Specific Populations (8.1)*].

Pregnancy Testing

Conduct pregnancy testing in females of reproductive potential before initiation of VENCLEXTA [*see Use in Specific Populations (8.1)*].

Contraception

Advise females of reproductive potential to use effective contraception during treatment with VENCLEXTA and for at least 30 days after the last dose [*see Use in Specific Populations (8.1)*].

Infertility

Based on findings in animals, male fertility may be compromised by treatment with VENCLEXTA [see *Nonclinical Toxicology (13.1)*].

8.4 Pediatric Use

Safety and effectiveness have not been established in pediatric patients.

8.5 Geriatric Use

Of the 352 patients with previously treated CLL evaluated for safety from 3 open-label trials of VENCLEXTA monotherapy, 57% (201/352) were ≥ 65 years of age and 18% (62/352) were ≥ 75 years of age.

No overall differences in safety and effectiveness were observed between older and younger patients in MURANO and the monotherapy studies.

8.6 Renal Impairment

Patients with reduced renal function ($\text{CrCl} < 80 \text{ mL/min}$) are at increased risk of TLS. These patients may require more intensive prophylaxis and monitoring to reduce the risk of TLS when initiating treatment with VENCLEXTA [see *Dosage and Administration (2.2, 2.3)*].

No specific clinical trials have been conducted in subjects with renal impairment. No dose adjustment is needed for patients with mild or moderate renal impairment ($\text{CrCl} \geq 30 \text{ mL/min}$) based on results of the population pharmacokinetic analysis [see *Clinical Pharmacology (12.3)*]. A recommended dose has not been determined for patients with severe renal impairment ($\text{CrCl} < 30 \text{ mL/min}$) or patients on dialysis.

8.7 Hepatic Impairment

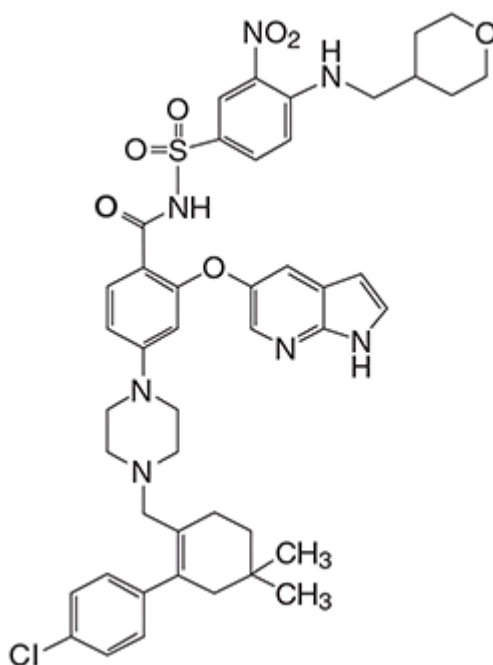
No specific clinical trials have been conducted in subjects with hepatic impairment, however human mass balance study showed that venetoclax undergoes hepatic elimination. No dose adjustment is recommended in patients with mild or moderate hepatic impairment based on results of the population pharmacokinetic analysis [see *Clinical Pharmacology (12.3)*]; monitor these patients more closely for signs of toxicity during the initiation and dose ramp-up phase. A recommended dose has not been determined for patients with severe hepatic impairment.

10 OVERDOSAGE

There is no specific antidote for VENCLEXTA. For patients who experience overdose, closely monitor and provide appropriate supportive treatment; during ramp-up phase interrupt VENCLEXTA and monitor carefully for signs and symptoms of TLS along with other toxicities [see *Dosage and Administration (2.2, 2.3)*]. Based on venetoclax large volume of distribution and extensive protein binding, dialysis is unlikely to result in significant removal of venetoclax.

11 DESCRIPTION

Venetoclax is a selective inhibitor of BCL-2 protein. It is a light yellow to dark yellow solid with the empirical formula $C_{45}H_{50}ClN_7O_7S$ and a molecular weight of 868.44. Venetoclax has very low aqueous solubility. Venetoclax is described chemically as 4-(4-{[2-(4-chlorophenyl)-4,4-dimethylcyclohex-1-en-1-yl]methyl}piperazin-1-yl)-*N*-(3-nitro-4-[(tetrahydro-2*H*-pyran-4-ylmethyl)amino]phenyl)sulfonyl)-2-(1*H*-pyrrolo[2,3-*b*]pyridin-5-yloxy)benzamide and has the following chemical structure:



VENCLEXTA tablets for oral administration are supplied as pale yellow or beige tablets that contain 10, 50, or 100 mg venetoclax as the active ingredient. Each tablet also contains the following inactive ingredients: copovidone, colloidal silicon dioxide, polysorbate 80, sodium stearyl fumarate, and calcium phosphate dibasic. In addition, the 10 mg and 100 mg coated tablets include the following: iron oxide yellow, polyvinyl alcohol, polyethylene glycol, talc, and titanium dioxide. The 50 mg coated tablets also include the following: iron oxide yellow, iron oxide red, iron oxide black, polyvinyl alcohol, talc, polyethylene glycol and titanium dioxide. Each tablet is debossed with “V” on one side and “10”, “50” or “100” corresponding to the tablet strength on the other side.

12 CLINICAL PHARMACOLOGY

12.1 Mechanism of Action

Venetoclax is a selective and orally bioavailable small-molecule inhibitor of BCL-2, an anti-apoptotic protein. Overexpression of BCL-2 has been demonstrated in CLL cells where it mediates tumor cell survival and has been associated with resistance to chemotherapeutics. Venetoclax helps restore the process of apoptosis by binding directly to the BCL-2 protein, displacing pro-apoptotic proteins like BIM, triggering mitochondrial outer membrane

permeabilization and the activation of caspases. In nonclinical studies, venetoclax has demonstrated cytotoxic activity in tumor cells that overexpress BCL-2.

12.2 Pharmacodynamics

Cardiac Electrophysiology

The effect of multiple doses of VENCLEXTA up to 1200 mg once daily on the QTc interval was evaluated in an open-label, single-arm study in 176 patients with previously treated hematologic malignancies. VENCLEXTA had no large effect on QTc interval (i.e., > 20 ms) and there was no relationship between venetoclax exposure and change in QTc interval.

12.3 Pharmacokinetics

Absorption

Following multiple oral administrations under fed conditions, maximum plasma concentration of venetoclax was reached 5-8 hours after dose. Venetoclax steady state AUC increased proportionally over the dose range of 150-800 mg. Under low-fat meal conditions, venetoclax mean (\pm standard deviation) steady state C_{\max} was 2.1 ± 1.1 $\mu\text{g/mL}$ and AUC_{0-24} was 32.8 ± 16.9 $\mu\text{g}\cdot\text{h/mL}$ at the 400 mg once daily dose.

Food Effect

Administration with a low-fat meal increased venetoclax exposure by approximately 3.4-fold and administration with a high-fat meal increased venetoclax exposure by 5.1- to 5.3-fold compared to fasting conditions. Venetoclax should be administered with a meal [see *Dosage and Administration (2.1)*].

Distribution

Venetoclax is highly bound to human plasma protein with unbound fraction in plasma <0.01 across a concentration range of 1-30 μM (0.87-26 $\mu\text{g/mL}$). The mean blood-to-plasma ratio was 0.57. The population estimate for apparent volume of distribution ($\text{Vd}_{\text{ss}}/\text{F}$) of venetoclax ranged from 256-321 L in patients.

Elimination

The population estimate for the terminal elimination half-life of venetoclax was approximately 26 hours. The pharmacokinetics of venetoclax does not change over time.

Metabolism

In vitro studies demonstrated that venetoclax is predominantly metabolized by CYP3A4/5. M27 was identified as a major metabolite in plasma with an inhibitory activity against BCL-2 that is at least 58-fold lower than venetoclax *in vitro*.

Excretion

After single oral administration of 200 mg radiolabeled [^{14}C]-venetoclax dose to healthy subjects, >99.9% of the dose was recovered in feces and <0.1% of the dose was excreted in urine within 9 days, indicating that hepatic elimination is responsible for the clearance of venetoclax

from the systemic circulation. Unchanged venetoclax accounted for 20.8% of the administered radioactive dose excreted in feces.

Special Populations

Age, Race, Sex, and Weight

Based on population pharmacokinetic analyses, age, race, sex, and weight do not have a clinically meaningful effect on venetoclax clearance.

Renal Impairment

Based on a population pharmacokinetic analysis that included 238 subjects with mild renal impairment ($\text{CrCl} \geq 60$ and < 90 mL/min, calculated by Cockcroft-Gault equation), 92 subjects with moderate renal impairment ($\text{CrCl} \geq 30$ and < 60 mL/min) and 220 subjects with normal renal function ($\text{CrCl} \geq 90$ mL/min), venetoclax exposures in subjects with mild or moderate renal impairment are similar to those with normal renal function. The pharmacokinetics of venetoclax has not been studied in subjects with severe renal impairment ($\text{CrCl} < 30$ mL/min) or subjects on dialysis [see *Use in Specific Populations (8.6)*].

Hepatic Impairment

Based on a population pharmacokinetic analysis that included 88 subjects with mild hepatic impairment, 10 subjects with moderate hepatic impairment and 453 subjects with normal hepatic function, venetoclax exposures are similar in subjects with mild and moderate hepatic impairment and normal hepatic function. The NCI Organ Dysfunction Working Group criteria for hepatic impairment were used in the analysis. Mild hepatic impairment was defined as normal total bilirubin and aspartate transaminase (AST) $>$ upper limit of normal (ULN) or total bilirubin > 1.0 to 1.5 times ULN, moderate hepatic impairment as total bilirubin > 1.5 to 3.0 times ULN, and severe hepatic impairment as total bilirubin > 3.0 times ULN. The pharmacokinetics of venetoclax has not been studied in subjects with severe hepatic impairment [see *Use in Specific Populations (8.7)*].

Drug Interactions

Ketoconazole

Co-administration of 400 mg once daily ketoconazole, a strong CYP3A, P-gp and BCRP inhibitor, for 7 days in 11 previously treated NHL patients increased venetoclax C_{max} by 2.3-fold and AUC_{∞} by 6.4-fold [see *Drug Interactions (7.1)*].

Ritonavir

Co-administration of 50 mg once daily ritonavir, a strong CYP3A, P-gp and OATP1B1/B3 inhibitor, for 14 days in 6 healthy subjects increased venetoclax C_{max} by 2.4-fold and AUC by 7.9-fold [see *Drug Interactions (7.1)*].

Rifampin multiple doses

Co-administration of 600 mg once daily rifampin, a strong CYP3A inducer, for 13 days in 10 healthy subjects decreased venetoclax C_{max} by 42% and AUC_{∞} by 71% [see *Drug Interactions (7.1)*].

Rifampin single dose

Co-administration of a 600 mg single dose of rifampin, an OATP1B1/1B3 and P-gp inhibitor, in 11 healthy subjects increased venetoclax C_{max} by 106% and AUC_{∞} by 78% [see *Drug Interactions (7.1)*].

Azithromycin

In a drug-drug interaction study in 12 healthy subjects, co-administration of 500 mg of azithromycin on the first day followed by 250 mg of azithromycin for 4 days decreased venetoclax C_{max} by 25% and AUC_{∞} by 35%. No dose adjustment is needed when venetoclax is co-administered with azithromycin.

Gastric Acid Reducing Agents

Based on population pharmacokinetic analysis, gastric acid reducing agents (e.g., proton pump inhibitors, H₂-receptor antagonists, antacids) do not affect venetoclax bioavailability.

Warfarin

In a drug-drug interaction study in three healthy subjects, administration of a single 400 mg dose of venetoclax with 5 mg warfarin resulted in 18% to 28% increase in C_{max} and AUC_{∞} of R-warfarin and S-warfarin [see *Drug Interactions (7.2)*].

Digoxin

In a drug-drug interaction study in 10 healthy subjects, administration of a single 100 mg dose of venetoclax with 0.5 mg digoxin, a P-gp substrate, resulted in a 35% increase in digoxin C_{max} and a 9% increase in AUC_{∞} [see *Drug Interactions (7.2)*].

Rituximab

The co-administration of rituximab with VENCLEXTA did not affect the pharmacokinetics of venetoclax.

In vitro Studies

In vitro studies indicated that venetoclax is not an inhibitor or inducer of CYP1A2, CYP2B6, CYP2C19, CYP2D6, or CYP3A4 at clinically relevant concentrations. Venetoclax is a weak inhibitor of CYP2C8, CYP2C9, and UGT1A1 *in vitro*, but it is not predicted to cause clinically relevant inhibition due to high plasma protein binding. Venetoclax is not an inhibitor of UGT1A4, UGT1A6, UGT1A9, or UGT2B7.

Venetoclax is a P-gp and BCRP substrate as well as a P-gp and BCRP inhibitor and weak OATP1B1 inhibitor *in vitro*. Venetoclax is not expected to inhibit OATP1B3, OCT1, OCT2, OAT1, OAT3, MATE1, or MATE2K at clinically relevant concentrations.

13 NONCLINICAL TOXICOLOGY

13.1 Carcinogenesis, Mutagenesis, Impairment of Fertility

Carcinogenicity studies have not been conducted with venetoclax.

Venetoclax was not mutagenic in an *in vitro* bacterial mutagenicity (Ames) assay, did not induce numerical or structural aberrations in an *in vitro* chromosome aberration assay using human peripheral blood lymphocytes, and was not clastogenic in an *in vivo* mouse bone marrow micronucleus assay at doses up to 835 mg/kg. The M27 metabolite was negative for genotoxic activity in *in vitro* Ames and chromosome aberration assays.

Fertility and early embryonic development studies were conducted in male and female mice. These studies evaluate mating, fertilization, and embryonic development through implantation. There were no effects of venetoclax on estrous cycles, mating, fertility, corpora lutea, uterine implants or live embryos per litter at dosages up to 600 mg/kg/day. However, a risk to human male fertility exists based on testicular toxicity (germ cell loss) observed in dogs at exposures as low as 0.5 times the human AUC exposure at the recommend dose.

13.2 Animal Toxicology and/or Pharmacology

In dogs, venetoclax caused single-cell necrosis in various tissues, including the gallbladder, exocrine pancreas, and stomach with no evidence of disruption of tissue integrity or organ dysfunction; these findings were minimal to mild in magnitude. Following a 4-week dosing period and subsequent 4-week recovery period, minimal single-cell necrosis was still present in some tissues and reversibility has not been assessed following longer periods of dosing or recovery.

In addition, after approximately 3 months of daily dosing in dogs, venetoclax caused progressive white discoloration of the hair coat, due to loss of melanin pigment.

14 CLINICAL STUDIES

14.1 Chronic Lymphocytic Leukemia/Small Lymphocytic Lymphoma, Combination Therapy

MURANO

MURANO was a randomized (1:1), multicenter, open label study (NCT02005471) that evaluated the efficacy and safety of VENCLEXTA in combination with rituximab (VEN+R) versus bendamustine in combination with rituximab (B+R) in patients with CLL who had received at least one line of prior therapy. Patients in the VEN+R arm completed the 5-week ramp-up schedule [see *Dosage and Administration (2.1, 2.2)*] and received VENCLEXTA 400 mg once daily for 24 months from Cycle 1 Day 1 of rituximab in the absence of disease progression or unacceptable toxicity. Rituximab was initiated intravenously after the 5-week dose ramp-up at 375 mg/m² on Day 1 of Cycle 1 and 500 mg/m² on Day 1 of Cycles 2-6. Each cycle was 28 days. Patients randomized to B+R received bendamustine at 70 mg/m² on Days 1 and 2 for 6 cycles (28-day cycle) and rituximab at the above described dose and schedule.

A total of 389 patients were randomized: 194 to the VEN+R arm and 195 to the B+R arm. Baseline demographic and disease characteristics were similar between the VEN+R and B+R arms. The median age was 65 years (range: 22-85 years), 97% were white, 74% were male, and 99% had ECOG performance status <2. Median prior lines of therapy was 1 (range: 1-5); 59% had received 1 prior therapy, 26% had received 2 prior therapies, and 16% had received 3 or more prior therapies. Prior therapies included alkylating agents (94%), anti-CD20 antibodies

(77%), B-cell receptor pathway inhibitors (2%), and prior purine analogs (81%, including fludarabine/cyclophosphamide/rituximab in 55%). A 17p deletion was detected in 24% of patients, *TP53* mutations in 25%, 11q deletion in 32%, and unmutated *IgVH* in 63%.

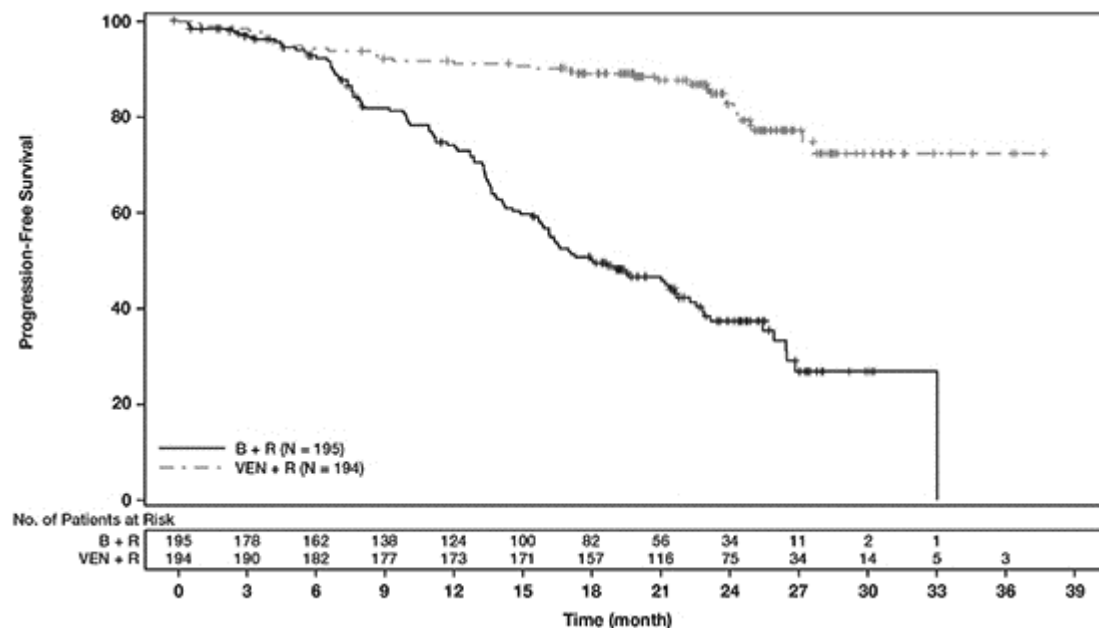
Efficacy was based on progression-free survival (PFS) as assessed by an Independent Review Committee (IRC). The median follow-up for PFS was 23.4 months (range: 0 to 37.4+ months).

Efficacy results for MURANO are shown in Table 11. The Kaplan-Meier curve for PFS is shown in Figure 1.

Table 11. IRC-Assessed Efficacy Results in MURANO

Endpoint	VENCLEXTA + Rituximab (N = 194)	Bendamustine + Rituximab (N = 195)
Progression-free survival^a		
Number of events, n (%)	35 (18)	106 (54)
Disease progression, n	26	91
Death events, n	9	15
Median, months (95% CI)	Not Reached	18.1 (15.8, 22.3)
HR (95% CI) ^b	0.19 (0.13, 0.28)	
p-value ^b	<0.0001	
Response Rate^c, n (%)		
ORR	179 (92)	141 (72)
95% CI	(88, 96)	(65, 78)
CR+CRi	16 (8)	7 (4)
nPR	3 (2)	1 (1)
PR	160 (82)	133 (68)
CI = confidence interval; HR = hazard ratio; CR = complete remission; CRi = complete remission with incomplete marrow recovery; nPR = nodular partial remission; PR = partial remission; ORR = overall response rate (CR + CRi + nPR + PR).		
^a Kaplan-Meier estimate.		
^b HR estimate is based on Cox-proportional hazards model stratified by 17p deletion, risk status, and geographic region; p-value based on log-rank test stratified by the same factors.		
^c Per 2008 International Workshop for Chronic Lymphocytic Leukemia (IWCLL) guidelines.		

Figure 1. Kaplan-Meier Curve of IRC-Assessed Progression-free Survival in MURANO



At the time of analysis, median overall survival had not been reached in either arm after a median follow-up of 22.9 months.

Minimal residual disease (MRD) was evaluated using allele-specific oligonucleotide polymerase chain reaction (ASO-PCR). The definition of negative status was less than one CLL cell per 10^4 leukocytes. At 3 months after the last dose of rituximab, the MRD negativity rate in peripheral blood in patients who achieved PR or better was 53% (103/194) in the VEN+R arm and 12% (23/195) in the B+R arm. The MRD-negative CR/CRi rate at this timepoint was 3% (6/194) in the VEN+R arm and 2% (3/195) in the B+R arm.

14.2 Chronic Lymphocytic Leukemia/Small Lymphocytic Lymphoma, Monotherapy

The efficacy of VENCLEXTA monotherapy in previously-treated CLL or SLL is based on three single-arm studies.

Study M13-982

The efficacy of VENCLEXTA was established in study M13-982 (NCT01889186), an open-label, single-arm, multicenter clinical trial of 106 patients with CLL with 17p deletion who had received at least one prior therapy. In the study, 17p deletion was confirmed in peripheral blood specimens from patients using Vysis CLL FISH Probe Kit, which is FDA approved for selection of patients for VENCLEXTA treatment. Patients received VENCLEXTA via a weekly ramp-up schedule starting at 20 mg and ramping to 50 mg, 100 mg, 200 mg and finally 400 mg once daily. Patients continued to receive 400 mg of VENCLEXTA orally once daily until disease progression or unacceptable toxicity.

Efficacy was based on overall response rate (ORR) as assessed by an Independent Review Committee (IRC).

Table 12 summarizes the baseline demographic and disease characteristics of the study population.

Table 12. Baseline Patient Characteristics in Study M13-982

Characteristic	N = 106
Age, years; median (range)	67 (37-83)
White; %	97
Male; %	65
ECOG performance status; %	
0	40
1	52
2	8
Tumor burden; %	
Absolute lymphocyte count $\geq 25 \times 10^9/L$	50
One or more nodes ≥ 5 cm	53
Number of prior therapies; median (range)	2.5 (1-10)
Time since diagnosis, years; median (range) ^a	6.6 (0.1-32.1)
^a N=105.	

The median time on treatment at the time of evaluation was 12.1 months (range: 0 to 21.5 months). Efficacy results are shown in Table 13.

Table 13. Efficacy Results per IRC for Patients with Previously Treated CLL with 17p Deletion in Study M13-982

Endpoint	VENCLEXTA N=106
ORR, n (%) ^a (95% CI)	85 (80) (71, 87)
CR + CRi, n (%)	8 (8)
CR, n (%)	6 (6)
CRi, n (%)	2 (2)
nPR, n (%)	3 (3)
PR, n (%)	74 (70)
CI = confidence interval; CR = complete remission; CRi = complete remission with incomplete marrow recovery; IRC = independent review committee; nPR = nodular partial remission; ORR = overall response rate (CR + CRi + nPR + PR); PR = partial remission. ^a Per 2008 IWCLL guidelines.	

The median time to first response was 0.8 months (range: 0.1 to 8.1 months).

Based on a later data cutoff date and investigator-assessed efficacy, the duration of response (DOR) ranged from 2.9 to 32.8+ months. The median DOR has not been reached with median follow-up of 22 months.

MRD was evaluated in peripheral blood and bone marrow for patients who achieved CR or CRi, following treatment with VENCLEXTA. Three percent (3/106) achieved MRD negativity in the peripheral blood and bone marrow (less than one CLL cell per 10^4 leukocytes).

Study M12-175

Study M12-175 (NCT01328626) was a multicenter, open-label trial that enrolled previously treated patients with CLL or SLL, including those with 17p deletion. Efficacy was evaluated in 67 patients (59 with CLL, 8 with SLL) who had received a 400 mg daily dose of VENCLEXTA. Patients continued this dose until disease progression or unacceptable toxicity. The median duration of treatment at the time of evaluation was 22.1 months (range: 0.5 – 50.1 months).

The median age was 66 years (range: 42-84 years), 78% were male and 87% were white. The median number of prior treatments was 3 (range: 1-11). At baseline, 67% of patients had one or more nodes ≥ 5 cm, 30% of patients had ALC $\geq 25 \times 10^9/L$, 33% had documented unmutated *IgVH*, and 21% had documented 17p deletion.

Efficacy in CLL was evaluated according to 2008 IWCLL guidelines. As assessed by an IRC, the ORR was 71% (95% CI: 58%, 82%), CR + CRi rate was 7%, and PR rate was 64%.

Based on investigator assessments, the ORR in patients with CLL was 80% (14% CR+ CRi, 66% PR + nPR). With an estimated median follow-up of 25.2 months, the DOR ranged from 2.3+ to 48.6+ months. Of the 47 responders, 83% had a DOR of at least 12 months.

For the 8 patients with SLL, the investigator-assessed ORR was 100%.

Study M14-032

Study M14-032 (NCT02141282) was an open-label, multicenter, study that evaluated the efficacy of VENCLEXTA in patients with CLL who had been previously treated with and progressed on or after ibrutinib or idelalisib. Patients received a daily dose of 400 mg of VENCLEXTA following the ramp-up schedule. Patients continued to receive VENCLEXTA 400 mg once daily until disease progression or unacceptable toxicity. At the time of analysis, the median duration of treatment was 14.3 months (range: 0.1 to 31.4 months).

Of the 127 patients treated (91 with prior ibrutinib, 36 with prior idelalisib), the median age was 66 years (range: 28-85 years), 70% were male and 92% were white. The median number of prior treatments was 4 (range: 1-15). At baseline, 41% of patients had one or more nodes ≥ 5 cm, 31% had an absolute lymphocyte count $\geq 25 \times 10^9/L$, 57% had documented unmutated *IgVH*, and 39% had documented 17p deletion.

Efficacy was based on 2008 IWCLL guidelines. Based on IRC assessment, the ORR was 70% (95% CI: 61%, 78%), with a CR + CRi rate of 1%, and PR rate of 69%.

Based on investigator assessment, the ORR was 65% (95% CI: 56%, 74%). The median DOR per investigator has not been reached with an estimated median follow-up of 14.6 months.

16 HOW SUPPLIED/STORAGE AND HANDLING

VENCLEXTA is dispensed as follows:

Packaging Presentation	Number of Tablets	National Drug Code (NDC)
CLL/SLL Starting Pack	Each pack contains four weekly wallet blister packs: <ul style="list-style-type: none"> • Week 1 (14 x 10 mg tablets) • Week 2 (7 x 50 mg tablets) • Week 3 (7 x 100 mg tablets) • Week 4 (14 x 100 mg tablets) 	0074-0579-28
Wallet containing 10 mg tablets	14 x 10 mg tablets	0074-0561-14
Wallet containing 50 mg tablets	7 x 50 mg tablets	0074-0566-07
Unit dose blister containing 10 mg tablets	2 x 10 mg tablets	0074-0561-11
Unit dose blister containing 50 mg tablet	1 x 50 mg tablet	0074-0566-11
Unit dose blister containing 100 mg tablet	1 x 100 mg tablet	0074-0576-11
Bottle containing 100 mg tablets	120 x 100 mg tablets	0074-0576-22

VENCLEXTA 10 mg film-coated tablets are round, biconvex shaped, pale yellow debossed with “V” on one side and “10” on the other side.

VENCLEXTA 50 mg film-coated tablets are oblong, biconvex shaped, beige debossed with “V” on one side and “50” on the other side.

VENCLEXTA 100 mg film-coated tablets are oblong, biconvex shaped, pale yellow debossed with “V” on one side and “100” on the other side.

Store at or below 86°F (30°C).

17 PATIENT COUNSELING INFORMATION

Advise the patient to read the FDA-approved patient labeling ([Medication Guide](#)).

- **Tumor Lysis Syndrome**

Advise patients of the potential risk of TLS, particularly at treatment initiation and during ramp-up phase, and to immediately report any signs and symptoms associated with this event (fever, chills, nausea, vomiting, confusion, shortness of breath, seizure, irregular heartbeat, dark or cloudy urine, unusual tiredness, muscle pain, and/or joint discomfort) to their health care provider (HCP) for evaluation [*see Warnings and Precautions (5.1)*].

Advise patients to be adequately hydrated every day when taking VENCLEXTA to reduce the risk of TLS. The recommended volume is 6 to 8 glasses (approximately 56 ounces total) of water each day. Patients should drink water starting 2 days before and on the day of the first dose, and every time the dose is increased [*see Dosage and Administration (2.2)*].

Advise patients of the importance of keeping scheduled appointments for blood work or other laboratory tests [*see Dosage and Administration (2.2)*].

Advise patients that it may be necessary to take VENCLEXTA in the hospital or medical office setting to allow monitoring for TLS.

- **Neutropenia**

Advise patients to contact their HCP immediately if they develop a fever or any signs of infection. Advise patients of the need for periodic monitoring of blood counts [see *Warnings and Precautions (5.2)*].

- **Drug Interactions**

Advise patients to avoid consuming grapefruit products, Seville oranges, or starfruit during treatment with VENCLEXTA. Advise patients that VENCLEXTA may interact with some drugs; therefore, advise patients to inform their health care provider of the use of any prescription medication, over-the-counter drugs, vitamins and herbal products [see *Contraindications (4) and Drug Interactions (7.1)*].

- **Immunizations**

Advise patients to avoid vaccination with live vaccines because they may not be safe or effective during treatment with VENCLEXTA [see *Warnings and Precautions (5.3)*].

- **Pregnancy and Lactation**

Advise women of the potential risk to the fetus and to avoid pregnancy during treatment with VENCLEXTA. Advise female patients of reproductive potential to use effective contraception during therapy and for at least 30 days after completing of therapy. Advise females to contact their HCP if they become pregnant, or if pregnancy is suspected, during treatment with VENCLEXTA. Also advise patients not to breastfeed while taking VENCLEXTA [see *Warnings and Precautions (5.4)*, and *Use in Specific Populations (8.1, 8.2, and 8.3)*].

- **Male Infertility**

Advise patients of the possibility of infertility and possible use of sperm banking for males of reproductive potential [see *Use in Specific Populations (8.3)*].

Instructions for Taking VENCLEXTA

Advise patients to take VENCLEXTA exactly as prescribed and not to change their dose or to stop taking VENCLEXTA unless they are told to do so by their HCP. Advise patients to take VENCLEXTA orally once daily, at approximately the same time each day, according to their HCP's instructions and that the tablets should be swallowed whole with a meal and water without being chewed, crushed, or broken [see *Dosage and Administration (2.1)*].

Advise patients to keep VENCLEXTA in the original packaging during the first 4 weeks of treatment, and not to transfer the tablets to a different container.

Advise patients that if a dose of VENCLEXTA is missed by less than 8 hours, to take the missed dose right away and take the next dose as usual. If a dose of VENCLEXTA is missed by more than 8 hours, advise patients to wait and take the next dose at the usual time [see *Dosage and Administration (2.5)*].

Advise patients not to take any additional dose that day if they vomit after taking VENCLEXTA, and to take the next dose at the usual time the following day.

Manufactured and Marketed by:
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North Chicago, IL 60064

and

Marketed by:
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03-B729 September 2018

MEDICATION GUIDE
VENCLEXTA® (ven-KLEKS-tuh)
(venetoclax tablets)

What is the most important information I should know about VENCLEXTA?

VENCLEXTA can cause serious side effects, including:

Tumor lysis syndrome (TLS). TLS is caused by the fast breakdown of cancer cells. TLS can cause kidney failure, the need for dialysis treatment, and may lead to death. Your healthcare provider will do tests to check your risk of getting TLS before you start taking VENCLEXTA. You will receive other medicines before starting and during treatment with VENCLEXTA to help reduce your risk of TLS. You may also need to receive intravenous (IV) fluids into your vein. Your healthcare provider will do blood tests in your first 5 weeks of treatment to check you for TLS during treatment with VENCLEXTA. It is important to keep your appointments for blood tests. Tell your healthcare provider right away if you have any symptoms of TLS during treatment with VENCLEXTA, including:

- fever
- chills
- nausea
- vomiting
- confusion
- shortness of breath
- seizures
- irregular heartbeat
- dark or cloudy urine
- unusual tiredness
- muscle or joint pain

Drink plenty of water when taking VENCLEXTA to help reduce your risk of getting TLS. Drink 6 to 8 glasses (about 56 ounces total) of water each day, starting 2 days before your first dose, on the day of your first dose of VENCLEXTA, and each time your dose is increased.

Your healthcare provider may delay, decrease your dose, or stop treatment with VENCLEXTA if you have side effects.

See "**What are the possible side effects of VENCLEXTA?**" for more information about side effects.

What is VENCLEXTA?

VENCLEXTA is a prescription medicine used to treat people with chronic lymphocytic leukemia (CLL) or small lymphocytic lymphoma (SLL) with or without 17p deletion, who have received at least one prior treatment.

It is not known if VENCLEXTA is safe and effective in children.

Who should not take VENCLEXTA? Certain medicines must not be taken when you first start taking VENCLEXTA and while your dose is being slowly increased because of the risk of increased tumor lysis syndrome (TLS).

- **Tell your healthcare provider about all the medicines you take**, including prescription and over-the-counter medicines, vitamins, and herbal supplements. VENCLEXTA and other medicines may affect each other causing serious side effects.

Do not start new medicines during treatment with VENCLEXTA without first talking with your healthcare provider.

Before taking VENCLEXTA, tell your healthcare provider about all of your medical conditions, including if you:

- have kidney or liver problems
- have problems with your body salts or electrolytes, such as potassium, phosphorus, or calcium
- have a history of high uric acid levels in your blood or gout
- are scheduled to receive a vaccine. You should not receive a "live vaccine" before, during, or after treatment with VENCLEXTA, until your healthcare provider tells you it is okay. If you are not sure about the type of immunization or vaccine, ask your healthcare provider. These vaccines may not be safe or may not work as well during treatment with VENCLEXTA.
- are pregnant or plan to become pregnant. VENCLEXTA may harm your unborn baby. If you are able to become pregnant, your healthcare provider should do a pregnancy test before you start treatment with VENCLEXTA. Females who are able to become pregnant should use effective birth control during treatment and for 30 days after the last dose of VENCLEXTA. If you become pregnant or think you are pregnant, tell your healthcare provider right away.
- are breastfeeding or plan to breastfeed. It is not known if VENCLEXTA passes into your breast milk.

Do not breastfeed during treatment with VENCLEXTA.

Tell your healthcare provider about all the medicines you take, including prescription and over-the-counter medicines, vitamins, and herbal supplements. VENCLEXTA and other medicines may affect each other causing serious side effects. See **“Who should not take VENCLEXTA?”**

How should I take VENCLEXTA?

- Take VENCLEXTA exactly as your healthcare provider tells you to take it. Do not change your dose of VENCLEXTA or stop taking VENCLEXTA unless your healthcare provider tells you to.
- When you first take VENCLEXTA:
 - You may need to take VENCLEXTA at the hospital or clinic to monitor for TLS.
 - Your healthcare provider will start VENCLEXTA at a low dose. Your dose will be slowly increased weekly over 5 weeks up to the full dose. Read the Quick Start Guide that comes with VENCLEXTA before your first dose.
- Follow the instructions about drinking water described in the section of this Medication Guide about TLS called **“What is the most important information I should know about VENCLEXTA?”** and also in the Quick Start Guide.
- Take VENCLEXTA 1 time a day with a meal and water at about the same time each day.
- Swallow VENCLEXTA tablets whole. Do not chew, crush, or break the tablets.
- If you miss a dose of VENCLEXTA and it has been less than 8 hours, take your dose as soon as possible. If you miss a dose of VENCLEXTA and it has been more than 8 hours, skip the missed dose and take the next dose at your usual time.
- If you vomit after taking VENCLEXTA, do not take an extra dose. Take the next dose at your usual time the next day.

What should I avoid while taking VENCLEXTA?

You should not drink grapefruit juice, eat grapefruit, Seville oranges (often used in marmalades), or starfruit while you are taking VENCLEXTA. These products may increase the amount of VENCLEXTA in your blood.

What are the possible side effects of VENCLEXTA?

VENCLEXTA can cause serious side effects, including:

- See **“What is the most important information I should know about VENCLEXTA?”**
- **Low white blood cell count (neutropenia).** Low white blood cell counts are common with VENCLEXTA, but can also be severe. Your healthcare provider will do blood tests to check your blood counts during treatment with VENCLEXTA. Tell your healthcare provider right away if you have a fever or any signs of an infection while taking VENCLEXTA.

The most common side effects of VENCLEXTA when used in combination with rituximab include:

- | | |
|-------------------------------------|-------------|
| • diarrhea | • tiredness |
| • upper respiratory tract infection | • nausea |
| • cough | |

The most common side effects of VENCLEXTA when used alone include:

- | | |
|-------------------------------------|--|
| • diarrhea | • low platelet counts |
| • nausea | • muscle and joint pain |
| • upper respiratory tract infection | • swelling of your arm, legs, hands and feet |
| • low red blood cell counts | • cough |
| • tiredness | |

VENCLEXTA may cause fertility problems in males. This may affect your ability to father a child. Talk to your healthcare provider if you have concerns about fertility.

Tell your HCP if you have any side effect that bothers you or that does not go away.

These are not all the possible side effects of VENCLEXTA. For more information, ask your healthcare provider or pharmacist.

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

How should I store VENCLEXTA?

- Store VENCLEXTA at or below 86°F (30°C).
- Keep VENCLEXTA tablets in the original package during the first 4 weeks of treatment. **Do not**

transfer the tablets to a different container.

Keep VENCLEXTA and all medicines out of reach of children.

General information about the safe and effective use of VENCLEXTA.

Medicines are sometimes prescribed for purposes other than those listed in a Medication Guide. Do not use VENCLEXTA for a condition for which it was not prescribed. Do not give VENCLEXTA to other people, even if they have the same symptoms that you have. It may harm them. You can ask your healthcare provider or pharmacist for information about VENCLEXTA that is written for health professionals.

What are the ingredients in VENCLEXTA?

Active ingredient: venetoclax

Inactive ingredients: copovidone, colloidal silicon dioxide, polysorbate 80, sodium stearyl fumarate, and calcium phosphate dibasic.

The 10 mg and 100 mg coated tablets also include: iron oxide yellow, polyvinyl alcohol, polyethylene glycol, talc, and titanium dioxide. The 50 mg coated tablets also include: iron oxide yellow, iron oxide red, iron oxide black, polyvinyl alcohol, talc, polyethylene glycol, and titanium dioxide.

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AbbVie Inc.
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For more information go to www.venclerxta.com or call 1-800-633-9110

This Medication Guide has been approved by the U.S. Food and Drug Administration.

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