

**REXULTI® 0.5 MG (Brexipiprazole 0.5 mg film coated tablets)**

**REXULTI® 1 MG (Brexipiprazole 1 mg film coated tablets)**

**REXULTI® 2 MG (Brexipiprazole 2 mg film coated tablets)**

**REXULTI® 3 MG (Brexipiprazole 3 mg film coated tablets)**

**REXULTI® 4 MG (Brexipiprazole 4 mg film coated tablets)**

**WARNING: INCREASED MORTALITY IN ELDERLY PATIENTS WITH DEMENTIA-RELATED PSYCHOSIS; and SUICIDAL THOUGHTS AND BEHAVIORS**

**Increased Mortality in Elderly Patients with Dementia-Related Psychosis**

Elderly patients with dementia-related psychosis treated with antipsychotic drugs are at an increased risk of death. REXULTI is not approved for the treatment of patients with dementia-related psychosis [see [Warnings and Precautions \(5.1\)](#)].

**Suicidal Thoughts and Behaviors**

Antidepressants increased the risk of suicidal thoughts and behaviors in patients aged 24 years and younger in short-term studies. Monitor closely for clinical worsening and for emergence of suicidal thoughts and behaviors. The safety and efficacy of REXULTI have not been established in pediatric patients with MDD [see [Warnings and Precautions \(5.2\)](#), [Use in Specific Populations \(8.4\)](#)].

## **1 INDICATIONS AND USAGE**

REXULTI is indicated for:

- As adjunctive therapy to antidepressants for the treatment of major depressive disorder (MDD) in adults.
- For treatment of schizophrenia in adults and pediatric patients ages 13 years and older.

## **2 DOSAGE AND ADMINISTRATION**

### **2.1 Adjunctive Treatment of Major Depressive Disorder (Adults)**

The recommended starting dosage for REXULTI as adjunctive treatment of MDD in adults is 0.5 mg or 1 mg once daily, taken orally with or without food [see [Clinical Pharmacology \(12.3\)](#)].

Titrate to 1 mg once daily, then up to the target dosage of 2 mg once daily. Dosage increases should occur at weekly intervals based on the patient's clinical response and tolerability. The maximum recommended daily dosage is 3 mg. Periodically reassess to determine the continued need and appropriate dosage for treatment.

### **2.2 Treatment of Schizophrenia (Adults and Pediatric Patients 13 to 17 Years)**

#### Adults

The recommended starting dosage for REXULTI for the treatment of schizophrenia in adults is 1 mg once daily on Days 1 to 4, taken orally with or without food [see [Clinical Pharmacology \(12.3\)](#)].

Titrate to 2 mg once daily on Day 5 through Day 7, then to 4 mg on Day 8 based on the patient's clinical response and tolerability. The recommended target REXULTI dosage is 2 mg to 4 mg once daily. The maximum recommended daily dosage is 4 mg.

#### Pediatric Patients (13 to 17 years of age)

The recommended starting dosage for REXULTI for the treatment of schizophrenia in pediatric patients 13 to 17 years of age is 0.5 mg once daily on Days 1 to 4, taken orally with or without food [*see Clinical Pharmacology (12.3)*]. Titrate to 1 mg once daily on Day 5 through Day 7, then to 2 mg on Day 8 based on the patient’s clinical response and tolerability. Weekly dose increases can be made in 1 mg increments. The recommended target REXULTI dosage is 2 mg to 4 mg once daily. The maximum recommended daily dosage is 4 mg.

### 2.3 Dosage Adjustments for Hepatic Impairment

For patients with moderate to severe hepatic impairment (Child-Pugh score  $\geq 7$ ), the maximum recommended dosage is 2 mg once daily for patients with MDD, and 3 mg once daily for patients with schizophrenia [*see Use in Specific Populations (8.7), Clinical Pharmacology (12.3)*].

### 2.4 Dosage Adjustments for Renal Impairment

For patients with moderate, severe or end-stage renal impairment (creatinine clearance CrCl < 60 mL/minute), the maximum recommended dosage is 2 mg once daily for patients with MDD and 3 mg once daily for patients with schizophrenia [*see Use in Specific Populations (8.8), Clinical Pharmacology (12.3)*].

### 2.5 Dosage Modifications for CYP2D6 Poor Metabolizers and for Concomitant Use with CYP Inhibitors or Inducers

Dosage adjustments are recommended in patients who are known cytochrome P450 (CYP) 2D6 poor metabolizers and in patients taking concomitant CYP3A4 inhibitors or CYP2D6 inhibitors or strong CYP3A4 inducers (see Table 1). If the coadministered drug is discontinued, adjust the REXULTI dosage to its original level. If the coadministered CYP3A4 inducer is discontinued, reduce the REXULTI dosage to the original level over 1 to 2 weeks [*see Drug Interactions (7.1), Clinical Pharmacology (12.3)*].

**Table 1: Dosage Adjustments of REXULTI for CYP2D6 Poor Metabolizers and for Concomitant Use with CYP3A4 and CYP2D6 Inhibitors and/or CYP3A4 Inducers**

Factors	Adjusted REXULTI Dosage
<b>CYP2D6 Poor Metabolizers</b>	
CYP2D6 poor metabolizers	Administer half of the usual dose
Known CYP2D6 poor metabolizers taking strong/moderate CYP3A4 inhibitors	Administer a quarter of the usual dose
<b>Patients Taking CYP2D6 Inhibitors and/or CYP3A4 Inhibitors</b>	
Strong CYP2D6 inhibitors*	Administer half of the usual dose
Strong CYP3A4 inhibitors	Administer half of the usual dose
Strong/moderate CYP2D6 inhibitors with strong/moderate CYP3A4 inhibitors	Administer a quarter of the usual dose
<b>Patients Taking CYP3A4 Inducers</b>	

Strong CYP3A4 inducers	Double usual dose over 1 to 2 weeks
------------------------	-------------------------------------

\*In the clinical trials examining the adjunctive use of REXULTI in the treatment of MDD, dosage was not adjusted for strong CYP2D6 inhibitors (e.g., paroxetine, fluoxetine). Thus, CYP considerations are already factored into general dosing recommendations and REXULTI may be administered without dosage adjustment in patients with MDD.

### 3 DOSAGE FORMS AND STRENGTHS

REXULTI tablets are available in 5 strengths.

- 0.5 mg tablets: are light orange, round, shallow convex, bevel-edged body with “BRX” and “0.5” imprinted on one side
- 1 mg tablets are light yellow, round, shallow convex, bevel-edged body with “BRX” and “1” imprinted on one side
- 2 mg tablets are light green, round, shallow convex, bevel-edged body with “BRX” and “2” imprinted on one side
- 3 mg tablets are light purple, round, shallow convex, bevel-edged body with “BRX” and “3” imprinted on one side
- 4 mg tablets are white, round, shallow convex, bevel-edged body with “BRX” and “4” imprinted on one side

### 4 CONTRAINDICATIONS

REXULTI is contraindicated in patients with a known hypersensitivity to brexpiprazole or any of its components (listed in section 11).

Reactions have included rash, facial swelling, urticaria, and anaphylaxis.

### 5 WARNINGS AND PRECAUTIONS

#### 5.1 Increased Mortality in Elderly Patients with Dementia-Related Psychosis

Elderly patients with dementia-related psychosis treated with antipsychotic drugs are at an increased risk of death. Analyses of 17 placebo-controlled trials (modal duration of 10 weeks), largely in patients taking atypical antipsychotic drugs, revealed a risk of death in drug-treated patients of between 1.6 to 1.7 times the risk of death in placebo-treated patients. Over the course of a typical 10-week controlled trial, the rate of death in drug-treated patients was about 4.5%, compared to a rate of about 2.6% in the placebo group.

Although the causes of death were varied, most of the deaths appeared to be either cardiovascular (e.g., heart failure, sudden death) or infectious (e.g., pneumonia) in nature. REXULTI is not approved for the treatment of patients with dementia-related psychosis [*see [Boxed Warning](#), [Warnings and Precautions \(5.3\)](#)*].

#### 5.2 Suicidal Thoughts and Behaviors in Children, Adolescents and Young Adults

In pooled analyses of placebo-controlled trials of antidepressant drugs (SSRIs and other antidepressant classes) that included approximately 77,000 adult patients, and over 4400 pediatric patients, the incidence of suicidal thoughts and behaviors in patients age 24 years and younger was greater in antidepressant-treated patients than in placebo-treated patients. The drug-placebo differences in the number of cases of suicidal thoughts and behaviors per 1000 patients treated are provided in Table 2.

No suicides occurred in any of the pediatric studies. There were suicides in the adult studies, but the number was not sufficient to reach any conclusion about antidepressant drug effect on suicide.

**Table 2: Risk Differences of the Number of Patients with Suicidal Thoughts or Behaviors in the Pooled Placebo-Controlled Trials of Antidepressants in Pediatric\* and Adult Patients**

Age Range (years)	Drug-Placebo Difference in Number of Patients with Suicidal Thoughts or Behaviors per 1000 Patients Treated
	<b>Increases Compared to Placebo</b>
<18	14 additional patients
18 to 24	5 additional patients
	<b>Decreases Compared to Placebo</b>
25 to 64	1 fewer patient
≥65	6 fewer patients

\*REXULTI is not approved in pediatric patients with MDD.

It is unknown whether the risk of suicidal thoughts and behaviors in children, adolescents, and young adults extends to longer-term use, i.e., beyond four months. However, there is substantial evidence from placebo-controlled maintenance studies in adults with MDD that antidepressants delay the recurrence of depression.

Monitor all antidepressant-treated patients for clinical worsening and emergence of suicidal thoughts and behaviors, especially during the initial few months of drug therapy and at times of dosage changes. Counsel family members or caregivers of patients to monitor for changes in behavior and to alert the healthcare provider. Consider changing the therapeutic regimen, including possibly discontinuing REXULTI, in patients whose depression is persistently worse, or who are experiencing emergent suicidal thoughts or behaviors.

### 5.3 Cerebrovascular Adverse Reactions Including Stroke in Elderly Patients with Dementia-Related Psychosis

In placebo-controlled trials in elderly subjects with dementia, patients randomized to risperidone, aripiprazole, and olanzapine had a higher incidence of stroke and transient ischemic attack, including fatal stroke. REXULTI is not approved for the treatment of patients with dementia-related psychosis [see [Boxed Warning](#), [Warnings and Precautions \(5.1\)](#)].

### 5.4 Neuroleptic Malignant Syndrome (NMS)

A potentially fatal symptom complex, sometimes referred to as neuroleptic malignant syndrome (NMS), has been reported in association with administration of antipsychotic drugs, including REXULTI. Clinical manifestations of NMS are hyperpyrexia, muscle rigidity, altered mental status, and evidence of autonomic instability. Additional signs may include elevated creatinine phosphokinase, myoglobinuria (rhabdomyolysis), and acute renal failure.

If NMS is suspected, immediately discontinue REXULTI and provide intensive symptomatic treatment and monitoring.

### 5.5 Tardive Dyskinesia

Tardive dyskinesia, a syndrome consisting of potentially irreversible, involuntary, dyskinetic movements, may develop in patients treated with antipsychotic drugs. The risk appears to be highest among the elderly, especially elderly women, but it is not possible to predict which patients are likely to develop the syndrome. Whether antipsychotic drugs differ in their potential to cause tardive dyskinesia is unknown.

The risk of tardive dyskinesia and the likelihood that it will become irreversible increase with the duration of treatment and the cumulative dose. The syndrome can develop after a relatively brief treatment period, even at low doses. It may also occur after discontinuation of treatment.

Tardive dyskinesia may remit, partially or completely, if antipsychotic treatment is discontinued. Antipsychotic treatment itself, however, may suppress (or partially suppress) the signs and symptoms of the syndrome, possibly masking the underlying process. The effect that symptomatic suppression has upon the long-term course of tardive dyskinesia is unknown.

Given these considerations, REXULTI should be prescribed in a manner most likely to reduce the risk of tardive dyskinesia. Chronic antipsychotic treatment should generally be reserved for patients: (1) who suffer from a chronic illness that is known to respond to antipsychotic drugs; and (2) for whom alternative, effective, but potentially less harmful treatments are not available or appropriate. In patients who do require chronic treatment, use the lowest dose and the shortest duration of treatment needed to produce a satisfactory clinical response. Periodically reassess the need for continued treatment.

If signs and symptoms of tardive dyskinesia appear in a patient on REXULTI, drug discontinuation should be considered. However, some patients may require treatment with REXULTI despite the presence of the syndrome.

## **5.6 Metabolic Changes**

Atypical antipsychotic drugs, including REXULTI, have caused metabolic changes, including hyperglycemia, diabetes mellitus, dyslipidemia, and body weight gain. Although all of the drugs in the class to date have been shown to produce some metabolic changes, each drug has its own specific risk profile.

### Hyperglycemia and Diabetes Mellitus

Hyperglycemia, in some cases extreme and associated with ketoacidosis or hyperosmolar coma or death, has been reported in patients treated with atypical antipsychotics. There have been reports of hyperglycemia in patients treated with REXULTI. Assess fasting plasma glucose before or soon after initiation of antipsychotic medication and monitor periodically during long-term treatment.

#### *Major Depressive Disorder*

In the 6-week placebo-controlled, fixed-dose clinical trials in adult patients with MDD, the proportions of patients with shifts in fasting glucose from normal (<100 mg/dL) to high ( $\geq 126$  mg/dL) and borderline ( $\geq 100$  and <126 mg/dL) to high were similar in patients treated with REXULTI and placebo.

In the long-term, open-label depression studies, 5% of adult patients with normal baseline fasting glucose experienced a shift to high while taking REXULTI plus an antidepressant (ADT); 25% of patients with borderline fasting glucose experienced shifts to high. Combined, 9% of patients with normal or borderline fasting glucose experienced shifts to high fasting glucose during the long-term depression studies.

#### *Schizophrenia*

##### Adults

In the 6-week placebo-controlled, fixed-dose clinical trials in patients with schizophrenia, the proportions of patients with shifts in fasting glucose from normal (<100 mg/dL) to high ( $\geq 126$  mg/dL) or borderline ( $\geq 100$  and <126 mg/dL) to high were similar in patients treated with REXULTI and placebo.

In the long-term, open-label schizophrenia studies, 8% of adult patients with normal baseline fasting glucose experienced a shift from normal to high while taking REXULTI; 17% of patients with borderline fasting glucose experienced shifts from borderline to high. Combined, 10% of patients with normal or borderline fasting glucose experienced shifts to high fasting glucose during the long-term schizophrenia studies.

##### Pediatric Patients (13 to 17 years of age)

In the long-term, open-label study in pediatric patients with schizophrenia, 2.7% of pediatric patients with normal baseline fasting glucose experienced a shift from normal (<100 mg/dL) to high ( $\geq 126$  mg/dL) while taking REXULTI.

### Dyslipidemia

Atypical antipsychotics cause adverse alterations in lipids. Before or soon after initiation of antipsychotic medication, obtain a fasting lipid profile at baseline and monitor periodically during treatment.

### *Major Depressive Disorder*

In the 6-week placebo-controlled, fixed-dose clinical trials in patients with MDD, changes in fasting total cholesterol, LDL cholesterol, and HDL cholesterol were similar in REXULTI- and placebo-treated patients. Table 3 shows the proportions of patients with changes in fasting triglycerides.

**Table 3: Change in Fasting Triglycerides in the 6-Week, Placebo-Controlled, Fixed-Dose MDD Trials**

Triglycerides	<i>Proportion of Patients with Shifts Baseline to Post-Baseline</i>			
	Placebo	1 mg/day	2 mg/day	3 mg/day
<b>Normal to High</b> (<150 mg/dL to $\geq 200$ and <500 mg/dL)	6% (15/257)*	5% (7/145)*	13% (15/115)*	9% (13/150)*
<b>Normal/Borderline to Very High</b> (<200 mg/dL to $\geq 500$ mg/dL)	0% (0/309)*	0% (0/177)*	0.7% (1/143)*	0% (0/179)*

\* denotes n/N where N=the total number of patients who had a measurement at baseline and at least one post-baseline result.  
n=the number of patients with shift.

In the long-term, open-label depression studies, shifts in baseline fasting cholesterol from normal to high were reported in 9% (total cholesterol), 3% (LDL cholesterol), and shifts in baseline from normal to low were reported in 14% (HDL cholesterol) of patients taking REXULTI. Of patients with normal baseline triglycerides, 17% experienced shifts to high, and 0.2% experienced shifts to very high. Combined, 0.6% of patients with normal or borderline fasting triglycerides experienced shifts to very high fasting triglycerides during the long-term depression studies.

### *Schizophrenia*

### Adults

In the 6-week placebo-controlled, fixed-dose clinical trials in adult patients with schizophrenia, changes in fasting total cholesterol, LDL cholesterol, and HDL cholesterol were similar in REXULTI- and placebo-treated patients. Table 4 shows the proportions of patients with changes in fasting triglycerides.

**Table 4: Change in Fasting Triglycerides in the 6-Week Placebo-Controlled, Fixed-Dose Schizophrenia Trials in Adult Patients**

Triglycerides	<i>Proportion of Patients with Shifts Baseline to Post-Baseline</i>			
	Placebo	1 mg/day	2 mg/day	4 mg/day
<b>Normal to High</b> (<150 mg/dL to $\geq 200$ and <500)	6%	10%	8%	10%

mg/dL)	(15/253)*	(7/72)*	(19/232)*	(22/226)*
<b>Normal/Borderline to Very High</b>	0%	0%	0%	0.4%
(<200 mg/dL to ≥500 mg/dL)	(0/303)*	(0/94)*	(0/283)*	(1/283)*

\* denotes n/N where N=the total number of patients who had a measurement at baseline and at least one post-baseline result.  
n=the number of patients with shift.

In the long-term, open-label schizophrenia studies in adult patients, shifts in baseline fasting cholesterol from normal to high were reported in 6% (total cholesterol), 2% (LDL cholesterol), and shifts in baseline from normal to low were reported in 17% (HDL cholesterol) of patients taking REXULTI. Of patients with normal baseline triglycerides, 13% experienced shifts to high, and 0.4% experienced shifts to very high triglycerides. Combined, 0.6% of patients with normal or borderline fasting triglycerides experienced shifts to very high fasting triglycerides during the long-term schizophrenia studies.

#### Pediatric Patients (13 to 17 years of age)

In the long-term, open-label study in pediatric patients with schizophrenia, shifts in baseline fasting total cholesterol from normal to high (<170 to ≥200 mg/dL) were reported in 7% of patients taking REXULTI, and shifts in baseline HDL cholesterol from normal to low (≥40 to <40 mg/dL) were reported in 12.9% of patients taking REXULTI. Of patients with normal baseline triglycerides, 8.5% experienced shifts from normal to high (<150 to ≥200 mg/dL).

#### Weight Gain

Weight gain has been observed in patients treated with atypical antipsychotics, including REXULTI. Monitor weight at baseline and frequently thereafter.

#### *Major Depressive Disorder*

Table 5 shows weight gain data at last visit and percentage of adult patients with ≥7% increase in body weight at endpoint from the 6-week placebo-controlled, fixed-dose clinical studies in patients with MDD.

**Table 5: Increases in Body Weight in the 6-Week Placebo-Controlled, Fixed-Dose MDD Trials**

	<b>Placebo n=407</b>	<b>1 mg/day n=225</b>	<b>2 mg/day n=187</b>	<b>3 mg/day n=228</b>
<i>Mean Change from Baseline (kg) at Last Visit</i>				
<b>All Patients</b>	+0.3	+1.3	+1.6	+1.6
<i>Proportion of Patients with a ≥7% Increase in Body Weight (kg) at Any Visit (*n/N)</i>				
	2% (8/407)*	5% (11/225)*	5% (9/187)*	2% (5/228)*

\* N=the total number of patients who had a measurement at baseline and at least one post-baseline result.  
n=the number of subjects with a shift ≥7%.

In the long-term, open-label depression studies, 4% of patients discontinued due to weight increase. REXULTI was associated with mean change from baseline in weight of 2.9 kg at Week 26 and 3.1 kg at Week 52. In the long-term, open label depression studies, 30% of patients demonstrated a ≥7% increase in body weight and 4% demonstrated a ≥7% decrease in body weight.

#### *Schizophrenia*

#### Adults

Table 6 shows weight gain data at last visit and percentage of adult patients with ≥7% increase in body weight at endpoint from the 6-week placebo-controlled, fixed-dose clinical studies in patients with schizophrenia.

**Table 6: Increases in Body Weight in the 6-Week Placebo-Controlled, Fixed-Dose Schizophrenia Trials in Adult Patients**

	Placebo n=362	1 mg/day n=120	2 mg/day n=362	4 mg/day n=362
	<i>Mean Change from Baseline (kg) at Last Visit</i>			
All Patients	+0.2	+1.0	+1.2	+1.2
	<i>Proportion of Patients with a <math>\geq 7\%</math> Increase in Body Weight (kg) at Any Visit (*n/N)</i>			
	4% (15/362)*	10% (12/120)*	11% (38/362)*	10% (37/362)*

\* denotes n/N where N=the total number of patients who had a measurement at baseline and at least one post-baseline result.  
n=the number of patients with a shift  $\geq 7\%$ .

In the long-term, open-label schizophrenia studies in adult patients, 0.6% of patients discontinued due to weight increase. REXULTI was associated with mean change from baseline in weight of 1.3 kg at Week 26 and 2.0 kg at Week 52. In the long-term, open label schizophrenia studies, 20% of patients demonstrated a  $\geq 7\%$  increase in body weight and 10% demonstrated a  $\geq 7\%$  decrease in body weight.

#### Pediatric Patients (13 to 17 years of age)

In the long-term, open label study in pediatric patients with schizophrenia, 0.5% of patients discontinued due to weight increase. The mean increase in weight from the open-label study baseline to last visit was 3.8 kg. To adjust for normal growth, z-scores were derived (measured in standard deviations [SD]), which normalize for natural growth of children and adolescents by comparisons to age- and gender- matched population standards. A z-score change  $< 0.5$  SD is considered not clinically significant. In this trial, the mean change in z-score from open-label baseline to last visit was 0.10 SD for body weight, while 20% of patients had an increase in age- and-gender-adjusted body weight z-score of at least 0.5 SD from baseline. When treating pediatric, weight gain should be monitored and assessed against that expected for normal growth.

### **5.7 Pathological Gambling and Other Compulsive Behaviors**

Post-marketing case reports suggest that patients can experience intense urges, particularly for gambling, and the inability to control these urges while taking REXULTI. Other compulsive urges, reported less frequently, include sexual urges, shopping, eating or binge eating, and other impulsive or compulsive behaviors. Because patients may not recognize these behaviors as abnormal, it is important for prescribers to ask patients or their caregivers specifically about the development of new or intense gambling urges, compulsive sexual urges, compulsive shopping, binge or compulsive eating, or other urges while being treated with REXULTI. In some cases, although not all, urges were reported to have stopped when the dose was reduced, or the medication was discontinued. Compulsive behaviors may result in harm to the patient and others if not recognized. Consider dose reduction or stopping the medication if a patient develops such urges.

### **5.8 Leukopenia, Neutropenia, and Agranulocytosis**

Leukopenia and neutropenia have been reported during treatment with antipsychotic agents. Agranulocytosis (including fatal cases) has been reported with other agents in this class.

Possible risk factors for leukopenia and neutropenia include pre-existing low white blood cell count (WBC) or absolute neutrophil count (ANC) and history of drug-induced leukopenia or neutropenia. In patients with a pre-existing low WBC or ANC or a history of drug-induced leukopenia or neutropenia, perform a complete blood count (CBC) frequently during the first few months of therapy. In such patients, consider discontinuation of REXULTI at the first sign of a clinically significant decline in WBC in the absence of other causative factors.



Monitor patients with clinically significant neutropenia for fever or other symptoms or signs of infection and treat promptly if such symptoms or signs occur. Discontinue REXULTI in patients with absolute neutrophil count <1000/mm<sup>3</sup> and follow their WBC until recovery.

## **5.9 Orthostatic Hypotension and Syncope**

Atypical antipsychotics cause orthostatic hypotension and syncope. Generally, the risk is greatest during initial dose titration and when increasing the dose. In the short-term, placebo-controlled clinical studies of REXULTI plus ADT in adult patients with MDD, the incidence of orthostatic hypotension-related adverse reactions in REXULTI plus ADT-treated patients compared to placebo plus ADT-treated patients included: dizziness (2% versus 2%) and orthostatic hypotension (0.1% versus 0%). In the short-term, placebo-controlled clinical studies of REXULTI in adult patients with schizophrenia, the incidence of orthostatic hypotension-related adverse reactions in REXULTI-treated patients compared to placebo patients included: dizziness (2% versus 2%), orthostatic hypotension (0.4% versus 0.2%), and syncope (0.1% versus 0%).

Orthostatic vital signs should be monitored in patients who are vulnerable to hypotension (e.g., elderly patients, patients with dehydration, hypovolemia, concomitant treatment with antihypertensive medication), patients with known cardiovascular disease (history of myocardial infarction, ischemic heart disease, heart failure, or conduction abnormalities), and patients with cerebrovascular disease. REXULTI has not been evaluated in patients with a recent history of myocardial infarction or unstable cardiovascular disease. Such patients were excluded from the premarketing clinical trials.

## **5.10 Falls**

Antipsychotics, including REXULTI, may cause somnolence, postural hypotension, motor, and sensory instability, which may lead to falls and, consequently, fractures or other injuries. For patients with diseases, conditions, or medications that could exacerbate these effects, complete fall risk assessments when initiating antipsychotic treatment and recurrently for patients on long-term antipsychotic therapy.

## **5.11 Seizures**

Like other antipsychotic drugs, REXULTI may cause seizures. This risk is greatest in patients with a history of seizures or with conditions that lower the seizure threshold. Conditions that lower the seizure threshold may be more prevalent in older patients.

## **5.12 Body Temperature Dysregulation**

Atypical antipsychotics may disrupt the body's ability to reduce core body temperature. Strenuous exercise, exposure to extreme heat, dehydration, and anticholinergic medications may contribute to an elevation in core body temperature; use REXULTI with caution in patients who may experience these conditions.

## **5.13 Dysphagia**

Esophageal dysmotility and aspiration have been associated with antipsychotic drug use. Antipsychotic drugs, including REXULTI, should be used cautiously in patients at risk for aspiration.

## **5.14 Potential for Cognitive and Motor Impairment**

REXULTI, like other antipsychotics, has the potential to impair judgment, thinking, or motor skills. In the 6-week placebo-controlled clinical trials in patients with MDD, somnolence (including sedation and hypersomnia) was reported in 4% for REXULTI plus ADT-treated patients compared to 1% of placebo plus ADT-treated patients.

In the 6-week placebo-controlled clinical trials in patients with schizophrenia, somnolence (including sedation and hypersomnia) was reported in 5% of REXULTI-treated patients compared to 3% of placebo-treated patients.

Patients should be cautioned about operating hazardous machinery, including motor vehicles, until they are reasonably certain that REXULTI therapy does not affect them adversely.

## 6 ADVERSE REACTIONS

The following adverse reactions are discussed in more detail in other sections of the labeling:

- Increased Mortality in Elderly Patients with Dementia-Related Psychosis [see [Boxed Warning, Warnings and Precautions \(5.1\)](#)]
- Suicidal Thoughts and Behaviors in Adolescents and Young Adults [see [Boxed Warning, Warnings and Precautions \(5.2\)](#)]
- Cerebrovascular Adverse Reactions Including Stroke in Elderly Patients with Dementia-Related Psychosis [see [Warnings and Precautions \(5.3\)](#)]
- Neuroleptic Malignant Syndrome (NMS) [see [Warnings and Precautions \(5.4\)](#)]
- Tardive Dyskinesia [see [Warnings and Precautions \(5.5\)](#)]
- Metabolic Changes [see [Warnings and Precautions \(5.6\)](#)]
- Pathological Gambling and Other Compulsive Behaviors [see [Warnings and Precautions \(5.7\)](#)]
- Leukopenia, Neutropenia, and Agranulocytosis [see [Warnings and Precautions \(5.8\)](#)]
- Orthostatic Hypotension and Syncope [see [Warnings and Precautions \(5.9\)](#)]
- Falls [see [Warnings and Precautions \(5.10\)](#)]
- Seizures [see [Warnings and Precautions \(5.11\)](#)]
- Body Temperature Dysregulation [see [Warnings and Precautions \(5.12\)](#)]
- Dysphagia [see [Warnings and Precautions \(5.13\)](#)]
- Potential for Cognitive and Motor Impairment [see [Warnings and Precautions \(5.14\)](#)]

### 6.1 Clinical Trials Experience

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

#### Major Depressive Disorder

The safety of REXULTI was evaluated in 1054 adult patients (18 to 65 years of age) diagnosed with MDD who participated in two 6-week, placebo-controlled, fixed-dose clinical trials in patients with major depressive disorder in which REXULTI was administered at doses of 1 mg to 3 mg daily as adjunctive treatment to continued antidepressant therapy; patients in the placebo group continued to receive antidepressant therapy [see [Clinical Studies \(14.1\)](#)].

#### *Adverse Reactions Reported as Reasons for Discontinuation of Treatment*

A total of 3% (17/643) of REXULTI-treated patients and 1% (3/411) of placebo-treated patients discontinued due to adverse reactions.

#### *Common Adverse Reactions*

Adverse reactions associated with the adjunctive use of REXULTI (incidence of 2% or greater and adjunctive REXULTI incidence greater than adjunctive placebo) that occurred during acute therapy (up to 6-weeks in patients with MDD) are shown in Table 7.

**Table 7: Adverse Reactions in Pooled 6-Week Placebo-Controlled, Fixed-Dose MDD Trials in Adults (Studies 1 and 2)\***

	Placebo (N=411)	REXULTI			
		1 mg/day (N=226)	2 mg/day (N=188)	3 mg/day (N=229)	All REXULTI (N=643)
<b>Gastrointestinal Disorders</b>					
Constipation	1%	3%	2%	1%	2%
<b>General Disorders and Administration Site Conditions</b>					
Fatigue	2%	3%	2%	5%	3%
<b>Infections and Infestations</b>					
Nasopharyngitis	2%	7%	1%	3%	4%
<b>Investigations</b>					
Weight Increased	2%	7%	8%	6%	7%
Blood Cortisol Decreased	1%	4%	0%	3%	2%
<b>Metabolism and Nutrition</b>					
Increased Appetite	2%	3%	3%	2%	3%
<b>Nervous System Disorders</b>					
Akathisia	2%	4%	7%	14%	9%
Headache	6%	9%	4%	6%	7%
Somnolence	0.5%	4%	4%	6%	5%
Tremor	2%	4%	2%	5%	4%
Dizziness	1%	1%	5%	2%	3%
<b>Psychiatric Disorders</b>					
Anxiety	1%	2%	4%	4%	3%
Restlessness	0%	2%	3%	4%	3%

\* Adverse reactions that occurred in  $\geq 2\%$  of REXULTI-treated patients and greater incidence than in placebo-treated patients

#### *Dose-Related Adverse Reactions in the MDD Trials*

In Studies 1 and 2, among the adverse reactions that occurred at  $\geq 2\%$  incidence in the patients treated with REXULTI plus ADT, the incidences of akathisia and restlessness increased with increases in dose.

### Schizophrenia

#### Adults

The safety of REXULTI was evaluated in 852 adult patients (18 to 65 years of age) diagnosed with schizophrenia who participated in two 6-week placebo-controlled, fixed-dose clinical trials in which REXULTI was administered at daily doses of 1 mg, 2 mg and 4 mg [see [Clinical Studies \(14.2\)](#)].

#### *Common Adverse Reactions*

Adverse reactions associated with REXULTI (incidence of 2% or greater and REXULTI incidence greater than placebo) during short-term (up to 6-weeks) trials in adult patients with schizophrenia are shown in Table 8.

**Table 8: Adverse Reactions in Pooled 6-Week Placebo-Controlled, Fixed-Dose Schizophrenia Trials in Adult Patients (Studies 3 and 4)\***

	Placebo (N=368)	REXULTI			
		1 mg/day (N=120)	2 mg/day (N=368)	4 mg/day (N=364)	ALL REXULTI (N=852)
<b>Gastrointestinal Disorders</b>					
Dyspepsia	2%	6%	2%	3%	3%
Diarrhea	2%	1%	3%	3%	3%
<b>Investigations</b>					
Weight	2%	3%	4%	4%	4%

Increased					
Blood Creatinine Phosphokinase Increased	1%	4%	2%	2%	2%
<b>Nervous System Disorders</b>					
Akathisia	5%	4%	5%	7%	6%
Tremor	1%	2%	2%	3%	3%
Sedation	1%	2%	2%	3%	2%

\* Adverse reactions that occurred in  $\geq 2\%$  of REXULTI-treated patients and greater incidence than in placebo-treated patients

## Extrapyramidal Symptoms

### *Major Depressive Disorder*

The incidence of reported extrapyramidal symptoms (EPS)-related adverse reactions, excluding akathisia, was 6% for REXULTI plus ADT-treated patients versus 3% for placebo plus ADT-treated patients. The incidence of akathisia events for REXULTI plus ADT-treated patients was 9% versus 2% for placebo plus ADT-treated patients.

In the 6-week placebo-controlled MDD studies, data was objectively collected on the Simpson - Angus Rating Scale (SAS) for EPS, the Barnes Akathisia Rating Scale (BARS) for akathisia and the Abnormal Involuntary Movement Score (AIMS) for dyskinesia. The mean change from baseline at last visit for REXULTI plus ADT-treated patients for the SAS, BARS and AIMS was comparable to placebo - treated patients. The percentage of patients who shifted from normal to abnormal was greater in REXULTI plus ADT-treated patients versus placebo plus ADT-treated patients for the BARS (4% versus 0.6%) and the SAS (4% versus 3%).

### *Schizophrenia*

The incidence of reported EPS-related adverse reactions, excluding akathisia, was 5% for REXULTI-treated patients versus 4% for placebo-treated patients. The incidence of akathisia events for REXULTI-treated patients was 6% versus 5% for placebo-treated patients.

In the 6-week placebo-controlled, fixed-dose schizophrenia studies in adults, data was objectively collected on the Simpson - Angus Rating Scale (SAS) for EPS, the Barnes Akathisia Rating Scale (BARS) for akathisia and the Abnormal Involuntary Movement Scale (AIMS) for dyskinesia. The mean change from baseline at last visit for REXULTI-treated patients for the SAS, BARS and AIMS was comparable to placebo-treated patients. The percentage of patients who shifted from normal to abnormal was greater in REXULTI-treated patients versus placebo for the BARS (2% versus 1%) and the SAS (7% versus 5%).

## Dystonia

Symptoms of dystonia may occur in susceptible individuals during the first few days of treatment. Dystonic symptoms include: spasm of the neck muscles, sometimes progressing to tightness of the throat, swallowing difficulty, difficulty breathing, and/or protrusion of the tongue. While these symptoms can occur at low doses, they occur more frequently and with greater severity with high potency and at higher doses of first - generation antipsychotic drugs. An elevated risk of acute dystonia is observed in males and younger age groups.

## Other Adverse Reactions Observed during the Premarketing Evaluation of REXULTI

Other adverse reactions ( $\geq 1\%$  frequency and greater than placebo) within the short-term, placebo-controlled trials in adult patients with MDD and schizophrenia are shown below. The following listing does not include adverse reactions: 1) already listed in previous tables or elsewhere in the labeling, 2) for which a drug cause was remote, 3) which were so

general as to be uninformative, 4) which were not considered to have clinically significant implications, or 5) which occurred at a rate equal to or less than placebo.

*Eye Disorders:* Vision Blurred

*Gastrointestinal Disorders:* Nausea, Dry Mouth, Salivary Hypersecretion, Abdominal Pain, Flatulence

*Infections and Infestations:* Urinary Tract Infection

*Investigations:* Blood Prolactin Increased

*Musculoskeletal and Connective Tissue Disorders:* Myalgia

*Psychiatric Disorders:* Abnormal Dreams, Insomnia

*Skin and Subcutaneous Tissue Disorders:* Hyperhidrosis

#### Pediatric Patients (13 to 17 years of age)

In an on-going, 2 year, open-label study in pediatric patients 13 to 17 years of age with schizophrenia, in which safety was assessed in 194 patients of which 140 received REXULTI for at least 6 months. Adverse reactions reported in clinical studies for this age group were generally similar to those observed in adult patients.

### **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. Any suspected adverse events should be reported to the Ministry of Health according to the National Regulation by using an online form <https://sideeffects.health.gov.il/>

## **6.2 Postmarketing Experience**

The following adverse reaction has been identified during post-approval use of REXULTI. Because these reactions are reported voluntarily from a population of uncertain size, it is not always possible to reliably estimate their frequency or establish a causal relationship to drug exposure.

*Nervous System disorders:* Neuroleptic Malignant Syndrome

## **7 DRUG INTERACTIONS**

### **7.1 Drugs Having Clinically Important Interactions with REXULTI**

**Table 9: Clinically Important Drug Interactions with REXULTI**

<b>Strong CYP3A4 Inhibitors</b>	
<i>Clinical Impact:</i>	Concomitant use of REXULTI with strong CYP3A4 inhibitors increased the exposure of brexpiprazole compared to the use of REXULTI alone [ <i>see <a href="#">Clinical Pharmacology (12.3)</a></i> ]
<i>Intervention:</i>	With concomitant use of REXULTI with a strong CYP3A4 inhibitor, reduce the REXULTI dosage [ <i>see <a href="#">Dosage and Administration (2.5)</a></i> ]
<b>Strong CYP2D6 Inhibitors*</b>	

<i>Clinical Impact:</i>	Concomitant use of REXULTI with strong CYP2D6 inhibitors increased the exposure of brexpiprazole compared to the use of REXULTI alone [see <a href="#">Clinical Pharmacology (12.3)</a> ]
<i>Intervention:</i>	With concomitant use of REXULTI with a strong CYP2D6 inhibitor, reduce the REXULTI dosage [see <a href="#">Dosage and Administration (2.5)</a> ]
<b>Both CYP3A4 Inhibitors and CYP2D6 Inhibitors</b>	
<i>Clinical Impact:</i>	Concomitant use of REXULTI with 1) a strong CYP3A4 inhibitor and a strong CYP2D6 inhibitor; or 2) a moderate CYP3A4 inhibitor and a strong CYP2D6 inhibitor; or 3) a strong CYP3A4 inhibitor and a moderate CYP2D6 inhibitor; or 4) a moderate CYP3A4 inhibitor and a moderate CYP2D6 inhibitor increased the exposure of brexpiprazole compared to the use of REXULTI alone [see <a href="#">Clinical Pharmacology (12.3)</a> ]
<i>Intervention:</i>	With concomitant use of REXULTI with 1) a strong CYP3A4 inhibitor and a strong CYP2D6 inhibitor; or 2) a moderate CYP3A4 inhibitor and a strong CYP2D6 inhibitor; or 3) a strong CYP3A4 inhibitor and a moderate CYP2D6 inhibitor; or 4) a moderate CYP3A4 inhibitor and a moderate CYP2D6 inhibitor, decrease the REXULTI dosage [see <a href="#">Dosage and Administration (2.5)</a> ]
<b>Strong CYP3A4 Inducers</b>	
<i>Clinical Impact:</i>	Concomitant use of REXULTI and a strong CYP3A4 inducer decreased the exposure of brexpiprazole compared to the use of REXULTI alone [see <a href="#">Clinical Pharmacology (12.3)</a> ]
<i>Intervention:</i>	With concomitant use of REXULTI with a strong CYP3A4 inducer, increase the REXULTI dosage [see <a href="#">Dosage and Administration (2.5)</a> ]

\* In the clinical trials examining the adjunctive use of REXULTI in the treatment of MDD, dosage was not adjusted for strong CYP2D6 inhibitors (e.g., paroxetine, fluoxetine). Thus, CYP considerations are already factored into general dosing recommendations and REXULTI may be administered without dosage adjustment in patients with MDD.

## 7.2 Drugs Having No Clinically Important Interactions with REXULTI

Based on pharmacokinetic studies, no dosage adjustment of REXULTI is required when administered concomitantly with CYP2B6 inhibitors (e.g., ticlopidine) or gastric pH modifiers (e.g., omeprazole). Additionally, no dosage adjustment for substrates of CYP2D6 (e.g., dextromethorphan), CYP3A4 (e.g., lovastatin), CYP2B6 (e.g., bupropion), BCRP (e.g., rosuvastatin), or P-gp (e.g., fexofenadine) is required when administered concomitantly with REXULTI.

## 8 USE IN SPECIFIC POPULATIONS

### 8.1 Pregnancy

#### Risk Summary

Adequate and well-controlled studies have not been conducted with REXULTI in pregnant women to inform drug-associated risks. However, neonates whose mothers are exposed to antipsychotic drugs, like REXULTI, during the third trimester of pregnancy are at risk for extrapyramidal and/or withdrawal symptoms. In animal reproduction studies, no teratogenicity was observed with oral administration of brexpiprazole to pregnant rats and rabbits during organogenesis at doses up to 73 and 146 times, respectively, of maximum recommended human dose (MRHD) of 4 mg/day on a mg/m<sup>2</sup>

basis. However, when pregnant rats were administered brexpiprazole during the period of organogenesis through lactation, the number of perinatal deaths of pups was increased at 73 times the MRHD [see Data]. The background risk of major birth defects and miscarriage for the indicated population(s) is unknown. In the U.S. general population, the estimated background risk of major birth defects and miscarriage in clinically recognized pregnancies is 2 to 4% and 15 to 20%, respectively.

## Clinical Considerations

### *Fetal/Neonatal Adverse Reactions*

Extrapyramidal and/or withdrawal symptoms, including agitation, hypertonia, hypotonia, tremor, somnolence, respiratory distress and feeding disorder, have been reported in neonates whose mothers were exposed to antipsychotic drugs during the third trimester of pregnancy. These symptoms have varied in severity. Some neonates recovered within hours or days without specific treatment; others required prolonged hospitalization. Monitor neonates for extrapyramidal and/or withdrawal symptoms and manage symptoms appropriately.

## Data

### *Animal Data*

Pregnant rats were treated with oral doses of 3, 10, and 30 mg/kg/day (7.3, 24, and 73 times the MRHD on a mg/m<sup>2</sup> basis) of brexpiprazole during the period of organogenesis. Brexpiprazole was not teratogenic and did not cause adverse developmental effects at doses up to 73 times the MRHD.

Pregnant rabbits were treated with oral doses of 10, 30, and 150 mg/kg/day (49, 146, and 730 times the MRHD) of brexpiprazole during the period of organogenesis. Brexpiprazole was not teratogenic and did not cause adverse developmental effects at doses up to 146 times the MRHD. Findings of decreased body weight, retarded ossification, and increased incidences of visceral and skeletal variations were observed in fetuses at 730 times the MRHD, a dose that induced maternal toxicity.

In a study in which pregnant rats were administered oral doses of 3, 10, and 30 mg/kg/day (7.3, 24, and 73 times the MRHD) during the period of organogenesis and through lactation, the number of live-born pups was decreased and early postnatal deaths increased at a dose 73 times the MRHD. Impaired nursing by dams, and low birth weight and decreased body weight gain in pups were observed at 73 times, but not at 24 times, the MRHD.

## **8.2 Lactation**

### Risk Summary

Lactation studies have not been conducted to assess the presence of brexpiprazole in human milk, the effects of brexpiprazole on the breastfed infant, or the effects of brexpiprazole on milk production. Brexpiprazole is present in rat milk. The development and health benefits of breastfeeding should be considered along with the mother's clinical need for REXULTI and any potential adverse effects on the breastfed infant from REXULTI or from the underlying maternal condition.

## **8.4 Pediatric Use**

### Schizophrenia

Safety and effectiveness of REXULTI for treatment of schizophrenia have been established in pediatric patients 13 years of age and older. Use of REXULTI in this population is supported by evidence from adequate and well-controlled studies in adults with schizophrenia, pharmacokinetic data from adults and pediatric patients, and safety data in pediatric patients 13 to 17 years of age [see [Warnings and Precautions \(5.6\)](#), [Adverse Reactions \(6.1\)](#), [Clinical Pharmacology \(12.3\)](#)].

## Major Depressive Disorder

Safety and effectiveness in pediatric patients with major depressive disorder have not been established. Antidepressants increased the risk of suicidal thoughts and behaviors in pediatric patients [see [Boxed Warning, Warnings and Precautions \(5.2\)](#)].

## **8.5 Geriatric Use**

Clinical studies of the efficacy of REXULTI did not include any patients aged 65 or older to determine whether they respond differently from younger patients. In general, dose selection for an elderly patient should be cautious, usually starting at the low end of the dosing range, reflecting the greater frequency of decreased hepatic, renal, and cardiac function, concomitant diseases, and other drug therapy.

Based on the results of a safety, tolerability and pharmacokinetics trial, the pharmacokinetics of once daily oral administration of brexpiprazole (up to 3 mg/day for 14 days) as an adjunct therapy in the treatment of elderly patients (70 to 85 years old, N=11) with MDD were comparable to those observed in adult patients with MDD.

Antipsychotic drugs increase the risk of death in elderly patients with dementia-related psychosis. REXULTI is not approved for the treatment of patients with dementia-related psychosis [see [Boxed Warning, Warnings and Precautions \(5.1\)](#)].

## **8.6 CYP2D6 Poor Metabolizers**

Dosage adjustment is recommended in known CYP2D6 poor metabolizers because these patients have higher brexpiprazole concentrations than normal metabolizers of CYP2D6. Approximately 8% of Caucasians and 3 to 8% of Black/African Americans cannot metabolize CYP2D6 substrates and are classified as poor metabolizers [see [Dosage and Administration \(2.5\)](#), [Clinical Pharmacology \(12.3\)](#)].

## **8.7 Hepatic Impairment**

Reduce the maximum recommended dosage in patients with moderate to severe hepatic impairment (Child-Pugh score  $\geq 7$ ). Patients with moderate to severe hepatic impairment (Child-Pugh score  $\geq 7$ ) generally had higher exposure to brexpiprazole than patients with normal hepatic function [see [Clinical Pharmacology \(12.3\)](#)]. Greater exposure may increase the risk of REXULTI-associated adverse reactions [see [Dosage and Administration \(2.3\)](#)].

## **8.8 Renal Impairment**

Reduce the maximum recommended dosage in patients with moderate, severe, or end-stage renal impairment (CrCl <60 mL/minute). Patients with impaired renal function (CrCl <60 mL/minute) had higher exposure to brexpiprazole than patients with normal renal function [see [Clinical Pharmacology \(12.3\)](#)]. Greater exposure may increase the risk of REXULTI-associated adverse reactions [see [Dosage and Administration \(2.4\)](#)].

## **8.9 Other Specific Populations**

No dosage adjustment for REXULTI is required on the basis of a patient's sex, race, or smoking status [see [Clinical Pharmacology \(12.3\)](#)].

## **9 DRUG ABUSE AND DEPENDENCE**

### **9.1 Controlled Substance**

REXULTI is not a controlled substance.



## 9.2 Abuse

Animals given access to REXULTI did not self-administer the drug, suggesting that REXULTI does not have rewarding properties.

## 9.3 Dependence

Humans and animals that received chronic REXULTI administration did not demonstrate any withdrawal signs upon drug discontinuation. This suggests that REXULTI does not produce physical dependence.

## 10 OVERDOSAGE

There is limited clinical trial experience regarding human overdose with REXULTI.

Consult a Certified Poison Control Center (**1-800-222-1222** or **www.poison.org**) for up-to-date guidance and advice regarding a REXULTI overdose. Management of overdose should concentrate on supportive therapy, maintaining an adequate airway, oxygenation and ventilation, and management of symptoms. Close medical supervision and monitoring should continue until the patient recovers.

### Charcoal

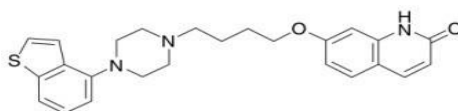
Oral activated charcoal and sorbitol (50 g/240 mL), administered one hour after ingesting oral brexpiprazole, decreased brexpiprazole C<sub>max</sub> and area under the curve (AUC) by approximately 5% to 23% and 31% to 39% respectively; however, there is insufficient information available on the therapeutic potential of activated charcoal in treating an overdose with REXULTI.

### Hemodialysis

There is no information on the effect of hemodialysis in treating an overdose with REXULTI; hemodialysis is unlikely to be useful because brexpiprazole is highly bound to plasma proteins.

## 11 DESCRIPTION

Brexpiprazole, an atypical antipsychotic, is available as REXULTI<sup>®</sup> (brexpiprazole) tablets. Brexpiprazole is 7-{4-[4-(1-Benzothiophen-4-yl)piperazin-1-yl]butoxy}quinolin-2(1*H*)-one. The empirical formula is C<sub>25</sub>H<sub>27</sub>N<sub>3</sub>O<sub>2</sub>S and its molecular weight is 433.57. The chemical structure is:



REXULTI tablets are for oral administration and are available in 0.5 mg, 1 mg, 2 mg, 3 mg and 4 mg strengths. Inactive ingredients include lactose monohydrate, corn starch, microcrystalline cellulose, hydroxypropyl cellulose, low-substituted hydroxypropyl cellulose, magnesium stearate, hypromellose, and talc. Colorants - REXULTI 0.5 mg- OPADRY 03A430000 Orange, REXULTI 1 mg- OPADRY 03A420002 Yellow, REXULTI 2 mg- OPADRY 03A410000 Green, REXULTI 3 mg-OPADRY 03A400000 Purple, REXULTI 4 mg- OPADRY 03A480004 White.

## 12 CLINICAL PHARMACOLOGY

### 12.1 Mechanism of Action

The mechanism of action of brexpiprazole in the treatment of major depressive disorder or schizophrenia is unknown. However, the efficacy of brexpiprazole may be mediated through a combination of partial agonist activity at serotonin 5-HT<sub>1A</sub> and dopamine D<sub>2</sub> receptors, and antagonist activity at serotonin 5-HT<sub>2A</sub> receptors.

## 12.2 Pharmacodynamics

Brexipiprazole has affinity (expressed as  $K_i$ ) for multiple monoaminergic receptors including serotonin 5-HT<sub>1A</sub> (0.12 nM), 5-HT<sub>2A</sub> (0.47 nM), 5-HT<sub>2B</sub> (1.9 nM), 5-HT<sub>7</sub> (3.7 nM), dopamine D<sub>2</sub> (0.30 nM), D<sub>3</sub> (1.1 nM), and noradrenergic  $\alpha_{1A}$  (3.8 nM),  $\alpha_{1B}$  (0.17 nM),  $\alpha_{1D}$  (2.6 nM), and  $\alpha_{2C}$  (0.59 nM) receptors. Brexipiprazole acts as a partial agonist at the 5-HT<sub>1A</sub>, D<sub>2</sub>, and D<sub>3</sub> receptors and as an antagonist at 5-HT<sub>2A</sub>, 5-HT<sub>2B</sub>, 5-HT<sub>7</sub>,  $\alpha_{1A}$ ,  $\alpha_{1B}$ ,  $\alpha_{1D}$ , and  $\alpha_{2C}$  receptors. Brexipiprazole also exhibits affinity for histamine H<sub>1</sub> receptor (19 nM) and for muscarinic M<sub>1</sub> receptor (67% inhibition at 10  $\mu$ M).

### Cardiac Electrophysiology

At a dose 3 times the MRHD for the treatment of schizophrenia and 4 times the MRHD for adjunctive therapy to antidepressants for the treatment of MDD, REXULTI does not prolong the QTc interval to any clinically relevant extent.

## 12.3 Pharmacokinetics

### Absorption

After single - dose administration of REXULTI tablets, the peak plasma brexipiprazole concentrations occurred within 4 hours after administration, and the absolute oral bioavailability was 95%. Brexipiprazole steady-state concentrations were attained within 10 to 12 days of dosing.

REXULTI can be administered with or without food. Administration of a 4 mg REXULTI tablet with a standard high - fat meal did not significantly affect the  $C_{max}$  or AUC of brexipiprazole. After single and multiple once daily dose administration, brexipiprazole exposure ( $C_{max}$  and AUC) increased in proportion to the dose administered. *In vitro* studies of brexipiprazole did not indicate that brexipiprazole is a substrate of efflux transporters such as MDRI (P-gp) and BCRP.

### Distribution

The volume of distribution of brexipiprazole following intravenous administration is high (1.56 $\pm$ 0.42 L/kg), indicating extravascular distribution. Brexipiprazole is highly protein bound in plasma (greater than 99%) to serum albumin and  $\alpha$ 1-acid glycoprotein, and its protein binding is not affected by renal or hepatic impairment. Based on results of *in vitro* studies, brexipiprazole protein binding is not affected by warfarin, diazepam, or digitoxin.

### Elimination

#### *Metabolism*

Based on *in vitro* metabolism studies of brexipiprazole using recombinant human cytochrome P450 (CYP1A1, 1A2, 2A6, 2B6, 2C8, 2C9, 2C19, 2D6, 2E1, and 3A4), the metabolism of brexipiprazole was shown to be mainly mediated by CYP3A4 and CYP2D6.

*In vivo* brexipiprazole is metabolized primarily by CYP3A4 and CYP2D6 enzymes. After single- and multiple-dose administrations, brexipiprazole and its major metabolite, DM-3411, were the predominant drug moieties in the systemic circulation. At steady-state, DM-3411 represented 23% to 48% of brexipiprazole exposure (AUC) in plasma. DM-3411 is considered not to contribute to the therapeutic effects of brexipiprazole.

Based on *in vitro* data, brexipiprazole showed little to no inhibition of CYP450 isozymes.

#### *Excretion*

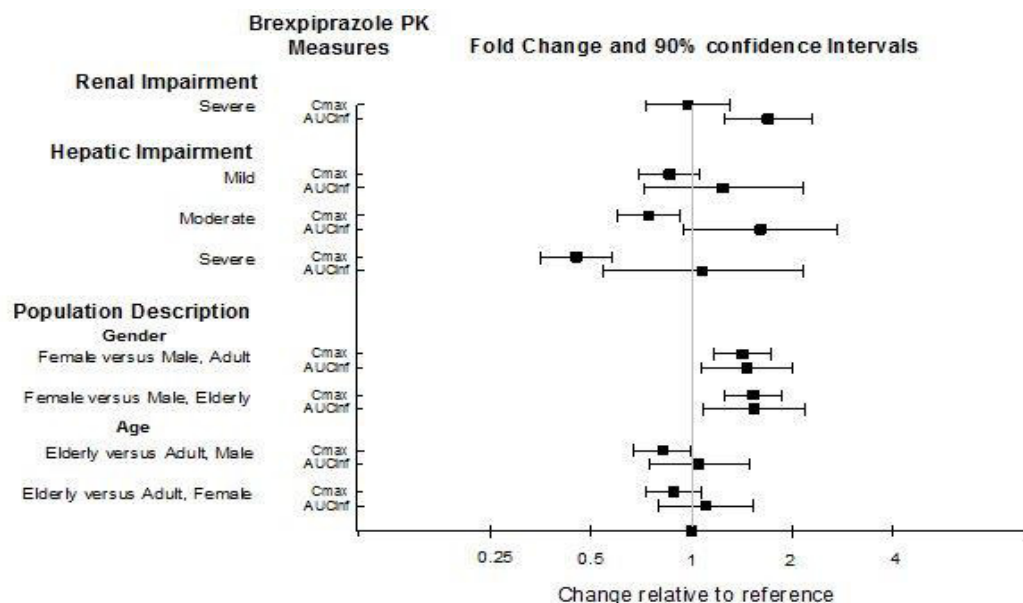
Following a single oral dose of [<sup>14</sup>C]-labeled brexipiprazole, approximately 25% and 46% of the administered radioactivity was recovered in the urine and feces, respectively. Less than 1% of unchanged brexipiprazole was excreted in the urine and approximately 14% of the oral dose was recovered unchanged in the feces. Apparent oral clearance of a brexipiprazole oral tablet after once daily administration is 19.8 ( $\pm$ 11.4) mL/h/kg. After multiple once daily administration of REXULTI,

the terminal elimination half-lives of brexpiprazole and its major metabolite, DM-3411, were 91 hours and 86 hours, respectively.

### Studies in Specific Populations

Exposures of brexpiprazole in specific populations are summarized in Figure 1. Population pharmacokinetic (PK) analysis indicated exposure of brexpiprazole in patients with moderate renal impairment was higher compared to patients with normal renal function.

**Figure 1: Effects of Intrinsic Factors on Brexpiprazole Pharmacokinetics**



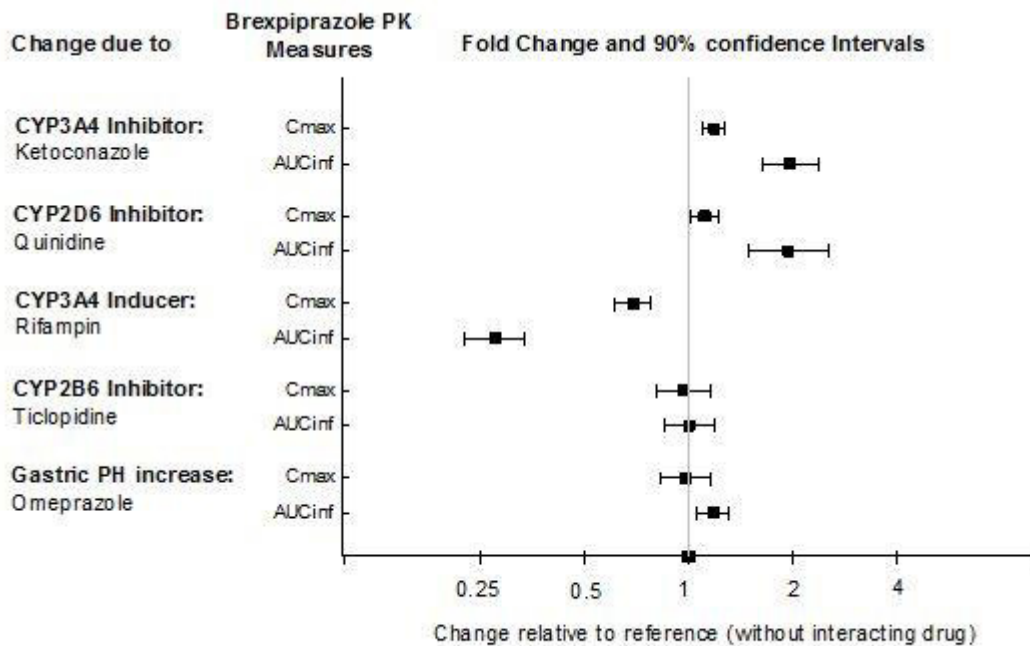
### Pediatric Patients

A multiple dose PK study (0.5, 1, 2, 3 or 4 mg/day) has been conducted in 43 pediatric patients aged 13 years to 17 years old. Population PK analysis indicated systemic exposure ( $C_{max}$  and AUC) of brexpiprazole in pediatric patients (13 to 17 years of age) was comparable to that in adult patients across the dose range from 0.5 to 4 mg.

### Drug Interaction Studies

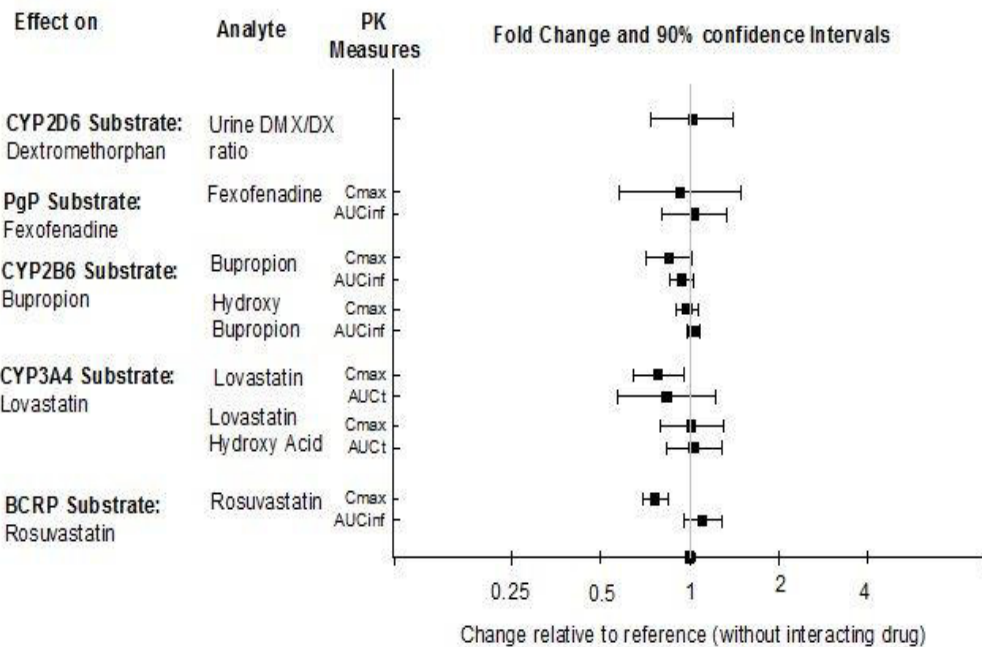
Effects of other drugs on the exposures of brexpiprazole are summarized in Figure 2. Based on simulation, a 5.1-fold increase in AUC values at steady-state is expected when extensive metabolizers of CYP2D6 are administered with both strong CYP2D6 and CYP3A4 inhibitors. A 4.8-fold increase in mean AUC values at steady-state is expected in poor metabolizers of CYP2D6 administered with strong CYP3A4 inhibitors [see [Drug Interactions \(7.1\)](#)].

**Figure 2: The Effects of Other Drugs on Brexpiprazole Pharmacokinetics**



The effects of REXULTI on the exposures of other drugs are summarized in Figure 3.

**Figure 3: The Effects of REXULTI on Pharmacokinetics of Other Drugs**



## 13 NONCLINICAL TOXICOLOGY

### 13.1 Carcinogenesis, Mutagenesis, Impairment of Fertility

#### Carcinogenesis

Lifetime carcinogenicity studies were conducted in ICR mice and Sprague Dawley rats. Brexiprazole was administered orally for two years to male and female mice at doses of 0.75, 2 and 5 mg/kg/day (0.9 to 6.1 times the oral MRHD of 4 mg/day based on mg/m<sup>2</sup> body surface area) and to male and female rats at doses of 1, 3, and 10 mg/kg and 3, 10, and 30

mg/kg/day, respectively (2.4 to 24 and 7.3 to 73 times the oral MRHD, males and females). In female mice, the incidence of mammary gland adenocarcinoma was increased at all doses and the incidence of adenosquamous carcinoma was increased at 2.4 and 6.1 times the MRHD. No increase in the incidence of tumors was observed in male mice. In the rat study, brexpiprazole was not carcinogenic in either sex at doses up to 73 times the MRHD.

Proliferative and/or neoplastic changes in the mammary and pituitary glands of rodents have been observed following chronic administration of antipsychotic drugs and are considered to be prolactin mediated. The potential for increasing serum prolactin level of brexpiprazole was shown in both mice and rats. The relevance for human risk of the findings of prolactin-mediated endocrine tumors in rodents is unknown.

### Mutagenesis

Brexpiprazole was not mutagenic when tested in the *in vitro* bacterial reverse mutation assay (Ames test). Brexpiprazole was negative for clastogenic activity in the *in vivo* micronucleus assay in rats, and was not genotoxic in the *in vivo/in vitro* unscheduled DNA synthesis assay in rats. *In vitro* with mammalian cells brexpiprazole was clastogenic but only at doses that induced cytotoxicity. Based on a weight of evidence, brexpiprazole is not considered to present a genotoxic risk to humans.

### Impairment of Fertility

Female rats were treated with oral doses of 0.3, 3 or 30 mg/kg/day (0.7, 7.3, and 73 times the oral MRHD on a mg/m<sup>2</sup> basis) prior to mating with untreated males and continuing through conception and implantation. Estrus cycle irregularities and decreased fertility were observed at 3 and 30 mg/kg/day. Prolonged duration of pairing and increased preimplantation losses were observed at 30 mg/kg/day.

Male rats were treated with oral doses of 3, 10, or 100 mg/kg/day (7.3, 24 and 240 times the oral MRHD on a mg/m<sup>2</sup> basis) for 63 days prior to mating with untreated females and throughout the 14 days of mating. No differences were observed in the duration of mating or fertility indices in males at any dose of brexpiprazole.

## **14 CLINICAL STUDIES**

### **14.1 Adjunctive Treatment of Major Depressive Disorder**

The efficacy of REXULTI in the adjunctive treatment of major depressive disorder (MDD) was evaluated in two 6-week double-blind, placebo-controlled, fixed-dose trials of adult patients meeting DSM-IV-TR criteria for MDD, with or without symptoms of anxiety, who had an inadequate response to prior antidepressant therapy (1 to 3 courses) in the current episode and who had also demonstrated an inadequate response throughout the 8 weeks of prospective antidepressant treatment (with escitalopram, fluoxetine, paroxetine controlled-release, sertraline, duloxetine delayed release, or venlafaxine extended-release). Inadequate response during the prospective antidepressant treatment phase was defined as having persistent symptoms without substantial improvement throughout the course of treatment.

Patients in Study 228 (hereafter “Study 1”) were randomized to REXULTI 2 mg once a day or placebo. Patients in Study 227 (hereafter “Study 2”) were randomized to REXULTI 1 or 3 mg once a day or placebo. For patients randomized to REXULTI, all patients initiated treatment at 0.5 mg once daily during Week 1. At Week 2, the REXULTI dosage was increased to 1 mg in all treatment groups, and either maintained at 1 mg or increased to 2 mg or 3 mg once daily, based on treatment assignment, from Week 3 onwards. The dosages were then maintained for the 4 remaining weeks.

The primary endpoint was change from baseline to Week 6 in the Montgomery-Asberg Depression Rating Scale (MADRS), a 10-item clinician-related scale used to assess the degree of depressive symptomatology, with 0 representing no symptoms, and 60 representing worst symptoms.

At randomization, the mean MADRS total score was 27. In Studies 1 and 2, REXULTI (plus ADT) 2 mg/day and 3 mg/day were superior to placebo plus ADT in reducing mean MADRS total scores. Results from the primary efficacy

parameters for both fixed dose trials are shown below in Table 10. Figure 4 below shows the time course of response based on the primary efficacy measure (MADRS) in Study 1.

**Table 10: Summary of Efficacy Results for Studies 1 and 2 for the Adjunctive Treatment of MDD in Adults**

Study	Treatment Group	N	Primary Efficacy Measure: MADRS		
			Mean Baseline Score (SD)	LS Mean Change from Baseline (SE)	Placebo-subtracted Difference <sup>a</sup> (95% CI)
1	REXULTI (2 mg/day) +ADT*	175	26.9 (5.7)	-8.4 (0.6)	-3.2 (-4.9, -1.5)
	Placebo +ADT	178	27.3 (5.6)	-5.2 (0.6)	--
2	REXULTI (1 mg/day) +ADT	211	26.5 (5.6)	-7.6 (0.5)	-1.3 (-2.7, 0.1)
	REXULTI (3 mg/day) +ADT	213	26.5 (5.3)	-8.3 (0.5)	-2.0 (-3.4, -0.5)
	Placebo +ADT	203	26.5 (5.2)	-6.3 (0.5)	--

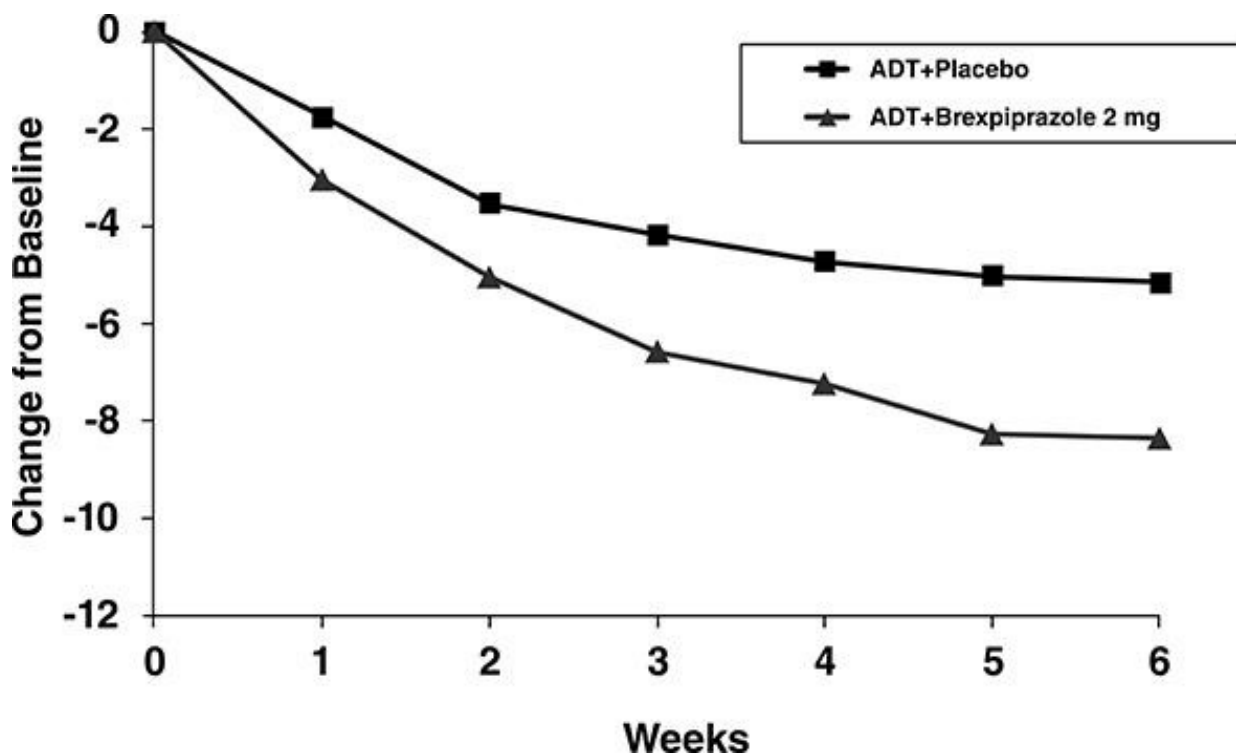
SD: standard deviation; SE: standard error; LS Mean: least-squares mean; CI: unadjusted confidence interval.

\* Dosages statistically significantly superior to placebo.

<sup>a</sup> Difference (drug minus placebo) in least-squares mean change from baseline.

An examination of population subgroups did not suggest differential response based on age, gender, race or choice of prospective antidepressant.

**Figure 4: Change from Baseline in MADRS Total Score by Study Visit (Week) in Patients with MDD in Adults (Study 1)**



## 14.2 Schizophrenia

The efficacy of REXULTI in the treatment of adults with schizophrenia was demonstrated in two 6-week randomized, double-blind, placebo-controlled, fixed-dose clinical trials in patients who met DSM-IV-TR criteria for schizophrenia.

In both studies, Study 231 (hereafter “Study 3”) and Study 230 (hereafter “Study 4”), patients were randomized to REXULTI 2 or 4 mg once per day or placebo. Patients in the REXULTI groups initiated treatment at 1 mg once daily on Days 1 to 4. The REXULTI dosage was increased to 2 mg on Days 5 to 7. The dosage was then either maintained at 2 mg once daily or increased to 4 mg once daily, depending on treatment assignment, for the 5 remaining weeks.

The primary efficacy endpoint of both trials was the change from baseline to Week 6 in the Positive and Negative Syndrome Scale (PANSS) total score. The PANSS is a 30-item scale that measures positive symptoms of schizophrenia (7 items), negative symptoms of schizophrenia (7 items), and general psychopathology (16 items), each rated on a scale of 1 (absent) to 7 (extreme); the total PANSS scores range from 30 (best) to 210 (worst).

In Study 3, REXULTI at both 2 mg/day and 4 mg/day was superior to placebo on the PANSS total score. In Study 4, REXULTI 4 mg/day was superior to placebo on the PANSS total score (Table 11). Figure 5 shows the time course of response based on the primary efficacy measure (change from baseline in PANSS total score) in Study 3.

Examination of population subgroups based on age, gender and race did not suggest differential responsiveness.

**Table 11: Summary of Efficacy Results for Studies in Schizophrenia in Adults (Studies 3 and 4)**

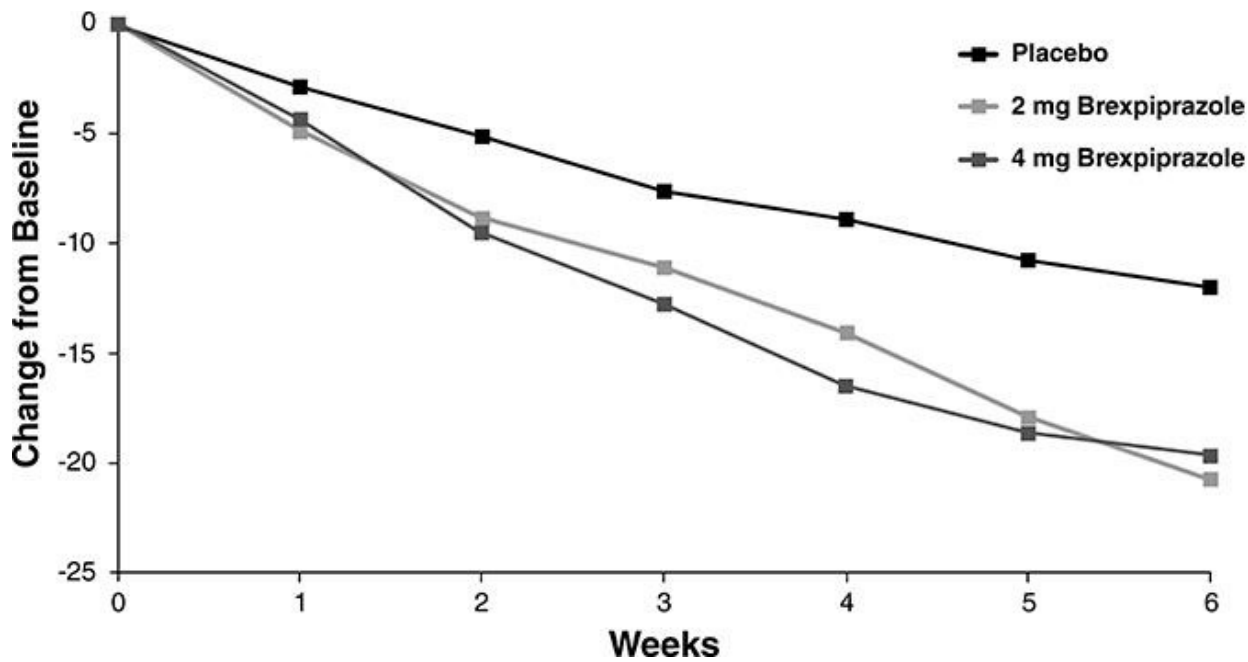
Study	Treatment Group	N	Primary Efficacy Measure: PANSS		
			Mean Baseline Score (SD)	LS Mean Change from Baseline (SE)	Placebo-subtracted Difference <sup>a</sup> (95% CI)
3	REXULTI (2 mg/day)*	180	95.9 (13.8)	-20.7 (1.5)	-8.7 (-13.1, -4.4)
	REXULTI (4 mg/day)*	178	94.7 (12.1)	-19.7 (1.5)	-7.6 (-12.0, -3.1)
	Placebo	178	95.7 (11.5)	-12.0 (1.6)	--
4	REXULTI (2 mg/day)	179	96.3 (12.9)	-16.6 (1.5)	-3.1 (-7.2, 1.1)
	REXULTI (4 mg/day)*	181	95.0 (12.4)	-20.0 (1.5)	-6.5 (-10.6, -2.4)
	Placebo	180	94.6 (12.8)	-13.5 (1.5)	--

SD: standard deviation; SE: standard error; LS Mean: least-squares mean; CI: unadjusted confidence interval.

\* Dosages statistically significantly superior to placebo.

<sup>a</sup> Difference (drug minus placebo) in least-squares mean change from baseline.

**Figure 5: Change from Baseline in PANSS Total Score by Study Visit (Week) in Adult Patients with Schizophrenia (Study 3)**



The safety and efficacy of REXULTI as maintenance treatment in adults with schizophrenia aged 18 to 65 years were demonstrated in the maintenance phase of a randomized withdrawal trial (Study 331-10-232, hereafter “Study 5”). Patients were stabilized for at least 12 weeks on 1 to 4 mg/day of REXULTI (N=202). They were then randomized in the double-blind treatment phase to either continue REXULTI at their achieved stable dose (N=97), or to switch to placebo (N=105).

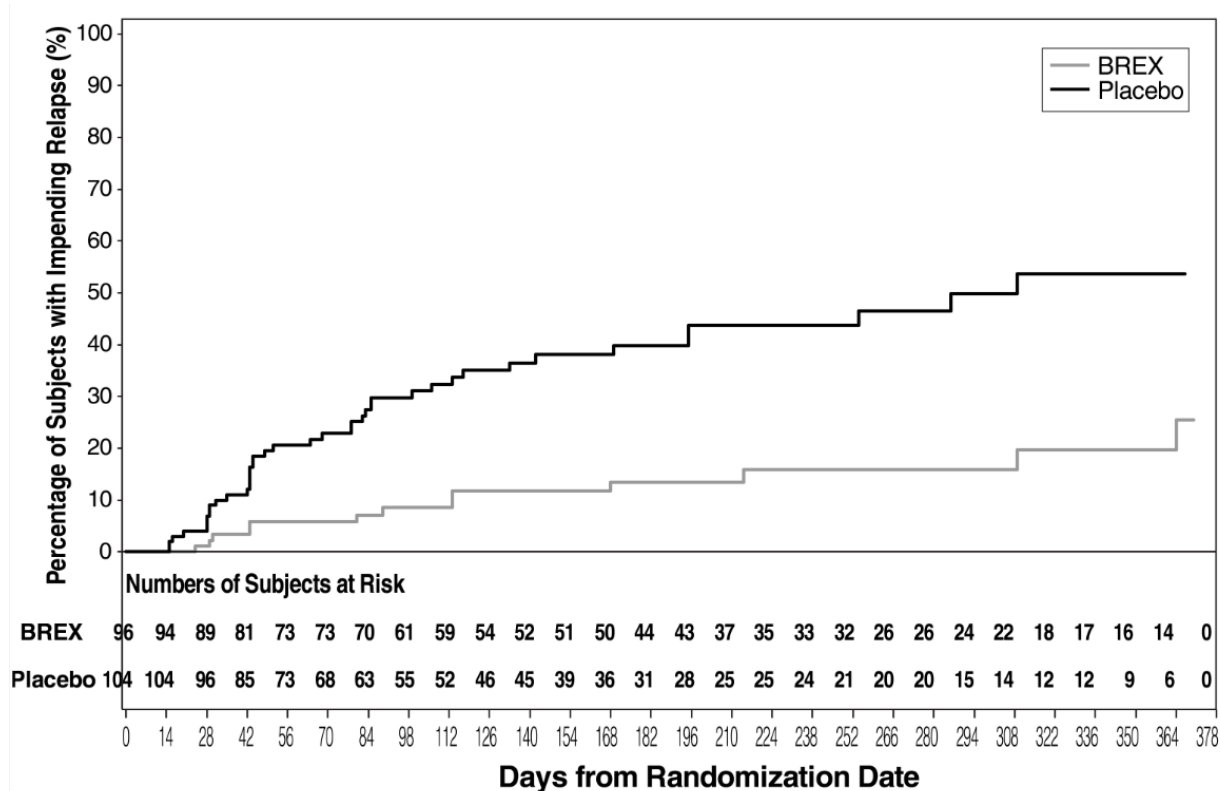
The primary endpoint in Study 5 was time from randomization to impending relapse during the double-blind phase, defined as: 1) Clinical Global Improvement score of  $\geq 5$  (minimally worse) and an increase to a score  $> 4$  on PANSS conceptual disorganization, hallucinatory behavior, suspiciousness, or unusual thought content items, with either a  $\geq 2$  increase on a specific item or  $\geq 4$  point increase on the combined four PANSS items, 2) hospitalization due to worsening of psychotic symptoms, 3) current suicidal behavior, or 4) violent/aggressive behavior.

A pre-specified interim analysis demonstrated a statistically significantly longer time to relapse in patients randomized to the REXULTI group compared to placebo-treated patients. The trial was subsequently terminated early because



maintenance of efficacy had been demonstrated. The Kaplan-Meier curves of the cumulative proportion of patients with relapse during the double-blind treatment phase for REXULTI and placebo groups are shown in Figure 6. The key secondary endpoint, the proportion of patients who met the criteria for impending relapse, was statistically significantly lower in REXULTI-treated patients compared with placebo group.

**Figure 6: Kaplan - Meier Estimation of Percent Impending Relapse in Study 5**



Note: A total of 202 patients were randomized. Among them, one placebo patient did not take investigational medicinal product and one brexpiprazole patient did not have post-randomization efficacy evaluations. These two patients were excluded from the efficacy analysis.

## 16 HOW SUPPLIED/STORAGE AND HANDLING

### 16.1 How Supplied

REXULTI (brexpiprazole) tablets have markings on one side, and are available in the following strengths and package configurations (see below):

- 0.5 mg tablets: are light orange, round, shallow convex, bevel-edged body with “BRX” and “0.5” imprinted on one side  
Carton box contains 7 tables, packed in a blister.

- 1 mg tablets are light yellow, round, shallow convex, bevel-edged body with “BRX” and “1” imprinted on one side  
Carton box contains 28 tablets, packed in blisters.

- 2 mg tablets are light green, round, shallow convex, bevel-edged body with “BRX” and “2” imprinted on one side  
Carton box contains 28 tablets, packed in blisters.

· 3 mg tablets are light purple, round, shallow convex, bevel-edged body with “BRX” and “3” imprinted on one side

Carton box contains 28 tablets, packed in blisters.

· 4 mg tablets are white, round, shallow convex, bevel-edged body with “BRX” and “4” imprinted on one Side

Carton box contains 28 tablets, packed in blisters.

## **16.2 Storage**

Store REXULTI tablets at below 30°C, in the original package in order to protect from light. The expiry date of the product is indicated on the packaging materials.

**Manufacturer:** H. Lundbeck A/S, Ottiliavej 9 , DK-2500 Valby, Denmark

**License Holder:** LUNDBECK ISRAEL LTD., 11 Galgaley Haplada, P.O.B. 13105, Herzliya 4672211.

Registration Numbers:

Rexulti 0.5 mg: 163-39-35733

Rexulti 1 mg: 163-40-35734

Rexulti 2 mg: 163-41-35735

Rexulti 3 mg: 163-42-35736

Rexulti 4 mg: 163-43-35737

Revised in December 2023 according to MoH's guidelines

---