

CENTER FOR DRUG EVALUATION AND RESEARCH

Approval Package for:

APPLICATION NUMBER:

208708Orig1s016

Trade Name: Tramadol Hydrochloride 25 mg, 50 mg, and 100 mg

Sponsor: Rubicon Research Private Limited

Approval Date: April 04, 2023

CENTER FOR DRUG EVALUATION AND RESEARCH

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**CENTER FOR DRUG EVALUATION AND
RESEARCH**

APPLICATION NUMBER:

208708Orig1s016

APPROVAL LETTER



ANDA 208708/S-016

**PRIOR APPROVAL SUPPLEMENT
APPROVAL - NEW STRENGTH**

AdvaGen Pharma
U.S. Agent for Rubicon Research Private Limited
50 Millstone Road
Building 200, Suite 180
East Windsor, NJ 08520
Attention: Daliya Bharati
Director- Reg. Affairs & IP

Dear Daliya Bharati:

This letter is in reference to your supplemental abbreviated new drug application (sANDA) received for review on October 20, 2023, submitted pursuant to section 505(j) of the Federal Food, Drug, and Cosmetic Act (FD&C Act) for Tramadol Hydrochloride Tablets USP, 25 mg, 50 mg, and 100 mg.¹

Reference is also made to any amendments submitted prior to the issuance of this letter.

Reference is also made to the ANDA Suitability Petition (FDA-2021-P-0036/CP1) submitted on January 8, 2021, under Section 505(j)(2)(C) of the FD&C Act, and approved on October 6, 2023. This petition requested the Agency make a determination as to whether an application for Tramadol Hydrochloride Tablets USP, 75 mg was suitable for submission as an ANDA. This determination was necessary because the 75 mg strength proposed in your sANDA differs from the reference listed drug product (RLD), Ultram Tablets, 50 mg and 100 mg, of Janssen Pharmaceuticals, Inc. (Janssen).

The sANDA, submitted as a "Prior Approval Supplement," provides for:

The addition of 75 mg strength of Tramadol Hydrochloride Tablets, USP.

We have completed the review of this sANDA and have concluded that adequate information has been presented to demonstrate that the drug meets the requirements for approval under the FD&C Act. Accordingly the sANDA is **approved**, effective on the date of this letter. We have determined your Tramadol Hydrochloride Tablets USP, 75 mg can be expected to have the same therapeutic effect as that of the listed drug product upon which the Agency relied as the basis of safety and effectiveness.

Please note that if FDA requires a Risk Evaluation and Mitigation Strategy (REMS) for a listed drug, an ANDA referencing that listed drug also will be required to have a REMS. See section 505-1(i) of the FD&C Act.

COMPENDIAL STANDARDS

A drug with a name recognized in the official United States Pharmacopeia or official National Formulary (USP-NF) generally must comply with the compendial standard for strength, quality, and purity, unless the difference in strength, quality, or purity is plainly stated on its label (see FD&C Act § 501(b), 21 USC 351(b)). FDA typically cannot share application-specific information contained in submitted regulatory filings with third parties, which includes USP-NF. To help ensure that a drug continues to comply with compendial standards, application holders may work directly with USP-NF to revise official USP monographs. More information on the USP-NF is available on USP's website as <https://www.uspnf.com/>.

REQUIREMENTS AND RECOMMENDATIONS POST APPROVAL

Under applicable statutes, regulations, and guidances, your ANDA may be subject to certain requirements and recommendations post approval, including requirements regarding changes to approved ANDAs, postmarketing reporting, promotional materials, and annual facility fees, among others. For information on post-approval requirements and recommendations for ANDAs and a list of resources for ANDA holders, we refer you to <https://www.fda.gov/drugs/abbreviated-new-drug-application-anda/requirements-and-resources-approved-andas>.

Sincerely yours,

{See appended electronic signature page}

For Edward M. Sherwood
Director
Office of Regulatory Operations
Office of Generic Drugs
Center for Drug Evaluation and Research

¹We note that the RLD upon which you have based this sANDA, Janssen Pharmaceuticals Inc's Ultram Tablets, 50 mg and 100 mg, are no longer being marketed in the United States and are currently listed in the discontinued section of FDA's *Approved Drug Products With Therapeutic Equivalence Evaluations* (the "Orange Book"). The Agency has determined that Janssen Pharmaceuticals Inc's Ultram Tablets, 50 mg and 100 mg, were not withdrawn from sale for reasons of safety or effectiveness. FDA published these determinations in the *Federal Register* (88 FR 68623; October 4, 2023 for the 50 mg strength and 87 FR 25028; April 27, 2022 for the 100 mg strength). These determinations allow the Agency to approve ANDAs for the discontinued drug products.



Catherine
Poole

Digitally signed by Catherine Poole

Date: 4/04/2024 10:06:09AM

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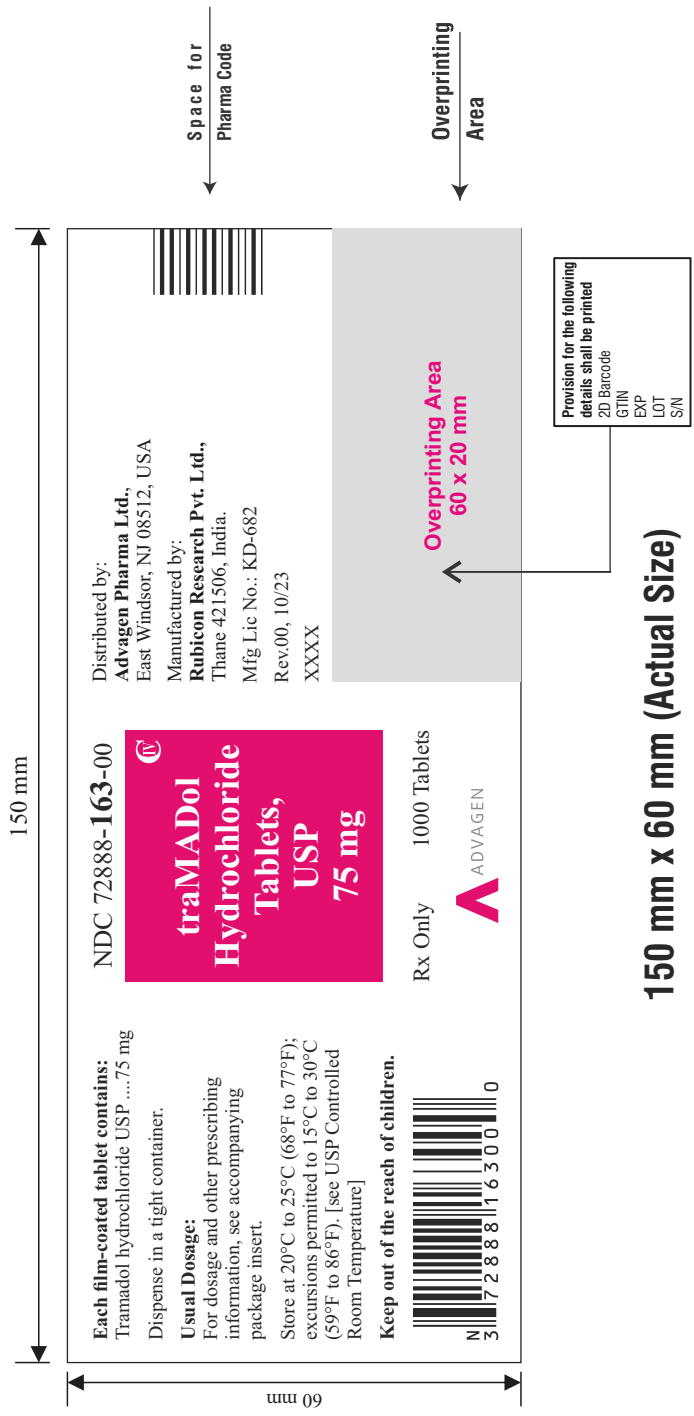
**CENTER FOR DRUG EVALUATION AND
RESEARCH**

APPLICATION NUMBER:

208708Orig1s016

LABELING





Tramadol Hydrochloride Tablets USP, 75 mg - 1000's Tablets







150 mm x 60 mm (Actual Size)

Pharma Code XXXXX

Tramadol Hydrochloride Tablets USP, 75 mg - 1000's Tablets	
Label Size :	150 mm x 60 mm
Packing Details :	1000 Tablets
Colours :	(b) (4)
Font Used :	Times New Roman
Font Size :	7.5
Revision/Correction	1
Old SAP Code	

<p>Each film-coated tablet contains: Tramadol hydrochloride USP75 mg Dispense in a tight container.</p> <p>Usual Dosage: For dosage and other prescribing information, see accompanying package insert.</p> <p>Store at 20°C to 25°C (68°F to 77°F); excursions permitted to 15°C to 30°C (59°F to 86°F). [see USP Controlled Room Temperature]</p> <p>Keep out of the reach of children.</p>	<p>NDC 72888-163-01</p>	<p>Distributed by: Advagen Pharma Ltd., East Windsor, NJ 08512, USA</p> <p>Manufactured by: Rubicon Research Pvt. Ltd., Thane 421506, India. Mfg Lic No.: KD-682 Rev.00, 10/23 XXXX</p>
		
<p>Rx Only 100 Tablets</p> 	<p>Overprinting Area 50 x 20 mm</p>	

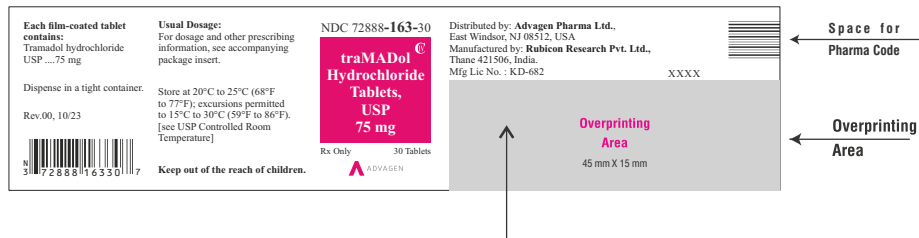
<p>Each film-coated tablet contains: Tramadol hydrochloride USP75 mg Dispense in a tight container.</p> <p>Usual Dosage: For dosage and other prescribing information, see accompanying package insert.</p> <p>Store at 20°C to 25°C (68°F to 77°F); excursions permitted to 15°C to 30°C (59°F to 86°F). [see USP Controlled Room Temperature]</p> <p>Keep out of the reach of children.</p>	<p>NDC 72888-163-01</p>	<p>Distributed by: Advagen Pharma Ltd., East Windsor, NJ 08512, USA</p> <p>Manufactured by: Rubicon Research Pvt. Ltd., Thane 421506, India. Mfg Lic No.: KD-682 Rev.00, 10/23 XXXX</p>
		
<p>Rx Only 100 Tablets</p> 	<p>Overprinting Area 50 x 20 mm</p>	

Pharma Code XXXXX

Tramadol Hydrochloride Tablets USP, 75 mg - 30's Tablets



150% Enlarged Size Artwork



105 mm x 25 mm (Actual Size)

Pharma Code XXXXX

Tramadol Hydrochloride Tablets USP, 75 mg - 30's Tablets	
Label Size :	105 mm x 25 mm
Packing Details :	30 Tablets
Colours :	(b) (4)
Font Used :	Times New Roman
Font Size :	4
Revision/Correction	00(10/23)
Old SAP Code	

TRAMADOL HYDROCHLORIDE - tramadol hydrochloride tablet, coated
Rubicon Research Private Limited.

HIGHLIGHTS OF PRESCRIBING INFORMATION

These highlights do not include all the information needed to use TRAMADOL HYDROCHLORIDE TABLETS, safely and effectively. See full prescribing information for TRAMADOL HYDROCHLORIDE TABLETS.

TRAMADOL HYDROCHLORIDE tablets, for oral use, C-IV
Initial U.S. Approval – 1995

**WARNING: SERIOUS AND LIFE-THREATENING RISKS FROM USE OF
TRAMADOL HYDROCHLORIDE TABLETS**

See full prescribing information for complete boxed warning.

- Tramadol hydrochloride tablets exposes users to the risks of addiction, abuse and misuse, which can lead to overdose and death. Assess each patient's risk prior to prescribing tramadol hydrochloride tablets, and monitor regularly for these behaviors or conditions. (5.1)
- To ensure that the benefits of opioid analgesics outweigh the risks of addiction, abuse, and misuse, the Food and Drug Administration (FDA) has required a Risk Evaluation and Mitigation Strategy (REMS) for these products. (5.2)
- Serious, life-threatening, or fatal respiratory depression may occur. Monitor closely, especially during initiation or following a dose increase. (5.3)
- Accidental ingestion of tramadol hydrochloride tablets, especially by children, can result in a fatal overdose of tramadol. (5.3)
- Life-threatening respiratory depression and death have occurred in children who received tramadol. Some of the reported cases followed tonsillectomy and/or adenoidectomy; in at least one case, the child had evidence of being an ultra-rapid metabolizer of tramadol due to a CYP2D6 polymorphism (5.4).
- Tramadol hydrochloride tablets are contraindicated in children younger than 12 years of age and in children younger than 18 years of age following tonsillectomy and/or adenoidectomy (4). Avoid the use of tramadol hydrochloride tablets in adolescents 12 to 18 years of age who have other risk factors that may increase their sensitivity to the respiratory depressant effects of tramadol. (5.4)
- Prolonged use of tramadol hydrochloride tablets, during pregnancy can result in neonatal opioid withdrawal syndrome, which may be life threatening if not recognized and treated. If prolonged opioid use is required in a pregnant woman, advise the patient of the risk of neonatal opioid withdrawal syndrome and ensure that appropriate treatment will be available. (5.5)
- The effects of concomitant use or discontinuation of cytochrome P450 3A4 inducers, 3A4 inhibitors, or 2D6 inhibitors with tramadol are complex. Use of cytochrome P450 3A4 inducers, 3A4 inhibitors, or 2D6 inhibitors with tramadol hydrochloride tablets require careful consideration of the effects on the parent drug, tramadol, and the active metabolite, M1. (5.6, 7)
- Concomitant use of opioids with benzodiazepines or other central nervous system (CNS) depressants, including alcohol, may result in profound sedation, respiratory depression, coma, and death. Reserve concomitant prescribing for use in patients for whom alternative treatment options are inadequate; limit dosages and durations to the

minimum required; and follow patients for signs and symptoms of respiratory depression and sedation. (5.7, 7)

-----RECENT MAJOR CHANGES-----

Boxed Warning

Indications and Usage (1)

Dosage and Administration (2.1, 2.3)

Warnings and Precaution (5.6)

-----INDICATIONS AND USAGE-----

Tramadol hydrochloride is an opioid agonist indicated in adults for the management of pain severe enough to require an opioid analgesic and for which alternative treatments are inadequate (1).

Limitations of Use: (1)

Because of the risks of addiction, abuse, and misuse with opioids, which can occur at any dosage or duration, reserve tramadol hydrochloride tablets for use in patients for whom alternative treatment options [e.g., non-opioid analgesics or opioid combination products]:

- Have not been tolerated or are not expected to be tolerated.
- Have not provided adequate analgesia or are not expected to provide adequate analgesia.

Tramadol hydrochloride tablets should not be used for an extended period of time unless the pain remains severe enough to require an opioid analgesic and for which alternative treatment options continue to be inadequate.

-----DOSAGE AND ADMINISTRATION-----

- Tramadol hydrochloride tablets should be prescribed only by healthcare professionals who are knowledgeable about the use of opioids and how to mitigate the associated risks. (2.1)
- Use the lowest effective dosage for the shortest duration consistent with individual patient treatment goals. Because the risk of overdose increases as opioid doses increase, reserve titration to higher doses of tramadol hydrochloride tablets for patients in whom lower doses are insufficiently effective and in whom the expected benefits of using a higher dose opioid clearly outweigh the substantial risks. (2.1, 5)
- Many acute pain conditions (e.g., the pain that occurs with a number of surgical procedures or acute musculoskeletal injuries) require no more than a few days of an opioid analgesic. Clinical guidelines on opioid prescribing for some acute pain conditions are available. (2.1)
- There is variability in the opioid analgesic dose and duration needed to adequately manage pain due both to the cause of pain and to individual patient factors. Initiate the dosing regimen for each patient individually, taking into account the patient's underlying cause and severity of pain, prior analgesic treatment and response, and risk factors for addiction, abuse, and misuse. (2.1, 5.1)
- Respiratory depression can occur at any time during opioid therapy, especially when initiating and following dosage increases with Tramadol hydrochloride tablets. Consider this risk when selecting an initial dose and when making dose adjustments. (2.1, 5.2).
- Initiate the dosing regimen for each patient individually, taking into account the patient's severity of pain, patient response, prior analgesic treatment experience, and risk factors for addiction, abuse, and misuse (2.1).

- Discuss availability of naloxone with the patient and caregiver and assess each patient's need for access to naloxone, both when initiating and renewing treatment with tramadol hydrochloride tablets. Consider prescribing naloxone based on the patient's risk factors for overdose (2.2, 5.1, 5.3, 5.7).
- Start at 25 mg/day and titrate in 25 mg increments as separate doses every 3 days to reach 100 mg/day (25 mg four times a day). Thereafter the total daily dose may be increased by 50 mg as tolerated every 3 days to reach 200 mg/day (50 mg four times a day). After titration, tramadol hydrochloride tablets 50 to 100 mg can be administered as needed for pain relief every 4 to 6 hours not to exceed 400 mg/day (2.3, 2.4).
- Severe Renal Impairment: increase the tramadol hydrochloride tablets dosing interval to 12 hours, and limit maximum daily dose to 200 mg (2.3).
- Severe hepatic impairment: Recommended dose is 50 mg every 12 hours.
- Do not abruptly discontinue tramadol hydrochloride tablets in a physically-dependent patient because rapid discontinuation opioid analgesic has resulted in serious withdrawal symptoms, uncontrolled pain, and suicide (2.3).

-----DOSAGE FORMS AND STRENGTHS-----

- Tablets: 25 mg, 50 mg, 75 mg and 100 mg (3).

-----CONTRAINDICATIONS-----

- Children younger than 12 years of age (4).
- Post-operative management in children younger than 18 years of age following tonsillectomy and/or adenoidectomy (4).
- Significant respiratory depression (4).
- Acute or severe bronchial asthma in an unmonitored setting or in the absence of resuscitative equipment (4).
- Known or suspected gastrointestinal obstruction, including paralytic ileus (4).
- Hypersensitivity to tramadol, any other component of this product or opioids (4).
- Concurrent use of monoamine oxidase inhibitors (MAOIs) or use of MAOIs within the last 14 days (4).

-----WARNINGS AND PRECAUTIONS-----

- Opioid-Induced Hyperalgesia and Allodynia: Opioid-Induced Hyperalgesia (OIH) occurs when an opioid analgesic paradoxically causes an increase in pain, or an increase in sensitivity to pain. If a patient is suspected to be experiencing OIH, carefully consider appropriately decreasing the dose of the current opioid analgesic, or opioid rotation (safety switching the patient to a different opioid moiety). (5.8)
- Serotonin Syndrome: May be life-threatening. Can occur with use of tramadol alone, with concomitant use of serotonergic drugs, with drugs that impair metabolism of serotonin or tramadol (5.8).
- Risk of Seizure: Can occur at the recommended dose of tramadol. Concomitant use with other drugs may increase seizure risk. Risk may increase in patients with epilepsy, a history of seizures, and in patients with a recognized risk for seizures (5.9).
- Risk of Suicide: Do not prescribe for suicidal or addiction-prone patients (5.10).
- Adrenal Insufficiency: If diagnosed, treat with physiologic replacement of corticosteroids, and wean patient off the opioid (5.11).
- Life-Threatening Respiratory Depression in Patients with Chronic Pulmonary Disease or in Elderly, Cachectic, or Debilitated Patients: Regularly evaluate closely, particularly during initiation and titration (5.12).

- Severe Hypotension: Regularly evaluate during dosage initiation and titration. Avoid use of tramadol hydrochloride tablets in patients with circulatory shock (5.13).
- Risks of Use in Patients with Increased Intracranial Pressure, Brain Tumors, Head Injury, or Impaired Consciousness: Regularly evaluate for sedation and respiratory depression. Avoid use of tramadol hydrochloride tablets in patients with impaired consciousness or coma (5.14).

-----ADVERSE REACTIONS-----

The most common incidence of treatment-emergent adverse events ($\geq 15.0\%$) in patients from clinical trials were dizziness/vertigo, nausea, constipation, headache, somnolence, vomiting and pruritus (6).

To report SUSPECTED ADVERSE REACTIONS, contact Advagen Pharma Ltd, at 866-488-0312 or FDA at 1-800-FDA-1088 or www.fda.gov/medwatch.

-----DRUG INTERACTIONS-----

Mixed Agonist/Antagonist and Partial Agonist Opioid Analgesics: Avoid use with tramadol hydrochloride tablets because they may reduce analgesic effect of tramadol hydrochloride tablets or precipitate withdrawal symptoms (7).

-----USE IN SPECIFIC POPULATIONS-----

- Pregnancy: May cause fetal harm (8.1).
- Lactation: Breastfeeding not recommended (8.2).

See 17 for PATIENT COUNSELING INFORMATION and Medication Guide.

Revised: 01/2024

<p>FULL PRESCRIBING INFORMATION: CONTENTS*</p> <p>WARNING: ADDICTION, ABUSE, AND MISUSE; RISK EVALUATION AND MITIGATION STRATEGY (REMS); LIFETHREATENING RESPIRATORY DEPRESSION; ACCIDENTAL INGESTION; ULTRA-RAPID METABOLISM OF TRAMADOL AND OTHER RISK FACTORS FOR LIFE THREATENING RESPIRATORY DEPRESSION IN CHILDREN; NEONATAL OPIOID WITHDRAWAL SYNDROME; INTERACTIONS WITH DRUGS AFFECTING CYTOCHROME P450 ISOENZYMES; and RISKS FROM CONCOMITANT USE WITH BENZODIAZEPINES OR OTHER CNS DEPRESSANTS</p> <p>1. INDICATIONS AND USAGE</p> <p>2. DOSAGE AND ADMINISTRATION</p>	<p>5.13 Adrenal Insufficiency</p> <p>5.14 Severe Hypotension</p> <p>5.15 Risks of Use in Patients with Increased Intracranial Pressure, Brain Tumors, Head Injury, or Impaired Consciousness</p> <p>5.16 Risks of Use in Patients with Gastrointestinal Conditions</p> <p>5.17 Anaphylaxis and Other Hypersensitivity Reactions</p> <p>5.18 Withdrawal</p> <p>5.19 Risks of Driving and Operating Machinery</p> <p>5.20 Hyponatremia</p> <p>5.21 Hypoglycemia</p> <p>6 ADVERSE REACTIONS</p> <p>6.1 Clinical Trials Experience</p> <p>6.2 Postmarketing Experience</p> <p>7 DRUG INTERACTIONS</p>
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<p>2.1 Important Dosage and Administration Instructions</p> <p>2.2 Patient Access to Naloxone for the Emergency Treatment of Opioid Overdose</p> <p>2.3 Initial Dosage</p> <p>2.4 Titration and Maintenance of Therapy</p> <p>2.5 Safe Reduction or Discontinuation of tramadol hydrochloride tablets</p> <p>3. DOSAGE FORMS AND STRENGTHS</p> <p>4. CONTRAINDICATIONS</p> <p>5. WARNINGS AND PRECAUTIONS</p> <p>5.1 Addiction, Abuse and Misuse</p> <p>5.2 Life-Threatening Respiratory Depression</p> <p>5.3 Risks from Concomitant Use with Benzodiazepines or Other CNS Depressants</p> <p>5.4 Neonatal Opioid Withdrawal Syndrome</p> <p>5.5 Risk Evaluation and Mitigation Strategy (REMS)</p> <p>5.6 Ultra-Rapid Metabolism and Other Risk Factors for Life-threatening Respiratory Depression in Children</p> <p>5.7 Risks of Interactions with Drugs Affecting Cytochrome P450 Isoenzymes</p> <p>5.8 Opioid-Induced Hyperalgesia and Allodynia</p> <p>5.9 Serotonin Syndrome Risk</p> <p>5.10 Increased Risk of Seizures</p> <p>5.11 Suicide Risk</p> <p>5.12 Life-Threatening Respiratory Depression in Patients with Chronic Pulmonary Disease or in Elderly, Cachectic, or Debilitated Patients</p>	<p>8 USE IN SPECIFIC POPULATIONS</p> <p>8.1 Pregnancy</p> <p>8.2 Lactation</p> <p>8.3 Females and Males of Reproductive Potential</p> <p>8.4 Pediatric Use</p> <p>8.5 Geriatric Use</p> <p>8.6 Renal and Hepatic Impairment</p> <p>9 DRUG ABUSE AND DEPENDENCE</p> <p>9.1 Controlled Substance</p> <p>9.2 Abuse</p> <p>9.3 Dependence</p> <p>10 OVERDOSAGE</p> <p>11 DESCRIPTION</p> <p>12 CLINICAL PHARMACOLOGY</p> <p>12.1 Mechanism of Action</p> <p>12.2 Pharmacodynamics</p> <p>12.3 Pharmacokinetics</p> <p>13 NONCLINICAL TOXICOLOGY</p> <p>13.1 Carcinogenesis, Mutagenesis, Impairment of Fertility</p> <p>14 CLINICAL STUDIES</p> <p>16 HOW SUPPLIED/STORAGE AND HANDLING</p> <p>17 PATIENT COUNSELING INFORMATION</p> <p>*Sections or subsections omitted from the full prescribing information are not listed.</p>
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FULL PRESCRIBING INFORMATION

WARNING: SERIOUS AND LIFE-THREATENING RISKS FROM USE OF TRAMADOL HYDROCHLORIDE TABLETS

Addiction, Abuse AND Misuse

Because the use of Tramadol hydrochloride tablets exposes patients and other users to the risks of opioid addiction, abuse, and misuse, which can lead to overdose and death, assess each patient's risk prior to prescribing and reassess all patients regularly for the development of these behaviors and conditions [see Warnings and Precautions (5.1)].

Life-Threatening Respiratory Depression

Serious, life-threatening, or fatal respiratory depression may occur with use of tramadol hydrochloride tablets, especially during initiation or following a dosage increase. To reduce

the risk of respiratory depression, proper dosing and titration of Tramadol hydrochloride tablets are essential [*see Warnings and Precautions (5.2)*].

Accidental Ingestion

Accidental ingestion of even one dose of tramadol hydrochloride tablets, especially by children, can result in a fatal overdose of tramadol [*see Warnings and Precautions (5.2)*].

Risks From Concomitant Use with Benzodiazepines or Other CNS Depressants

Concomitant use of opioids with benzodiazepines or other central nervous system (CNS) depressants, including alcohol, may result in profound sedation, respiratory depression, coma, and death. Reserve concomitant prescribing of tramadol hydrochloride tablets and benzodiazepines or other CNS depressants for use in patients for whom alternative treatment options are inadequate [*see Warnings and Precautions (5.3), Drug Interactions (7)*].

Neonatal Opioid Withdrawal Syndrome

If opioid use is required for an extended period of time in a pregnant woman, advise the patient of the risk of NOWS, which may be life-threatening if not recognized and treated. Ensure that management by neonatology experts will be available at delivery [*see Warnings and Precautions (5.4)*].

Opioid Analgesic Risk Evaluation and Mitigation Strategy (REMS)

Healthcare providers are strongly encouraged to complete a REMS compliant education program and to counsel patients and caregivers on serious risks, safe use, and the importance of reading the Medication Guide with each prescription [*see Warnings and Precautions (5.5)*].

Ultra-Rapid Metabolism of Tramadol and other Risk Factors for Life-Threatening Respiratory Depression in Children

Life-threatening respiratory depression and death have occurred in children who received tramadol. Some of the reported cases followed tonsillectomy and/or adenoidectomy; in at least one case, the child had evidence of being an ultra-rapid metabolizer of tramadol due to a CYP2D6 polymorphism [*see Warnings and Precautions (5.6)*]. Tramadol hydrochloride tablets is contraindicated in children younger than 12 years of age and in children younger than 18 years of age following tonsillectomy and/or adenoidectomy [*see Contraindications (4)*]. Avoid the use of tramadol hydrochloride tablets in adolescents 12 to 18 years of age who have other risk factors that may increase their sensitivity to the respiratory depressant effects of tramadol [*see Warnings and Precautions (5.6)*].

Interactions with Drugs Affecting Cytochrome P450 Isoenzymes

The effects of concomitant use or discontinuation of cytochrome P450 3A4 inducers, 3A4 inhibitors, or 2D6 inhibitors with tramadol are complex. Use of cytochrome P450 3A4 inducers, 3A4 inhibitors, or 2D6 inhibitors with tramadol hydrochloride tablets requires careful consideration of the effects on the parent drug, tramadol, and the active metabolite, M1 [*see Warnings and Precautions (5.7); Drug Interactions (7)*].

1 INDICATIONS AND USAGE

Tramadol Hydrochloride Tablets, USP are indicated in adults for the management of pain severe enough to require an opioid analgesic and for which alternative treatments are inadequate.

Limitations of Use

Because of the risks of addiction, abuse, and misuse with opioids, which can occur at any dosage or duration [*see Warnings and Precautions (5.1)*], reserve tramadol hydrochloride tablets for use in patients for whom alternative treatment options [e.g., non-opioid analgesics or opioid combination products]:

- Have not been tolerated or are not expected to be tolerated.
- Have not provided adequate analgesia or are not expected to provide adequate analgesia.

Tramadol hydrochloride tablets should not be used for an extended period of time unless the pain remains severe enough to require an opioid analgesic and for which alternative treatment options continue to be inadequate.

2 DOSAGE AND ADMINISTRATION

2.1 Important Dosage and Administration Instructions

- Do not use Tramadol hydrochloride tablets concomitantly with other tramadol-containing products.
- Tramadol hydrochloride tablets should be prescribed only by healthcare professionals who are knowledgeable about the use of opioids and how to mitigate the associated risks..
- Use the lowest effective dosage for the shortest duration of time consistent with individual patient treatment goals [*see Warnings and Precautions (5)*]. Because the risk of overdose increases as opioid doses increase, reserve titration to higher doses of tramadol hydrochloride tablets for patients in whom lower doses are insufficiently effective and in whom the expected benefits of using a higher dose opioid clearly outweigh the substantial risks.
- Many acute pain conditions (e.g., the pain that occurs with a number of surgical procedures or acute musculoskeletal injuries) require no more than a few days of an opioid analgesic. Clinical guidelines on opioid prescribing for some acute pain conditions are available.
- There is variability in the opioid analgesic dose and duration needed to adequately manage pain due both to the cause of pain and to individual patient factors. Initiate the dosing regimen for each patient individually, taking into account the patient's underlying cause and severity of pain, prior analgesic treatment and response, and risk factors for addiction, abuse, and misuse [*see Warnings and Precautions (5.1)*].

- Respiratory depression can occur at any time during opioid therapy, especially when initiating and following dosage increases with tramadol hydrochloride tablets. Consider this risk when selecting an initial dose and when making dose adjustments [*see Warnings and Precautions (5)*].

2.2 Patient Access to Naloxone for the Emergency Treatment of Opioid Overdose

Discuss the availability of naloxone for the emergency treatment of opioid overdose with the patient and caregiver and assess the potential need for access to naloxone, both when initiating and renewing treatment with tramadol hydrochloride tablets [*see Warnings and Precautions (5.3), Patient Counseling Information (17)*].

Inform patients and caregivers about the various ways to obtain naloxone as permitted by individual state naloxone dispensing and prescribing requirements or guidelines (e.g., by prescription, directly from a pharmacist, or as part of a community-based program).

Consider prescribing naloxone, based on the patient's risk factors for overdose, such as concomitant use of CNS depressants, a history of opioid use disorder, or prior opioid overdose. However, the presence of risk factors for overdose should not prevent the proper management of pain in any given patient [*see Warnings and Precautions (5.1, 5.3, 5.7)*].

Consider prescribing naloxone if the patient has household members (including children) or other close contacts at risk for accidental exposure or overdose.

2.3 Initial Dosage

Initiating Treatment with Tramadol hydrochloride tablets

Initiate treatment at the lowest dose necessary to achieve adequate analgesia. Titrate the dose based upon the individual patient's response to their initial dose of Tramadol hydrochloride tablets.

For patients not requiring rapid onset of analgesic effect, the tolerability of tramadol hydrochloride tablets can be improved by initiating therapy with the following titration regimen: Start tramadol hydrochloride tablets at 25 mg/day and titrated in 25 mg increments as separate doses every 3 days to reach 100 mg/day (25 mg four times a day). Thereafter the total daily dose may be increased by 50 mg as tolerated every 3 days to reach 200 mg/day (50 mg four times a day). After titration, tramadol hydrochloride tablets 50 to 100 mg can be administered as needed for pain relief every 4 to 6 hours not to exceed 400 mg/day.

For the subset of patients for whom rapid onset of analgesic effect is required and for whom the benefits outweigh the risk of discontinuation due to adverse events associated with higher initial doses, tramadol hydrochloride tablets 50 mg to 100 mg can be administered as needed for pain relief every four to six hours, not to exceed 400 mg per day.

Conversion from Tramadol hydrochloride tablets to Extended-Release Tramadol

The relative bioavailability of tramadol hydrochloride compared to extended-release tramadol is unknown, so conversion to extended-release formulations may lead to increased risk of excessive sedation and respiratory depression.

Dosage Modification in Patients with Hepatic Impairment

The recommended dose for adult patients with severe hepatic impairment is 50 mg every 12 hours.

Dosage Modification in Patients with Renal Impairment

In all patients with creatinine clearance less than 30 mL/min, it is recommended that the dosing interval of tramadol hydrochloride tablets be increased to 12 hours, with a maximum daily dose of 200 mg. Since only 7% of an administered dose is removed by hemodialysis, dialysis patients can receive their regular dose on the day of dialysis.

Dosage Modification in Geriatric Patients

Do not exceed a total dose of 300 mg/day in patients over 75 years old.

2.4 Titration and Maintenance of Therapy

Individually titrate tramadol hydrochloride tablets to a dose that provides adequate analgesia and minimizes adverse reactions. Continually reevaluate patients receiving tramadol hydrochloride tablets to assess the maintenance of pain control and the relative incidence of adverse reactions, as well as to reassess for the development of addiction, abuse, or misuse [*see Warnings and Precautions (5.1)*]. Frequent communication is important among the prescriber, other members of the healthcare team, the patient, and the caregiver/family during periods of changing analgesic requirements, including initial titration.

If the level of pain increases after dosage stabilization, attempt to identify the source of increased pain before increasing the tramadol hydrochloride tablets dosage. If unacceptable opioid-related adverse reactions are observed, consider reducing the dosage. Adjust the dosage to obtain an appropriate balance between management of pain and opioid-related adverse reactions.

2.5 Safe Reduction or Discontinuation of tramadol hydrochloride tablets

Do not abruptly discontinue tramadol hydrochloride tablets in patients who may be physically dependent on opioids. Rapid discontinuation of opioid analgesics in patients who are physically dependent on opioids has resulted in serious withdrawal symptoms, uncontrolled pain, and suicide. Rapid discontinuation has also been associated with attempts to find other sources of opioid analgesics, which may be confused with drug-seeking for abuse. Patients may also attempt to treat their pain or withdrawal symptoms with illicit opioids, such as heroin, and other substances.

When a decision has been made to decrease the dose or discontinue therapy in an opioid-dependent patient taking tramadol hydrochloride tablets, there are a variety of factors that should be considered, including the dose of tramadol hydrochloride tablets the patient has been taking, the duration of treatment, the type of pain being treated, and the physical and psychological

attributes of the patient. It is important to ensure ongoing care of the patient and to agree on an appropriate tapering schedule and follow up plan so that patient and provider goals and expectations are clear and realistic. When opioid analgesics are being discontinued due to a suspected substance use disorder, evaluate and treat the patient, or refer for evaluation and treatment of the substance use disorder. Treatment should include evidence-based approaches, such as medication assisted treatment of opioid use disorder. Complex patients with comorbid pain and substance use disorders may benefit from referral to a specialist.

There are no standard opioid tapering schedules that are suitable for all patients. Good clinical practice dictates a patient-specific plan to taper the dose of the opioid gradually. For patients on tramadol hydrochloride tablets who are physically opioid-dependent, initiate the taper by a small enough increment, (e.g., no greater than 10% to 25% of the total daily dose) to avoid withdrawal symptoms, and proceed with dose-lowering at an interval of every 2 to 4 weeks. Patients who have been taking opioids for briefer periods of time may tolerate a more rapid taper.

It may be necessary to provide the patient with a lower dosage strength to accomplish a successful taper. Reassess the patient frequently to manage pain and withdrawal symptoms, should they emerge. Common withdrawal symptoms include restlessness, lacrimation, rhinorrhea, yawning, perspiration, chills, myalgia, and mydriasis. Other signs and symptoms also may develop, including irritability, anxiety, backache, joint pain, weakness, abdominal cramps, insomnia, nausea, anorexia, vomiting, diarrhea, or increased blood pressure, respiratory rate, or heart rate. If withdrawal symptoms arise, it may be necessary to pause the taper for a period of time or raise the dose of the opioid analgesic to the previous dose, and then proceed with a slower taper. In addition, evaluate patients for any changes in mood, emergence of suicidal thoughts, or use of other substances.

When managing patients taking opioid analgesics, particularly those who have been treated an extended period of time and/or with high doses for chronic pain, ensure that a multimodal approach to pain management, including mental health support (if needed), is in place prior to initiating an opioid analgesic taper. A multimodal approach to pain management may optimize the treatment of chronic pain, as well as assist with the successful tapering of the opioid analgesic [see *Warnings and Precautions (5.17); Drug Abuse and Dependence (9.3)*].

3 DOSAGE FORMS AND STRENGTHS

Tramadol Hydrochloride Tablets, USP 25 mg are white to off white round shaped film coated tablet debossed with “A7” on one side and “^” on other side.

Tramadol Hydrochloride Tablets, USP 50 mg are white to off white, capsule-shaped film coated tablet debossed with “018” on one side and scored on other side.

Tramadol Hydrochloride Tablets, USP 75 mg are white to off white, capsule shaped film coated tablet debossed with “^F” on one side and “11” on either side of score line and plain on other side.

Tramadol Hydrochloride Tablets, USP 100 mg are white to off white, capsule-shaped film coated tablet debossed with “019” on one side and scored on other side.

4 CONTRAINDICATIONS

Tramadol Hydrochloride Tablets, USP are contraindicated for:

- all children younger than 12 years of age [*see Warnings and Precautions (5.4)*].
- post-operative management in children younger than 18 years of age following tonsillectomy and/or adenoidectomy [*see Warnings and Precautions (5.4)*].

Tramadol Hydrochloride Tablets, USP are also contraindicated in patients with:

- Significant respiratory depression [*see Warnings and Precautions (5.3)*].
- Acute or severe bronchial asthma in an unmonitored setting or in the absence of resuscitative equipment [*see Warnings and Precautions (5.12)*].
- Known or suspected gastrointestinal obstruction, including paralytic ileus [*see Warnings and Precautions (5.15)*].
- Hypersensitivity to tramadol, any other component of this product or opioids [*see Warnings and Precautions (5.16)*].
- Concurrent use of monoamine oxidase inhibitors (MAOIs) or use within the last 14 days [*see Drug Interactions (7)*].

5 WARNINGS AND PRECAUTIONS

5.1 Addiction, Abuse, and Misuse

Tramadol hydrochloride tablets contains tramadol, a Schedule IV controlled substance. As an opioid, tramadol hydrochloride tablets exposes users to the risks of addiction, abuse, and misuse [*see Drug Abuse and Dependence (9)*].

Although the risk of addiction in any individual is unknown, it can occur in patients appropriately prescribed tramadol hydrochloride tablets. Addiction can occur at recommended dosages and if the drug is misused or abused.

Assess each patient's risk for opioid addiction, abuse, or misuse prior to prescribing tramadol hydrochloride tablets, and reassess all patients receiving tramadol hydrochloride tablets for the development of these behaviors and conditions. Risks are increased in patients with a personal or family history of substance abuse (including drug or alcohol abuse or addiction) or mental illness (e.g., major depression). The potential for these risks should not, however, prevent the proper management of pain in any given patient. Patients at increased risk may be prescribed opioids such as tramadol hydrochloride tablets, but use in such patients necessitates intensive counseling about the risks and proper use of tramadol hydrochloride tablets along with frequent reevaluation for signs of addiction, abuse, and misuse. Consider prescribing naloxone for the emergency treatment of opioid overdose [*see Dosage and Administration (2.2), Warnings and Precautions (5.3)*].

Opioids are sought for non-medical use and are subject to diversion from legitimate prescribed use. Consider these risks when prescribing or dispensing tramadol hydrochloride tablets. Strategies to reduce these risks include prescribing the drug in the smallest appropriate quantity and advising the patient on careful storage of the drug during the course of treatment and the proper disposal of unused drug [see *Patient Counselling Information (17)*]. Contact local state professional licensing board or state controlled substances authority for information on how to prevent and detect abuse or diversion of this product.

5.2 Life-Threatening Respiratory Depression

Serious, life-threatening, or fatal respiratory depression has been reported with the use of opioids, even when used as recommended. Respiratory depression, if not immediately recognized and treated, may lead to respiratory arrest and death. Management of respiratory depression may include close observation, supportive measures, and use of opioid antagonists, depending on the patient's clinical status [see *Overdosage (10)*]. Carbon dioxide (CO₂) retention from opioid-induced respiratory depression can exacerbate the sedating effects of opioids.

While serious, life-threatening, or fatal respiratory depression can occur at any time during the use of tramadol hydrochloride tablets, the risk is greatest during the initiation of therapy or following a dosage increase of tramadol hydrochloride tablets.

To reduce the risk of respiratory depression, proper dosing and titration of tramadol hydrochloride tablets are essential [see *Dosage and Administration (2)*]. Overestimating the tramadol hydrochloride tablets dosage when converting patients from another opioid product can result in a fatal overdose with the first dose.

Accidental ingestion of even one dose of tramadol hydrochloride tablets, especially by children, can result in respiratory depression and death due to an overdose of tramadol.

Educate patients and caregivers on how to recognize respiratory depression and emphasize the importance of calling 911 or getting emergency medical help right away in the event of a known or suspected overdose [see *Patient Counseling Information (17)*].

Opioids can cause sleep-related breathing disorders including central sleep apnea (CSA) and sleep-related hypoxemia. Opioid use increases the risk of CSA in a dose-dependent fashion. In patients who present with CSA, consider decreasing the opioid dosage using best practices for opioid taper [see *Dosage and Administration (2.5)*]

Patient Access to Naloxone for the Emergency Treatment of Opioid Overdose

Discuss the availability of naloxone for the emergency treatment of opioid overdose with the patient and caregiver and assess the potential need for access to naloxone, both when initiating and renewing treatment with tramadol hydrochloride tablets. Inform patients and caregivers about the various ways to obtain naloxone as permitted by individual state naloxone dispensing and prescribing requirements or guidelines (e.g., by prescription, directly from a pharmacist, or as part of a community-based program). Educate patients and caregivers on how to recognize respiratory depression and emphasize the importance of calling 911 or getting emergency medical help, even if naloxone is administered [see *Patient Counseling Information (17)*].

Consider prescribing naloxone, based on the patient's risk factors for overdose, such as concomitant use of CNS depressants, a history of opioid use disorder, or prior opioid overdose. However, the presence of risk factors for overdose should not prevent the proper management of pain in any given patient. Also consider prescribing naloxone if the patient has household members (including children) or other close contacts at risk for accidental exposure or overdose. If naloxone is prescribed, educate patients and caregivers on how to treat with naloxone. [*see Warnings and Precautions (5.1, 5.7), Patient Counseling Information (17), Overdosage (10)*].

5.3 Risks from Concomitant Use with Benzodiazepines or Other CNS Depressants

Profound sedation, respiratory depression, coma, and death may result from the concomitant use of tramadol hydrochloride tablets with benzodiazepines and/or other CNS depressants including alcohol (e.g., non-benzodiazepine sedatives/hypnotics, anxiolytics, tranquilizers, muscle relaxants, general anesthetics, antipsychotics, other opioids). Because of these risks, reserve concomitant prescribing of these drugs for use in patients for whom alternative treatment options are inadequate.

Observational studies have demonstrated that concomitant use of opioid analgesics and benzodiazepines increases the risk of drug-related mortality compared to use of opioid analgesics alone. Because of similar pharmacological properties, it is reasonable to expect similar risk with the concomitant use of other CNS depressant drugs with opioid analgesics [*see Drug Interactions (7)*].

If the decision is made to prescribe a benzodiazepine or other CNS depressant concomitantly with an opioid analgesic, prescribe the lowest effective dosages and minimum durations of concomitant use. In patients already receiving an opioid analgesic, prescribe a lower initial dose of the benzodiazepine or other CNS depressant than indicated in the absence of an opioid, and titrate based on clinical response. If an opioid analgesic is initiated in a patient already taking a benzodiazepine or other CNS depressant, prescribe a lower initial dose of the opioid analgesic, and titrate based on clinical response. Inform patients and caregivers of this potential interaction, educate them on the signs and symptoms of respiratory depression (including sedation).

If concomitant use is warranted, consider prescribing naloxone for the emergency treatment of opioid overdose [*see Dosage and Administration (2.2), Warnings and Precautions (5.3)*].

5.4 Neonatal Opioid Withdrawal Syndrome

Use of tramadol hydrochloride tablets for an extended period of time during pregnancy can result in withdrawal in the neonate. Neonatal opioid withdrawal syndrome, unlike opioid withdrawal syndrome in adults, may be life-threatening if not recognized and treated, and requires management according to protocols developed by neonatology experts. Observe newborns for signs of neonatal opioid withdrawal syndrome and manage accordingly. Advise pregnant women using opioids for an extended period of time of the risk of neonatal opioid withdrawal syndrome and ensure that appropriate treatment will be available [*see Use in Specific Populations (8.1) and Patient Counseling Information (17)*].

5.5 Risk Evaluation and Mitigation Strategy (REMS)

To ensure that the benefits of opioid analgesics outweigh the risks of addiction, abuse, and misuse, the Food and Drug Administration (FDA) has required a Risk Evaluation and Mitigation Strategy (REMS) for these products. Under the requirements of the REMS, drug companies with approved opioid analgesic products must make REMS-compliant education programs available to healthcare providers. Healthcare providers are strongly encouraged to do all of the following:

- Complete a REMS-compliant education program offered by an accredited provider of continuing education (CE) or another education program that includes all the elements of the FDA Education Blueprint for Health Care Providers Involved in the Management or Support of Patients with Pain.
- Discuss the safe use, serious risks, and proper storage and disposal of opioid analgesics with patients and/or their caregivers every time these medicines are prescribed. The Patient Counseling Guide (PCG) can be obtained at this link: www.fda.gov/OpioidAnalgesicREMSPCG.
- Emphasize to patients and their caregivers the importance of reading the Medication Guide that they will receive from their pharmacist every time an opioid analgesic is dispensed to them.
- Consider using other tools to improve patient, household, and community safety, such as patient-prescriber agreements that reinforce patient-prescriber responsibilities.

To obtain further information on the opioid analgesic REMS and for a list of accredited REMS CME/CE, call 1-800-503-0784, or log on to www.opioidanalgesicrems.com. FDA Blueprint can be found at www.fda.gov/OpioidAnalgesicREMSBlueprint.

5.6 Ultra-Rapid Metabolism of Tramadol and Other Risk Factors for Life-threatening Respiratory Depression in Children

Life-threatening respiratory depression and death have occurred in children who received tramadol. Tramadol and codeine are subject to variability in metabolism based upon CYP2D6 genotype (described below), which can lead to increased exposure to an active metabolite. Based upon postmarketing reports with tramadol or with codeine, children younger than 12 years of age may be more susceptible to the respiratory depressant effects of tramadol. Furthermore, children with obstructive sleep apnea who are treated with opioids for post-tonsillectomy and/or adenoidectomy pain may be particularly sensitive to their respiratory depressant effect. Because of the risk of life-threatening respiratory depression and death:

- Tramadol hydrochloride tablets are contraindicated for all children younger than 12 years of age [*see Contraindications (4)*].
- Tramadol hydrochloride tablets are contraindicated for postoperative management in pediatric patients younger than 18 years of age following tonsillectomy and/or adenoidectomy [*see Contraindications (4)*].
- Avoid the use of tramadol hydrochloride tablets in adolescents 12 to 18 years of age who have other risk factors that may increase their sensitivity to the respiratory depressant effects of tramadol unless the benefits outweigh the risks. Risk factors include conditions

associated with hypoventilation such as postoperative status, obstructive sleep apnea, obesity, severe pulmonary disease, neuromuscular disease, and concomitant use of other medications that cause respiratory depression.

- As with adults, when prescribing opioids for adolescents, healthcare providers should choose the lowest effective dose for the shortest period of time and inform patients and caregivers about these risks and the signs of opioid overdose [see *Use in Specific Populations (8.4), Overdosage (10)*].

Nursing Mothers

Tramadol is subject to the same polymorphic metabolism as codeine, with ultra-rapid metabolizers of CYP2D6 substrates being potentially exposed to life-threatening levels of the active metabolite *O*-desmethyltramadol (M1). At least one death was reported in a nursing infant who was exposed to high levels of morphine in breast milk because the mother was an ultra-rapid metabolizer of codeine. A baby nursing from an ultra-rapid metabolizer mother taking tramadol hydrochloride tablets could potentially be exposed to high levels of M1, and experience life-threatening respiratory depression. For this reason, breastfeeding is not recommended during treatment with tramadol hydrochloride tablets [see *Use in Specific Populations (8.2)*].

CYP2D6 Genetic Variability: Ultra-rapid Metabolizer

Some individuals may be ultra-rapid metabolizers because of a specific CYP2D6 genotype (e.g., gene duplications denoted as *1/*1xN or *1/*2xN). The prevalence of this CYP2D6 phenotype varies widely and has been estimated at 1 to 10% for Whites (European, North American), 3 to 4% for Blacks (African Americans), 1 to 2% for East Asians (Chinese, Japanese, Korean), and may be greater than 10% in certain racial/ethnic groups (i.e., Oceanian, Northern African, Middle Eastern, Ashkenazi Jews, Puerto Rican). These individuals convert tramadol into its active metabolite, *O*-desmethyltramadol (M1), more rapidly and completely than other people. This rapid conversion results in higher than expected serum M1 levels. Even at labeled dosage regimens, individuals who are ultra-rapid metabolizers may have life-threatening or fatal respiratory depression or experience signs of overdose (such as extreme sleepiness, confusion, or shallow breathing) [see *Overdosage (10)*]. Therefore, individuals who are ultra-rapid metabolizers should not use tramadol hydrochloride tablets.

5.7 Risks of Interactions with Drugs Affecting Cytochrome P450 Isoenzymes

The effects of concomitant use or discontinuation of cytochrome P450 3A4 inducers, 3A4 inhibitors, or 2D6 inhibitors on levels of tramadol and M1 from tramadol hydrochloride tablets are complex. Use of cytochrome P450 3A4 inducers, 3A4 inhibitors, or 2D6 inhibitors with tramadol hydrochloride tablets requires careful consideration of the effects on the parent drug, tramadol which is a weak serotonin and norepinephrine reuptake inhibitor and μ -opioid agonist, and the active metabolite, M1, which is more potent than tramadol in μ -opioid receptor binding [see *Drug Interactions (7)*].

Risks of Concomitant Use or Discontinuation of Cytochrome P450 2D6 Inhibitors

The concomitant use of tramadol hydrochloride tablets with all cytochrome P450 2D6 inhibitors (e.g., amiodarone, quinidine) may result in an increase in tramadol plasma levels and a decrease in the levels of the active metabolite, M1. A decrease in M1 exposure in patients who have developed physical dependence to tramadol, may result in signs and symptoms of opioid withdrawal and reduced efficacy. The effect of increased tramadol levels may be an increased risk for serious adverse events including seizures and serotonin syndrome.

Discontinuation of a concomitantly used cytochrome P450 2D6 inhibitor may result in a decrease in tramadol plasma levels and an increase in active metabolite M1 levels, which could increase or prolong adverse reactions related to opioid toxicity and may cause potentially fatal respiratory depression.

Follow patients receiving tramadol hydrochloride tablets and any CYP2D6 inhibitor for the risk of serious adverse events including seizures and serotonin syndrome, signs and symptoms that may reflect opioid toxicity, and opioid withdrawal when tramadol hydrochloride tablets is used in conjunction with inhibitors of CYP2D6 [*see Drug Interactions (7)*].

Cytochrome P450 3A4 Interaction

The concomitant use of tramadol hydrochloride tablets with cytochrome P450 3A4 inhibitors, such as macrolide antibiotics (e.g., erythromycin), azole-antifungal agents (e.g., ketoconazole), and protease inhibitors (e.g., ritonavir) or discontinuation of a cytochrome P450 3A4 inducer such as rifampin, carbamazepine, and phenytoin, may result in an increase in tramadol plasma concentrations, which could increase or prolong adverse reactions, increase the risk for serious adverse events including seizures and serotonin syndrome, and may cause potentially fatal respiratory depression.

The concomitant use of tramadol hydrochloride tablets with all cytochrome P450 3A4 inducers or discontinuation of a cytochrome P450 3A4 inhibitor may result in lower tramadol levels. This may be associated with a decrease in efficacy, and in some patients, may result in signs and symptoms of opioid withdrawal.

Follow patients receiving tramadol hydrochloride tablets and any CYP3A4 inhibitor or inducer for the risk for serious adverse events including seizures and serotonin syndrome, signs and symptoms that may reflect opioid toxicity and opioid withdrawal when tramadol hydrochloride tablets are used in conjunction with inhibitors and inducers of CYP3A4 [*see Drug Interactions (7)*].

5.8 Opioid-Induced Hyperalgesia and Allodynia

Opioid-Induced Hyperalgesia (OIH) occurs when an opioid analgesic paradoxically causes an increase in pain, or an increase in sensitivity to pain. This condition differs from tolerance, which is the need for increasing doses of opioids to maintain a defined effect [*see Dependence (9.3)*]. Symptoms of OIH include (but may not be limited to) increased levels of pain upon opioid dosage increase, decreased levels of pain upon opioid dosage decrease, or pain from ordinarily non-painful stimuli (allodynia). These symptoms may suggest OIH only if there is no evidence of underlying disease progression, opioid tolerance, opioid withdrawal, or addictive behavior.

Cases of OIH have been reported, both with short-term and longer-term use of opioid analgesics. Though the mechanism of OIH is not fully understood, multiple biochemical pathways have been implicated. Medical literature suggests a strong biologic plausibility between opioid analgesics and OIH and allodynia. If a patient is suspected to be experiencing OIH, carefully consider appropriately decreasing the dose of the current opioid analgesic or opioid rotation. (safely switching the patient to a different opioid moiety) [*see Dosage and Administration (2.5); Warnings and Precautions (5.18)*].

5.9 Serotonin Syndrome Risk

Cases of serotonin syndrome, a potentially life-threatening condition, have been reported with the use of tramadol, particularly during concomitant use with serotonergic drugs. Serotonergic drugs include selective serotonin reuptake inhibitors (SSRIs), serotonin and norepinephrine reuptake inhibitors (SNRIs), tricyclic antidepressants (TCAs), triptans, 5-HT₃ receptor antagonists, drugs that affect the serotonergic neurotransmitter system (e.g., mirtazapine, trazodone, tramadol), certain muscle relaxants (i.e., cyclobenzaprine, metaxalone), and drugs that impair metabolism of serotonin (including MAO inhibitors, both those intended to treat psychiatric disorders and also others, such as linezolid and intravenous methylene blue) [*see Drug Interactions (7)*]. This may occur within the recommended dosage range.

Serotonin syndrome symptoms may include mental status changes (e.g., agitation, hallucinations, coma), autonomic instability (e.g., tachycardia, labile blood pressure, hyperthermia), neuromuscular aberrations (e.g., hyperreflexia, incoordination, rigidity), and/or gastrointestinal symptoms (e.g., nausea, vomiting, diarrhea). The onset of symptoms generally occurs within several hours to a few days of concomitant use, but may occur later than that. Discontinue tramadol hydrochloride tablets if serotonin syndrome is suspected.

5.10 Increased Risk of Seizure

Seizures have been reported in patients receiving tramadol hydrochloride tablets within the recommended dosage range. Spontaneous post-marketing reports indicate that seizure risk is increased with doses of tramadol hydrochloride tablets above the recommended range.

Concomitant use of tramadol hydrochloride tablets increases the seizure risk in patients taking [*see Drug Interactions (7)*]:

- Selective serotonin re-uptake inhibitors (SSRI antidepressants or anorectics),
- Tricyclic antidepressants (TCAs), and other tricyclic compounds (e.g., cyclobenzaprine, promethazine, etc.),
- Other opioids,
- MAO inhibitors [*see Warnings and Precautions (5.8); Drug Interactions (7)*].
- Neuroleptics, or
- Other drugs that reduce the seizure threshold.

Risk of seizure may also increase in patients with epilepsy, those with a history of seizures, or in patients with a recognized risk for seizure (such as head trauma, metabolic disorders, alcohol and drug withdrawal, CNS infections). In tramadol hydrochloride tablets overdose, naloxone administration may increase the risk of seizure.

5.11 Suicide Risk

- Do not prescribe tramadol hydrochloride tablets for patients who are suicidal or addiction-prone. Consideration should be given to the use of non-narcotic analgesics in patients who are suicidal or depressed [*see Drug Abuse and Dependence (9)*].
- Prescribe tramadol hydrochloride tablets with caution for patients with a history of misuse and/or are currently taking CNS-active drugs including tranquilizers or antidepressant drugs, alcohol in excess, and patients who suffer from emotional disturbance or depression [*see Drug Interactions (7)*].
- Inform patients not to exceed the recommended dose and to limit their intake of alcohol [*see Dosage and Administration (2), Warnings and Precautions (5.7)*].

5.12 Life-Threatening Respiratory Depression in Patients with Chronic Pulmonary Disease or in Elderly, Cachectic, or Debilitated Patients

The use of tramadol hydrochloride tablets in patients with acute or severe bronchial asthma in an unmonitored setting or in the absence of resuscitative equipment is contraindicated.

Patients with Chronic Pulmonary Disease:

Tramadol hydrochloride tablets treated patients with significant chronic obstructive pulmonary disease or cor pulmonale, and those with a substantially decreased respiratory reserve, hypoxia, hypercapnia, or pre-existing respiratory depression are at increased risk of decreased respiratory drive including apnea, even at recommended dosages of tramadol hydrochloride tablets [*see Warnings and Precautions (5.3)*].

Elderly, Cachectic, or Debilitated Patients:

Life-threatening respiratory depression is more likely to occur in elderly, cachectic, or debilitated patients because they may have altered pharmacokinetics or altered clearance compared to younger, healthier patients [*see Warnings and Precautions (5.3)*].

Regularly evaluate patients, particularly when initiating and titrating tramadol hydrochloride tablets and when tramadol hydrochloride tablets are given concomitantly with other drugs that depress respiration [*see Warnings and Precautions (5.7); Drug Interactions (7)*]. Alternatively, consider the use of non-opioid analgesics in these patients.

5.13 Adrenal Insufficiency

Cases of adrenal insufficiency have been reported with opioid use, more often following greater than one month of use. Presentation of adrenal insufficiency may include non-specific symptoms and signs including nausea, vomiting, anorexia, fatigue, weakness, dizziness, and low blood pressure. If adrenal insufficiency is suspected, confirm the diagnosis with diagnostic testing as soon as possible. If adrenal insufficiency is diagnosed, treat with physiologic replacement doses of corticosteroids. Wean the patient off of the opioid to allow adrenal function to recover and continue corticosteroid treatment until adrenal function recovers. Other opioids may be tried as some cases reported use of a different opioid without recurrence of adrenal insufficiency. The information available does not identify any particular opioids as being more likely to be associated with adrenal insufficiency.

5.14 Severe Hypotension

Tramadol hydrochloride tablets may cause severe hypotension including orthostatic hypotension and syncope in ambulatory patients. There is increased risk in patients whose ability to maintain blood pressure has already been compromised by a reduced blood volume or concurrent administration of certain CNS depressant drugs (e.g. phenothiazines or general anesthetics) [*see Drug Interactions (7)*]. Regularly evaluate these patients for signs of hypotension after initiating or titrating the dosage of tramadol hydrochloride tablets. In patients with circulatory shock, tramadol hydrochloride tablets may cause vasodilation that can further reduce cardiac output and blood pressure. Avoid the use of tramadol hydrochloride tablets in patients with circulatory shock.

5.15 Risks of use in Patients with Increased Intracranial Pressure, Brain Tumors, Head Injury, or Impaired Consciousness

In patients who may be susceptible to the intracranial effects of CO₂ retention (e.g., those with evidence of increased intracranial pressure or brain tumors), tramadol hydrochloride tablets may reduce respiratory drive, and the resultant CO₂ retention can further increase intracranial pressure. Monitor such patients for signs of sedation and respiratory depression, particularly when initiating therapy with tramadol hydrochloride tablets.

Opioids may also obscure the clinical course in a patient with a head injury. Avoid the use of tramadol hydrochloride tablets in patients with impaired consciousness or coma.

5.16 Risks of Use in Patients with Gastrointestinal Conditions

Tramadol hydrochloride tablets are contraindicated in patients with known or suspected gastrointestinal obstruction, including paralytic ileus [*see Contraindications (4)*].

The tramadol in tramadol hydrochloride tablets may cause spasm of the sphincter of Oddi. Opioids may cause increases in serum amylase. Regularly evaluate patients with biliary tract disease, including acute pancreatitis for worsening symptoms.

5.17 Anaphylaxis and Other Hypersensitivity Reactions

Serious and rarely fatal anaphylactic reactions have been reported in patients receiving therapy with tramadol hydrochloride tablets. When these events do occur it is often following the first

dose. Other reported allergic reactions include pruritus, hives, bronchospasm, angioedema, toxic epidermal necrolysis and Stevens-Johnson syndrome. Patients with a history of hypersensitivity reactions to tramadol and other opioids may be at increased risk and therefore should not receive tramadol hydrochloride tablets [see *Contraindications (4)*]. If anaphylaxis or other hypersensitivity occurs, stop administration of tramadol hydrochloride tablets immediately, discontinue tramadol hydrochloride tablets permanently, and do not rechallenge with any formulation of tramadol. Advise patients to seek immediate medical attention if they experience any symptoms of a hypersensitivity reaction. [see *Contraindications (4)*; *Patient Counselling Information (17)*].

5.18 Withdrawal

Do not abruptly discontinue tramadol hydrochloride tablets in a patient physically dependent on opioids. When discontinuing tramadol hydrochloride tablets in a physically dependent patient, gradually taper the dosage. Rapid tapering of tramadol in a patient physically dependent on opioids may lead to a withdrawal syndrome and return of pain [see *Dosage and Administration (2.5)*, *Drug Abuse and Dependence (9.3)*].

Additionally, avoid the use of mixed agonist/antagonist (e.g, pentazocine, nalbuphine, and butorphanol) or partial agonist (e.g., buprenorphine) analgesics in patients who are receiving a full opioid agonist analgesic, including tramadol hydrochloride tablets. In these patients, mixed agonist/antagonist and partial agonist analgesics may reduce the analgesic effect and/or precipitate withdrawal symptoms [see *Drug Interactions (7)*].

5.18 Driving and Operating Machinery

Tramadol hydrochloride tablets may impair the mental or physical abilities needed to perform potentially hazardous activities such as driving a car or operating machinery. Warn patients not to drive or operate dangerous machinery unless they are tolerant to the effects of tramadol hydrochloride tablets and know how they will react to the medication [see *Patient Counselling Information (17)*].

5.19 Risks of Driving and Operating Machinery

Tramadol hydrochloride tablets may impair the mental or physical abilities needed to perform potentially hazardous activities such as driving a car or operating machinery. Warn patients not to drive or operate dangerous machinery unless they are tolerant to the effects of tramadol hydrochloride tablets and know how they will react to the medication [see *Patient Counselling Information (17)*].

5.20 Hyponatremia

Hyponatremia (serum sodium < 135 mmol/L) has been reported with the use of tramadol, and many cases are severe (sodium level < 120 mmol/L). Most cases of hyponatremia occurred in females over the age of 65 and within the first week of therapy. In some reports, hyponatremia resulted from the syndrome of inappropriate antidiuretic hormone secretion (SIADH). Monitor for signs and symptoms of hyponatremia (e.g., confusion, disorientation), during treatment with tramadol hydrochloride tablets, especially during initiation of therapy. If signs and symptoms of

hyponatremia are present, initiate appropriate treatment (e.g., fluid restriction) and discontinue tramadol hydrochloride tablets [see *Dosage and Administration: Safe Reduction or Discontinuation of tramadol hydrochloride tablets (2.5)*].

5.21 Hypoglycemia

Cases of tramadol-associated hypoglycemia have been reported, some resulting in hospitalization. In most cases, patients had predisposing risk factors (e.g. diabetes). If hypoglycemia is suspected, monitor blood glucose levels and consider drug discontinuation as appropriate [see *Dosage and Administration: Safe Reduction or Discontinuation of tramadol hydrochloride tablets (2.5)*].

6 ADVERSE REACTIONS

The following serious adverse reactions are described, or described in greater detail, in other sections:

- Addiction, Abuse, and Misuse [see *Warnings and Precautions (5.1)*]
- Life-Threatening Respiratory Depression [see *Warnings and Precautions (5.3)*]
- Ultra-Rapid Metabolism of Tramadol and Other Risk Factors for Life-threatening Respiratory Depression in Children [see *Warnings and Precautions (5.4)*]
- Neonatal Opioid Withdrawal Syndrome [see *Warnings and Precautions (5.5)*]
- Interactions with Benzodiazepines or Other CNS Depressants [see *Warnings and Precautions (5.7)*]
- Serotonin Syndrome [see *Warnings and Precautions (5.8)*]
- Seizures [see *Warnings and Precautions (5.9)*]
- Suicide [see *Warnings and Precautions (5.10)*]
- Adrenal Insufficiency [see *Warnings and Precautions (5.11)*]
- Severe Hypotension [see *Warnings and Precautions (5.13)*]
- Gastrointestinal Adverse Reactions [see *Warnings and Precautions (5.15)*]
- Hypersensitivity Reactions [see *Warnings and Precautions (5.16)*]
- Withdrawal [see *Warnings and Precautions (5.17)*]

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 practice.

Tramadol hydrochloride tablets were administered to 550 patients during the double-blind or open-label extension periods in U.S. studies of chronic nonmalignant pain. Of these patients, 375 were 65 years old or older. Table 1 reports the cumulative incidence rate of adverse reactions by 7, 30 and 90 days for the most frequent reactions (5% or more by 7 days). The most frequently reported events were in the central nervous system and gastrointestinal system. Although the reactions listed in the table are felt to be probably related to tramadol hydrochloride tablets administration, the reported rates also include some events that may have been due to underlying disease or concomitant medication. The overall incidence rates of adverse experiences in these trials were similar for tramadol hydrochloride tablets and the active control groups, **TYLENOL with Codeine #3** (acetaminophen 300 mg with codeine phosphate 30 mg), and aspirin 325 mg with codeine phosphate 30 mg, however, the rates of withdrawals due to adverse events appeared to be higher in the tramadol hydrochloride tablets groups.

Table 1: Cumulative Incidence of Adverse Reactions for Tramadol Hydrochloride tablets in Chronic Trials of Nonmalignant Pain (N=427)

	Up to 7 Days	Up to 30 Days	Up to 90 Days
Dizziness/Vertigo	26%	31%	33%
Nausea	24%	34%	40%
Constipation	24%	38%	46%
Headache	18%	26%	32%
Somnolence	16%	23%	25%
Vomiting	9%	13%	17%
Pruritus	8%	10%	11%
"CNS Stimulation" ¹	7%	11%	14%
Asthenia	6%	11%	12%
Sweating	6%	7%	9%
Dyspepsia	5%	9%	13%
Dry Mouth	5%	9%	10%
Diarrhea	5%	6%	10%

¹"CNS Stimulation" is a composite of nervousness, anxiety, agitation, tremor, spasticity, euphoria, emotional lability and hallucinations

Incidence 1% to Less than 5% Possibly Causally Related

The following lists adverse reactions that occurred with an incidence of 1% to less than 5% in clinical trials, and for which the possibility of a causal relationship with tramadol hydrochloride tablets exists.

Body as a Whole: Malaise.

Cardiovascular: Vasodilation.

Central Nervous System: Anxiety, Confusion, Coordination disturbance, Euphoria, Miosis, Nervousness, Sleep disorder.

Gastrointestinal: Abdominal pain, Anorexia, Flatulence.

Musculoskeletal: Hypertonia.

Skin: Rash.

Special Senses: Visual disturbance.

Urogenital: Menopausal symptoms, Urinary frequency, Urinary retention.

Incidence Less than 1%, Possibly Causally Related

The following lists adverse reactions that occurred with an incidence of less than 1% in clinical trials of tramadol and/or reported in postmarketing experience with tramadol-containing products.

Body as a Whole: Accidental injury, Allergic reaction, Anaphylaxis, Death, Suicidal tendency, Weight loss, Serotonin syndrome (mental status change, hyperreflexia, fever, shivering, tremor, agitation, diaphoresis, seizures and coma).

Cardiovascular: Orthostatic hypotension, Syncope, Tachycardia.

Central Nervous System: Abnormal gait, Amnesia, Cognitive dysfunction, Depression, Difficulty in concentration, Hallucinations, Paresthesia, Seizure, Tremor.

Respiratory: Dyspnea.

Skin: Stevens-Johnson syndrome/Toxic epidermal necrolysis, Urticaria, Vesicles.

Special Senses: Dysgeusia.

Urogenital: Dysuria, Menstrual disorder.

Other Adverse Experiences, Causal Relationship Unknown

A variety of other adverse events were reported infrequently in patients taking tramadol hydrochloride tablets during clinical trials and/or reported in post-marketing experience. A causal relationship between tramadol hydrochloride tablets and these events has not been determined. However, the most significant events are listed below as alerting information to the physician.

Cardiovascular: Abnormal ECG, Hypertension, Hypotension, Myocardial ischemia, Palpitations, Pulmonary edema, Pulmonary embolism.

Central Nervous System: Migraine.

Gastrointestinal: Gastrointestinal bleeding, Hepatitis, Stomatitis, Liver failure.

Laboratory Abnormalities: Creatinine increase, Elevated liver enzymes, Hemoglobin decrease, Proteinuria.

Sensory: Cataracts, Deafness, Tinnitus.

6.2 Postmarketing Experience

The following adverse reactions have been identified during post-approval use of tramadol hydrochloride tablets. 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.

Serotonin syndrome: Cases of serotonin syndrome, a potentially life-threatening condition, have been reported during concomitant use of opioids with serotonergic drugs.

Adrenal insufficiency: Cases of adrenal insufficiency have been reported with opioid use, more often following greater than one month of use.

Androgen deficiency: Cases of androgen deficiency have occurred with for an extended period of time use of opioids. [see *Clinical Pharmacology* (12.2)].

Hyperalgesia and Allodynia: cases of hyperalgesia and allodynia have been reported with opioid therapy of any duration [see *Warnings and Precautions* (5.8)]

QT prolongation/torsade de pointes: Cases of QT prolongation and/or *torsade de pointes* have been reported with tramadol use. Many of these cases were reported in patients taking another drug labeled for QT prolongation, in patients with a risk factor for QT prolongation (e.g., hypokalemia), or in the overdose setting.

Eye disorders – mydriasis

Metabolism and nutrition disorders – Hyponatremia: Cases of severe hyponatremia and/or SIADH have been reported in patients taking tramadol, most often in females over the age of 65, and within the first week of therapy [see *Warnings and Precautions* (5.19)].

Hypoglycemia: Cases of hypoglycemia have been reported in patients taking tramadol. Most reports were in patients with predisposing risk factors, including diabetes or renal insufficiency, or in elderly patients [see *Warnings and Precautions* (5.20)].

Nervous system disorders – movement disorder, speech disorder

Psychiatric disorders – delirium

7 DRUG INTERACTIONS

Table 2: Clinically Significant Drug Interactions with tramadol hydrochloride tablets

Inhibitors of CYP2D6

Clinical Impact: The concomitant use of tramadol hydrochloride tablets and CYP2D6 inhibitors may result in an increase in the plasma concentration of tramadol and a

decrease in the plasma concentration of M1, particularly when an inhibitor is added after a stable dose of tramadol hydrochloride tablets is achieved. Since M1 is a more potent μ -opioid agonist, decreased M1 exposure could result in decreased therapeutic effects, and may result in signs and symptoms of opioid withdrawal in patients who had developed physical dependence to tramadol. Increased tramadol exposure can result in increased or prolonged therapeutic effects and increased risk for serious adverse events including seizures and serotonin syndrome. After stopping a CYP2D6 inhibitor, as the effects of the inhibitor decline, the tramadol plasma concentration will decrease and the M1 plasma concentration will increase. This could increase or prolong therapeutic effects but also increase adverse reactions related to opioid toxicity, such as potentially fatal respiratory depression [see *Clinical Pharmacology (12.3)*].

Intervention: If concomitant use of a CYP2D6 inhibitor is necessary, follow patients closely for adverse reactions including opioid withdrawal, seizures and serotonin syndrome. If a CYP2D6 inhibitor is discontinued, consider lowering tramadol hydrochloride tablets dosage until stable drug effects are achieved. Evaluate patients at frequent Intervals for adverse events including respiratory depression and sedation.

Examples Quinidine, fluoxetine, paroxetine and bupropion

Inhibitors of CYP3A4

Clinical Impact: The concomitant use of tramadol hydrochloride tablets and CYP3A4 inhibitors can increase the plasma concentration of tramadol and may result in a greater amount of metabolism via CYP2D6 and greater levels of M1. Follow patients closely for increased risk of serious adverse events including seizures and serotonin syndrome, and adverse reactions related to opioid toxicity including potentially fatal respiratory depression, particularly when an inhibitor is added after a stable dose of tramadol hydrochloride tablets is achieved. After stopping a CYP3A4 inhibitor, as the effects of the inhibitor decline, the tramadol plasma concentration will decrease [see *Clinical Pharmacology (12.3)*], resulting in decreased opioid efficacy or a withdrawal syndrome in patients who had developed physical dependence to tramadol.

Intervention: If concomitant use is necessary, consider dosage reduction of tramadol hydrochloride tablets until stable drug effects are achieved. Inform patients and caregivers of this potential interaction, educate them on the signs and symptoms of seizures, serotonin syndrome, and signs of respiratory depression and sedation.

If a CYP3A4 inhibitor is discontinued, consider increasing the tramadol hydrochloride tablets dosage until stable drug effects are achieved and evaluate patients at frequent intervals for signs and symptoms of opioid withdrawal.

Examples Macrolide antibiotics (e.g., erythromycin), azole-antifungal agents (e.g. ketoconazole), protease inhibitors (e.g., ritonavir)

CYP3A4 Inducers

Clinical Impact: The concomitant use of tramadol hydrochloride tablets and CYP3A4 inducers can decrease the plasma concentration of tramadol [see *Clinical Pharmacology (12.3)*], resulting in decreased efficacy or onset of a withdrawal syndrome in patients who have developed physical dependence to tramadol. After stopping a CYP3A4 inducer, as the effects of the inducer decline, the tramadol plasma concentration will increase [see *Clinical Pharmacology (12.3)*], which could increase or prolong both the therapeutic effects and adverse reactions, and may cause seizures, serotonin syndrome, and/or potentially fatal respiratory depression.

Intervention: If concomitant use is necessary, consider increasing the tramadol hydrochloride tablets dosage until stable drug effects are achieved. Assess patients for signs of opioid withdrawal. If a CYP3A4 inducer is discontinued, consider tramadol hydrochloride tablets dosage reduction and evaluate patients at frequent intervals for signs of respiratory depression and sedation.

Patients taking carbamazepine, a CYP3A4 inducer, may have a significantly reduced analgesic effect of tramadol. Because carbamazepine increases tramadol metabolism and because of the seizure risk associated with tramadol, concomitant administration of tramadol hydrochloride tablets and carbamazepine is not recommended.

Examples Rifampin, carbamazepine, phenytoin

Benzodiazepines and Other Central Nervous System (CNS) Depressants

Clinical Impact: Due to additive pharmacologic effect, the concomitant use of benzodiazepines or other CNS depressants, including alcohol, increases the risk of respiratory depression, profound sedation, coma, and death.

Intervention: Reserve concomitant prescribing of these drugs for use in patients for whom alternative treatment options are inadequate. Limit dosages and durations to the minimum required. Inform patients and caregivers of this potential interaction, educate them on the signs and symptoms of respiratory depression (including sedation) [see *Warnings and Precautions* (5.7)]. If concomitant use is warranted, consider prescribing naloxone for the emergency treatment of opioid overdose [see *Dosage and Administration* (2.2), *Warnings and Precautions* (5.1, 5.3, 5.7)].

Examples: Benzodiazepines and other sedatives/hypnotics, anxiolytics, tranquilizers, muscle relaxants, general anesthetics, antipsychotics, other opioids, and alcohol.

Serotonergic Drugs

Clinical Impact: The concomitant use of opioids with other drugs that affect the serotonergic neurotransmitter system has resulted in serotonin syndrome.

Intervention: If concomitant use is warranted, frequently evaluate the patient, particularly during treatment initiation and dose adjustment. Discontinue tramadol hydrochloride tablets immediately if serotonin syndrome is suspected.

Examples: Selective serotonin reuptake inhibitors (SSRIs), serotonin and norepinephrine reuptake inhibitors (SNRIs), tricyclic antidepressants (TCAs), triptans, 5-HT₃ receptor antagonists, drugs that affect the serotonin neurotransmitter system (e.g., mirtazapine, trazodone, tramadol), certain muscle relaxants (i.e., cyclobenzaprine, metaxalone), monoamine oxidase (MAO) inhibitors (those intended to treat psychiatric disorders and also others, such as linezolid and intravenous methylene blue).

Monoamine Oxidase Inhibitors (MAOIs)

Clinical Impact: MAOI interactions with opioids may manifest as serotonin syndrome [see *Warnings and Precautions* (5.9)] or opioid toxicity (e.g., respiratory depression, coma) [see *Warnings and Precautions* (5.3)].

Intervention: Do not use tramadol hydrochloride tablets in patients taking MAOIs or within 14 days of stopping such treatment.

Examples: phenelzine, tranylcypromine, linezolid

Mixed Agonist/Antagonist and Partial Agonist Opioid Analgesics

Clinical Impact: May reduce the analgesic effect of tramadol hydrochloride tablets and/or precipitate withdrawal symptoms.

Intervention: Avoid concomitant use.

Examples: butorphanol, nalbuphine, pentazocine, buprenorphine

Muscle Relaxants

Clinical Impact: Tramadol may enhance the neuromuscular blocking action of skeletal muscle relaxants and produce an increased degree of respiratory depression.

Intervention: Because respiratory depression that may be greater than otherwise expected decrease the dosage of tramadol hydrochloride tablets and/or the muscle relaxant as necessary. Due to the risk of respiratory depression with concomitant use of skeletal muscle relaxants and opioids, consider prescribing naloxone for the emergency treatment of opioid overdose [see *Dosage and Administration (2.2), Warnings and Precautions (5.3, 5.7)*].

Diuretics

Clinical Impact: Opioids can reduce the efficacy of diuretics by inducing the release of antidiuretic hormone.

Intervention: Evaluate patients for signs of diminished diuresis and/or effects on blood pressure and increase the dosage of the diuretic as needed.

Anticholinergic Drugs

Clinical Impact: The concomitant use of anticholinergic drugs may increase risk of urinary retention and/or severe constipation, which may lead to paralytic ileus.

Intervention: Evaluate patients for signs of urinary retention or reduced gastric motility when tramadol hydrochloride tablets is used concomitantly with anticholinergic drugs.

Digoxin

Clinical Impact: Post-marketing surveillance of tramadol has revealed rare reports of digoxin toxicity.

Intervention: Follow patients for signs of digoxin toxicity and adjust dosage of digoxin as needed.

Warfarin

Clinical Impact: Post-marketing surveillance of tramadol has revealed rare reports of alteration of warfarin effect, including elevation of prothrombin times.

Intervention: Frequently reevaluate the prothrombin time of patients on warfarin for signs of an interaction and adjust the dosage of warfarin as needed.

8 USE IN SPECIFIC POPULATIONS

8.1 Pregnancy

Risk Summary

Use of opioid analgesics for an extended period of time during pregnancy may cause neonatal opioid withdrawal syndrome.

Available data with tramadol hydrochloride tablets in pregnant women are insufficient to inform a drug-associated risk for major birth defects and miscarriage.

In animal reproduction studies, tramadol administration during organogenesis decreased fetal weights and reduced ossification in mice, rats, and rabbits at 1.4, 0.6, and 3.6 times the maximum recommended human daily dosage (MRHD). Tramadol decreased pup body weight and increased pup mortality at 1.2 and 1.9 times the MRHD [see *Data*]. Based on animal data, advise pregnant women 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. In the U.S. general population, the estimated background risk of major birth defects and miscarriage in clinically recognized pregnancies is 2-4% and 15-20%, respectively.

Clinical Considerations

Fetal/Neonatal Adverse Reactions

Use of opioid analgesics for an extended period of time during pregnancy for medical or nonmedical purposes can result in respiratory depression and physical dependence in the neonate and neonatal opioid withdrawal syndrome shortly after birth.

Neonatal opioid withdrawal syndrome can present as irritability, hyperactivity and abnormal sleep pattern, high pitched cry, tremor, vomiting, diarrhea and failure to gain weight. The onset, duration, and severity of neonatal opioid withdrawal syndrome vary based on the specific opioid used, duration of use, timing and amount of last maternal use, and rate of elimination of the drug by the newborn. Observe newborns for symptoms and signs of neonatal opioid withdrawal syndrome and manage accordingly [see *Warnings and Precautions (5.5)*].

Neonatal seizures, neonatal withdrawal syndrome, fetal death and still birth have been reported during post-marketing.

Labor or Delivery

Opioids cross the placenta and may produce respiratory depression and psycho-physiologic effects in neonates. An opioid antagonist, such as naloxone, must be available for reversal of opioid-induced respiratory depression in the neonate. Tramadol hydrochloride tablets are not recommended for use in pregnant women during or immediately prior to labor, when other analgesic techniques are more appropriate. Opioid analgesics, including tramadol hydrochloride tablets, can prolong labor through actions which temporarily reduce the strength, duration, and frequency of uterine contractions. However, this effect is not consistent and may be offset by an increased rate of cervical dilation, which tends to shorten labor. Monitor neonates exposed to opioid analgesics during labor for signs of excess sedation and respiratory depression.

Tramadol has been shown to cross the placenta. The mean ratio of serum tramadol in the umbilical veins compared to maternal veins was 0.83 for 40 women given tramadol during labor.

The effect of tramadol hydrochloride tablets, if any, on the later growth, development, and functional maturation of the child is unknown.

Data

Animal Data

Tramadol has been shown to be embryotoxic and fetotoxic in mice, (120 mg/kg), rats (25 mg/kg) and rabbits (75 mg/kg) at maternally toxic dosages, but was not teratogenic at these dose levels. These doses on a mg/m² basis are 1.4, 0.6, and 3.6 times the maximum recommended human daily dosage (MRHD) for mouse, rat and rabbit, respectively.

No drug-related teratogenic effects were observed in progeny of mice (up to 140 mg/kg), rats (up to 80 mg/kg) or rabbits (up to 300 mg/kg) treated with tramadol by various routes. Embryo and fetal toxicity consisted primarily of decreased fetal weights, decreased skeletal ossification and increased supernumerary ribs at maternally toxic dose levels. Transient delays in developmental

or behavioral parameters were also seen in pups from rat dams allowed to deliver. Embryo and fetal lethality were reported only in one rabbit study at 300 mg/kg, a dose that would cause extreme maternal toxicity in the rabbit. The dosages listed for mouse, rat and rabbit are 1.7, 1.9 and 14.6 times the MRHD, respectively.

Tramadol was evaluated in pre-and post-natal studies in rats. Progeny of dams receiving oral (gavage) dose levels of 50 mg/kg (1.2 times the MRHD) or greater had decreased weights, and pup survival was decreased early in lactation at 80 mg/kg (1.9 times the MRHD).

8.2 Lactation

Risk Summary

Tramadol hydrochloride tablets are not recommended for obstetrical preoperative medication or for post-delivery analgesia in nursing mothers because its safety in infants and newborns has not been studied.

Tramadol and its metabolite, *O*-desmethyltramadol (M1), are present in human milk. There is no information on the effects of the drug on the breastfed infant or the effects of the drug on milk production. The M1 metabolite is more potent than tramadol in mu opioid receptor binding [*see Clinical Pharmacology (12)*]. Published studies have reported tramadol and M1 in colostrum with administration of tramadol to nursing mothers in the early post-partum period. Women who are ultra-rapid metabolizers of tramadol may have higher than expected serum levels of M1, potentially leading to higher levels of M1 in breast milk that can be dangerous in their breastfed infants. In women with normal tramadol metabolism, the amount of tramadol secreted into human milk is low and dose-dependent. Because of the potential for serious adverse reactions, including excess sedation and respiratory depression in a breastfed infant, advise patients that breastfeeding is not recommended during treatment with tramadol hydrochloride tablets [*see Warnings and Precautions (5.4)*].

Clinical Considerations

If infants are exposed to tramadol hydrochloride through breast milk, they should be monitored for excess sedation and respiratory depression. Withdrawal symptoms can occur in breastfed infants when maternal administration of an opioid analgesic is stopped, or when breast-feeding is stopped.

Data

Following a single IV 100 mg dose of tramadol, the cumulative excretion in breast milk within 16 hours post dose was 100 mcg of tramadol (0.1% of the maternal dose) and 27 mcg of M1.

8.3 Females and Males of Reproductive Potential

Infertility

Use of opioids for an extended period of time may cause reduced fertility in females and males of reproductive potential. It is not known whether these effects on fertility are reversible [*see Adverse Reactions (6.2)*].

8.4 Pediatric Use

The safety and effectiveness of tramadol hydrochloride tablets in pediatric patients have not been established.

Life-threatening respiratory depression and death have occurred in children who received tramadol [see *Warnings and Precautions (5.4)*]. In some of the reported cases, these events followed tonsillectomy and/or adenoidectomy, and one of the children had evidence of being an ultra-rapid metabolizer of tramadol (i.e., multiple copies of the gene for cytochrome P450 isoenzyme 2D6). Children with sleep apnea may be particularly sensitive to the respiratory depressant effects of tramadol. Because of the risk of life-threatening respiratory depression and death:

- Tramadol hydrochloride tablets are contraindicated for all children younger than 12 years of age [see *Contraindications (4)*].
- Tramadol hydrochloride tablets are contraindicated for post-operative management in pediatric patients younger than 18 years of age following tonsillectomy and/or adenoidectomy [see *Contraindications (4)*].

Avoid the use of tramadol hydrochloride tablets in adolescents 12 to 18 years of age who have other risk factors that may increase their sensitivity to the respiratory depressant effects of tramadol unless the benefits outweigh the risks. Risk factors include conditions associated with hypoventilation such as postoperative status, obstructive sleep apnea, obesity, severe pulmonary disease, neuromuscular disease, and concomitant use of other medications that cause respiratory depression.

8.5 Geriatric Use

A total of 455 elderly (65 years of age or older) subjects were exposed to tramadol hydrochloride tablets in controlled clinical trials. Of those, 145 subjects were 75 years of age and older.

In studies including geriatric patients, treatment-limiting adverse events were higher in subjects over 75 years of age compared to those under 65 years of age. Specifically, 30% of those over 75 years of age had gastrointestinal treatment-limiting adverse events compared to 17% of those under 65 years of age. Constipation resulted in discontinuation of treatment in 10% of those over 75.

Respiratory depression is the chief risk for elderly patients treated with opioids, and has occurred after large initial doses were administered to patients who were not opioid-tolerant or when opioids were co-administered with other agents that depress respiration. Titrate the dosage of tramadol hydrochloride tablets slowly in geriatric patients starting at the low end of the dosing range and frequently reevaluate the patient for signs of central nervous system and respiratory depression [see *Warnings and Precautions (5.12)*].

Tramadol is known to be substantially excreted by the kidney, and the risk of adverse reactions to this drug may be greater in patients with impaired renal function. Because elderly patients are more likely to have decreased renal function, care should be taken in dose selection, and it may be useful to regularly evaluate renal function.

8.6 Renal and Hepatic Impairment

Impaired renal function results in a decreased rate and extent of excretion of tramadol and its active metabolite, M1. In patients with creatinine clearances of less than 30 mL/min, dosing reduction is recommended [see *Dosage and Administration (2.3)*]. Metabolism of tramadol and M1 is reduced in patients with severe hepatic impairment based on a study in patients with advanced cirrhosis of the liver. In patients with severe hepatic impairment, dosing reduction is recommended [see *Dosage and Administration (2.3)*].

With the prolonged half-life in these conditions, achievement of steady-state is delayed, so that it may take several days for elevated plasma concentrations to develop.

9 Drug Abuse and Dependence

9.1 Controlled Substance

Tramadol hydrochloride tablets contain tramadol, a Schedule IV controlled substance.

9.2 Abuse

Tramadol hydrochloride tablets contains tramadol, a substance with potential for misuse and abuse, which can lead to the development of substance use disorder, including addiction [see *Warnings and Precautions (5.1)*].

Misuse is the intentional use, for therapeutic purposes, of a drug by an individual in a way other than prescribed by a health care provider or for whom it was not prescribed.

Abuse is the intentional, non-therapeutic use of a drug, even once, for its desirable psychological or physiological effects.

Drug addiction is a cluster of behavioral, cognitive, and physiological phenomena that may include a strong desire to take the drug, difficulties in controlling drug use (e.g., continuing drug use despite harmful consequences, giving a higher priority to drug use than other activities and obligations), and possible tolerance or physical dependence.

Misuse and abuse of Tramadol hydrochloride tablets increases risk of overdose, which may lead to central nervous system and respiratory depression, hypotension, seizures, and death. The risk is increased with concurrent abuse of Tramadol hydrochloride tablets with alcohol and other central nervous system depressants. Abuse of and addiction to opioids in some individuals may not be accompanied by concurrent tolerance and symptoms of physical dependence. In addition, abuse of opioids can occur in the absence of addiction.

All patients treated with opioids require careful and frequent re-evaluation for signs of misuse, abuse, and addiction, because use of opioid analgesic products carries the risk of addiction even under appropriate medical use. Patients at high risk of Tramadol hydrochloride tablets abuse include those with a history of prolonged use of products containing tramadol, those with a history of drug or alcohol abuse, or those who use Tramadol hydrochloride tablets in combination with other abused drugs.

“Drug-seeking” behavior is very common in persons with substance use disorders. Drug-seeking tactics include emergency calls or visits near the end of office hours, refusal to undergo appropriate examination, testing, or referral, repeated “loss” of prescriptions, tampering with prescriptions, and reluctance to provide prior medical records or contact information for other treating healthcare provider(s). “Doctor shopping” (visiting multiple prescribers to obtain additional prescriptions) is common among people who abuse drugs and people with substance use disorder. Preoccupation with achieving adequate pain relief can be appropriate behavior in a patient with inadequate pain control.

Tramadol hydrochloride tablets, like other opioids, can be diverted for non-medical use into illicit channels of distribution. Careful record-keeping of prescribing information, including quantity, frequency, and renewal requests, as required by state and federal law, is strongly advised.

Proper assessment of the patient, proper prescribing practices, periodic reevaluation of therapy, and proper dispensing and storage are appropriate measures that help to limit abuse of opioid drugs.

Risks Specific to Abuse of Tramadol hydrochloride tablets Abuse of Tramadol hydrochloride tablets poses a risk of overdose and death. The risk is increased with concurrent abuse of Tramadol hydrochloride tablets with alcohol and other central nervous system depressants.

Tramadol hydrochloride tablets are approved for oral use only. Parenteral drug abuse is commonly associated with transmission of infectious diseases such as hepatitis and HIV.

9.3 Dependence

Both tolerance and physical dependence can develop during use of opioid therapy.

Tolerance is physiological state characterized by a reduced response to a drug after repeated administration (i.e., a higher dose of a drug is required to produce the same effect that was once obtained at a lower dose).

Physical dependence is a state that develops as a result of a physiological adaptation in response to repeated drug use, manifested by withdrawal signs and symptoms after abrupt discontinuation or a significant dose reduction of a drug.

Withdrawal may be precipitated through the administration of drugs with opioid antagonist activity (e.g., naloxone), mixed agonist/antagonist analgesics (e.g., pentazocine, butorphanol, nalbuphine), or partial agonists (e.g., buprenorphine). Physical dependence may not occur to a clinically significant degree until after several days to weeks of continued use.

Do not abruptly discontinue tramadol hydrochloride tablets in a patient physically dependent on opioids. Rapid tapering of tramadol hydrochloride tablets in a patient physically dependent on opioids may lead to serious withdrawal symptoms, uncontrolled pain and suicide. Rapid discontinuation has also been associated with attempts to find other sources of opioid analgesics, which may be confused with drug-seeking for abuse.

When discontinuing tramadol hydrochloride tablets, gradually taper the dosage using a patient-specific plan that considers the following: the dose of tramadol hydrochloride tablets the patient has been taking, the duration of treatment, and the physical and psychological attributes of the patient. To improve the likelihood of a successful taper and minimize withdrawal symptoms, it is important that the opioid tapering schedule is agreed upon by the patient. In patients taking opioids for an extended period of time at high doses, ensure that a multimodal approach to pain management, including mental health support (if needed), is in place prior to initiating an opioid analgesic taper [see *Dosage and Administration (2.5)* and *Warnings and Precautions (5.18)*].

Infants born to mothers physically dependent on opioids will also be physically dependent and may exhibit respiratory difficulties and withdrawal signs [see *Use in Specific Populations (8.1)*].

10. OVERDOSAGE

Clinical Presentation

Acute overdosage with tramadol hydrochloride tablets can be manifested by respiratory depression, somnolence progressing to stupor or coma, skeletal muscle flaccidity, cold and clammy skin, constricted pupils, and, in some cases, pulmonary edema, bradycardia, QT prolongation, hypotension, partial or complete airway obstruction, atypical snoring, seizures, and death. Marked mydriasis rather than miosis may be seen with hypoxia in overdose situations.

Deaths due to overdose have been reported with abuse and misuse of tramadol [see *Warnings and Precautions (5.1)*; *Drug Abuse and Dependence (9.2)*]. Review of case reports has indicated that the risk of fatal overdose is further increased when tramadol is abused concurrently with alcohol or other CNS depressants, including other opioids.

Treatment of Overdose

In case of overdose, priorities are the re-establishment of a patent and protected airway and institution of assisted or controlled ventilation, if needed. Employ other supportive measures (including oxygen and vasopressors) in the management of circulatory shock and pulmonary edema as indicated. Cardiac arrest or serious arrhythmias will require advanced life-supporting measures. Because strategies for the management of overdose are continually evolving, it is advisable to contact a poison control center (where available) to determine the latest recommendations for the management of an overdose.

Opioid antagonists, such as naloxone, are specific antidotes to respiratory depression resulting from opioid overdose. For clinically significant respiratory or circulatory depression secondary to opioid overdose, administer an opioid antagonist.

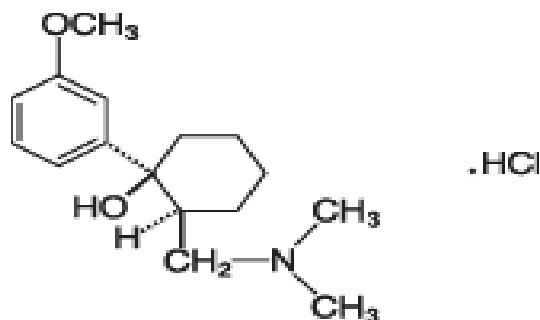
While naloxone will reverse some, but not all, symptoms caused by overdosage with tramadol, the risk of seizures is also increased with naloxone administration. In animals, convulsions following the administration of toxic doses of tramadol hydrochloride tablets could be suppressed with barbiturates or benzodiazepines but were increased with naloxone. Naloxone administration did not change the lethality of an overdose in mice. Hemodialysis is not expected to be helpful in an overdose because it removes less than 7% of the administered dose in a 4-hour dialysis period.

Because the duration of opioid reversal is expected to be less than the duration of action of tramadol in tramadol hydrochloride tablets, carefully monitor the patient until spontaneous respiration is reliably reestablished. If the response to an opioid antagonist is suboptimal or only brief in nature, administer additional antagonist as directed by the product's prescribing information.

In an individual physically dependent on opioids, administration of the recommended usual dosage of the antagonist will precipitate an acute withdrawal syndrome. The severity of the withdrawal symptoms experienced will depend on the degree of physical dependence and the dose of the antagonist administered. If a decision is made to treat serious respiratory depression in the physically dependent patient, administration of the antagonist should be begun with care and by titration with smaller than usual doses of the antagonist.

11. DESCRIPTION

Tramadol Hydrochloride Tablets, USP for oral use, are an opioid agonist. The chemical name for tramadol hydrochloride is (\pm) *cis*-2-[(dimethylamino) methyl]-1-(3-methoxyphenyl) cyclohexanol hydrochloride. The structural formula is:



The molecular weight of tramadol hydrochloride is 299.8. Tramadol hydrochloride is a white crystalline powder. It is readily soluble in water and ethanol and has a pKa of 9.41. The n-octanol/water log partition coefficient (logP) is 1.35 at pH 7. Tramadol Hydrochloride Tablets, USP 25 mg, 50 mg, 75 mg and 100 mg contain 25 mg, 50 mg, 75 mg and 100 mg of tramadol hydrochloride respectively and are white in color. Inactive ingredients in the tablet are hypromellose, lactose anhydrous, magnesium stearate, microcrystalline cellulose, polyethylene glycol, polysorbate 80, pregelatinized starch, sodium starch glycolate and titanium dioxide.

12. CLINICAL PHARMACOLOGY

12.1 Mechanism of Action

Tramadol hydrochloride tablets contains tramadol, an opioid agonist and inhibitor of norepinephrine and serotonin re-uptake. Although the mode of action is not completely understood, the analgesic effect of tramadol is believed to be due to both binding to μ -opioid receptors and weak inhibition of re-uptake of norepinephrine and serotonin.

Opioid activity is due to both low affinity binding of the parent compound and higher affinity binding of the *O*-demethylated metabolite M1 to μ -opioid receptors. In animal models, M1 is up to 6 times more potent than tramadol in producing analgesia and 200 times more potent in μ -

opioid binding. Tramadol-induced analgesia is only partially antagonized by the opioid antagonist naloxone in several animal tests. The relative contribution of both tramadol and M1 to human analgesia is dependent upon the plasma concentrations of each compound [*see Clinical Pharmacology (12.2)*].

Analgesia in humans begins approximately within one hour after administration and reaches a peak in approximately two to three hours.

12.2 Pharmacodynamics

Effects on the Central Nervous System

Tramadol produces respiratory depression by direct action on brain stem respiratory centers. The respiratory depression involves a reduction in the responsiveness of the brain stem respiratory centers to both increases in carbon dioxide tension and electrical stimulation.

Tramadol administration may produce a constellation of symptoms including nausea and vomiting, dizziness, and somnolence.

Tramadol causes miosis, even in total darkness. Pinpoint pupils are a sign of opioid overdose but are not pathognomonic (e.g., pontine lesions of hemorrhagic or ischemic origins may produce similar findings). Marked mydriasis rather than miosis may be seen due to hypoxia in overdose situations.

Effects on the Gastrointestinal Tract and Other Smooth Muscle

Tramadol causes a reduction in motility associated with an increase in smooth muscle tone in the antrum of the stomach and duodenum. Digestion of food in the small intestine is delayed and propulsive contractions are decreased. Propulsive peristaltic waves in the colon are decreased, while tone may be increased to the point of spasm resulting in constipation. Other opioid-induced effects may include a reduction in biliary and pancreatic secretions, spasm of sphincter of Oddi, and transient elevations in serum amylase.

Effects on the Cardiovascular System

Tramadol produces peripheral vasodilation, which may result in orthostatic hypotension or syncope. Manifestations of peripheral vasodilation may include pruritus, flushing, red eyes, sweating and/or orthostatic hypotension.

The effect of oral tramadol on the QTcF interval was evaluated in a double-blind, randomized, four-way crossover, placebo-and positive-(moxifloxacin) controlled study in 68 adult male and female healthy subjects. At a 600 mg/day dose (1.5-fold the maximum immediate-release daily dose), the study demonstrated no significant effect on the QTcF interval.

Effects on the Endocrine System

Opioids inhibit the secretion of adrenocorticotropic hormone (ACTH), cortisol, and luteinizing hormone (LH) in humans. They also stimulate prolactin, growth hormone (GH) secretion, and

pancreatic secretion of insulin and glucagon [see *Warnings and Precautions (5.11); Adverse Reactions (6)*].

Use of opioids for an extended period of time may influence the hypothalamic-pituitary-gonadal axis, leading to androgen deficiency that may manifest as low libido, impotence, erectile dysfunction, amenorrhea, or infertility. The causal role of opioids in the clinical syndrome of hypogonadism is unknown because the various medical, physical, lifestyle, and psychological stressors that may influence gonadal hormone levels have not been adequately controlled for in studies conducted to date [see *Adverse Reactions (6)*].

Effects on the Immune System

Opioids have been shown to have a variety of effects on components of the immune system in *in vitro* and animal models. The clinical significance of these findings is unknown. Overall, the effects of opioids appear to be modestly immunosuppressive.

Concentration–Efficacy Relationships

The minimum effective analgesic concentration will vary widely among patients, especially among patients who have been previously treated with opioid agonists. The minimum effective analgesic concentration of tramadol for any individual patient may increase over time due to an increase in pain, the development of a new pain syndrome and/or the development of analgesic tolerance [see *Dosage and Administration (2)*].

Concentration–Adverse Reaction Relationships

There is a relationship between increasing tramadol plasma concentration and increasing frequency of dose-related opioid adverse reactions such as nausea, vomiting, CNS effects, and respiratory depression. In opioid-tolerant patients, the situation may be altered by the development of tolerance to opioid-related adverse reactions [see *Dosage and Administration (2)*].

12.3 Pharmacokinetics

The analgesic activity of tramadol hydrochloride tablets is due to both parent drug and the M1 metabolite [see *Clinical Pharmacology (12.1, 12.2)*]. Tramadol is administered as a racemate and both the [-] and [+] forms of both tramadol and M1 are detected in the circulation. Linear pharmacokinetics have been observed following multiple doses of 50 and 100 mg to steady-state.

Absorption

The mean absolute bioavailability of a 100 mg oral dose is approximately 75%. The mean peak plasma concentration of racemic tramadol and M1 occurs at two and three hours, respectively, after administration in healthy adults. In general, both enantiomers of tramadol and M1 follow a parallel time course in the body following single and multiple doses although small differences (~ 10%) exist in the absolute amount of each enantiomer present.

Steady-state plasma concentrations of both tramadol and M1 are achieved within two days with four times per day dosing. There is no evidence of self-induction (see Figure 1 and Table 3 below).

Figure 1: Mean Tramadol and M1 Plasma Concentration Profiles after a Single 100 mg Oral Dose and after Twenty-Nine 100 mg Oral Doses of Tramadol HCl given four times per day.

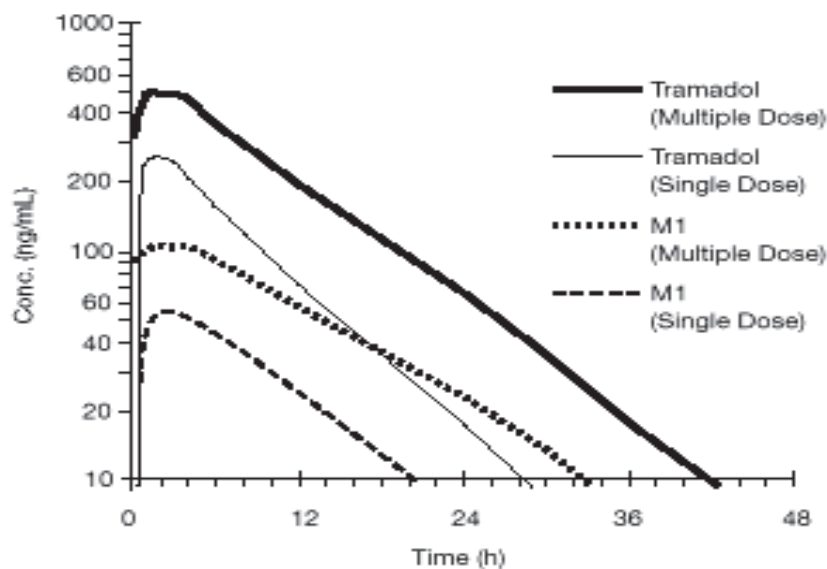


Table 3: Mean (%CV) Pharmacokinetic Parameters for Racemic Tramadol and M1 Metabolite

Population / Dosage Regimen ^a	Parent Drug/ Metabolite	Peak Conc. (ng/mL)	Time to Peak (hrs)	Clearance/F ^b (mL/min/Kg)	t _{1/2} (hrs)
Healthy Adults, 100 mg qid, MD p.o.	Tramadol	592 (30)	2.3 (61)	5.90 (25) ^c	6.7 (15)
	M1	110 (29)	2.4 (46)		7.0 (14)
Healthy Adults, 100mg SD p.o.	Tramadol	308 (25)	1.6 (63)	8.50 (31) ^c	5.6 (20)
	M1	55.0 (36)	3.0 (51)		6.7 (16)
Geriatric, (>75 yrs) 50 mg SD p.o.	Tramadol	208 (31) ^d	2.1 (19) ^d	6.89 (25) ^c	7.0 (23) ^d
	M1				
Hepatic Impaired, 50 mg SD p.o.	Tramadol	217 (11)	1.9 (16)	4.23 (56) ^c	13.3 (11)
	M1	19.4 (12)	9.8 (20)		18.5 (15)
Renal Impaired, CLcr10–30 mL/min 100 mg SD i.v.	Tramadol	c	c	4.23 (54) ^c	10.6 (31)
	M1	c	c		11.5 (40)
Renal Impaired, CLcr<5 mL/min 100 mg SD i.v.	Tramadol	c	c	3.73 (17) ^c	11.0 (29)
	M1	c	c		16.9 (18)

^aSD = Single dose, MD = Multiple dose, p.o.= Oral administration, i.v.= Intravenous administration, q.i.d. = Four times daily

^b F represents the oral bioavailability of tramadol

^c Not applicable

^d Not measured

Food Effects

Oral administration of tramadol hydrochloride tablets with food does not significantly affect its rate or extent of absorption, therefore, tramadol hydrochloride tablets can be administered without regard to food.

Distribution

The volume of distribution of tramadol was 2.6 and 2.9 liters/kg in male and female subjects, respectively, following a 100 mg intravenous dose. The binding of tramadol to human plasma proteins is approximately 20% and binding also appears to be independent of concentration up to 10 mcg/mL. Saturation of plasma protein binding occurs only at concentrations outside the clinically relevant range.

Elimination

Tramadol is eliminated primarily through metabolism by the liver and the metabolites are eliminated primarily by the kidneys. The mean (%CV) apparent total clearance of tramadol after a single 100 mg oral dose is 8.50 (31) mL/min/kg. The mean terminal plasma elimination half-lives of racemic tramadol and racemic M1 are 6.3 ± 1.4 and 7.4 ± 1.4 hours, respectively. The plasma elimination half-life of racemic tramadol increased from approximately six hours to seven hours upon multiple dosing.

Metabolism

Tramadol is extensively metabolized after oral administration by a number of pathways, including CYP2D6 and CYP3A4, as well as by conjugation of parent and metabolites. Approximately 30% of the dose is excreted in the urine as unchanged drug, whereas 60% of the dose is excreted as metabolites. The remainder is excreted either as unidentified or as unextractable metabolites. The major metabolic pathways appear to be *N*- and *O*-demethylation and glucuronidation or sulfation in the liver. One metabolite (*O*-desmethyltramadol, denoted M1) is pharmacologically active in animal models. Formation of M1 is dependent on CYP2D6 and as such is subject to inhibition, which may affect the therapeutic response [*Warnings and Precautions* (5.4); *Drug Interactions* (7)].

Approximately 7% of the population has reduced activity of the CYP2D6 isoenzyme of cytochrome P-450. These individuals are “poor metabolizers” of debrisoquine, dextromethorphan, tricyclic antidepressants, among other drugs. Based on a population PK analysis of Phase 1 studies in healthy subjects, concentrations of tramadol were approximately 20% higher in “poor metabolizers” versus “extensive metabolizers”, while M1 concentrations were 40% lower. Concomitant therapy with inhibitors of CYP2D6 such as fluoxetine, paroxetine and quinidine could result in significant drug interactions. *In vitro* drug interaction studies in human liver microsomes indicate that inhibitors of CYP2D6 such as fluoxetine and its metabolite norfluoxetine, amitriptyline and quinidine inhibit the metabolism of tramadol to various degrees, suggesting that concomitant administration of these compounds could result in increases in tramadol concentrations and decreased concentrations of M1. The full pharmacological impact of these alterations in terms of either efficacy or safety is unknown. Concomitant use of serotonin re-uptake inhibitors and MAO inhibitors may enhance the risk of adverse events, including seizure and serotonin syndrome [*see Warnings and Precautions* (5.8) and *Drug Interactions* (7)].

Excretion

Tramadol metabolites are eliminated primarily by the kidneys. Approximately 30% of the dose is excreted in the urine as unchanged drug, whereas 60% of the dose is excreted as metabolites. The remainder is excreted either as unidentified or as unextractable metabolites.

Special Populations

Hepatic Impairment

Metabolism of tramadol and M1 is reduced in patients with severe hepatic impairment based on a study in patients with advanced cirrhosis of the liver, resulting in both a larger area under the concentration time curve for tramadol and longer tramadol and M1 elimination half-lives (13 hrs. for tramadol and 19 hrs. for M1). In patients with severe hepatic impairment, adjustment of the dosing regimen is recommended [*see Dosage and Administration (2)*].

Renal Impairment

Impaired renal function results in a decreased rate and extent of excretion of tramadol and its active metabolite, M1. In patients with creatinine clearances of less than 30 mL/min, adjustment of the dosing regimen is recommended [*see Dosage and Administration (2)*]. The total amount of tramadol and M1 removed during a 4-hour dialysis period is less than 7% of the administered dose.

Age: Geriatric

Healthy elderly subjects aged 65 to 75 years have plasma tramadol concentrations and elimination half-lives comparable to those observed in healthy subjects less than 65 years of age. In subjects over 75 years, maximum serum concentrations are elevated (208 vs. 162 ng/mL) and the elimination half-life is prolonged (7 vs. 6 hours) compared to subjects 65 to 75 years of age. Adjustment of the daily dose is recommended for patients older than 75 years [*see Dosage and Administration (2.3)*].

Sex

The absolute bioavailability of tramadol was 73% in males and 79% in females. The plasma clearance was 6.4 mL/min/kg in males and 5.7 mL/min/kg in females following a 100 mg IV dose of tramadol. Following a single oral dose, and after adjusting for body weight, females had a 12% higher peak tramadol concentration and a 35% higher area under the concentration-time curve compared to males. The clinical significance of this difference is unknown.

Poor / Extensive Metabolizers, CYP2D6

The formation of the active metabolite, M1, is mediated by CYP2D6, a polymorphic enzyme. Approximately 7% of the population has reduced activity of the CYP2D6 isoenzyme of cytochrome P450 metabolizing enzyme system. These individuals are “poor metabolizers” of debrisoquine, dextromethorphan and tricyclic antidepressants, among other drugs. Based on a population PK analysis of Phase 1 studies with IR tablets in healthy subjects, concentrations of

tramadol were approximately 20% higher in “poor metabolizers” versus “extensive metabolizers,” while M1 concentrations were 40% lower.

13 NONCLINICAL TOXICOLOGY

13.1 Carcinogenesis, Mutagenesis, Impairment of Fertility

Carcinogenesis

A slight, but statistically significant, increase in two common murine tumors, pulmonary and hepatic, was observed in an NMRI mouse carcinogenicity study, particularly in aged mice. Mice were dosed orally up to 30 mg/kg in the drinking water (0.36 times the MRHD) for approximately two years, although the study was not done with the Maximum Tolerated Dose. This finding is not believed to suggest risk in humans. No evidence of carcinogenicity was noted in a rat 2-year carcinogenicity study testing oral doses of up to 30 mg/kg in the drinking water, 0.73 times the MRHD.

Mutagenesis

Tramadol was mutagenic in the presence of metabolic activation in the mouse lymphoma assay. Tramadol was not mutagenic in the *in vitro* bacterial reverse mutation assay using *Salmonella* and *E. coli* (Ames), the mouse lymphoma assay in the absence of metabolic activation, the *in vitro* chromosomal aberration assay, or the *in vivo* micronucleus assay in bone marrow.

Impairment of Fertility

No effects on fertility were observed for tramadol at oral dose levels up to 50 mg/kg in male rats and 75 mg/kg in female rats. These dosages are 1.2 and 1.8 times the maximum recommended human daily dose based on body surface area, respectively.

14 CLINICAL STUDIES

Tramadol hydrochloride tablets has been given in single oral doses of 50, 75 and 100 mg to patients with pain following surgical procedures and pain following oral surgery (extraction of impacted molars).

In single-dose models of pain following oral surgery, pain relief was demonstrated in some patients at doses of 50 mg and 75 mg. A dose of 100 mg tramadol hydrochloride tablets tended to provide analgesia superior to codeine sulfate 60 mg, but it was not as effective as the combination of aspirin 650 mg with codeine phosphate 60 mg.

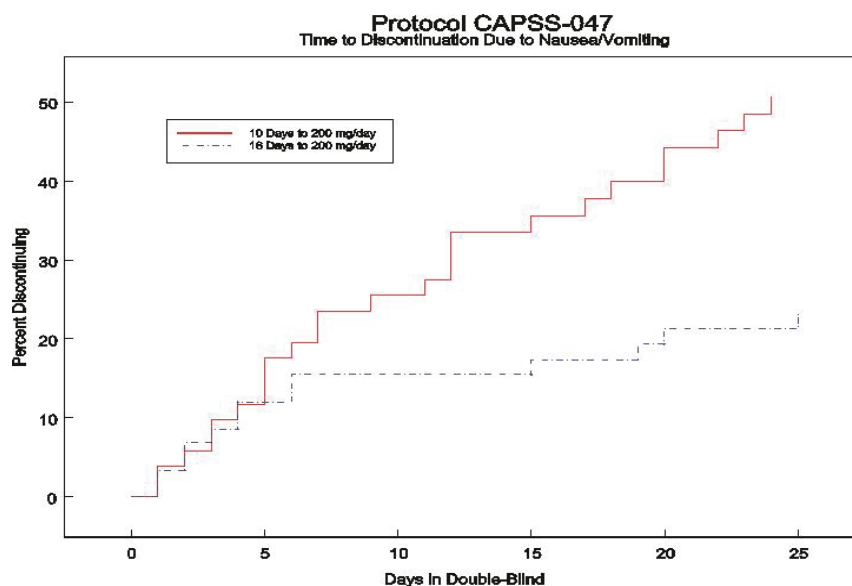
Tramadol hydrochloride tablets has been studied in three long-term controlled trials involving a total of 820 patients, with 530 patients receiving tramadol hydrochloride tablets. Patients with a variety of chronic painful conditions were studied in double-blind trials of one to three months duration. Average daily doses of approximately 250 mg of tramadol hydrochloride tablets in divided doses were generally comparable to five doses of acetaminophen 300 mg with codeine phosphate 30 mg (TYLENOL with Codeine #3) daily, five doses of aspirin 325 mg with codeine phosphate 30 mg daily, or two to three doses of acetaminophen 500 mg with oxycodone hydrochloride 5 mg (TYLOX) daily.

Titration Trials

In a randomized, blinded clinical study with 129 to 132 patients per group, a 10-day titration to a daily tramadol hydrochloride tablets dose of 200 mg (50 mg four times per day), attained in 50 mg increments every 3 days, was found to result in fewer discontinuations due to dizziness or vertigo than titration over only 4 days or no titration. In a second study with 54 to 59 patients per group, patients who had nausea or vomiting when titrated over 4 days were randomized to re-initiate tramadol hydrochloride tablets therapy using slower titration rates.

A 16-day titration schedule, starting with 25 mg every morning and using additional doses in 25 mg increments every third day to 100 mg/day (25 mg four times per day), followed by 50 mg increments in the total daily dose every third day to 200 mg/day (50 mg four times per day), resulted in fewer discontinuations due to nausea or vomiting and fewer discontinuations due to any cause than did a 10-day titration schedule.

Figure 2:



The brands listed are the registered trademarks of their respective owners.

16 HOW SUPPLIED/STORAGE AND HANDLING

Tramadol Hydrochloride Tablets, USP 25 mg are white to off white round shaped film coated tablet debossed with “A7” on one side and “^” on other side.

Bottles of 30 tablets.....NDC 72888-162-30

Bottles of 100 tablets..... NDC 72888-162-01

Bottles of 500 tablets..... NDC 72888-162-05

Bottles of 1,000 tablets..... NDC 72888-162-00

Tramadol Hydrochloride Tablets, USP 50 mg are white to off white, capsule-shaped film coated tablet debossed with “018” on one side and scored on other side.

Bottles of 100 tablets..... NDC 72888-080-01

Bottles of 500 tablets..... NDC 72888-080-05
Bottles of 1,000 tablets.....NDC 72888-080-00

Tramadol Hydrochloride Tablets, USP 75 mg are white to off white, capsule shaped film coated tablet debossed with “\^F” on one side and “11” on either side of score line and plain on other side.

Bottles of 30 tablets.....NDC 72888-163-30
Bottles of 100 tablets..... NDC 72888-163-01
Bottles of 500 tablets..... NDC 72888-163-05
Bottles of 1,000 tablets..... NDC 72888-163-00

Tramadol Hydrochloride Tablets, USP 100 mg are white to off white, capsule-shaped film coated tablet debossed with “019” on one side and scored on other side.

Bottles of 100 tablets..... NDC 72888-008-01
Bottles of 500 tablets..... NDC 72888-008-05
Bottles of 1,000 tablets..... NDC 72888-008-00

Dispense in a tight container. Store at 20°C to 25°C (68°F to 77°F); excursions permitted to 15°C to 30°C (59°F to 86°F). [see USP Controlled Room Temperature].

Store tramadol hydrochloride tablets securely and dispose of properly [*see Patient Counselling Information (17)*]

17 PATIENT COUNSELING INFORMATION

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

Storage and Disposal

Because of the risks associated with accidental ingestion, misuse, and abuse, advise patients to store tramadol hydrochloride securely, out of sight and reach of children, and in a location not accessible by others, including visitors to the home. Inform patients that leaving tramadol hydrochloride unsecured can pose a deadly risk to others in the home. [*see Warnings and Precautions (5.1, 5.17), Drug Abuse and Dependence (9.2)*].

Advise patients and caregivers that when medicines are no longer needed, they should be disposed of promptly. Inform patients that medicine take-back options are the preferred way to safely dispose of most types of unneeded medicines. If no take back programs or Drug Enforcement Administration (DEA)-registered collectors are available, instruct patients to dispose of tramadol hydrochloride by following these four steps:

- Mix tramadol hydrochloride (do not crush) with an unpalatable substance such as dirt, cat litter, or used coffee grounds;
- Place the mixture in a container such as a sealed plastic bag;

- Throw the container in the household trash;
- Delete all personal information on the prescription label of the empty bottle.

Inform patients that they can visit www.fda.gov/drugdisposal for additional information on disposal of unused medicines.

Addiction, Abuse, and Misuse

Inform patients that the use of tramadol hydrochloride, even when taken as recommended, can result in addiction, abuse, and misuse, which can lead to overdose and death [*see Warnings and Precautions (5.1)*].

Life-Threatening Respiratory Depression

Inform patients of the risk of life-threatening respiratory depression, including information that the risk is greatest when starting tramadol hydrochloride tablets or when the dosage is increased, and that it can occur even at recommended dosages.

Educate patients and caregivers on how to recognize respiratory depression and emphasize the importance of calling 911 or getting emergency medical help right away in the event of a known or suspected overdose [*see Warnings and Precautions (5.3)*].

Interactions with Benzodiazepines and Other CNS Depressants

Inform patients and caregivers that potentially fatal additive effects may occur if tramadol hydrochloride is used with benzodiazepines, CNS depressants, including alcohol, or some illicit drugs and not to use these concomitantly unless supervised by a healthcare provider [*see Warnings and Precautions (5.7); Drug Interactions (7)*].

Patient Access to Naloxone for the Emergency Treatment of Opioid Overdose

Discuss with the patient and caregiver the availability of naloxone for the emergency treatment of opioid overdose, both when initiating and renewing treatment with tramadol hydrochloride. Inform patients and caregivers about the various ways to obtain naloxone as permitted by individual state naloxone dispensing and prescribing requirements or guidelines (e.g., by prescription, directly from a pharmacist, or as part of a community-based program) [*see Dosage and Administration (2.2), Warnings and Precautions (5.3)*].

Educate patients and caregivers on how to recognize the signs and symptoms of an overdose.

Explain to patients and caregivers that naloxone's effects are temporary, and that they must call 911 or get emergency medical help right away in all cases of known or suspected opioid overdose, even if naloxone is administered [*see Overdosage (10)*].

If naloxone is prescribed, also advise patients and caregivers:

- How to treat with naloxone in the event of an opioid overdose

- To tell family and friends about their naloxone and to keep it in a place where family and friends can access it in an emergency
- To read the Patient Information (or other educational material) that will come with their naloxone. Emphasize the importance of doing this before an opioid emergency happens, so the patient and caregiver will know what to do.

Ultra-Rapid Metabolism of Tramadol and Other Risk Factors for Life-threatening Respiratory Depression in Children

Advise caregivers that tramadol hydrochloride is contraindicated in children younger than 12 years of age and in children younger than 18 years of age following tonsillectomy and/or adenoidectomy. Advise caregivers of children ages 12 to 18 years of age receiving tramadol hydrochloride to monitor for signs of respiratory depression [see *Warnings and Precautions (5.4)*].

Hyperalgesia and Allodynia

Advise patients to seek medical attention if they experience symptoms of hyperalgesia, including worsening pain, increased sensitivity to pain, or new pain [see *Warnings and Precautions (5.8)*; *Adverse Reactions (6.2)*].

Maximum single-dose and 24-hour dose

Advise patients not to exceed the single-dose and 24-hour dose limit and the time interval between doses, since exceeding these recommendations can result in respiratory depression, seizures and death [see *Dosage and Administration (2)*; *Warnings and Precautions (5.3)*].

Serotonin Syndrome

Inform patients that opioids could cause a rare but potentially life-threatening condition resulting from concomitant administration of serotonergic drugs. Warn patients of the symptoms of serotonin syndrome, and to seek medical attention right away if symptoms develop. Instruct patients to inform their healthcare provider if they are taking, or plan to take serotonergic medications [see *Warnings and Precautions (5.8)*].

Seizures

Inform patients that tramadol hydrochloride may cause seizures with concomitant use of serotonergic agents (including SSRIs, SNRIs, and triptans) or drugs that significantly reduce the metabolic clearance of tramadol [see *Warnings and Precautions (5.9)*].

MAOI Interaction

Inform patients not to take tramadol hydrochloride while using any drugs that inhibit monoamine oxidase. Patients should not start MAOIs while taking tramadol hydrochloride tablet [see *Drug Interactions (7)*].

Important Administration Instructions

- Instruct patients how to properly take tramadol hydrochloride tablets [*see Dosage and Administration (2)*].
- Advise patients not to adjust the dose of tramadol hydrochloride tablets without consulting with a physician or other healthcare professional.

Important Discontinuation Instructions

- In order to avoid developing withdrawal symptoms, instruct patients not to discontinue tramadol hydrochloride without first discussing a tapering plan with the prescriber [*see Dosage and Administration (2.5)*].

Driving or Operating Heavy Machinery

Inform patients that tramadol hydrochloride tablets may impair the ability to perform potentially hazardous activities such as driving a car or operating heavy machinery. Advise patients not to perform such tasks until they know how they will react to the medication [*see Warnings and Precautions (5.18)*].

Constipation

Advise patients of the potential for severe constipation, including management instructions and when to seek medical attention [*see Adverse Reactions (6), Clinical Pharmacology (12.2)*].

Adrenal Insufficiency

Inform patients that opioids could cause adrenal insufficiency, a potentially life-threatening condition. Adrenal insufficiency may present with non-specific symptoms and signs such as nausea, vomiting, anorexia, fatigue, weakness, dizziness, and low blood pressure. Advise patients to seek medical attention if they experience a constellation of these symptoms [*see Warnings and Precautions (5.11)*].

Hypotension

Inform patients that tramadol hydrochloride may cause orthostatic hypotension and syncope. Instruct patients how to recognize symptoms of low blood pressure and how to reduce the risk of serious consequences should hypotension occur (e.g., sit or lie down, carefully rise from a sitting or lying position) [*see Warnings and Precautions (5.13)*].

Anaphylaxis

Inform patients that anaphylaxis has been reported with ingredients contained in tramadol hydrochloride. Advise patients how to recognize such a reaction and when to seek medical attention [*see Contraindications (4); Warnings and Precautions (5.16); Adverse Reactions (6)*].

Pregnancy

Neonatal Opioid Withdrawal Syndrome

Inform female patients of reproductive potential that prolonged use of tramadol hydrochloride during pregnancy can result in neonatal opioid withdrawal syndrome, which may be life-threatening if not recognized and treated. The patient should inform their healthcare provider if they have used opioids at any time during their pregnancy. *[see Warnings and Precautions (5.5); Use in Specific Populations (8.1)].*

Embryo-Fetal Toxicity

Inform female patients of reproductive potential that tramadol hydrochloride may cause fetal harm and to inform the healthcare provider of a known or suspected pregnancy *[see Use in Specific Populations (8.1)].*

Lactation

Advise women that breastfeeding is not recommended during treatment with tramadol hydrochloride tablets *[see Warnings and Precautions (5.4); Use in Specific Populations (8.2)].*

Infertility

Inform patients that chronic use of opioids may cause reduced fertility. It is not known whether these effects on fertility are reversible *[see Use in Specific Populations (8.3)].*

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Medication Guide

Tramadol Hydrochloride (TRAM-a-dol HYE-droe-KLOR-ide) Tablets, USP C-IV

Tramadol hydrochloride tablets are:

- A strong prescription pain medicine that contains an opioid (narcotic) that is used for the management pain in adults, when other pain treatments such as non-opioid pain medicines do not treat your pain well enough or you cannot tolerate them.
- An opioid pain medicine that can put you at risk for overdose and death. Even if you take your dose correctly as prescribed you are at risk for opioid addiction, abuse, and misuse that can lead to death.

Important information about tramadol hydrochloride tablets:

- **Get emergency help or call 911 right away if you take too much tramadol hydrochloride tablets (overdose).** When you first start taking tramadol hydrochloride tablets, when your dose is changed, or if you take too much (overdose), serious or life-threatening breathing problems that can lead to death may occur. Talk to your healthcare provider about naloxone, a medicine for the emergency treatment of an opioid overdose.
- Taking tramadol hydrochloride tablets with other opioid medicines, benzodiazepines, alcohol, or other central nervous system depressants (including street drugs) can cause severe drowsiness, decreased awareness, breathing problems, coma, and death.
- Never give anyone else your tramadol hydrochloride tablets. They could die from taking it. Selling or giving away tramadol hydrochloride tablets is against the law.
- Store tramadol hydrochloride tablets securely, out of sight and reach of children, and in a location not accessible by others, including visitors to the home.

Important Information Guiding Use in Pediatric Patients:

- Do not give tramadol hydrochloride tablets to a child younger than 12 years of age.
- Do not give tramadol hydrochloride tablets to a child younger than 18 years of age after surgery to remove the tonsils and/or adenoids.
- Avoid giving tramadol hydrochloride tablets to children between 12 to 18 years of age who have risk factors for breathing problems such as obstructive sleep apnea, obesity, or underlying lung problems.

Do not take tramadol hydrochloride tablets if you have:

- Severe asthma, trouble breathing, or other lung problems.
- A bowel blockage or have narrowing of the stomach or intestines.
- An allergy to tramadol.
- Taken a Monoamine Oxidase Inhibitor, MAOI, (medicine used for depression) within the last 14 days.

Before taking tramadol hydrochloride tablets, tell your healthcare provider if you have a history of:

- head injury, seizures
- liver, kidney, thyroid problems
- problems urinating
- pancreas or gallbladder problems
- abuse of street or prescription drugs, alcohol addiction, opioid overdose, or mental health problems.

Tell your healthcare provider if you are:

- **Are pregnant or planning to become pregnant.** Use of tramadol hydrochloride tablets for an extended period of time during pregnancy can cause withdrawal symptoms in your newborn baby that could be life-threatening if not recognized and treated.
- **breastfeeding.** Not recommended; it may harm your baby. Carefully observe infants for increased sleepiness (more than usual), breathing difficulties, or limpness. Seek immediate medical care if you notice these signs.
- living in a household where there are small children or someone who has abused street or prescription drugs.
- taking prescription or over-the-counter medicines, vitamins, or herbal supplements. Taking tramadol hydrochloride tablets with certain other medicines can cause serious side effects that could lead to death.
- Notice your pain getting worse. If your pain gets worse after you take tramadol hydrochloride tablets, do not take more of tramadol hydrochloride tablets without first talking to your doctor. Talk to your doctor if the pain you have increases, if you feel more sensitive to pain, or if you have new pain after taking tramadol hydrochloride tablets.

When taking tramadol hydrochloride tablets:

- Do not change your dose. Take tramadol hydrochloride tablets exactly as prescribed by your healthcare provider. Use the lowest dose possible for the shortest time needed.
- For acute (short-term) pain, you may only need to take tramadol hydrochloride tablets for a few days. You may have some tramadol hydrochloride tablets left over that you did not use. See disposal information at the bottom of this section for directions on how to safely dispose of tramadol hydrochloride tablets.
- Take your prescribed dose as indicated by your healthcare provider. The maximum dosage is 1 or 2 tablets every 4 to 6 hours, as needed for pain relief. Do not take more than your prescribed dose and do not take more than 8 tablets per day. If you miss a dose, take your next dose at your usual time.
- Call your healthcare provider if the dose you are taking does not control your pain.
- If you have been taking tramadol hydrochloride tablets regularly, do not stop taking tramadol hydrochloride tablets without talking to your healthcare provider.
- Dispose of expired, unwanted, or unused tramadol hydrochloride tablets by taking your drug to an authorized Drug Enforcement Administration (DEA)-registered collector or drug take-back program. If one is not available, you can dispose of tramadol hydrochloride tablets by mixing the product with dirt, cat litter, or coffee grounds; placing the mixture in a sealed plastic bag, and throwing the bag in your trash.

While taking tramadol hydrochloride tablets DO NOT:

- Drive or operate heavy machinery, until you know how tramadol hydrochloride tablets affects you. Tramadol hydrochloride tablets can make you sleepy, dizzy, or lightheaded.
- Drink alcohol or use prescription or over-the-counter medicines that contain alcohol. Using products containing alcohol during treatment with tramadol hydrochloride tablets may cause you to overdose and die.

The possible side effects of tramadol hydrochloride tablets:

- constipation, nausea, sleepiness, vomiting, tiredness, headache, dizziness, abdominal pain. Call your healthcare provider if you have any of these symptoms and they are severe.

Get emergency medical help or call 911 right away if you have:

- trouble breathing, shortness of breath, fast heartbeat, chest pain, swelling of your face, tongue, or throat, extreme drowsiness, light-headedness when changing positions, feeling faint, agitation, high body temperature, trouble walking, stiff muscles, or mental changes such as confusion.
- These are not all the possible side effects of tramadol hydrochloride tablets. Call your doctor for medical advice about side effects. You may report side effects to Advagen Pharma Ltd, at 866-488-0312 or FDA at 1-800-FDA-1088. **For more information go to dailymed.nlm.nih.gov.**

Distributed By:

Advagen Pharma Ltd
East Windsor, NJ 08520, USA.

Manufactured by:

Rubicon Research Private Limited,
Ambernath, Dist: Thane, 421506
India

Revised: 01/2024

**CENTER FOR DRUG EVALUATION AND
RESEARCH**

APPLICATION NUMBER:

208708Orig1s016

LABELING REVIEW(s)

PRIOR APPROVAL SUPPLEMENT LABELING REVIEW

Division of Labeling Review
 Office of Regulatory Operations
 Office of Generic Drugs (OGD)
 Center for Drug Evaluation and Research (CDER)

Date of This Review	12/29/2023, 01/11/2024
ANDA Number(s) and Supplement Number(s)	208708/S-016
Review Number	1
Applicant Name	Rubicon Research Private Limited
Established Name & Strength(s) [Add "(OTC)" after strength if applicable]	Tramadol Hydrochloride Tablets USP, 25 mg, 50 mg, 75 mg (new strength) and 100 mg
Proposed Proprietary Name	N/A
Submission Received Date	October 20, 2023, January 10, 2024
Previous Received Date(s) of Proposed Supplement	N/A
Primary Labeling Reviewer	Angela Payne, RPh
Secondary Labeling Reviewer	Refer to signature page
Review Conclusion <input checked="" type="checkbox"/> Acceptable - No Comments <input type="checkbox"/> Acceptable - Include Post Approval Comments <input type="checkbox"/> Minor Deficiency* - Refer to Labeling Deficiencies and Comments for Letter to Applicant <input type="checkbox"/> Major Deficiency** - Refer to Labeling Deficiencies and Comments for Letter to Applicant	
On Policy Alert List	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Acceptable For Filing	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Combined Insert/Outsert	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

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1 LABELING COMMENTS (C1 ADDENDUM)

For combined supplement(s):

The Division of Labeling Review has no comments. Labeling is acceptable.

2 INSTRUCTIONS FOR ASSESSMENT (C1 ADDENDUM)

General Comments:

Select the "no deficiency" or "deficiency" radio button as appropriate for each row. If a "Deficiency Comments" appears, ensure it is appropriate for your situation, edit, or enter "Reviewer Comments" if necessary.

If there is no issue/concern, or if the question is not applicable. No "Deficiency Comments" will appear but reviewers can still enter "Reviewer Comments" if desired.

<input type="checkbox"/>	<input checked="" type="checkbox"/>	There is information in the Orange Book that the applicant needs to address.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Information in the Orange Book has expired and the applicant needs to revise labeling.

Reviewer Comments:

Enter free text in this section as necessary.

Deficiency Comments:

- Standardized comments/deficiencies are available for certain questions. For a complete list of standardized comments, reference the [DLR Standardized Comments](#) SharePoint.
- Reviewers can modify standardized comments/deficiencies for their situation.
- Deficiencies will have a review number, deficiency number, and roman numeral in the user interface. For first original reviews the review number and iteration numeral will align; however, older reviews may have review numbers and iteration numerals that differ due to some reviews being completed under past practices.

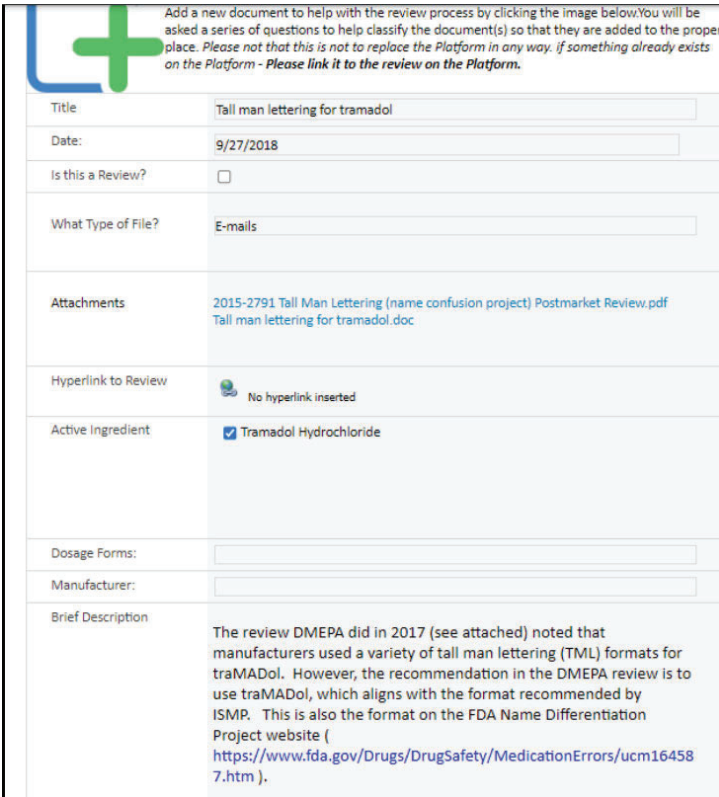
3 OVERALL ASSESSMENT OF MATERIALS REVIEWED (C1 ADDENDUM)

Table 1: Review Summary of Container Label and Carton Labeling				
	Final or Draft or NA	Packaging Sizes	Submission Received Date	Recommendation
Container	Final	75 mg in bottles of 30's, 100's, 500's, and 1000's count.	10/20/2023	Satisfactory
Blister	N/A	N/A		
Carton	N/A	N/A		

Table 2: Review Summary of Prescribing Information and Patient Labeling				
	Final or Draft or NA	Revision Date and/or Code	Submission Received Date	Recommendation
Prescribing Information	Draft	Revised: 1/2024	1/10/2024	Satisfactory
Medication Guide	Draft	Revised: 1/2024	1/10/2024	Satisfactory
Patient Information	N/A	N/A		
Instructions for Use	N/A	N/A		
SPL Data Elements				

4 LABELING REVIEW INFORMATION(C1 ADDENDUM)

4.1 REGULATORY INFORMATION (C1 ADDENDUM)

Type of Supplement(s): PAS - New Strength	
Yes	No
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>Are there any applicable issues in DLR's SharePoint Drug Facts ?</p> <div style="border: 1px solid #ccc; padding: 5px; margin: 5px 0;">  <p>Add a new document to help with the review process by clicking the image below. You will be asked a series of questions to help classify the document(s) so that they are added to the proper place. Please note that this is not to replace the Platform in any way. If something already exists on the Platform - Please link it to the review on the Platform.</p> <p>Title: Tall man lettering for tramadol</p> <p>Date: 9/27/2018</p> <p>Is this a Review? <input type="checkbox"/></p> <p>What Type of File? E-mails</p> <p>Attachments: 2015-2791 Tall Man Lettering (name confusion project) Postmarket Review.pdf Tall man lettering for tramadol.doc</p> <p>Hyperlink to Review: No hyperlink inserted</p> <p>Active Ingredient: <input checked="" type="checkbox"/> Tramadol Hydrochloride</p> <p>Dosage Forms: <input type="text"/></p> <p>Manufacturer: <input type="text"/></p> <p>Brief Description: The review DMEPA did in 2017 (see attached) noted that manufacturers used a variety of tall man lettering (TML) formats for traMADol. However, the recommendation in the DMEPA review is to use traMADol, which aligns with the format recommended by ISMP. This is also the format on the FDA Name Differentiation Project website (https://www.fda.gov/Drugs/DrugSafety/MedicationErrors/ucm164587.htm).</p> </div>	
<input type="checkbox"/>	<input checked="" type="checkbox"/>
Is the drug product listed in the Policy Alert Tracker on OGD's SharePoint ?	
<input type="checkbox"/>	<input checked="" type="checkbox"/>
Is the drug product listed on the Susceptibility Test Interpretive Criteria web page?	
<p>Reason for Submission: Prior Approval Supplement (PAS) S-016: Inclusion of additional strength 75 mg.</p> <p>IR response 1/10/2024: Addendum (IR response received on 1/10/2024)</p> <div style="border: 1px solid #ccc; padding: 5px; margin: 5px 0;"> <p>Section II: Deficiencies and Responses</p> <p>LABELING:</p> <p>The response to the Agency's queries is provided below in a question-answer format.</p> <p>1. PRESCRIBING INFORMATION</p> <p>Deficiency: Revise your labeling to include the following:</p> <ul style="list-style-type: none"> - FDAAA SLC changes approved on December 27, 2023 under S-011 - The 25 mg strength, approved on November 27, 2023, under S-013. - Ensure the proposed 75 mg strength is included in Dosage forms and Strengths, and How Supplied sections. <p>Rubicon's Response:</p> <p>In line with the Agency's recommendation, Rubicon has revised the Prescribing Information to include the FDAAA SLC changes approved on December 27, 2023 (S-011); 25 mg strength, approved on November 27, 2023 (S-013) and ensured the dosage forms and strengths and how supplied sections include the proposed 75 mg strength information.</p> </div>	

Type of Supplement(s): PAS - New Strength		
Yes	No	
Is this supplement combined with another discipline?		Yes
Is this product an OTC product?		No
Is this ANDA the RLD?		No

4.2 MODEL PRESCRIBING INFORMATION (C1 ADDENDUM)

**Table 3: Review Model Labeling for Prescribing Information/Patient Labeling
(Check the box used as the Model Labeling)**

MOST RECENTLY APPROVED NDA MODEL LABELING

(If NDA is listed in the discontinued section of the Orange Book, indicate whether the application has been withdrawn and if so, enter the most recently approved ANDA labeling information as applicable.)

NDA#/Supplement# (S-000 if original): NDA020281 / S-040

Supplement Approval Date: 02/13/2023

Proprietary Name: ULTRAM

Established Name: Tramadol Hydrochloride

Description of Supplement:

NDA Number	021123	020281
Supplement Number	S-015	S-040
Product Name	ULTRACET (Tramadol HCl and Acetaminophen) 37.5 mg/ 325 mg Tablet	ULTRAM (Tramadol HCl) 50 mg and 100 mg Tablet
Date of Submission	July 27, 2017	July 27, 2017
Date of Receipt	July 27, 2017	July 27, 2017

These Prior Approval sNDAs provides for the following revisions to the ULTRACET and ULTRAM Package Inserts:

Additional warnings for Neonatal Opioid Withdrawal Syndrome and Hyponatremia

NDA 020281 is withdrawn FR effective 10/5/2023. Per S&E Relisting Determination, “the drug product was discontinued from sale, the drug product WAS NOT withdrawn from sale for reasons of safety or effectiveness.”

ANDA 075964 is listed as the RS in the Orange Book

PRODUCTS ON NDA 020281

Drug Name	Active Ingredients	Strength	Dosage Form/Route	Marketing Status	TE Code	RLD	ES
ULTRAM	TRAMADOL HYDROCHLORIDE	100MG **Federal Register determination that product was not discontinued or withdrawn for safety or effectiveness reasons**	TABLET/ORAL	Discontinued	None	Yes	No
ULTRAM	TRAMADOL HYDROCHLORIDE	100MG **Federal Register determination that product was not discontinued or withdrawn for safety or effectiveness reasons**	TABLET/ORAL	Discontinued	None	Yes	No

**Table 3: Review Model Labeling for Prescribing Information/Patient Labeling
(Check the box used as the Model Labeling)**

Link: https://analytics.fda.gov/workspace/hubble/external/object/v0/fda-communication?pk_communication=5125834_4724176_090140af806b2173_NDA020281_2633767

MOST RECENTLY APPROVED ANDA MODEL LABELING

ANDA#/Supplement# (S-000 if original): 075964 / S-042

Supplement Approval Date: 09/06/2022

Proprietary Name: NA

Established Name: Tramadol Hydrochloride Tablets

Description of Supplement:

Prescribing information and medication guide revised in accordance with the reference listed drug ULTRAM (tramadol hydrochloride), NDA 202081/S-049), approved on September 10, 2021.

NDA 20281/S-040 will be used as the model labeling since it supersedes ANDA 075964/S-042 labeling update.

Link:

OTHER/TEMPLATE (e.g., Pending Supplements, BPCA, PREA, Carve-out):

SLCs were approved on 12/27/2023 and is the model for the proposed labeling.

RS/S-043 submitted May 10, 2023 is pending review of the submission is in response to the SLC. In addition, the RS is also subject of a Consent Decree.

Reviewer Comments:

Applicant's cover letter: The basis for submission of Tramadol Hydrochloride Tablets, USP 75 mg: 1. Reference Listed Drug (NDA #N020281), ULTRAM® (Tramadol Hydrochloride), 50 mg and 100 mg, Applicant Name: Janssen Pharmaceuticals Inc. 2. Citizen Petition and FD As Correspondence and Approval letter thereof for FDA assigned Docket no.: FDA-2021-P-0036 allowing an ANDA to be submitted for 75 mg strength.

The applicant provided labeling consistent with the RLD/S-040, however, the RLD is withdrawn prior to the 4/13/2023 SLC notification covered by this applicant under S-011, was approved on 12/15/2023.

C1-Addendum: The NS labeling was updated to include the recent SLC approved for this ANDA.

Deficiency Comments:

4.3 PATENTS AND EXCLUSIVITIES (C1 ADDENDUM)

The [Orange Book](#) was searched on **01/11/2024**

Table 4 provides Orange Book patents for the Model Labeling (NDA020281) and ANDA patent certifications. (For applications that have no patents, N/A is entered in the patent number column.)

Table 4: Impact of Model Labeling Patents on ANDA Labeling

Strengths	Patent Number	Patent Expiration	Patent Use Code	Patent Use Code Definition	Patent Certification	Date of Patent Cert Submission	Labeling Impact
	N/A						

Table 5 provides Orange Book exclusivities for the Model Labeling and ANDA exclusivity statements.

Table 5: Impact of Model Labeling Exclusivities on ANDA Labels and Labeling						
Strengths	Exclusivity Code	Exclusivity Expiration	Exclusivity Code Definition	Exclusivity Statement	Date of Exclusivity Submission	Labeling Impact
	N/A					

Reviewer Assessment:

Deficiency	No Deficiency	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	There is information in the Orange Book that the applicant needs to address.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Information in the Orange Book has expired and the applicant needs to revise labeling.
Reviewer Comments: N/A.		
Deficiency Comments:		

4.4 UNITED STATES PHARMACOPEIA (USP) (C1 ADDENDUM)

The [USP](#) was searched on 12/29/2023

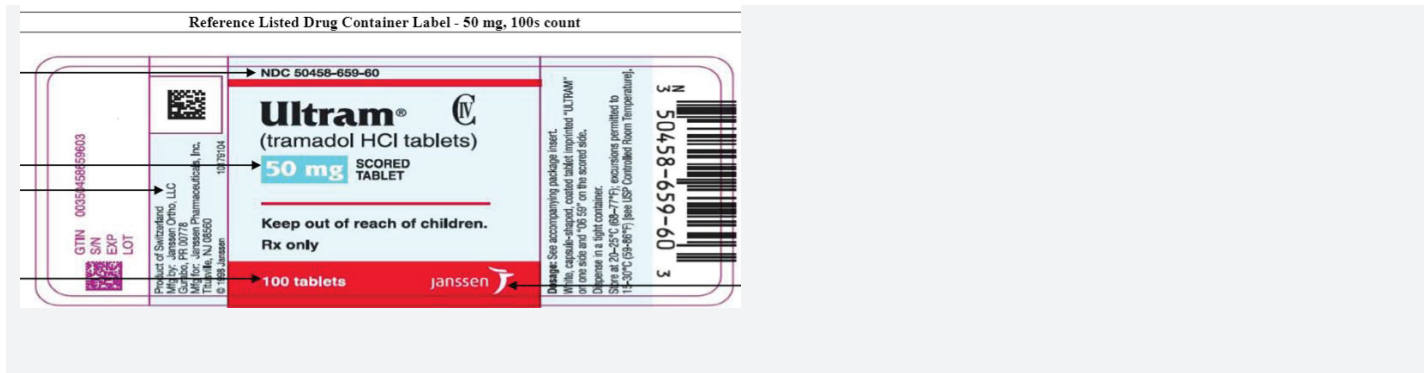
Table 6: USP				
	YES or NO	Date	Monograph Title (N/A if no monograph)	Packaging and Storage/Labeling Statements (N/A if no monograph)
Currently Official	Yes		Tramadol Hydrochloride Tablets	Packaging and Storage: Preserve in tight containers, and store at controlled room temperature.
Not Yet Official	No		N/A	N/A

Reviewer Assessment:

Deficiency	No Deficiency	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Established name is acceptable with regard to the USP monograph or the RLD's nonproprietary name.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	RLD's non-proprietary name is different from USP established name.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	USP descriptor is correctly used in the appropriate sections of the prescribing information.
USP RECOMMENDATIONS and/or DIFFERENCES IN TEST METHODS (QUALITY):		
<input type="checkbox"/>	<input checked="" type="checkbox"/>	DISSOLUTION: The applicant's dissolution statement is appropriate.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	ORGANIC IMPURITIES: Drug product meets USP acceptance criteria for organic impurities.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	ASSAY: Drug product meets USP acceptance criteria for assay.
Reviewer Comments: USP and tall man lettering used in established name.		
Deficiency Comments:		

4.5 MODEL CONTAINER LABELS (C1 ADDENDUM)

Model container/carton/blister labels (Source: NDA 020281 ANRPT-24 received 4/30/2019)



4.6 HISTORY OF ANDA (C1 ADDENDUM)

We evaluated previously approved supplements (Table 7) to determine if actions are needed for the current review.

Table 7: History of ANDA		
Last approved addressed the following:		
Original or Supplement	Approval Date	What post approval changes requested and were the changes addressed?
S-011(SLC)	12/15/2023	FDAAA SLC for tramadol hydrochloride tablets (letter sent out in 4/13/2023 see DARRTS). This SLC is for: Opioid-Induced Hyperalgesia (OIH) and allodynia; and risks related to misuse, abuse, addiction, overdose, and death. No post approval comments.
S-013 (PAS) with CMC	11/27/2023	New strength (25 mg) without SLC changes.  No post approval comments.
Are there any Pending Labeling Supplements for this ANDA that impact labeling? NO		

5 ASSESSMENT OF CURRENT SUPPLEMENT'S LABELING (C1 ADDENDUM)

5.1 QUALITY INFORMATION (DESCRIPTION, HOW SUPPLIED, AND MANUFACTURER) (C1 ADDENDUM)

5.1.1 DESCRIPTION/INACTIVE INGREDIENTS (C1 ADDENDUM)

Table 8: Comparison of DESCRIPTION Section or Inactive Ingredients Section (OTC)	
Model Labeling	Inactive ingredients in the tablet are pregelatinized corn starch, modified starch (corn), hypromellose, lactose, magnesium stearate, microcrystalline cellulose, polyethylene glycol, polysorbate 80, sodium starch glycolate, titanium dioxide and carnauba wax

Table 8: Comparison of DESCRIPTION Section or Inactive Ingredients Section (OTC)

<p>Approved ANDA Labeling</p>	<p>S-013</p> <p>Tramadol Hydrochloride Tablets, USP 25 mg, 50 mg, and 100 mg contain 25 mg, 50 mg, and 100 mg of tramadol hydrochloride respectively and are white in color. Inactive ingredients in the tablet are hypromellose, lactose anhydrous, magnesium stearate, microcrystalline cellulose, polyethylene glycol, polysorbate 80, pregelatinized starch, sodium starch glycolate and titanium dioxide. Inactive ingredients in the tablet are hypromellose, lactose anhydrous, magnesium stearate, microcrystalline cellulose, polyethylene glycol, polysorbate 80, pregelatinized starch, sodium starch glycolate and titanium dioxide.</p>
<p>Proposed ANDA Labeling</p>	<p>11. DESCRIPTION</p> <p>Tramadol Hydrochloride Tablets, USP 25 mg, 50 mg, 75 mg and 100 mg contain 25 mg, 50 mg, 75 mg and 100 mg of tramadol hydrochloride respectively and are white in color. Inactive ingredients in the tablet are hypromellose, lactose anhydrous, magnesium stearate, microcrystalline cellulose, polyethylene glycol, polysorbate 80, pregelatinized starch, sodium starch glycolate and titanium dioxide.</p>

Reviewer Assessment:

Deficiency	No Deficiency	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	The inactive ingredients in the labeling are consistent with the Composition Statement in Module 3.2.P.1 of the submission. Please enter Reviewer/Deficiency Comments if you select Deficiency.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	For products required to be qualitatively and quantitatively the same in regards to active and inactive ingredients (Q1/Q2), are the ANDA ingredients consistent with the Model Labeling? Please enter Reviewer/Deficiency Comments if you select Deficiency.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Appropriate warning/precaution statements for inactive ingredients are present (21 CFR 201) Check only if applicable: <input checked="" type="checkbox"/> Sulfite (21 CFR 201.22) <input type="checkbox"/> Yellow #5 (Tartrazine) (21 CFR 201.20) <input type="checkbox"/> Phenylalanine/aspartame (21 CFR 201.21) <input type="checkbox"/> Latex (21 CFR 801.437). Please enter Reviewer/Deficiency Comments if you select Deficiency.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Alcohol is properly listed [21 CFR 201.10(d)(2)].
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Gluten statement is appropriately stated.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Sterile product statement [21 CFR 201.57(c)(12)(i)(D)].

Reviewer Comments:

C1-Included 75 mg new strength. The inactive ingredients have not changed. We note S-013, approved 11/27/2023 provided for 25 mg strength. The applicant will be asked to include the approval strength and updated the labeling accordingly.

C1-Addendum: labeling revised to also include the approved 25 mg strength.

Deficiency Comments:

5.1.2 HOW SUPPLIED/STORAGE AND HANDLING (C1 ADDENDUM)

Table 9: Comparison of HOW SUPPLIED Section or Packaging Sizes for OTC Products

<p>Model Labeling</p>	<p>ULTRAM[®] (tramadol hydrochloride) 50 mg tablets are white, capsule-shaped, coated, with a functional score. The tablets are imprinted "ULTRAM" on one side and "06 59" on the scored side.</p> <p>Bottle of 100 tablets: NDC 50458-659-60</p> <p>Dispense in a tight container. Store at 20°C to 25°C (68°F to 77°F); excursions permitted to 15°C to 30°C (59°F to 86°F). [see USP Controlled Room Temperature].</p> <p>Store ULTRAM securely and dispose of properly [see Patient Counseling Information (17)].</p>
<p>Approved ANDA Labeling</p>	<p>S-011, approved 12/15/2023</p> <p>16 HOW SUPPLIED-STORAGE AND HANDLING</p> <p>Tramadol Hydrochloride Tablets, USP 50 mg are white to off white, capsule-shaped film coated tablet debossed with "018" on one side and scored on other side.</p> <p>Bottles of 100 tablets..... NDC 72888-080-01 Bottles of 500 tablets..... NDC 72888-080-05 Bottles of 1,000 tablets.....NDC 72888-080-00</p> <p>Tramadol Hydrochloride Tablets, USP 100 mg are white to off white, capsule-shaped film coated tablet debossed with "019" on one side and scored on other side.</p> <p>Bottles of 100 tablets..... NDC 72888-008-01 Bottles of 500 tablets..... NDC 72888-008-05 Bottles of 1,000 tablets..... NDC 72888-008-00</p> <p>Dispense in a tight container. Store at 20°C to 25°C (68°F to 77°F); excursions permitted to 15°C to 30°C (59°F to 86°F). [see USP Controlled Room Temperature].</p> <p>Store tramadol hydrochloride tablets securely and dispose of properly [see Patient Counseling Information (17)]</p> <hr/> <p>S-013, approved 11/27/2023</p> <p>Tramadol Hydrochloride Tablets, USP 25 mg are white to off white round shaped film coated tablet debossed with "A7" on one side and "Λ" on other side.</p> <p>Bottles of 30 tablets.....NDC 72888-162-30 Bottles of 100 tablets..... NDC 72888-162-01 Bottles of 500 tablets..... NDC 72888-162-05 Bottles of 1,000 tablets..... NDC 72888-162-00</p> <p>Tramadol Hydrochloride Tablets, USP 50 mg are white to off white, capsule-shaped film coated tablet debossed with "018" on one side and scored on other side.</p> <p>Bottles of 100 tablets..... NDC 72888-080-01 Bottles of 500 tablets..... NDC 72888-080-05 Bottles of 1,000 tablets.....NDC 72888-080-00</p> <p>Tramadol Hydrochloride Tablets, USP 100 mg are white to off white, capsule-shaped film coated tablet debossed with "019" on one side and scored on other side.</p> <p>Bottles of 100 tablets..... NDC 72888-008-01 Bottles of 500 tablets..... NDC 72888-008-05</p> <p>Bottles of 1,000 tablets..... NDC 72888-008-00</p> <p>Dispense in a tight container. Store at 20°C to 25°C (68°F to 77°F); excursions permitted to 15°C to 30°C (59°F to 86°F). [see USP Controlled Room Temperature].</p> <p>Store tramadol hydrochloride tablets securely and dispose of properly [see Patient Counseling Information (17)]</p>

Table 9: Comparison of HOW SUPPLIED Section or Packaging Sizes for OTC Products

Proposed ANDA Labeling	<p>16 HOW SUPPLIED/STORAGE AND HANDLING</p> <p>Tramadol Hydrochloride Tablets, USP 25 mg are white to off white round shaped film coated tablet debossed with "A7" on one side and "Λ" on other side.</p> <p>Bottles of 30 tablets.....NDC 72888-162-30 Bottles of 100 tablets..... NDC 72888-162-01 Bottles of 500 tablets..... NDC 72888-162-05 Bottles of 1,000 tablets..... NDC 72888-162-00</p> <p>Tramadol Hydrochloride Tablets, USP 50 mg are white to off white, capsule-shaped film coated tablet debossed with "018" on one side and scored on other side.</p> <p>Bottles of 100 tablets..... NDC 72888-080-01</p> <hr/> <p>Bottles of 500 tablets..... NDC 72888-080-05 Bottles of 1,000 tablets.....NDC 72888-080-00</p> <p>Tramadol Hydrochloride Tablets, USP 75 mg are white to off white, capsule shaped film coated tablet debossed with "ΛF" on one side and "11" on either side of score line and plain on other side.</p> <p>Bottles of 30 tablets.....NDC 72888-163-30 Bottles of 100 tablets..... NDC 72888-163-01 Bottles of 500 tablets..... NDC 72888-163-05 Bottles of 1,000 tablets..... NDC 72888-163-00</p> <p>Tramadol Hydrochloride Tablets, USP 100 mg are white to off white, capsule-shaped film coated tablet debossed with "019" on one side and scored on other side.</p> <p>Bottles of 100 tablets..... NDC 72888-008-01 Bottles of 500 tablets..... NDC 72888-008-05 Bottles of 1,000 tablets..... NDC 72888-008-00</p> <p>Dispense in a tight container. Store at 20°C to 25°C (68°F to 77°F); excursions permitted to 15°C to 30°C (59°F to 86°F). [see USP Controlled Room Temperature].</p> <p>Store tramadol hydrochloride tablets securely and dispose of properly [see Patient Counseling Information (17)]</p>
------------------------	--

Reviewer Assessment:

Deficiency	No Deficiency	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Physical description (e.g. scoring, color, imprint, capsule size, nozzle tip, cap color) of the finished product in the HOW SUPPLIED section are appropriately displayed
<input type="checkbox"/>	<input checked="" type="checkbox"/>	All submitted labels and labeling are consistent with the HOW SUPPLIED section.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Drug product is the same color as the RLD's drug product as required (e.g. warfarin, levothyroxine, enoxaparin).
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Storage or dispensing statement is acceptable compared to the RLD/USP monograph.

Reviewer Comments:

Proposed 75 mg is the subject of this PAS. However, 25 mg was approved under S-013 on 11/27/23 and should be revised to include that information.

C-Addendum 1/11/2024: Updated to include the approved 25 mg strength.

Deficiency Comments:

5.1.3 MANUFACTURER, DISTRIBUTOR, AND/OR PACKER (C1 ADDENDUM)

Table 10: Manufacturer/Distributor/Packer Statements

Approved ANDA Labeling	PI: S-011, approved 12/15/2023.
------------------------	---------------------------------

Table 10: Manufacturer/Distributor/Packer Statements

	<p>(8.3).</p> <p>Distributed By: AdvaGen Pharma Limited East Windsor, NJ 08520</p> <p>Manufactured by: Rubicon Research Ambernath, Maharashtra, India</p> <p>Revised: 11/2023</p> <p>Med Guide:</p> <div style="border: 1px solid black; padding: 5px;"> <p>Distributed By: AdvaGen Pharma Limited East Windsor, NJ 08520</p> <p>Manufactured by: Rubicon Research Ambernath, Maharashtra, India</p> <p>Revised: 10/2023</p> </div> <hr/> <p>Distributed By: Advagen Pharma Ltd East Windsor, NJ 08520, USA.</p> <p>Manufactured by: Rubicon Research Private Limited, Ambernath, Dist: Thane, 421506 India</p> <p>S-013: 11/27/2023</p>
<p>Proposed ANDA Labeling</p>	<p>Container labels:</p> <p>Distributed by: Advagen Pharma Ltd., East Windsor, NJ 08512, USA</p> <p>Manufactured by: Rubicon Research Pvt. Ltd., Thane 421506, India.</p> <p>Mfg Lic No.: KD-682</p> <p>Rev.00, 10/23</p> <p>PI:</p> <p>Distributed By: Advagen Pharma Ltd., East Windsor, NJ, 08512, USA</p> <p>Manufactured by: Rubicon Research Pvt. Ltd., Ambernath, Dist: Thane, 421506, India</p> <p>Revised: 10/2023</p>

Table 10: Manufacturer/Distributor/Packer Statements	
Assessment	No change.

Table 10: Manufacturer/Distributor/Packer Statements			
Manufactured by	Manufactured for	Distributed by	Distributed for
Manufactured by: Rubicon Research Pvt. Ltd., Ambernath, Dist: Thane, 421506, India Revised: 10/2023			

EDR Link: https://palantir.fda.gov/workspace/hubble/external/object/v0/edr-document?pk_pdf_media=ANDA208708/0061/m1/us/spl/tramadol-hcl-tabs.xml_PR585751_TRAMADOL-HCL-TABS

Reviewer Assessment:

Deficiency	No Deficiency	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Manufacturer/Distributor/Packager statement is acceptable [21 CFR 201.1(h)(5) or (6) or 21 CFR 201.1(i)]
Reviewer Comments: No change.		
Deficiency Comments:		

5.2 CONTAINER AND CARTON LABELS (C1 ADDENDUM)

Reviewer Assessment:

Deficiency	No Deficiency	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Changes to the package size(s) supported by the container/closure information in Module 3.2.P.7 of the submission?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Tamper evident (controlled substances) requirements are met.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Use of child-resistant closure (CRC) or non-CRC is appropriate. Describe container closure, cite source and any issues in "Reviewer Comments" below.
OVERALL ASSESSMENT:		
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Requirements met for the required label statements (21 CFR 201.15 and 21 CFR 201.100) .
Reviewer Comments: Proposes 75 mg in 30's, 100's, 500's, and 1000's count. The product name is subject to tall man lettering. It is also a CIV product. The labels are differentiated from the approved 25 mg, 50 mg, and 100 mg strengths. 12/29/2023 assessment: Container labels are adequate.		
Deficiency Comments:		

5.2.1 OPHTHALMIC PRODUCTS (C1 ADDENDUM)

Reviewer Assessment:

Deficiency	No Deficiency	
<input type="checkbox"/>	<input type="checkbox"/>	Ophthalmic product cap colors match the American Academy of Ophthalmology (AAO) packaging color-coding scheme.

Deficiency	No Deficiency	
<input type="checkbox"/>	<input type="checkbox"/>	Name of all inactive ingredients are listed appropriately.
<input type="checkbox"/>	<input type="checkbox"/>	Tamper evident (ophthalmic products) requirements are met.
Reviewer Comments: N/A		
Deficiency Comments:		

5.2.2 INJECTABLE PRODUCTS (C1 ADDENDUM)

Reviewer Assessment:

Deficiency	No Deficiency	
<input type="checkbox"/>	<input type="checkbox"/>	There is text on the cap/ferrule over seal of this injectable product. If "Yes", does the text comply with the recommendations in USP General Chapter <7> Labeling.
<input type="checkbox"/>	<input type="checkbox"/>	The cap color is (). NOTE: Black closure system is prohibited, except for Potassium Chloride for Injection Concentrate.
Reviewer Comments: N/A		
Deficiency Comments:		

5.3 PRESCRIBING INFORMATION, PATIENT LABELING, & DRUG FACTS LABELING (OTC) (C1 ADDENDUM)

Reviewer Assessment:

Yes	No	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Shared Prescribing Information: If yes please list ANDA numbers.

Deficiency	No Deficiency	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Labeling contained in the submission is the same as the review model labeling (not including allowable differences under 21 CFR 314.94(a)(8) .

Reviewer Comments:

Review model is the most recent SLC approved 11/09/2023. The applicant used RLD labeling with revision date of 02/2023.

The labeling changes occurred in the Description and How Supplied sections to include the 75 mg new strength.

Dosage forms and strength section includes 25 mg marketed but does not include the NS 75 mg.

It is noted the 25 mg (NS) was approved under S-013 on 11/2023 that should also be included in the labeling.

12/29/2023: Prescribing information and medication guide are inadequate for outdated labeling. Revise the labeling to include both the proposed 75 mg strength, the approved 25 mg, and the SLC final changes. An IR will be issued.

C1-Addendum (IR response received on 1/10/2024)

Assessment on 1/11/2024: Labeling submitted 1/10/2024 is adequate and includes the recently approved SLC language.

Deficiency Comments:

Deficiency # 4

Revise your labeling to include the following:

Created in C1

General Comments

- ~~SLC changes approved on December 27, 2023 under S-011~~
- ~~The 25 mg strength, approved on November 27, 2023, under S-013.~~
- ~~Ensure the proposed 75 mg strength is included in Dosage forms and Strengths, and How Supplied sections.~~

~~Include an annotated side-by-side of your most recently approved supplement with the proposed.~~

Response / Assessment:

6 COMMENTS/CONSULTS FOR OTHER DISCIPLINES (C1 ADDENDUM)

Reviewer Comments:

N/A



Angela
Payne

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Burhan
Nour

Digitally signed by Burhan Nour

Date: 2/02/2024 05:01:21PM

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**CENTER FOR DRUG EVALUATION AND
RESEARCH**

APPLICATION NUMBER:

2087080Orig1s016

BIOEQUIVLANCE REVIEW(s)

BIOPHARMACEUTICS REVIEW	
Application No.	ANDA-208708-SUPPL-16 (PAS)
Product Name	Tramadol Hydrochloride Tablets
Applicant	Rubicon Research Private Limited
Dosage Form/Strengths	IR Tablet / 25 mg, 50 mg, and 100 mg (approved), 75 mg (proposed)
Route of Administration	Oral
Indication	Management of moderate to moderately severe pain in adults.
Submission Date	10/20/2023
Primary Reviewer	Jia Leo, Ph.D.
Recommendation	ADEQUATE

Background: This generic drug product was approved on 6/28/2019. The purpose of this supplement is to add a new 75 mg strength. As the RLD does not have the 75 mg strength, the Applicant filed a Citizen Petition for permission to submit an ANDA supplement for 75 mg Tramadol HCl tablet, which was granted by the Agency.¹ The composition of the new 75 mg strength is proportionally identical to the approved strengths and has one score line on one side of the tablet. The new 75 mg strength exhibit batches were manufactured at the approved manufacturing site for all the approved strengths and commercial batches will be manufactured at the same site. The Applicant requested a biowaiver for the new 75 mg strength, which will be reviewed by the OGD. Biopharmaceutics review is focused on the provided dissolution data in supporting the proposed new strength.

Biopharmaceutics Assessment: The Applicant adopted the approved dissolution specification for the 25 mg, 50 mg, and 100 mg strengths for the new 75 mg strength, which is acceptable. The Applicant compared the dissolution profiles of the new 75 mg strength (3 exhibit batches) with that of the pivotal bio-batches (50 mg and 100 mg), which showed similarity.² The Applicant also provided a dissolution profile for the split tablet (manually and mechanically) of 75 mg strength. The dissolution profile of the split tablet (manually and mechanically) is similar to that of the whole tablet and meets the proposed dissolution acceptance criterion of Q = 80% in 30 min.³

¹ <\\CDSESUB1\EVSPROD\anda208708\0061\m1\us\suitability-petition-tramadol-hydrochloride-tablets-75-mg.pdf>

² <\\CDSESUB1\EVSPROD\anda208708\0061\m2\27-clin-sum\271-summary-biopharma-studies-associated-analytical.pdf>

³ <\\CDSESUB1\EVSPROD\anda208708\0061\m3\32-body-data\32p-drug-prod\tramadol-hydrochloride-tablets-immediate-release-tablets\32p2-pharm-dev\scoreline-report.pdf>

Conclusion and Recommendation: From a Biopharmaceutics perspective, ANDA-208708-SUPPL-16 for adding 75 mg strength of Tramadol Hydrochloride Tablet is Adequate.

Approved dissolution method and acceptance criterion for Tramadol Hydrochloride Tablet 25 mg, 50 mg, 75 mg, and 100 mg finished drug product batch release and stability testing

USP Apparatus	Speed (RPMs)	Medium/Temperature	Volume (mL)	Acceptance Criterion
I (Basket)	50	0.1N HCl/ 37°C ± 0.5°C	900	Q = 80% in 30 min

Appendix 1 Supporting Data

Table 1 Composition of the proposed 75 mg strength and the approved 25 mg, 50 mg, and 100 mg strengths

Status →	Quality Standards	Existing Approved Product			Proposed Additional Strength		Pharmaceutic- -al Function	
		50 mg	100 mg	% w/w	75 mg	% w/w		
		mg / unit	mg / unit		mg / unit			
(b) (4)								
Tramadol Hydrochloride ⁽¹⁾	USP	50.00	100.00	(b) (4)	75.00	(b) (4)	API	
Microcrystalline Cellulose (b) (4)	USP-NF	(b) (4)						(b) (4)
Anhydrous Lactose (b) (4)	USP-NF							
Pregelatinized starch (b) (4)	USP-NF							
(b) (4)	USP/EP/IP							
(b) (4)								
Magnesium Stearate (b) (4)	USP-NF	(b) (4)						
(b) (4)								
Total	-	(b) (4)	(b) (4)	100.00	(b) (4)	100.00	-	

(b) (4)

Table 2 Approved dissolution specification for 25 mg, 50 mg, and 100 mg strengths

Apparatus	USP Apparatus Type 1 (Basket)
Dissolution Media	0.1 N HCl
Volume	900 ml
Temperature	37± 0.5°C
Rotation speed	50 RPM
Time points	5, 10, 15, 20, 30, and 45 min
Units	12
Acceptance Criterion	Q = 80% in 30 min

Figure 1 Dissolution profiles of the new 75 mg strength and the pivotal bio-batch 50 mg

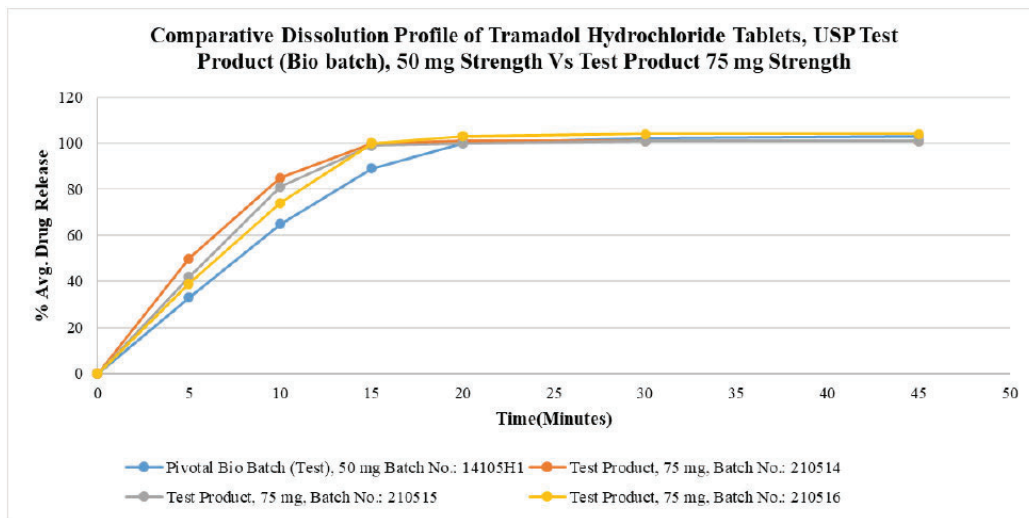


Figure 2 Dissolution profiles of the new 75 mg strength and the pivotal bio-batch 100 mg

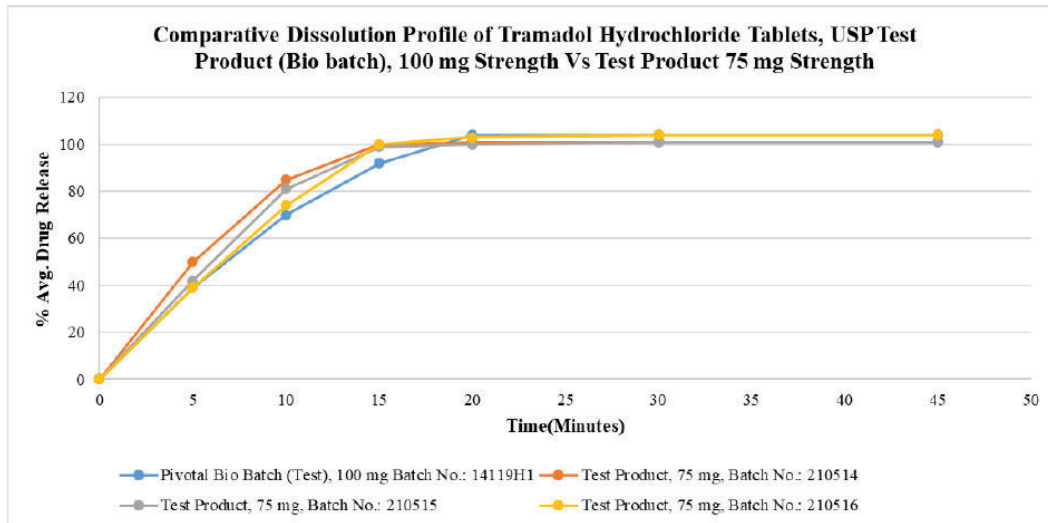
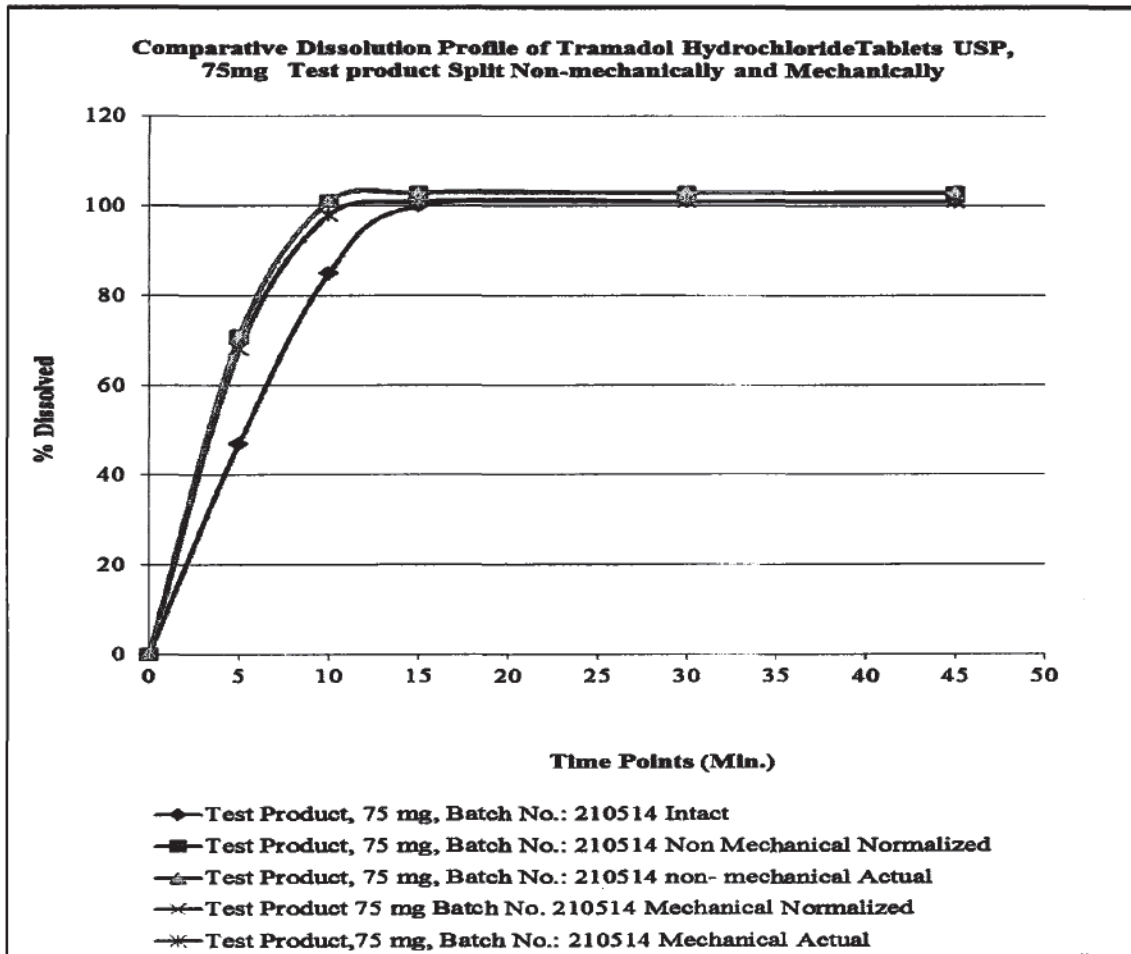


Figure 3 Dissolution profiles of the new 75 mg strength split tablets and whole tablet





Jia
Leo

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**CENTER FOR DRUG EVALUATION AND
RESEARCH**

APPLICATION NUMBER:

208708Orig1s016

CHMISTRY REVIEW(s)

Disciplines Involved	Outcome	Disciplines Involved	Outcome
Chemistry	Adequate	Biopharmaceutics	Adequate
Microbiology	NA	Bioequivalence	PN
Facilities	AC	DMF (Chemistry)	Adequate
Labeling	Adequate	DMF (Microbiology)	NA
Submissions Assessed			
Received Date:	10/20/2023		
Amendment(s) Date:	11/13/2023 (Filing Response), 01/10/2024 (labeling response) and 02/13/2024 and 02/28/2024		

OFFICE OF PHARMACEUTICAL QUALITY
ASSESSMENT OF SUPPLEMENT TO ABBREVIATED NEW DRUG APPLICATION

Chemistry Assessment Number : 01

ANDA/Supplement Number : 208708 Sup 016

Drug Product Name, Strength : Tramadol Hydrochloride Tablets USP 25 mg, 50 mg, 75 mg and 100 mg

Pharmacological Category/Indication(s) : Management of moderate to moderately severe pain in adults.

Applicant Name (or US Agent if Applicable) : Rubicon Research Private Limited
US Agent: Jordan Pefley
50 Millstone Road, Building 200, Suite 180
City: East Windsor, State: NJ-08512
jordan.pefley@advagenpharma.com

Supplement Provides For : Additional strength - Tramadol Hydrochloride Tablets, USP 75 mg

Filing Category with basis for decision/comments (based on guidance for industry/CFR quotes) : PAS, (Guidance for industry Changes to an Approved NDA or ANDA, PAS, April 2004) Section VI B1,

Relevant Supporting DMF(s) Cited (If Applicable) NA

DMF No.	DMF	Result of Assessment	Date Assessment Completed
017970	Type II, Tramadol Hydrochloride, Manufacturer: (b) (4)	Adequate	05/23/2023
	DMF (b) (4) review found adequate, reviewed by Benon Mugabe, dated 05/23/2023, Wei Song entered as DMF is adequate and up to date as of 10/25/2023.		

ASSESSMENT NOTES

Rubicon Research Private Limited has submitted a PAS supplement 016 to an approved ANDA 208708 (Tramadol Hydrochloride Tablets USP 25 mg, 50 mg, 75 mg and 100 mg) for Inclusion of additional strength Tramadol Hydrochloride Tablets, USP 75 mg.

Proprietary Name:	Tramadol Hydrochloride Tablets, USP 50 mg, 75 mg*, and 100 mg
Established Name:	Tramadol Hydrochloride Tablets, USP 50 mg, 75 mg*, and 100 mg
Reference Listed Drug (RLD):	ULTRAM® (Tramadol Hydrochloride), 50 mg and 100 mg JANSSEN PHARMACEUTICALS INC NDA # N020281

*strength is the subject of this Prior Approval Supplement.

The basis for submission of Tramadol Hydrochloride Tablets, USP 75 mg:

1. Reference Listed Drug (NDA #N020281), ULTRAM® (Tramadol Hydrochloride), 50 mg and 100 mg, Applicant Name: Janssen Pharmaceuticals Inc.
2. Provided Citizen Petition and FDAs Correspondence and Approval letter thereof for FDA assigned Docket no.: FDA-2021-P-0036 allowing an ANDA to be submitted for 75 mg strength.

The drug product Tramadol Hydrochloride Tablets, USP 75 mg is proposed to be packed in multidose HDPE containers of 30's, 100's, 500's, and 1000's count.

No Pre-Submission Facility Correspondence (PFC) was submitted in relation to this application. The application is not for a combination product or complex product as defined in GDUFA II Commitment Letter. No controlled correspondences were used to develop this application. In accordance with Section 803, FDA Reauthorization Act (FDARA) 2017 and section 506H of the Federal Food, Drug & Cosmetic Act (FD&C Act), Rubicon believes that there is "inadequate generic competition" for the Tramadol Hydrochloride Tablets, USP 75 mg and therefore submits herewith a Request for Competitive Generic Therapy (CGT) Designation. The status of the approved products as available on the "Approved Drug Products with Therapeutic Equivalence Evaluations, Electronic version" or the Electronic Orange Book is enclosed herewith as Attachment 1.

<\\CDSESUB1\EVSPROD\anda208708\0061\m1us\attachment-1.pdf>

Rubicon requested the Agency to designate Rubicon's Tramadol Hydrochloride Tablets, USP 75 mg as a Competitive Generic Therapy.

U.S. Agent Appointment Letter

Company Name	Advagen Pharma Limited
Contact person's Name	Jordan Pefley
Title	National Account Representative
Telephone number	+1 949-872-7899
Address	50 Millstone road, Building 200, Suite 180 East Windsor, New Jersey 08512
Fax number	+ 1 609-785-5293
E-mail address	jordan.pefley@advagenpharma.com

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Field copy certification provided

Debarment certificates from Rubicon and Wanbury are provided and are adequate for its intended use.

Patent certification/Paragraph 1 Certification

Rubicon Research Private Limited, hereby certifies that to the best of its knowledge, no patent information for the Reference Listed Drug has been submitted to FDA and there are no unexpired patents listed for the Reference Listed Drug - ULTRAM (Tramadol Hydrochloride Tablets Oral) 50 mg and 100 mg, NDA # N020281 of Janssen Pharmaceuticals INC, in the Patent and Exclusivity Information Addendum to the "Approved Drug Products with Therapeutic Equivalence Evaluations", Electronic version (commonly known as the Electronic Orange Book).

Copy of the relevant reference of the Electronic Orange Book (as accessed on October 20, 2023) is provided in this submission.

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<\\CDSESUB1\EVSPROD\anda208708\0061\m1\us\1353-exclusivity-statement.pdf>

ANDA #208708 (Sequence #0051) Supplemental Abbreviated New Drug Application for (sANDA) Tramadol Hydrochloride 25 mg tablet (Proposed Additional Strength) is approved for CMC/Bioequivalence/Labeling/ Facility in supplement 013 (reviewed by Anurag Sharadendu, dated 11/09/2023 in Panorama.

The overall manufacturing inspection recommendation is approved in Panorama, reviewed by Mesfin Andi, dated 11/02/2023.

Rubicon requested a waiver of in vivo bioequivalence studies for Tramadol Hydrochloride Tablets, USP 75 mg strength based on the following:

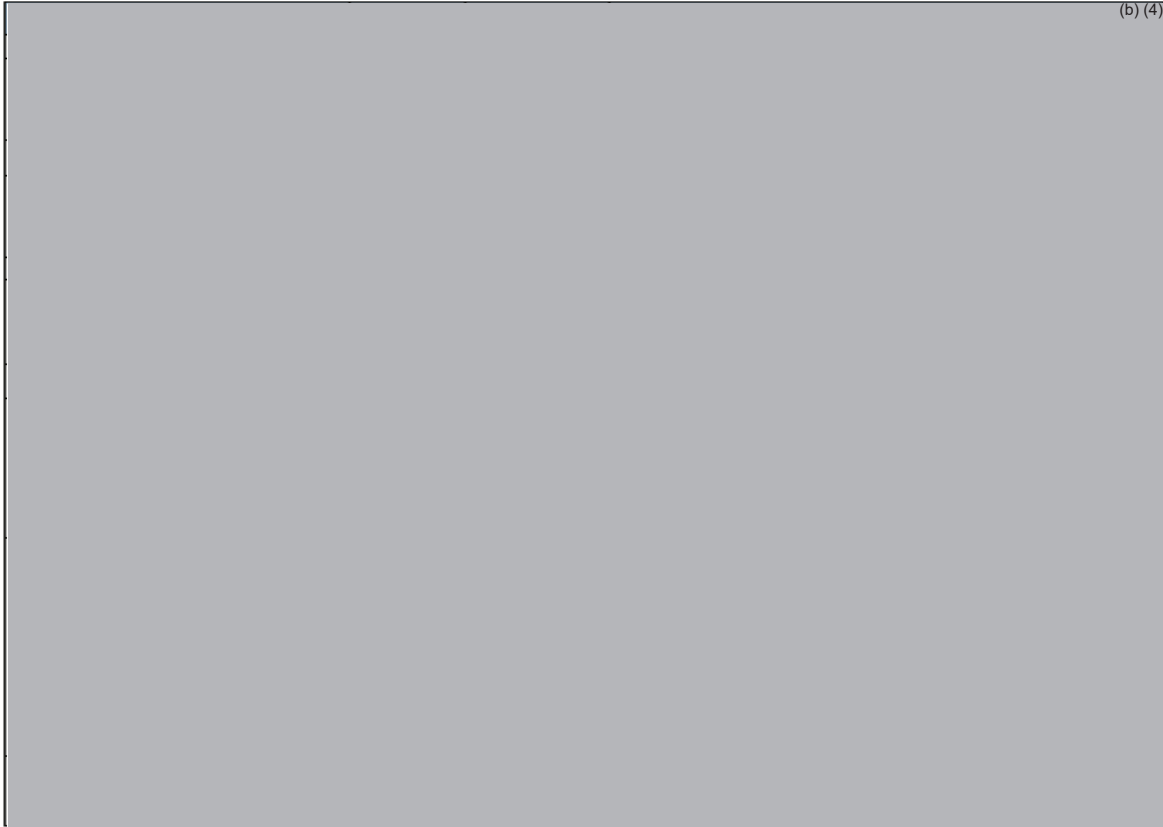
- Acceptable bioequivalence studies on the 50 mg and 100 mg strengths
- Proportional similarity in the formulations across all the strengths
- Acceptable dissolution testing across all the strengths and in-vitro Dissolution Data (Comparative Dissolution Profile of Pivotal Bio Batch: Tramadol Hydrochloride Tablets, USP 50 mg and proposed additional strength Tramadol Hydrochloride Tablets, USP 75 mg and Comparative Dissolution Profile of Pivotal Bio Batch: Tramadol Hydrochloride Tablets, USP 100 mg and proposed additional strength Tramadol Hydrochloride Tablets, USP 75 mg. The dissolution study data found more than $\frac{(b)}{(4)}\%$ drug (API) is released within 15 minutes, hence F2 calculation is not required.

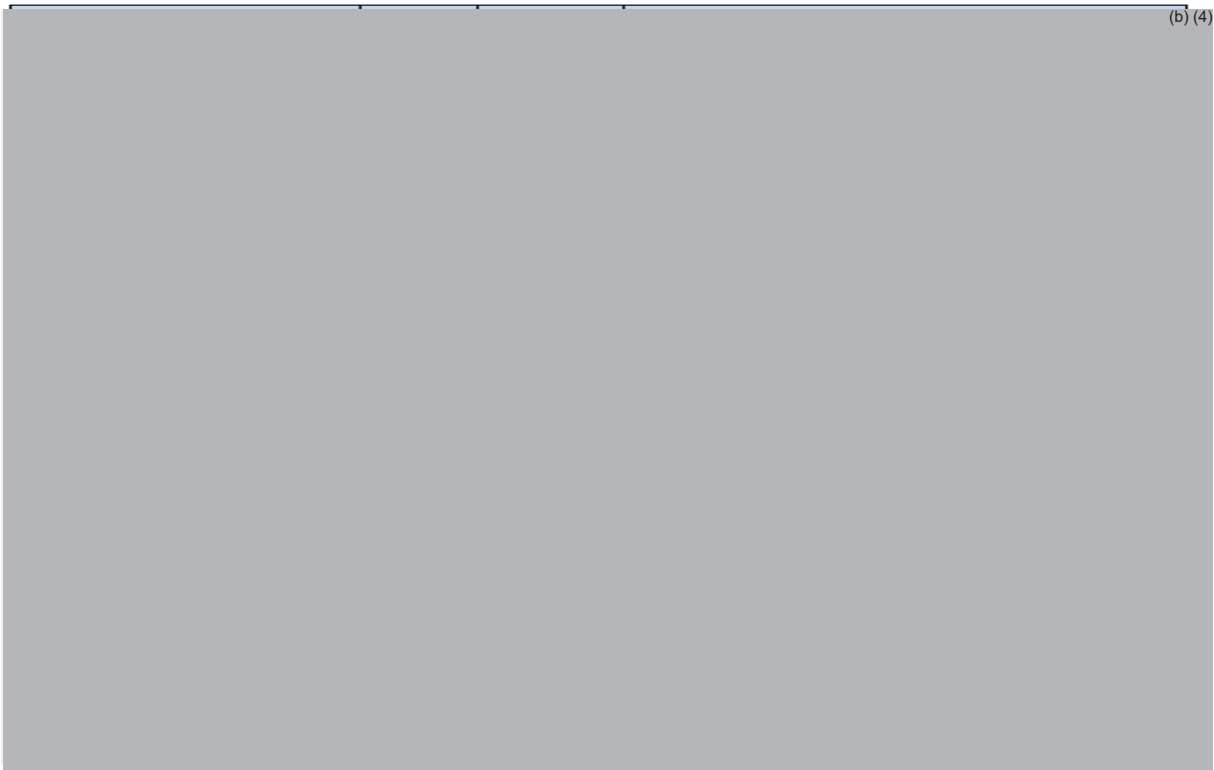
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Satisfactory

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Statement of right of references





Drug Substance: Satisfactory

DMF (b) (4) review found adequate, reviewed by Benon Mugabe, dated 05/23/2023.

Drug Substance Tramadol Hydrochloride is an official USP compendial monograph. The drug substance general information (Nomenclature, Structure, General Properties) has provided in 3.2.S.1.

Manufacturer information: Satisfactory

(b) (4) is the manufacturer of the drug substance Tramadol Hydrochloride, USP in accordance with their Drug Master File (DMF) # (b) (4).

CGMP and Debarment certificates are provided, these are adequate for its intended use.

No contract testing facility is used by finished product manufacturer for the drug substance

Please refer DMF # (b) (4) for detailed information regarding manufacturing process and controls used in the manufacturing of Tramadol Hydrochloride, USP.

Satisfactory

The description of the manufacturing process and process controls, controls of materials, process validation and evaluation, manufacturing process development and Elucidation of Structure and other Characteristics for the drug substance refer to DMF # (b) (4).

The structure of Tramadol Hydrochloride, USP was elucidated by (b) (4) on the basis of Infra-red spectrum, Proton (1H) NMR & Carbon (13C) NMR and Mass Spectroscopy. The structural elucidation data is enclosed in this section.

RECOMMENDATION

Supplement is CMC Approvable

Supplement is NOT CMC Approvable (with brief explanation:)

(Choose IR, CR-Minor, CR-Major); Deficiencies noted below:

<u>Deficiencies to be communicated:</u>

Primary Assessor : Chandraprakash Kasireddy, Ph.D.,

**Date : 11/29/2023 and
02/01/2024 and
02/20/2024 and
02/28/2024**



Chandraprakash
Kasireddy

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Rajib K
Paul

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Date: 2/29/2024 09:17:55AM
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**CENTER FOR DRUG EVALUATION AND
RESEARCH**

APPLICATION NUMBER:

208708Orig1s016

ADMINISTRATIVE/CORRESPONDANCE
DOCUMENT(s)

Approval Type: FULL APPROVAL TENTATIVE APPROVAL SUPPLEMENTAL AP or TA (NEW STRENGTH)

RPM and TL: **Erin Lee/Surjit Basi**

ANDA #: **208708/S-016** Applicant: **Rubicon Research Private Limited**

Established Product Name: **Tramadol Hydrochloride Tablets USP, 75 mg**

Basis of Submission (BOS)/RLD (Application#/Proprietary Name/Applicant): **NDA020281/Ultram/Janssen Pharmaceuticals, Inc**

If BOS discontinued: [<https://www.federalregister.gov/documents/2023/10/04/2023-21990/determination-that-ultram-tramadol-hydrochloride-tablets-50-milligrams-was-not-withdrawn-from-sale>]

Safety/effectiveness FRN pending

Select, as applicable:

RX OTC

History of tentative or split approval action

Shared Bio Studies (list ANDA number(s) _____) Shared Labeling (list ANDA number(s) _____)

Memo uploaded for PAL item or OGD confirmation

Priority: First Generic Approval (i.e., no other generics approved) Drug Shortage PEPFAR CGT

Other priority _____

Misc: REMS Combination product Suitability Petition 180-day language MOU PEPFAR

RPM Has Verified the Following:

Date: 3/25/2024

1. ANDA number, NDA/RLD, Drug product and strength(s) are correct on all discipline/subdiscipline reviews
2. All submissions have been reviewed: Relevant disciplines are adequate and finalized/archived in the appropriate system of record
3. Most recent BE guidance is included in the review or a memo has been uploaded
4. No RLD updates or changes to exclusivity/patents impact endorsed labeling
5. All amendments submitted to the Agency on or after December 5, 2016 contain (1) a patent certification or section viii statement, (2) a recertification, or (3) a verification statement per 21 CFR 314.96(d). (Not applicable to supplements)
6. OSIS Clinical Endpoint and Bioequivalence Site Inspections acceptable or not applicable
7. No blocking legal or regulatory issue (refer to Policy Alert Tracker)
8. OGD Communications has been notified if Priority Approval (First generic, Drug Shortage, PEPFAR, CGT, other OGD Communications priorities)
9. OMIR is Approve with no new facility alerts and a DP and API manufacturer listed in Submission Facility Status View
10. No open issues or tasks in Platform
11. No pending consults
12. Filing review completed for NSA or reformulation
13. PNR review is current
14. Correct language, format and content in action letter (e.g., relevant contact from 356h form)
15. Endorsements are within 29 days

Discipline Completion Dates:

Bioequivalence **3/4/2024**

Labeling **2/2/2024**

Clinical Bioequivalence _____

Combination Product Comparative Analysis _____

Integrated Quality Assessment: _____

If there is no IQA, provide the applicable date(s):

- Chemistry **2/29/2024**
- Microbiology
- Biopharmaceutics/Dissolution **1/22/2024**

DMF No(s). (b) (4) Date(s) Acceptable **5/23/2023**

Originating Office: Office of Regulatory Operations (ORO)

Effective Date: 2021-10-06

Page 1 of 6

Additional Notes (if applicable)

ANDA APPROVAL ROUTING SUMMARY ENDORSEMENTS AND FINAL DECISION

1. Division of Legal and Regulatory Support Endorsement

Date: 3/28/024

Name: BL

<p>Patent/Exclusivity Certification:</p> <p><input type="checkbox"/> No Relevant Patents <input checked="" type="checkbox"/> PI <input type="checkbox"/> PII <input type="checkbox"/> PIII <input type="checkbox"/> PIV <input type="checkbox"/> section viii</p> <p>Reminders:</p> <ul style="list-style-type: none"> - Check the policy alert list for any pending exclusivity determinations - Verify in the Orange Book there are no unexpired ODE's that cover the active moiety - Confirm the ANDA is not blocked by other ANDA's eligibility for 180-day CGT exclusivity - Confirm S/E determination completed for RLDs in the discontinued section of the OB 	<p>RLD = <u>Ultram</u> NDA# <u>20281</u> <input checked="" type="checkbox"/> RX or <input type="checkbox"/> OTC</p> <p>Date Checked in Orange Book#: <u>3/28/2024</u></p> <p>Type of Letter:</p> <p><input type="checkbox"/> APPROVAL</p> <p><input type="checkbox"/> TENTATIVE APPROVAL</p> <p><input checked="" type="checkbox"/> SUPPLEMENTAL AP or TA (NEW STRENGTH)</p>
<p>Forfeiture Information</p> <ul style="list-style-type: none"> - Confirm whether the first applicant remains eligible for 180-day exclusivity (i.e., that a forfeiture event under section 505(j)(5)(D) has not occurred) and document the determination <p>Is a forfeiture memo needed for the first applicant: Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p>If yes, the date forfeiture memo was completed Date _____ ANDA # _____</p> <p>Competitive Generic Therapy 75 Day Special Forfeiture Rule:</p> <p>First Applicant: ANDA # _____</p> <p>Date of Approval: _____</p> <p>75 Day Date: _____</p>	<p>180 Day Exclusivity Information</p> <p>Is applicant eligible for H-W 180 day exclusivity Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p> <p><input type="checkbox"/> Sole</p> <p><input type="checkbox"/> Shared</p> <p>Is applicant eligible for CGT 180 day exclusivity Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p> <p><input type="checkbox"/> Sole</p> <p><input type="checkbox"/> Shared</p> <p>Is applicant blocked by a triggered CGT 180 day exclusivity Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p>If no, the date and time checked for notification of commercial marketing: Date _____ Time: _____</p>

Comments:

BOS- Ultram, NDA 020281. Original ANDA approved 6/28/2019 for the 50 mg and 100 mg strength products. Supplement 13 was approved 11/27/2023 for the 25 mg strength.

S-016 submitted to ANDA 208708 on 10/20/2023 for inclusion of the 75 mg strength product. PAS was submitted with a PI cert. RLD is not approved for the 75 mg strength; BOS statement also included reference to a suitability petition, FDA-2021-P-0036 that allows for filing of the 75 mg strength product. sANDA was received for review 10/20/2023. Ack letter sent 11/16/2023.

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The RLD, Ultram NDA020281 50 mg and 100 mg strengths are currently listed in the discontinued section of the OB. The Agency has determined that these drug products were not withdrawn from sale for reasons of safety or effectiveness. *Federal Register* (88 FR 68623; October 4, 2023 for the 50 mg strength and 87 FR 25028; April 27, 2022 for the 100 mg strength).

There are no patents or exclusivities listed in OB for the RLD for this strength. This sANDA is eligible for immediate AP.

180 Day/CGT Exclusivity Status/Landscape: N/A no patents listed. Verified no CGT exclusivity is currently untriggered/running and that this ANDA has not requested CGT designation for this strength product. CGT was denied for S-013 (addition of the 25 mg strength product).

If known, impact on pending exclusivity determinations: None per PAL

If Tentative Approval, if known, anticipated full approval date: N/A

2. Final Decision

Date: 4/4/2024

Name: CAP

Verified the following:

1. Completion of the following endorsement tasks, if applicable:
 - a. Division of Legal and Regulatory Support Endorsement
 - b. Paragraph IV Evaluation
 - c. REMS Endorsement
 - d. Quality Endorsement
 - e. Bioequivalence Endorsement
 - f. Clinical-Bioequivalence Endorsement
 - g. Labeling Endorsement
 - h. RPM Team Leader Endorsement
2. All applicable endorsement tasks are completed in the platform within 30 days of potential approval.
3. No updates to patents and/or exclusivities in Orange Book since the Division of Legal and Regulatory Support Endorsement
4. No Reference Listed Drug updates in DARRTS since the Labeling Endorsement
5. No new issues listed on the current version of the Policy alert list since the RPM Team Leader Endorsement
6. No new alerts in the Submission Facility Status View since the Quality Endorsement
7. Overall Inspection Recommendation of Approve of the current project (see screenshot below)
8. No new DMF amendments received since Quality Endorsement
9. No new amendments received since the RPM Team Leader Endorsement

This ANDA is ready for **FULL APPROVAL**.

INCLUDE SNIP OF SUBMISSION FACILITY STATUS VIEW AT THE TIME OF APPROVAL

**Originating Office: Office of
Regulatory Operations (ORO)**

Effective Date: 2021-10-06

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(b) (4)

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Please ensure you are using the most current version of this Form, available at:

OGD Controlled Documents Program Library -

<http://ogd.fda.gov/QDoc/Library/Index>

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Document Status: APPROVED		
Title: Approval Routing Summary Form	Author: Kevin Denny	

Endorsement Signatures (To be provided by endorsees in the event of Platform unavailability):

- Division of Legal and Regulatory Support Endorsement
 - Sign & Date _____
- Paragraph IV Evaluation
 - Sign & Date _____
- REMS Endorsement
 - Sign & Date _____
- Quality Endorsement
 - Sign & Date _____
- Bioequivalence Endorsement
 - Sign & Date _____
- Clinical-Bioequivalence Endorsement
 - Sign & Date _____
- Labeling Endorsement
 - Sign & Date _____
- RPM Team Leader Endorsement
 - Sign & Date _____
- ORO IO Endorsement
 - Sign & Date _____

Originating Office: Office of Regulatory Operations (ORO)	Effective Date: 2021-10-06	Page 5 of 6
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REFERENCES / ASSOCIATED DOCUMENTS

Reference Name
4000-LPS-041 Processing Approval and Tentative Approval of an Original ANDA

REVISION HISTORY

Author	Role	Version	Change Date	Summary of Changes
Heather Strandberg	Author	1.0	2014-10-01	New Form
Kevin Denny	Reviser	2.0	2017-10-03	Update form to reflect revisions to SOP 4000-LPS-041 Processing Approval and Tentative Approval of an Original ANDA, Version 04 Remove content adequately captured in the platform Update information captured in the Division of Legal and Regulatory Support Endorsement section Other minor administrative corrections to format and content
Kevin Denny	Reviser	3.0	2018-01-14	Update Final Decision section
Joe Shin	Reviser	4.0	2019-03-04	Changes made: 1) "No Relevant Patents" checkbox added to patent types; 2) Basis of Submission was updated to include (NDA#/Proprietary Name/Applicant); 3) Removed "(CR)" from the second checkbox in the RPM Evaluation section; 4) Added "Shared BE studies..." and "Shared Labeling..." bullets to the review date section; 5) Added a not applicable checkbox for the MMA question; 6) Sentence revised to include not applicable cases in the OSIS question
John Ibrahim/QM Team	Reviser/QM	5.0	2021-08-18	<ul style="list-style-type: none"> Update page 1 (revised ANDA information section, RPM checklist, and discipline completion dates) QM Team updated Header, document #, & title to conform to OGD Controlled Documents Program naming conventions & formatting standards QM Team updated Footer to conform to ISO 8601 – International Time & Date Standards



ANDA 208708/S-016

**ACKNOWLEDGEMENT
sANDA RECEIPT**

AdvaGen Pharma
U.S. Agent for Rubicon Research Private Limited
50 Millstone Road, Building 200, Suite 180
East Windsor, NJ 08520
Attention: Jordan Pefley

Dear Jordan Pefley:

This is in reference to your supplemental abbreviated new drug application (sANDA) submitted pursuant to section 505(j) of the Federal Food, Drug, and Cosmetic Act (FD&C Act). The Food and Drug Administration (FDA or the Agency) has made a threshold determination that this sANDA is substantially complete. This sANDA is received for review.

NAME OF DRUG: Tramadol Hydrochloride Tablets USP, 75 mg

DATE OF APPLICATION: October 20, 2023

DATE (RECEIVED) ACCEPTABLE FOR REVIEW: October 20, 2023

Reference is made to the information request dated November 8, 2023 and to any amendments thereafter.

This prior approval supplement is subject to the provisions of the Generic Drug User Fee Amendments of 2022 (GDUFA III). The GDUFA goal date for review of this standard supplement is April 20, 2024. If this standard supplement requires an inspection or the use of a time- and resource-intensive alternate facility assessment tool, the GDUFA goal date will be August 20, 2024. Two possible goal dates are provided because FDA is unable to determine if a supplement requires an inspection or the use of a time- and resource-intensive alternate facility assessment tool at the time of submission. FDA will make this determination during the assessment of the supplement. For information, see FDA's guidance for industry, *ANDA Submissions – Amendments to Abbreviated New Drug Applications Under GDUFA*.

GDUFA III provides important program enhancements that are designed to improve the predictability and transparency of ANDA assessments and to minimize the number of review cycles necessary for approval, including fostering the development of high-quality applications. While FDA will communicate deficiencies identified during our

assessment of your application, it is each applicant's responsibility to submit and maintain a high-quality application that FDA can approve. To this end, you should ensure your application addresses any changes to the reference listed drug (RLD) that occur after the submission of your ANDA, such as changes in labeling, patent or exclusivity information, or marketing status. You should also ensure your application stays up to date with the Agency's current recommendations on demonstrating bioequivalence reflected in relevant product specific guidances.

For additional information about supplements, please refer to the guidance for industry *ANDA Submissions – Prior Approval Supplements Under GDUFA* available on FDA's website.¹

As described in the draft guidance for industry, *Cover Letter Attachments for Controlled Correspondences and ANDA Submissions*, FDA recommends that you include the appropriate attachment(s) along with the cover letter for your submission to help FDA ensure that your submission is properly triaged and assigned to the appropriate assessors. This will also ensure that submissions are effectively managed by FDA and acted upon within the performance review goal dates set by the Generic Drug User Fee Amendments.

Please identify any related communications with the ANDA number referenced above. If you have any questions, contact Erin Lee, Regulatory Project Manager, at erin.lee@fda.hhs.gov² or (240) 402 - 8988. We also recommend that you sign up for

Generic Drug e-mail updates,³ which provide updates and information generally related to generic drug regulation.

Sincerely,

{See appended electronic signature page}

Ilinca Duveau, Pharm.D.
Team Leader
Division of Filing Review
Office of Regulatory Operations
Office of Generic Drugs

¹ We update guidances periodically. To make sure you have the most recent version of a guidance, check the FDA Drugs guidance Website at

<https://www.fda.gov/Drugs/GuidanceComplianceRegulatoryInformation/Guidances/default.htm>.

² A secure email address is recommended for applicants to utilize when communicating with the Agency. If you have not already established a secure email with FDA, you may send a request for a secure email address to SecureEmail@fda.hhs.gov. Please note that secure email may not be used for formal regulatory submissions to applications. Formal regulatory submissions must be submitted according to FDA regulations and current guidances.

³ See FDA's Subscription Management Center at <https://www.fda.gov/about-fda/contact-fda/get-email-updates>



Ilinca
Duveau

Digitally signed by Ilinca Duveau

Date: 11/16/2023 10:56:34AM

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