PILOCARPINE HYDROCHLORIDE - pilocarpine hydrochloride ophthalmic solution solution/ drops Somerset Therapeutics, LLC

HIGHLIGHTS OF PRESCRIBING INFORMATION These highlights do not include all the information needed to use PILOCARPINE HYDROCHLORIDE OPHTHALMIC SOLUTION safely and effectively. See full prescribing information for PILOCARPINE HYDROCHLORIDE OPHTHALMIC SOLUTION.
PILOCARPINE HYDROCHLORIDE ophthalmic solution Initial U.S. Approval: 1974
 INDICATIONS AND USAGE Pilocarpine hydrochloride ophthalmic solution, USP is a muscarinic cholinergic agonist indicated for (1) The reduction of elevated intraocular pressure (IOP) in patients with open-angle glaucoma or ocular hypertension (1.1) The management of acute angle-closure glaucoma (1.2) The prevention of postoperative elevated IOP associated with laser surgery (1.3) The induction of miosis (1.4)
DOSAGE AND ADMINISTRATION
 Instill one drop in the eye(s) up to four times daily (2).
 DOSAGE FORMS AND STRENGTHS Solution containing 1% (10 mg/mL), 2% (20 mg/mL) or 4% (40 mg/mL) pilocarpine hydrochloride (3)
None. (4)
• Poor illumination: Exercise caution in night driving and other hazardous occupations in poor illumination (5.1).
 Pre-existing retinal disease: Rare cases of retinal detachment have been reported; a thorough examination of the retina including funduscopy is advised in all patients prior to the initiation of therapy (5.2).
 Iritis: Caution is advised in patients with iritis. (5.3) Congenital glaucoma: Caution is advised in pediatric patients with primary congenital glaucoma for control of IOP as cases of a paradoxical increase in IOP have been reported. (5.4)
ADVERSE REACTIONS
Most common adverse reactions are headache/browache, accommodative change, eye irritation, eye pain, blurred vision, and/or visual impairment (6.1). (6) To report SUSPECTED ADVERSE REACTIONS, contact Somerset Therapeutics, LLC at 1-800- 417-9175 or FDA at 1-800-FDA-1088 or www.fda.gov/medwatch (6)
See 17 for PATIENT COUNSELING INFORMATION. Revised: 4/2023

FULL PRESCRIBING INFORMATION: CONTENTS* 1 INDICATIONS AND USAGE

1.1 Reduction of Elevated Intraocular Pressuare (IOP) in Patients with Open-Angle Glaucoma or Ocular Hypertension

1.2 Management of Acute Angle-Closure Glaucoma

1.3 Prevention of Postoperative Elevated IOP Associated with Laser Surgery

1.4 Induction of Miosis

2 DOSAGE AND ADMINISTRATION

2.1 Reduction of Elevated Intraocular Pressure (IOP) in Patients with Open-Angle Glaucoma or Ocular Hypertension

- 2.2 Management of Acute Angle-Closure Glaucoma
- 2.3 Prevention of Postoperative Elevated IOP Associated with Laser Surgery
- 2.4 Induction of Miosis
- 2.5 Use with Other Topical Ophthalmic Medications
- 2.6 Use in Pediatric Patients

3 DOSAGE FORMS AND STRENGTHS

4 CONTRAINDICATIONS

5 WARNINGS AND PRECAUTIONS

- 5.1 Poor Illumination
- 5.2 Pre-existing Retinal Disease
- 5.3 Iritis
- 5.4 Primary Congenital Glaucoma
- 5.5 Contact Lens Wear

6 ADVERSE REACTIONS

8 USE IN SPECIFIC POPULATIONS

- 8.1 Pregnancy
- 8.3 Nursing Mothers
- 8.4 Pediatric Use
- 8.5 Geriatric Use

10 OVERDOSAGE

11 DESCRIPTION

12 CLINICAL PHARMACOLOGY

- 12.1 Mechanism of Action
- 12.3 Pharmacokinetics

13 NONCLINICAL TOXICOLOGY

13.1 Carcinogenesis, Mutagenesis, Impairment of Fertility

14 CLINICAL STUDIES

16 HOW SUPPLIED/STORAGE AND HANDLING

17 PATIENT COUNSELING INFORMATION

- 17.1 Avoiding Contamination of the Product
- 17.2 Night Driving
- 17.3 Accommodative Spasm
- 17.4 Contact Lens Wear
- 17.5 Concomitant Topical Ocular Therapy
- 17.6 Systemic Exposure
- * Sections or subsections omitted from the full prescribing information are not listed.

FULL PRESCRIBING INFORMATION

1 INDICATIONS AND USAGE

Pilocarpine hydrochloride ophthalmic solution, is indicated for the:

1.1 Reduction of Elevated Intraocular Pressuare (IOP) in Patients with Open-Angle Glaucoma or Ocular Hypertension

1.2 Management of Acute Angle-Closure Glaucoma

1.3 Prevention of Postoperative Elevated IOP Associated with Laser Surgery

1.4 Induction of Miosis

2 DOSAGE AND ADMINISTRATION

2.1 Reduction of Elevated Intraocular Pressure (IOP) in Patients with Open-Angle Glaucoma or Ocular Hypertension

One drop of pilocarpine hydrochloride ophthalmic solution 1%, 2% or 4% should be applied topically in the eye(s) up to four times daily. Pilocarpine-naïve patients should be started on the 1% concentration as higher concentrations are often not tolerated initially. The frequency of instillation and concentration of pilocarpine hydrochloride ophthalmic solution are determined by the severity of the elevated intraocular pressure and miotic response of the patient.

To limit systemic exposure to pilocarpine, patients may be instructed to perform punctal occlusion for 2 minutes after instillation of pilocarpine hydrochloride ophthalmic solution.

2.2 Management of Acute Angle-Closure Glaucoma

Prior to pilocarpine hydrochloride ophthalmic solution use, treatment with secretory suppressants and hyperosmotic agents may be needed to lower IOP below 50 mmHg and relieve iris ischemia. For initial management of acute angle-closure glaucoma, one drop of pilocarpine hydrochloride ophthalmic solution 1% or 2% may be applied topically in the eye(s) up to three times over a 30-minute period.

If laser iridoplasty or iridomy is used to break the attack, one drop of pilocarpine hydrochloride ophthalmic solution 4% should be administered prior to the procedure. Following laser iridoplasty, one drop of pilocarpine hydrochloride ophthalmic solution 1% should be administered four times daily until an iridotomy can be performed.

2.3 Prevention of Postoperative Elevated IOP Associated with Laser Surgery

One drop of pilocarpine hydrochloride ophthalmic solution 1%, 2% or 4% (or two drops administered five minutes apart) should be applied topically in the eye(s) 15 to 60 minutes prior to surgery.

2.4 Induction of Miosis

One drop of pilocarpine hydrochloride ophthalmic solution 1%, 2% or 4% (or two drops administered five minutes apart) should be applied topically in the eye(s).

2.5 Use with Other Topical Ophthalmic Medications

Pilocarpine hydrochloride ophthalmic solution may be used in combination with betablockers, carbonic anhydrase inhibitors, sympathomimetics or hyperosmotic agents. If more than one topical ophthalmic drug is being used, the drugs should be administered at least five (5) minutes apart.

2.6 Use in Pediatric Patients

In children under 2 years of age, one drop of pilocarpine hydrochloride ophthalmic solution 1% should be applied topically in the eye(s) three times daily. Children 2 years of age and over should be dosed as for adults. For the induction of miosis prior to goniotomy or trabeculotomy in children, one drop of pilocarpine hydrochloride ophthalmic solution 1% or 2% should be applied topically in the eye 15 to 60 minutes prior to surgery.

3 DOSAGE FORMS AND STRENGTHS

Bottle filled with 15 mL of 1% (10 mg/mL), 2% (20 mg/mL) or 4% (40 mg/mL) pilocarpine hydrochloride sterile ophthalmic solution.

4 CONTRAINDICATIONS

None.

5 WARNINGS AND PRECAUTIONS

5.1 Poor Illumination

Patients should be advised to exercise caution in night driving and other hazardous occupations in poor illumination. In addition, miotics may cause accommodative spasm. Patients should be advised not to drive or use machinery if vision is not clear.

5.2 Pre-existing Retinal Disease

As with all miotics, rare cases of retinal detachment have been reported when used in certain susceptible individuals and those with pre-existing retinal disease; therefore, a thorough examination of the retina including funduscopy is advised in all patients prior to the initiation of therapy.

5.3 Iritis

Pilocarpine hydrochloride ophthalmic solution is not recommended to be used when iritis is present.

5.4 Primary Congenital Glaucoma

Caution is advised when using pilocarpine hydrochloride ophthalmic solution in pediatric patients with primary congenital glaucoma for control of intraocular pressure (IOP) as cases of a paradoxical increase in IOP have been reported. In addition, the use of pilocarpine hydrochloride ophthalmic solution is not recommended in pediatric patients diagnosed with glaucoma secondary to anterior segment dysgenesis or uveitis (especially if uveitis is active).

5.5 Contact Lens Wear

Contact lens wearers should be advised to remove their lenses prior to the instillation of pilocarpine hydrochloride ophthalmic solution and to wait 10 minutes after dosing before reinserting their contact lenses.

6 ADVERSE REACTIONS

Clinical Studies 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.

The safety data described below reflect exposure in four controlled clinical trials of 90 days to 2 years duration in 317 patients diagnosed with open-angle glaucoma or ocular hypertension. In the four clinical trials, patients were treated with pilocarpine hydrochloride ophthalmic solution 2%, two to four times daily or with pilocarpine 1%, 1.75% or 2% in fixed combination with betaxolol 0.25%, two or three times daily. The most frequently reported adverse reactions occurring in \geq 5% of patients in the pilocarpine 2% populations were: headache/browache, accommodative change, blurred vision, eye irritation, visual impairment (dim, dark, or "jumping" vision), and eye pain.

The adverse reaction profile reported for the use of pilocarpine hydrochloride ophthalmic solution in pediatric patients is comparable to that seen in adult patients.

8 USE IN SPECIFIC POPULATIONS

8.1 Pregnancy

Pregnancy. Category C. Animal reproduction studies have not been conducted with pilocarpine hydrochloride. It is also not known whether pilocarpine hydrochloride can cause fetal harm when administered to a pregnant woman or can affect reproduction capacity. Pilocarpine hydrochloride ophthalmic solution should be given to a pregnant woman only if clearly needed.

8.3 Nursing Mothers

It is not known whether this drug is excreted in human milk. Because many drugs are excreted in human milk, caution should be exercised when pilocarpine hydrochloride ophthalmic solution is administered to a nursing woman.

8.4 Pediatric Use

Safety and effectiveness of pilocarpine hydrochloride ophthalmic solution in pediatric patients have been established.

8.5 Geriatric Use

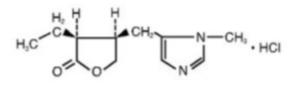
No overall differences in safety or effectiveness have been observed between elderly and younger patients.

10 OVERDOSAGE

Systemic toxicity following topical ocular administration of pilocarpine is rare, but occasionally patients who are sensitive may develop sweating and gastrointestinal overactivity following the suggested dosage and administration. Overdosage can produce sweating, salivation, nausea, tremors and slowing of the pulse and a decrease in blood pressure. In moderate overdosage, spontaneous recovery is to be expected and is aided by intravenous fluids to compensate for dehydration. For patients demonstrating severe poisoning, atropine, the pharmacologic antagonist to pilocarpine, should be used.

11 DESCRIPTION

Pilocarpine hydrochloride ophthalmic solution is a cholinergic agonist prepared as a sterile topical ophthalmic solution. The active ingredient is represented by the chemical structure:



Molecular Structure

Established name: pilocarpine hydrochloride

Chemical name: 2(3H)-furanone, 3-ethyldihydro-4-[(1-methyl-1H-imidazol-5-yl)-methyl]monohydrochloride, (3S-*cis*)-. Molecular Formula: $C_{11}H_{16}N_2O_2 \cdot HCl$ Molecular Weight: 244.72.

Each mL of pilocarpine hydrochloride ophthalmic solution contains: **Active:** pilocarpine hydrochloride 1% (10 mg/mL), 2% (20 mg/mL), or 4% (40 mg/mL).

Preservative: benzalkonium chloride 0.01%.

Inactives: hypromellose 2910, boric acid, sodium citrate, sodium chloride (present in 1% only); hydrochloric acid and/or sodium hydroxide (to adjust pH); water for injection. Pilocarpine hydrochloride ophthalmic solution has a pH of 3.5 to 5.5 and an osmolality of 290 to 350 mOsm/kg (1% and 2% products) and 550 to 600 mOsm/kg (4% product).

12 CLINICAL PHARMACOLOGY

12.1 Mechanism of Action

Pilocarpine hydrochloride is a direct acting cholinergic parasympathomimetic agent which acts through direct stimulation of muscarinic receptors and smooth muscle such as the iris and secretory glands. Pilocarpine contracts the ciliary muscle, causing increased tension on the scleral spur and opening of the trabecular meshwork spaces to facilitate outflow of aqueous humor. Outflow resistance is reduced, lowering intraocular pressure (IOP). Pilocarpine also produces miosis through contraction of the iris sphincter muscle. Miosis relieves appositional angle narrowing and closure, which lowers IOP in certain types of angle-closure glaucoma.

12.3 Pharmacokinetics

Systemic exposure to pilocarpine was evaluated in 14 healthy subjects administered 2 drops of pilocarpine hydrochloride ophthalmic solution 4% to both eyes four times daily for eight days. A comparison of C_{max} values on Days 5 and 8 indicated that pilocarpine concentrations in plasma reached steady-state following topical administration of pilocarpine hydrochloride ophthalmic solution 4%. The mean (SD) C_{max} and AUC_{0-last} values on Day 8 were 3.7 (3.2) ng/mL and 7.7 (8.4) ng×hour/mL, respectively. The T_{max} values on Day 8 ranged from 0.5 to 1 hour.

13 NONCLINICAL TOXICOLOGY

13.1 Carcinogenesis, Mutagenesis, Impairment of Fertility

There have been no long-term studies done using pilocarpine hydrochloride in animals to evaluate carcinogenic potential.

14 CLINICAL STUDIES

In clinical trials reported in the medical literature, pilocarpine ophthalmic solution reduced intraocular pressure (IOP) by 3-7 mmHg in patients with open-angle glaucoma. Pilocarpine ophthalmic solution has also been shown to be effective in the induction of miosis, in the prevention of postoperative elevated IOP, and in the management of acute angle-closure glaucoma.

16 HOW SUPPLIED/STORAGE AND HANDLING

Pilocarpine hydrochloride ophthalmic solution USP, 1%, 2% and 4% is clear colorless solution supplied sterile in natural LDPE bottles plugged with natural LDPE nozzle and green coloured HDPE cap.

15 mL in 15 mL bottles

1%: **NDC** 70069-**181**-01

2%: NDC 70069-191-01

4%: **NDC** 70069-**201**-01

STORAGE: Store between 15^o to 25^oC (59^o to 77^oF) and protect from freezing; [see USP Controlled Room Temperature].

17 PATIENT COUNSELING INFORMATION

17.1 Avoiding Contamination of the Product

Do not touch dropper tip to any surface, as this may contaminate the contents.

17.2 Night Driving

Caution is advised with night driving and when hazardous activities are undertaken in poor illumination.

17.3 Accommodative Spasm

Pilocarpine hydrochloride ophthalmic solution may cause problems when changing focus between near objects and distant objects. Do not drive or use machinery if vision is not clear.

17.4 Contact Lens Wear

Contact lens should be removed prior to the instillation of pilocarpine hydrochloride ophthalmic solution. Wait 10 minutes after dosing before reinserting contact lenses.

17.5 Concomitant Topical Ocular Therapy

If more than one topical ophthalmic medication is being used, the medicines must be administered at least 5 minutes apart.

17.6 Systemic Exposure

To limit exposure to pilocarpine to the eye alone, close eyes gently and apply pressure with finger to the corner of eye by the nose for 2 minutes after instillation of pilocarpine hydrochloride ophthalmic solution.

Rx only

Manufactured for:

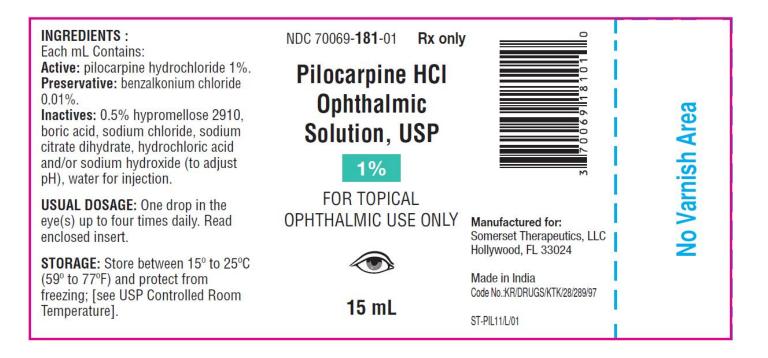
Somerset Therapeutics, LLC Hollywood, FL 33024 Made in India Code No.: KR/DRUGS/KTK/28/289/97

ST-PIL/P/01

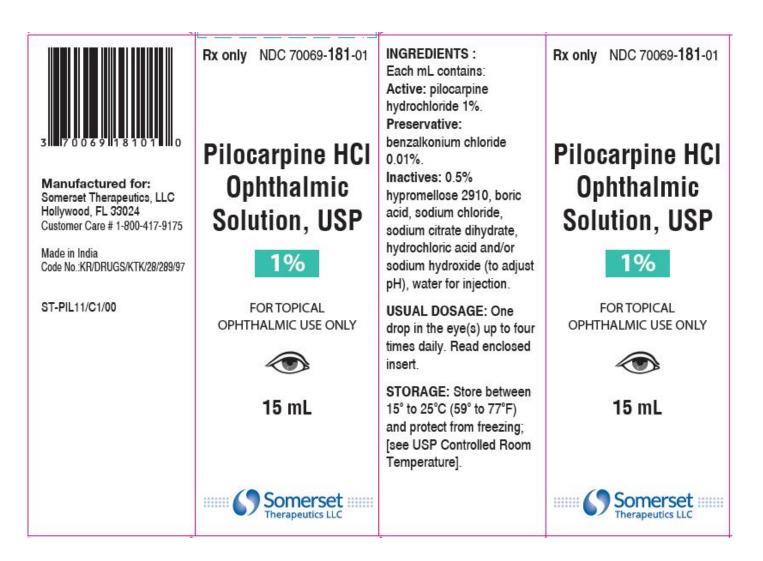
PSSO0482

PACKAGE LABEL.PRINCIPAL DISPLAY PANEL

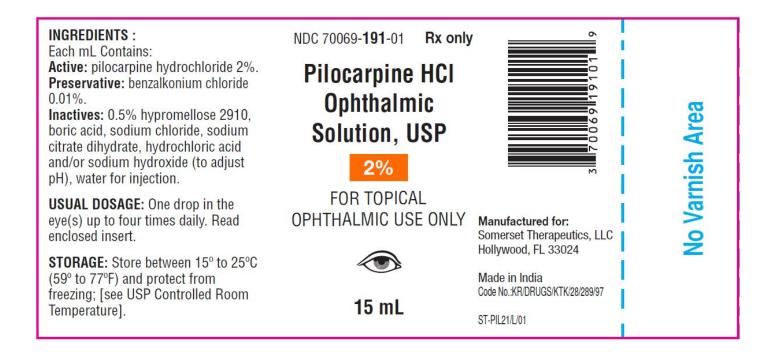
Container Label: Pilocarpine hydrochloride ophthalmic solution USP, 1%



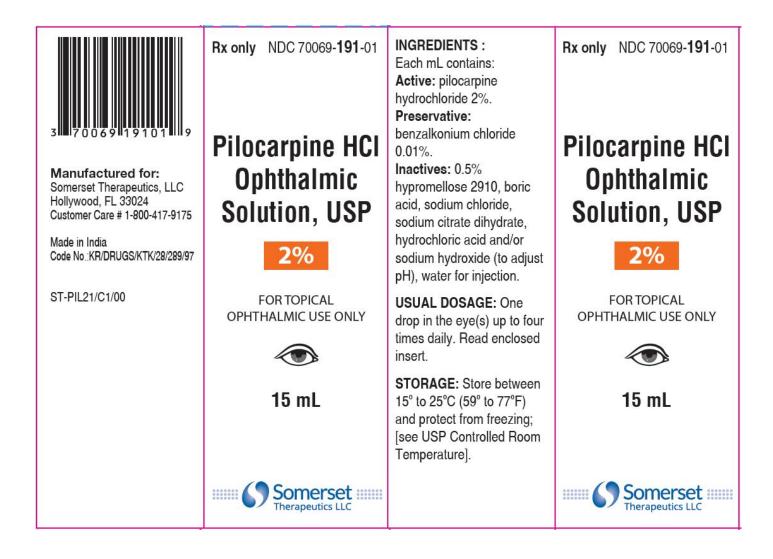
Carton Label: Pilocarpine hydrochloride ophthalmic solution USP, 1%



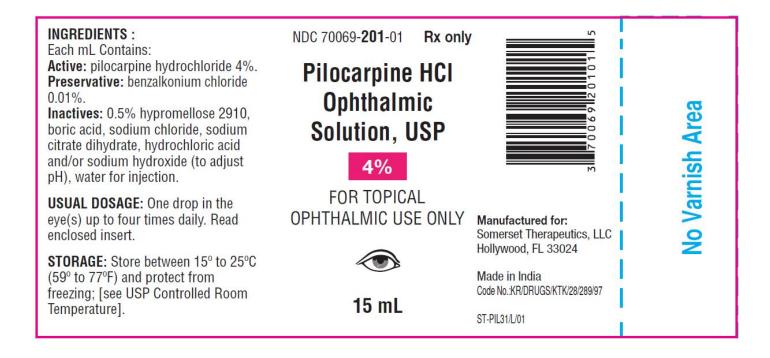
Container Label: Pilocarpine hydrochloride ophthalmic solution USP, 2%



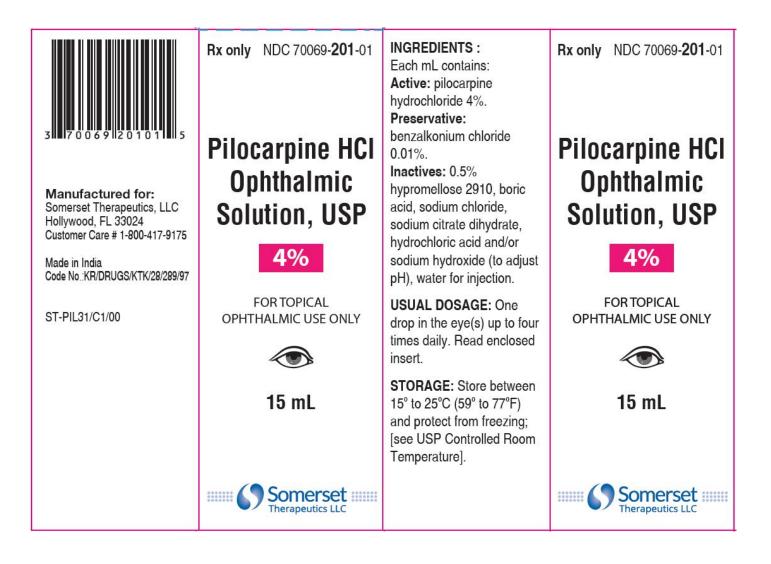
Carton Label: Pilocarpine hydrochloride ophthalmic solution USP, 2%



Container Label: Pilocarpine hydrochloride ophthalmic solution USP, 4 %



Carton Label: Pilocarpine hydrochloride ophthalmic solution USP, 4 %



PILOCARPINE HYDROCHLORIDE

pilocarpine hydrochloride ophthalmic solution solution/ drops

Product Information						
Product Type	HUMAN PRESCRIPTION DRUG	ltem	Code (Source)	NDC	:70069-181	
Route of Administration	OPHTHALMIC					
Active Ingredient/Active	Moiety					
	lient Name		Basis of Streng	th	Strength	
PILOCARPINE HYDROCHLORIDE UNII:01MI4Q9DI3)	(UNII: 0WW6D218XJ) (PILOCARPINE -		PILOCARPINE HYDROCHLORIDE		10 mg in 1 mL	
Inactive Ingredients						
	Ingredient Name			S	Strength	
BENZALKONIUM CHLORIDE (UNII	: F5UM2KM3W7)					
HYPROMELLOSE 2910 (4000 MP	A.S) (UNII: RN31520P35)					
BORIC ACID (UNII: R57Z HV85D4)						
SODIUM CITRATE (UNII: 1Q73Q2JU	ILR)					
SODIUM CHLORIDE (UNII: 451W47	IQ8X)					

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HYDROCHLORIC A	CID (UNII: QTT17582CB)							
SODIUM HYDROXI	DE (UNII: 55X04QC32I)							
WATER (UNII: 059QF0KO0R)								
Product Chara	acteristics							
Color	WHITE (Clear Colorless Solution)		Score					
Shape			Size					
Flavor			Imprint Co	de				
Contains								
Packaging								
# Item Code	Package Description		ing Start ate	Marketing En Date				
1 NDC:70069-181- 01	1 in 1 CARTON	11/25/2019						
1	15 mL in 1 BOTTLE; Type 0: Not a Combination Product							
Marketing	Information							
Marketing	Application Number or Monograph Citation		ting Start Date	Marketing En Date				
Category ANDA	ANDA210384	11/25/202		Date				
ANDA		11/25/20.	19					
PILOCARPIN	IE HYDROCHLORIDE							

pilocarpine hydrochloride ophthalmic solution solution/ drops

Product Information						
Product Type	HUMAN PRESCRIPTION DRUG	ltem	Code (Source)	NDC	:70069-191	
Route of Administration	OPHTHALMIC					
Active Ingredient/Active	Moietv					
-	lient Name		Basis of Streng	th	Strength	
PILOCARPINE HYDROCHLORIDE UNII:01MI4Q9DI3)	(UNII: 0WW6D218XJ) (PILOCARPINE -		PILOCARPINE HYDROCHLORIDE		20 mg in 1 mL	
Inactive Ingredients						
	Ingredient Name			9	Strength	
BENZALKONIUM CHLORIDE (UNII	: F5UM2KM3W7)					
HYPROMELLOSE 2910 (4000 MP	A.S) (UNII: RN3152OP35)					
BORIC ACID (UNII: R57ZHV85D4)						
SODIUM CITRATE (UNII: 1Q73Q2JU	JLR)					
HYDROCHLORIC ACID (UNII: QTT1	7582CB)					

sc	SODIUM HYDROXIDE (UNII: 55X04QC32I)								
w	WATER (UNII: 059QF0K00R)								
P	Product Characteristics								
Co	olor	WHITE (Clear Colorless Solution)		Score					
Sł	nape			Size					
Fla	avor			Imprint Cod	le				
Сс	ontains								
Packaging									
	аскаўніў								
#	Item Code	Package Description		ing Start ate	Marketing End Date				
#				ate					
#	Item Code NDC:70069-191-		D	ate					
# 1	Item Code NDC:70069-191-	1 in 1 CARTON 15 mL in 1 BOTTLE; Type 0: Not a Combination	D	ate					
# 1	Item Code NDC:70069-191-	1 in 1 CARTON 15 mL in 1 BOTTLE; Type 0: Not a Combination	D	ate					
# 1 1	Item Code NDC:70069-191- 01	1 in 1 CARTON 15 mL in 1 BOTTLE; Type 0: Not a Combination	D	ate					
# 1 1	Item Code NDC:70069-191- 01	1 in 1 CARTON 15 mL in 1 BOTTLE; Type 0: Not a Combination Product	D 11/25/2019 Marke	ate					
# 1 1	Item Code NDC:70069-191- 01	1 in 1 CARTON 15 mL in 1 BOTTLE; Type 0: Not a Combination Product Information Application Number or Monograph	D 11/25/2019 Marke	ate ting Start Date	Date Marketing End				

	nthalmic solution solution/ dr				
Product Information					
Product Type	HUMAN PRESCRIPTION DRUG	ltem	Code (Source)	NDC	:70069-201
Route of Administration	OPHTHALMIC				
Active Ingredient/Active	Moiety				
Ingre	dient Name		Basis of Stren	gth	Strengt
PILOCARPINE HYDROCHLORIDE UNII:01MI4Q9DI3)	(UNII: 0WW6D218XJ) (PILOCARPINE	-	PILOCARPINE HYDROCHLORIDE		40 mg in 1 mL
Inactive Ingredients					
	Ingredient Name			9	Strength
BENZALKONIUM CHLORIDE (UN	II: F5UM2KM3W7)				
HYPROMELLOSE 2910 (4000 M	PA.S) (UNII: RN31520P35)				
	BORIC ACID (UNII: R57Z HV85D4)				
	ULR)				

W	WATER (UNII: 059QF0K00R)								
_									
P	Product Characteristics								
Сс	Color WHITE (Clear Colorless Solution) Score								
Shape Size									
Fla	Flavor Imprint Code			le					
Co	ontains								
Pa	ackaging								
#	ltem Code	Package Description		ing Start ate	Marketing Date	End			
# 1	Item Code NDC:70069-201- 01	Package Description		ate		End			
	NDC:70069-201-		D	ate		End			
1	NDC:70069-201-	1 in 1 CARTON 15 mL in 1 BOTTLE; Type 0: Not a Combination	D	ate		End			
1	NDC:70069-201-	1 in 1 CARTON 15 mL in 1 BOTTLE; Type 0: Not a Combination	D	ate		End			
1	NDC:70069-201- 01	1 in 1 CARTON 15 mL in 1 BOTTLE; Type 0: Not a Combination	D	ate		End			
1	NDC:70069-201- 01	1 in 1 CARTON 15 mL in 1 BOTTLE; Type 0: Not a Combination Product	D 11/25/2019 Marke	ate					
1 1 M	NDC:70069-201- 01	1 in 1 CARTON 15 mL in 1 BOTTLE; Type 0: Not a Combination Product Information Application Number or Monograph	D 11/25/2019 Marke	ate ting Start Date	Date				

Labeler - Somerset Therapeutics, LLC (079947873)

Registrant - Somerset Therapeutics, LLC (079947873)

Establishment

Name	Address	ID/FEI	Business Operations
Somerset Therapeutics Limited			ANALYSIS(70069-181, 70069-191, 70069-201), LABEL(70069-181, 70069-191, 70069-201), PACK(70069-181, 70069-191, 70069-201), MANUFACTURE(70069-181, 70069-191, 70069-201)

Revised: 4/2023

Somerset Therapeutics, LLC