# UNITED STATES SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

#### FORM 8-K

CURRENT REPORT
Pursuant to Section 13 or 15(d)
of The Securities Exchange Act of 1934

Date of Report (Date of earliest event reported): June 16, 2021

#### TREVENA, INC.

(Exact name of registrant as specified in its charter)

001-36193

(Commission File No.)

**26-1469215** (IRS Employer

Identification No.)

**Delaware** (State or other jurisdiction of incorporation)

> 955 Chesterbrook Boulevard, Suite 110 Chesterbrook, PA 19087

(Address of principal executive offices and zip code)

(610) 354-8840

(Registrant's telephone number, including area code)

n/a

(Former name or former address, if changed since last report.)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions:

	Written communications pursuant to Rule 425 under the	e Securities Act (17 CFR 230.425)	
	Soliciting material pursuant to Rule 14a-12 under the E	Exchange Act (17 CFR 240.14a-12)	
	Pre-commencement communications pursuant to Rule	14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))	
	Pre-commencement communications pursuant to Rule	13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))	
Sec	curities registered pursuant to Section 12(b) of the Act:		
	Title of each class	Totalina Completion	Name of each exchange on which
	Title of each class	Trading Symbol(s)	registered
	Common Stock, \$0.001 par value	TRVN	The Nasdaq Stock Market LLC
	Common Stock, \$0.001 par value	TRVN ag growth company as defined in Rule 405 of the Securities Act	The Nasdaq Stock Market LLC
the If a	Common Stock, \$0.001 par value icate by check mark whether the registrant is an emergin Securities Exchange Act of 1934 (§240.12b-2 of this charge)	TRVN  In growth company as defined in Rule 405 of the Securities Act apter). Emerging growth company □  The registrant has elected not to use the extended transition periods.	The Nasdaq Stock Market LLC t of 1933 (§230.405 of this chapter) or Rule 12b-2 of
the If a	Common Stock, \$0.001 par value icate by check mark whether the registrant is an emergin Securities Exchange Act of 1934 (§240.12b-2 of this channe emerging growth company, indicate by check mark if the second company in the second company in the second company is the second company.	TRVN  In growth company as defined in Rule 405 of the Securities Act apter). Emerging growth company □  The registrant has elected not to use the extended transition periods.	The Nasdaq Stock Market LLC t of 1933 (§230.405 of this chapter) or Rule 12b-2 of

#### Item 7.01 Regulation FD Disclosure

On June 16, 2021, Trevena, Inc. (the "Company") updated its website to include an updated corporate presentation deck. A copy of the updated corporate deck is attached hereto as Exhibit 99.1.

The information set forth on this Item 7.01 and furnished hereto as Exhibit 99.1 shall not be deemed "filed" for purposes of Section 18 of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), and is not incorporated by reference into any of the Company's filings under the Securities Act of 1933, as amended, or the Exchange Act, whether made before or after the date hereof, except as shall be expressly set forth by specific reference in any such filing.

#### Item 9.01 Financial Statements and Exhibits.

#### (d) Exhibits.

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No.

99.1 Corporate Presentation Deck dated June 16, 2021

The cover page from this Current Report on Form 8-K, formatted in Inline XBRL

#### **SIGNATURES**

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

#### TREVENA, INC.

Date: June 16, 2021 By: /s/ Barry Shin

Barry Shin

Senior Vice President & Chief Financial Officer



# **Forward-Looking Statements**

To the extent that statements contained in this presentation are not descriptions of historical facts regarding Trevena, Inc. (the "Company" or "we"), they are forward-looking statements reflecting management's current beliefs and expectations. Forward-looking statements are subject to known and unknown risks, uncertainties, and other factors that may cause our or our industry's actual results, levels of activity, performance, or achievements to be materially different from those anticipated by such statements. You can identify forward-looking statements by terminology such as "anticipate," "believe," "estimate," "expect," "intend," "may," "might," "plan," "objective," "project," "suggest," "target," "potential," "will," "would," "could," "should," "continue," ongoing," or the negative of these terms or similar expressions. Forward-looking statements contained in this presentation include, but are not limited to. (i) statements regarding the timing of anticipated clinical trials for our product candidates; (ii) the timing of receipt of clinical data for our product candidates; (iii) our expectations regarding the potential safety, efficacy, or clinical utility of our product candidates; (iv) the size of patient populations targeted by our product candidates and market adoption of our potential drugs by physicians and patients; (v) the timing or likelihood of regulatory fillings and approvals; and (vi) our cash needs.

Actual results may differ materially from those indicated by such forward-looking statements as a result of various important factors, including: the commercialization of any approved drug product, the status, timing, costs, results and interpretation of our clinical trials or any future trials of any of our investigational drug candidates; the uncertainties inherent in conducting clinical trials; expectations for regulatory interactions, submissions and approvals, including our assessment of the discussions with the FDA or other regulatory agencies about any and all of our programs; uncertainties related to the commercialization of OLINVYK; available funding; uncertainties related to our intellectual property; uncertainties related to the ongoing COVID-19 pandemic, other matters that could affect the availability or commercial potential of our therapeutic candidates; and other factors discussed in the Risk Factors set forth in our Annual Report on Form 10-K and Quarterly Reports on Form 10-Q filed with the Securities and Exchange Commission (SEC) and in other filings we make with the SEC from time to time. In addition, the forward-looking statements included in this presentation represent our views only as of the date hereof. We anticipate that subsequent events and developments may cause our views to change. However, while we may elect to update these forward-looking statements at some point in the future, we specifically disclaim any obligation to do so, except as may be required by law.



# Trevena's Experienced Leadership Team

SENIOR MANAGEMENT			
Carrie L. Bourdow	President & Chief Executive Officer	CUBIST	
Scott Applebaum	SVP, Chief Legal & Regulatory Officer	Shire vitae	Bristol Myers Squibb
Mark A. Demitrack, M.D.	SVP, Chief Medical Officer	NEURONETICS Liley	ROIVANT
Barry Shin	SVP, Chief Financial Officer	MIZIHO GUGGENHE	ım PiperJaffray
Robert T. Yoder	SVP, Chief Commercial Officer	MERCK OREXIGEN	
BOARD OF DIRECTORS			
Leon O. Moulder, Jr. Chairman	TESARO" MG	Marvin H. Johnson, Jr.	← MERCK
Carrie L. Bourdow	<b>Mc</b> Trevena	Jake R. Nunn	NEA.
Scott Braunstein, M.D.	MARINUS AISLING PACIRA	Anne M. Phillips, M.D.	ROVE FOODS,
Michael R. Dougherty	Adolor Centocor	Barbara Yanni	MERCK



# **Trevena: Innovative CNS Company**

Large market, targeted launch  \$1.5B+ market opportunity for core focus  Novel CNS pipeline  Novel CNS pipeline  Novel CNS pipeline  Novel MOA to treat COVID-19 acute lung injury / abnormal clotting Selected for NIH ACTIV and REMAP-CAP trials; up to 600 COVID-19 patients on TRV027  Strong financial position  \$97.7M cash and cash equivalents as of 3/31/2021 Funds operations through Q4 2022	IV OLINVYK: Differentiated profile	NCE approved for the management of acute pain in adults  Commercial launch in Q1 2021; targeting 100 formulary wins by year-end
TRV027 for COVID-19 NOVEL MOA to treat COVID-19 acute lung injury / abnormal clotting Selected for NIH ACTIV and REMAP-CAP trials; up to 600 COVID-19 patients on TRV027  Strong financial \$97.7M cash and cash equivalents as of 3/31/2021		
COVID-19 Selected for NIH ACTIV and REMAP-CAP trials; up to 600 COVID-19 patients on TRV027  Strong financial \$97.7M cash and cash equivalents as of 3/31/2021		New mechanisms for acute migraine, diabetic neuropathic pain, epilepsy, opioid use disorder NCEs targeting significant unmet needs
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OLINVYK is indicated in adults for the management of acute pain severe enough to require an intravenous opioid analgesic and for whom alternative treatments are inadequate. Please see Important Safety Information including BOXED WARNING at the end of presentation. Full Prescribing Information at www.OLINVYK.com.



# **Multiple Expected Catalysts**

	PRE-CLINICAL PHA	ASE 1 PHASE 2	PHASE 3	NDA	EXPECTED CATALYSTS
OLINVYK®  New chemical entity (mu-opioid receptor)	Acute pain Ⅳ		APPI	ROVED	Commercial launch ongoing     Cleveland Clinic outcomes study
TRV027 Novel AT <sub>1</sub> receptor selective agonist	ARDS / abnormal clottin (COVID-19)		ons with and REMAP-CAP		PoC study data (ICL)  NIH ACTIV study  REMAP-CAP study
TRV250 G-protein selective agonist (delta receptor)	Acute migraine oral / S	SC			IND-enabling activities (oral)
TRV734 G-protein selective agonist (mu-opioid receptor)	Opioid use disorder o	Collaboration with National Institute of	on Drug Abuse		PoC study recruiting (NIDA)
TRV045 Novel S1P receptor modulator		ilepsy collaboration with tional institutes of Health			• IND filing

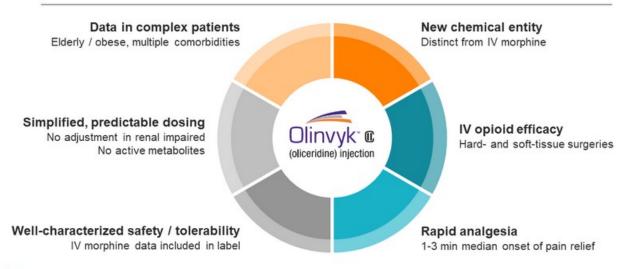


ARDS = Acute Respiratory Distress Syndrome; ACTIV = Accelerating COVID-19 Therapeutic Interventions and Vaccines;

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#### **OLINVYK: Differentiated Profile for Acute Pain**

OLINVYK is indicated in adults for the management of acute pain severe enough to require an intravenous opioid analgesic and for whom alternative treatments are inadequate



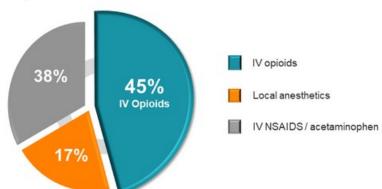


Please see Important Safety Information including BOXED WARNING at the end of presentation. Full Prescribing Information at <a href="https://www.OLINVYK.com">www.OLINVYK.com</a>.

#### OLINVYK: Broad Indication for Acute Pain

Large acute market opportunity

#### US injectable analgesic hospital market unit volume1



45M patients receive IV opioids annually to treat acute pain1

- Unrivalled analgesic efficacy
- Top surgeries: Total knee arthroplasty, colectomy, hernia repair, spine fusion, C-section2



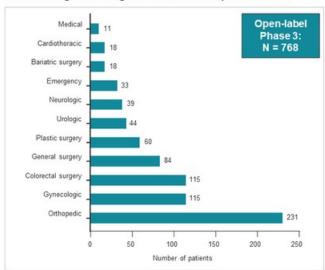
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idal anti-inflammatory drugs. 1) IMS MIDAS sales audit 2017: IV NSAIDs and Of

### **OLINVYK Studied in Complex Surgeries & Patients**

Broad range of surgeries / medical procedures



#### Complex patients included

- . 32% ≥ 65 years; 46% BMI ≥ 30
- · Co-morbidities: diabetes, obstructive sleep apnea, COPD, chronic / cancer pain
- · Concomitant medications: antiemetics, antibiotics

#### Multiple inpatient and hosp outpatient settings

- · Hospital recovery
- · Emergency department
- · Critical care
- · Ambulatory surgical centers

#### Low discontinuation for AEs / lack of efficacy

- · 2% for adverse events
- · 4% for lack of efficacy

Please see Important Safety Information including BOXED WARNING at the end of presentation. Full Prescribing Information at www.OLINVYK.com.



# **OLINVYK: Well-Characterized Safety / Tolerability**

Adverse drug reactions reported in ≥5% of OLINVYK-treated patients stratified by daily dose (Phase 3 pivotal trials pooled)¹

	Placebo (N = 162)	OLINVYK ≤ 27 mg (N = 316)	Morphine (N = 158)
Patients with any TEAE (%)	73	86	96
Nausea	35	52	70
Vomiting	10	26	52
Headache	30	26	30
Dizziness	11	18	25
Constipation	9	14	14
Нурохіа	3	12	17
Pruritus	6	9	19
Sedation	5	7	13
Somnolence	4	6	10
Back pain	4	6	6
Hot flush	4	4	8
Pruritus gen.	1	2	10

# Key cost-drivers associated with IV opioids:

#### Vomiting

 Can result in significant health risks and compromise recovery

#### Somnolence

 Significant patient safety concern, can lead to respiratory depression

#### O<sub>2</sub> saturation < 90%</li>

 Independent predictor of early post-op respiratory complications



Please see Important Safety Information including BOXED WARNING at the end of presentation. Full Prescribing Information at www.OLINVYK.com.

1) OLINVYK Prescribing Information. Not an adequate basis for comparison of rates between the OLINVYK treatment group and the morphine treatment group.

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# **OLINVYK Safety Differentiation Study w/ Cleveland Clinic**

Further characterizes potential respiratory, GI and cognitive outcomes

- · Open-label, multi-site study led by experts at Cleveland Clinic
- N = ~200 adults undergoing major non-cardiac surgery
- · Patient enrollment to begin in Q3 2021

#### Respiratory Safety

Predefined capnography and oximetry measures

Assessment via continuous respiratory monitoring

#### GI Tolerability

Complete GI response endpoint

No vomiting and no antiemetic use through study period

# Cognitive Function

Somnolence, delirium, and sedation

Validated, standardized assessment scales



# **OLINVYK: Ease of Dosing and Administration**

3 vials allow for flexible and tailored IV dosing

- · Bolus Dosing: 1 mg and 2 mg vials (single dose)
- PCA Dosing: 30 mg vial (single patient use)
- OLINVYK 1 mg ≈ morphine 5 mg<sup>1</sup>

27 mg cumulative daily dose limit

Do not administer single doses greater than 3 mg



~\$100 / day (estimated avg cost across procedures)



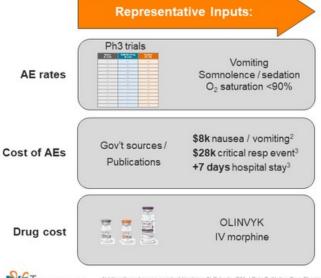
Please see Important Safety Information including BOXED WARNING at the end of presentation. Full Prescribing Information at www.OLINVYK.com.

1) For an initial dose, PCA = Patient-Controlled Analgesia

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# **OLINVYK** vs IV Morphine Health Economic Models

Models presented at AMCP 20211 and available to formulary committees



HECON model Key Outputs:

>10x Cost savings for hospitals<sup>4</sup>

Due to improved patient outcomes



I) https://www.trevena.com/publications.2 | Oderdia, GM, J Pain Palmative Carle Pharm, 2019; data based on 3 surgical procedure categories including Cardiothoracic / vascular, General / Colorectal, Ob / Gyn. Orthopedic, and Urologic : Overdia FL, PLoS One. 2016. More consensative injusts were used in the model. 41 Calculated based on total costs of care. Image: flasticon.com.

# **Customer Engagement Strategy**



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# **Targeted Account Launch as of Q1 2021**

~40 account reps / MSLs deployed Q1 2021



#### **Health Care Practitioners (HCPs)**

Anesthesiology, Orthopedic, Colorectal, Gynecologic

- · OLINVYK: NCE, distinct from IV morphine
- · 1-3 min onset & no active metabolites
- · Safety data in complex patients / surgeries





#### **Targeted Accounts**

550 hospitals and 500 ambulatory surgery centers

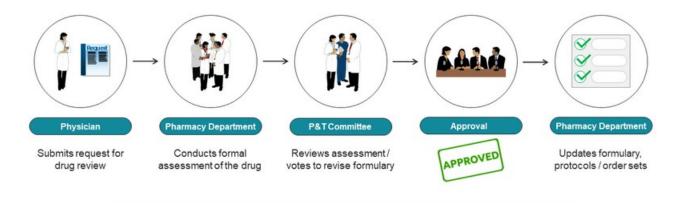
- · OLINVYK published safety data vs. IV morphine
- · Published health economic / cost offset data\*



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MSL = Medical Science Liaison; NCE = New Chemical Entity. Images: flaticon.com.

# **Hospital Formulary Review Process**



YE 2021 target: 100 formulary wins



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# Differentiated Profile For Use in Hosp Outpatient & ASCs

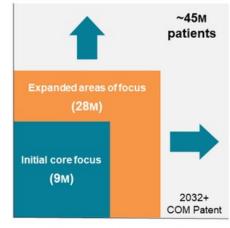
#### Physician trial in outpatient can accelerate inpatient uptake



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ASC = ambulatory surgery center. PK = pharmacokinetic. Images: www.flaticon.com

# **OLINVYK: Significant Opportunity in Acute Pain**



#### Patient & Procedure Risk

#### Initial core focus (9M)

- · Hospitals / ambulatory surgical centers
- "CORES" patient focus: comorbid, obese, renal, elderly, sleep apnea

~15M days of therapy (initial focus)

\$1.5B+ market opportunity\*

#### Expanded areas of focus (28M)

- Leverage respiratory and GI safety vs. IV morphine to expand surgical procedures
- · Cognitive function & additional HECON

Trevena.

Specialty Targets

Please see Important Safety Information including BOXED WARNING at the end of presentation. Full Prescribing Information at www.OLINVYK.com.

Source: Definitive Healthcare; American Hospital Association, "Assumes ~\$100 / day price for oliceridine

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# We Continue to Learn from and Adapt to COVID-19 Challenges

#### Transitioned into commercial organization with minimal business interruption

- · No delays in regulatory timelines; approval and DEA scheduling in 2H 2020
- · Commercial supply of all 3 presentations made available to customers

#### What we learned from our customers

- Procedure volumes may be slow to recover; backlog of elective surgeries building<sup>1</sup>
- · IV drug shortages, increase in patient acuity continue to pressure healthcare systems

#### Considerations for a successful field launch in 2021

- · COVID-19 will continue impacting our customers; OLINVYK's value proposition remains relevant
- · We will be making informed resource deployment decisions throughout first year of launch



1) Kaufman Hall 2020 State of Healthcare Performance Improvement Report: The Impact of COVID-19, October 2020.

# **TRV027**

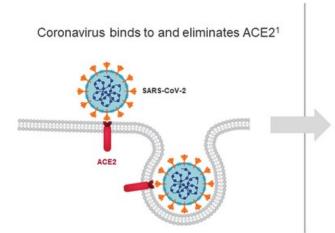
NCE targeting the AT<sub>1</sub> receptor in COVID-19



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# **Multi-Organ Damage From Coronavirus**

Elimination of ACE2 protein leads to critical hormonal imbalances

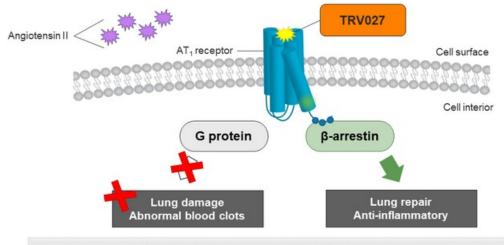


- · Leads to accumulation of angiotensin II:
  - Acute lung injury and abnormal blood clots
  - Can lead to ARDS / pulmonary embolism / stroke
- 66% 94% mortality rate for COVID-19 related ARDS<sup>2\*</sup>
- ~1/3 of hospitalized COVID-19 patients develop clotting complications<sup>3</sup>



#### TRV027: New MOA for COVID-19

Mechanism targeted to improve lung function and prevent abnormal clotting



TRV027 is the only selective AT<sub>1</sub> receptor agonist Safety / tolerability established in ~700 patients



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# TRV027 COVID-19 Study - Imperial College London

Interim review by DMSC supports transition to REMAP-CAP trial

- · Randomized, double-blind, placebo-controlled proof-of-concept study
- N = 30 COVID-19 patients
  - Hospitalized, non-ventilated
  - ≥18 years old
- IV infusion of placebo or TRV027 for 7 days (12 mg/hr)
- Review of interim data by DMSC found no safety concerns and supported advancement to more extensive study with clinical efficacy outcomes

Transition to REMAP-CAP ICL to publish topline data

Primary ICL endpoint: Reduction of abnormal clotting associated with COVID-19<sup>1</sup>





### TRV027 COVID-19 Study - Vanderbilt UMC (ACTIV-4d)

NIH-funded trial with Vanderbilt University Medical Center as lead coordinating site

- · Part of NIH's ongoing ACTIV\* public-private partnership
- · Multi-site, multi-arm, placebo-controlled trial
- ~300 COVID-19 patients ≥18 years old treated with TRV027

#### Key outcomes to be studied:

Recovery
Supplemental O<sub>2</sub> use
Mechanical ventilation
Mortality







\*ACTIV = Accelerating COVID-19 Therapeutic Interventions and Vaccines

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#### TRV027 COVID-19 Study - REMAP-CAP

Funded by REMAP-CAP, a global clinical trial network led by experts in pandemic response

- Multi-site, adaptive, Phase 2 / 3 trial in hospitalized COVID-19 patients (≥18 years)\*
- 200 300 COVID-19 patients treated with TRV027
- · TRV027 administered (open label) in conjunction w/ACE inhibitor

#### Primary outcome:

In-hospital mortality +
Organ failure support in ICU
(21 days post-randomization)

Additional outcomes: ICU/ hospital length of stay, ventilator-free days, organ failure-free days





\* Includes patients admitted to ICU

# **Multiple Expected Catalysts**

clotting	Collaborations NIH ACTIV and		Commercial launch ongoing     Cleveland Clinic outcomes stud     PoC study data (ICL)     NIH ACTIV study
lotting			
			<ul> <li>REMAP-CAP study</li> </ul>
oral / SC			IND-enabling activities (oral)
er oral	Collaboration with National Institute on Dr	rug Abuse	PoC study recruiting (NIDA)
			• IND filing
ding BOXED WAR	RNING at the end of presenta	ation. Full Prescribing I	nformation at www.OLINVYK.com.
	National Ins	and TRV045 are investigational products and are not approved	

# **TRV250: New MOA for Acute Treatment of Migraine**

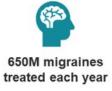
Delta receptor: Untapped potential in CNS space

Migraine represents a large market opportunity; total migraine drug market = ~\$3.5B

Delta receptors have unique distribution throughout the brain

Play important role in regulation of pain, mood, and anxiety

# Every year in the US1:





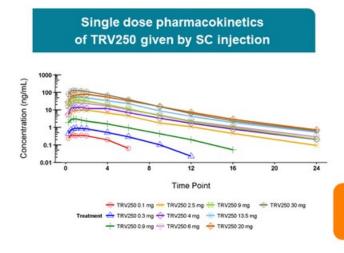
1.2M ER visits due to migraines

- 20-30% of migraine sufferers do not respond to / cannot tolerate the market-leading triptan drug class
- Approx. 50% of migraineurs also suffer from anxiety<sup>2</sup>



### TRV250: Well-Tolerated in Ph1 Healthy Volunteer PK Study

Subcutaneous doses up to 30 mg studied; no SAEs observed



- Well tolerated, with no SAEs across broad range of doses
- Predictable PK: dose-proportional between 0.1 mg to 30 mg SC
- · Half-life consistent across all doses
- No EEG findings observed in any subject

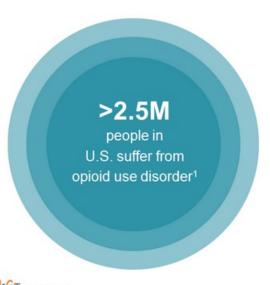
IND-enabling activities initiated for new oral dose form



SC = subcutaneous. Fossier MJ et al., CNS Drugs, Aug 2020;34(8):853-865.

# TRV734: Maintenance Therapy for Opioid Use Disorder

Selective agonism at  $\mu$  receptor: Potential for improved tolerability



# Ongoing collaboration with National Institute on Drug Abuse (NIDA)

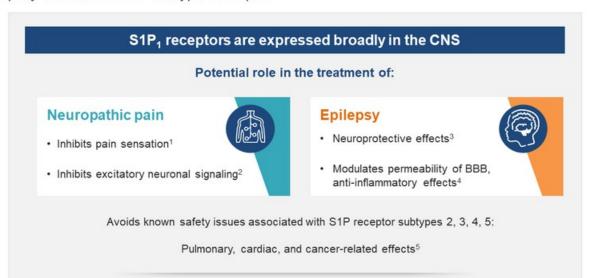
- · Nonclinical evidence of improved tolerability with TRV734
- NIDA study demonstrated reduced drug-seeking behavior in animal model of relapse<sup>2</sup>
- · NIDA-funded proof-of-concept patient study initiated
  - Randomized, double-blind, placebo- and positive-controlled study
  - N = ~50 opioid-dependent patients undergoing stable methadone maintenance therapy
  - Primary endpoint: suppression of withdrawal symptoms as measured by the Subjective Opioid Withdrawal Scale
  - Secondary outcomes: assessments of safety, tolerability, and neurocognitive changes



1) Centerfor Behavioral Health Statistics and Quality. 2) NIDA data on file.

# TRV045: Selective S1PR With No Lymphopenia

Uniquely selective for S1P-subtype 1 receptor





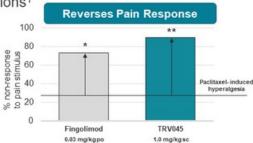
Sim-Selley et al., Journal of Pharmacology & Experimental Therapeutics, 2018. 2) Sim-Selley et al., Journal of Neurochemistry, 2008.
 Gol et al., European Journal of Pharmaceutical Sciences, 2017. 4) Leo et al., CNS & Neurological Disorders. Drug Targets, 2017.
 Lymphopenia, bradycardia, vascular leakape, macular edema BBB = blood-brain barrie. Images: flation.com

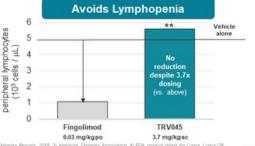
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# **TRV045: Novel MOA for Diabetic Neuropathic Pain**

5M+ people (US) suffer from DNP, with limited therapeutic options1

- DNP affects ~25% of people w/ diabetes<sup>2</sup>
  - Approved agents inadequate for ~50% of patients3,4
  - ~4x direct costs for DNP patients (vs diabetes alone)5
- In animals, TRV045 reversed neuropathic pain without immunesuppressing activity<sup>6</sup>
- · Non-opioid MOA with broad potential for CNS indications
  - IND filing for DNP in Q3 2021
  - Epilepsy evaluation (NIH) ongoing







1) Rosenberger et al., Journal of Neural Transmission, 2020 and CDC National Diabetes Statistics Report, 2020. 2) Shillo et al., Qurrent Diabetes Reports, 2019. 3) American Diabetes Association. 4) FDA product labets for Lyrica, Lyrica i Cymballa, Nacyrità ER, and Calesta, Testigo et al. Paris (2013). 3) Sadosty et. al., 2 Diabetes Complections 2015. 9, 0 CPM mouse model: Pacificate 6 mg/ls, 1, p. on Diays 1, 2, 3, 7, 1 peparelgical assessment di as from-esponde to 0.4 g/s Finy Risment vs. baseline, tested 30' after company on Duy 10. Lyrightcoytes measured after 3 days of document, but are men as a see m m=5-7 metalgroup. "p=0.05 or "p=0.01 vs. control."

# **Trevena: Innovative CNS Company**

IV OLINVYK: Differentiated profile	NCE approved for the management of acute pain in adults  Commercial launch in Q1 2021; targeting 100 formulary wins by year-end
Large market, targeted launch	45M+ US hospital patients; 9M procedures is initial core focus \$1.5B+ market opportunity for core focus
Novel CNS pipeline	New mechanisms for acute migraine, diabetic neuropathic pain, epilepsy, opioid use disorder NCEs targeting significant unmet needs
TRV027 for COVID-19	Novel MOA to treat COVID-19 acute lung injury / abnormal clotting Selected for NIH ACTIV and REMAP-CAP trials; up to 600 COVID-19 patients on TRV027
Strong financial position	\$97.7M cash and cash equivalents as of 3/31/2021 Funds operations through Q4 2022

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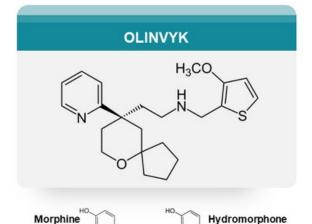
NCE = New Chemical Entity, MOA = Mechanism of Action; NIH = National Institutes of Health; ACTIV = Accelerating COVID-19 Therapeutic Interventions and Vaccines;

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# **APPENDIX**



# **OLINVYK: Distinct From IV Morphine / Hydromorphone**



# Studied in >1,900 individuals

# IV morphine included as active comparator

NCE with 2032+ COM patent<sup>1</sup>



Please see Important Safety Information including BOXED WARNING at the end of presentation. Full Prescribing Information at www.OLINVYK.com.

1) 2032 composition of matter patent expiration does not include potential patent extensions.

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# **Robust Clinical Development Program**

# OLINVYK studied in > 1,900 individuals

Phase 1 Phase 2 Phase 3

- No dosage adjustments for elderly / renally impaired
- · No known active metabolites
- 4 head-to-head trials vs. IV morphine:
  - · IV opioid efficacy
  - · Rapid onset of action
  - · Well-characterized respiratory safety / GI tolerability
  - · Low rates of vomiting and rescue antiemetic use

#### Large safety study:

· Real-world use in complex patients and target surgeries



Please see Important Safety Information including BOXED WARNING at the end of presentation. Full Prescribing Information at <a href="www.OLINVYK.com">www.OLINVYK.com</a>.

# subjects exposed to OLINVYK in Ph1 = 318; # patients treated with OLINVYK in Ph2 and Ph3 = 1,535

# **OLINVYK: IV Opioid Efficacy and Rapid Onset**



- Efficacy achieved in hard tissue & soft tissue models
- Rapid onset: perceptible pain relief within 1-3 minutes (median onset of action)
- OLINVYK efficacy data in peerreviewed journals
   The Journal of Pain Research<sup>1</sup> and Pain Practice<sup>2</sup>

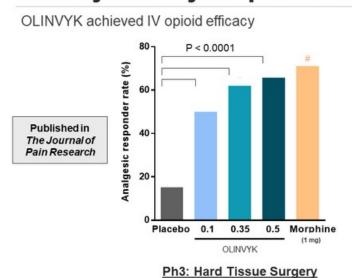


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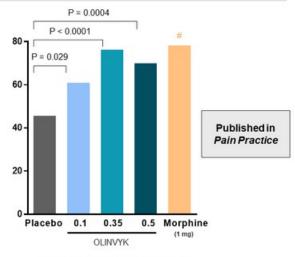
1) Viscusi ER et al. J Pain Res. 2019;12:927–943. Published 2019 Mar 11. 2) Singla NK et al. Pain Pract. 2019;19:715-731. Published 2019 Jun 04.

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## **Primary Efficacy Endpoint Achieved in Two Pivotal Studies**



Mean baseline pain = 6.7



Ph3: Soft Tissue Surgery
Mean baseline pain = 7.3

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analyses were the prespecified primary endpoints for both studies. Section 14 of the Prescribing Information includes the SPID-24 and SPID-48 efficacy analyses that were the basis for approval.

Viscusi ER et al. J Pain Res. 2019;12:927–943. Published 2019 Mar 11. Singla NK et al. Pain Pract. 2019;19:715-731. Published 2019 Jun 04. #p < 0.05 vs. placebo (unadjusted).

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# **OLINVYK: IV Opioid Efficacy in 2 Phase 3 RCTs**

# Placebo (n=79) OLINVYK 0.1mg (n=76) OLINVYK 0.35mg (n=79) OLINVYK 0.5mg (n=79) OLINVYK 0.5mg (n=79) OLINVYK 0.5mg (n=79)

#### Study 1 (Orthopedic - Hard Tissue)

3 PCA regimens studied (0.1, 0.35, 0.5 mg) vs. placebo; all doses P<0.01 vs. placebo

Outcome	0.1 mg	0.35 mg	0.5 mg	Placebo
% Completed	83%	87%	84%	60%
% D/C LOE	9%	4%	5%	34%
% Rescue Meds	41%	20%	17%	77%

# Placebo (n=81) OLINVYK 0.1mg (n=77) OLINVYK 0.35mg (n=80) OLINVYK 0.5mg (n=80) Time (hours)

#### Study 2 (Plastic Surgery - Soft Tissue)

3 PCA regimens studied (0.1, 0.35, 0.5 mg) vs. placebo; 0.35 / 0.5 mg doses P<0.02 vs. placebo

		OLINVYK			
Outcome	0.1 mg	0.35 mg	0.5 mg	Placebo	
% Completed	86%	90%	87%	74%	
% D/C LOE	11%	3%	5%	22%	
% Rescue Meds	31%	21%	18%	49%	

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Average NRS Pain Score

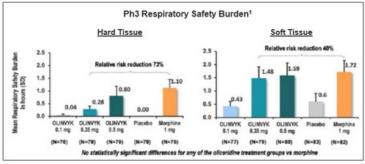
Please see Important Safety Information including BOXED WARNING at the end of presentation. Full Prescribing Information at www.OLINVYK.com.

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# Robust Assessment of Respiratory Safety in Phase 3 RCTs

Data included in AMCP dossier used in formulary review

- · Prespecified secondary endpoint: Respiratory Safety Burden (RSB)
  - Calculated based on incidence and cumulative duration of respiratory safety events
- Full characterization of respiratory safety profile has been made available to HCPs and formulary decision makers
  - Data can be found in OLINVYK AMCP dossier and published literature



Hard Tissue				-	
			Demand Dor OLINVYK	•	Morphine
Orthopedic Surgery- Bunionectomy Study	Placebo (N=79)	0.1 mg (N=76)	0.35 mg (N=79)	0.5 mg (N=79)	1 mg (N=76)
Components of the respiratory sal	ety burden				
≥1 respiratory safety event, n (%)	0	1 (1.3)	7 (8.9)	11 (13.9)	14 (18.4)
P-value vs morphine	0.006	0.002	0.050	0.364	-
Duration of event, mean hours (SD)	0 (N/E)	2.88 (N/E)	3.21 (2.24)	5.72 (7.44)	5.96 (4.67
P-value vs morphine	0.102	0.140	0.260	0.186	-
Respiratory safety event measurer					
Oxygen saturation <90%, n (%)	1 (1.3)	3 (3.9)	8 (10.1)	11 (13.9)	15 (19.7)
P value vs morphine	0.005	0.006	0.100	0.352	-
Respiratory rate ≤8 bpm, n (%)	0	0	1 (1.3)	1 (1.3)	4 (5.3)
P value vs morphine	0.956	0.956	0.188	0.185	-
Sedation (MRPSS ≥3), n (%)	10 (2.7)	14 (18.4)	16 (20.3)	13 (16.5)	15 (19.7)
P value vs morphine	0.242	0.838	0.926	0.610	-
Soft Tissue	200		Demand Dos	ie.	20.
			OLINVYK		Morphine
Plastic Surgery- Abdominoplasty Study	Placebo (N=83)	0.1 mg (N=77)	0.35 mg (N=79)	0.5 mg (N=80)	1 mg (N=82)
Components of the respiratory safe					
Components of the respiratory safe 21 respiratory safety event, n (%)	5 (6.0)	6 (7.8)	17 (21.5)	18 (22.5)	22 (26.8)
Components of the respiratory safe		6 (7.8)	17 (21.5) 0.61	18 (22.5) 0.68	22 (26.8)
Components of the respiratory safe 21 respiratory safety event, n (%)	5 (6.0)				22 (26.8)
Components of the respiratory safe ≥1 respiratory safety event, n (%) Odds ratio vs morphine P value vs morphine	5 (6.0) 0.15	0.19	0.61	0.68	22 (26.8) — 6.40 (5.09)
Components of the respiratory safe ≥1 respiratory safety event, n (%) Odds ratio vs morphine P value vs morphine	5 (6.0) 0.15 0.0003	0.19	0.61	0.68	-
Components of the respiratory safet at respiratory safety event, n (%) Odds ratio vs morphine P value vs morphine Duration of event, mean hours (SO) P value vs morphine Respiratory safety event measures	5 (6.0) 0.15 0.0003 9.88 (7.0) 0.52	0.19 0.0007 5.51 (1.91) 0.29	0.61 0.20 6.88 (5.66) 0.78	0.68 0.32 7.07 (6.56) 0.76	6.40 (5.09)
Components of the respiratory safe bit respiratory safety event, n (%) Odds ratio vs morphine P value vs morphine Duration of event, mean hours (SD) P value vs morphine Respiratory safety event measures Oxygen saturation +90%, n (%)	5 (6.0) 0.15 0.0003 9.88 (7.0) 0.52 7 (8.4)	0.19 0.0007 5.51 (1.91) 0.29 6 (7.8)	0.61 0.20 6.88 (5.66) 0.78 15 (19.0)	0.68 0.32 7.07 (6.56) 0.76 16 (20.0)	-
Components of the respiratory safet 21 respiratory safety event, n (%) Odds ratio vs morphine P value vs morphine Duration of event, mean hours (SD) P value vs morphine Respiratory safety event measures Oxygen saturation <00%, n (%) P value vs morphine	5 (6.0) 0.15 0.0003 9.88 (7.0) 0.52 7 (8.4) 0.02	0.19 0.0007 5.51 (1.91) 0.29	0.61 0.20 6.88 (5.66) 0.78 15 (19.0) 0.57	0.68 0.32 7.07 (6.56) 0.76 16 (20.0) 0.76	6.40 (5.09)
Components of the respiratory safe is respiratory safety event, n (%) Odds ratio vs morphine P value vs morphine Duration of event, mean hours (SD) P value vs morphine Respiratory safety event measures Orygen saturation 40%, n (%) P value vs morphine Respiratory as Blub pm, n (%)	5 (6.0) 0.15 0.0003 9.88 (7.0) 0.52 7 (8.4) 0.02 1 (1.2)	0.19 0.0007 5.51 (1.91) 0.29 6 (7.8) 0.01	0.61 0.20 6.88 (5.66) 0.78 15 (19.0) 0.57 4 (5.1)	0.68 0.32 7.07 (6.56) 0.76 16 (20.0) 0.76 6 (7.5)	6.40 (5.09)
Components of the respiratory safe air respiratory safety event, n (%). Odds ratio vs morphine P value vs morphine Duration of event, mean hours (SD) P value vs morphine Respiratory safety event measures Orygen saturation +90%, n (%). P value vs morphine Respiratory rate sill bpm, n (%). P value vs morphine Respiratory rate sill bpm, n (%).	5 (6.0) 0.15 0.0003 9.88 (7.0) 0.52 7 (8.4) 0.02 1 (1.2) 0.054	0.19 0.0007 5.51 (1.91) 0.29 6 (7.8) 0.01 0	0.61 0.20 6.88 (5.66) 0.78 15 (19.0) 0.57 4 (5.1) 0.38	0.68 0.32 7.07 (6.56) 0.76 16 (20.0) 0.76 6 (7.5) 0.84	6.40 (5.09) — 20 (24.4) 8 (9.8)
Components of the respiratory safe at respiratory safety event, n (%) Odds ratio vs morphine P value vs morphine Duration of event, mean hours (SO) P value vs morphine Respiratory safety event measures Orgen saturation +00%, n (%) P value vs morphine Respiratory safety event Respiratory safety Respiratory safety Respiratory Res	5 (6.0) 0.15 0.0003 9.88 (7.0) 0.52 7 (8.4) 0.02 1 (1.2)	0.19 0.0007 5.51 (1.91) 0.29 6 (7.8) 0.01	0.61 0.20 6.88 (5.66) 0.78 15 (19.0) 0.57 4 (5.1)	0.68 0.32 7.07 (6.56) 0.76 16 (20.0) 0.76 6 (7.5)	6.40 (5.09)

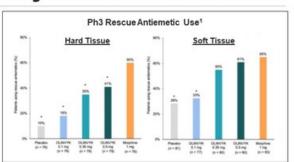
bpm = breaths per minute; MRPSS = Moline-Roberts Pharmacologic Sedation Scale

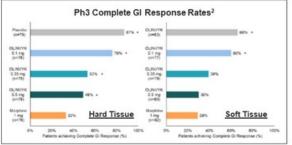


### Robust Assessment of GI Tolerability in Phase 3 RCTs

Data included in AMCP dossier used in formulary review

- Phase 3 pivotal trials included measurements of nausea / vomiting rates and rescue antiemetic use
- Additional exploratory post-hoc analysis was conducted using a "complete GI response" endpoint<sup>3</sup>
- Full characterization of GI tolerability has been made available to HCPs and formulary decision makers
  - Data can be found in OLINVYK AMCP dossier and published literature







P < 0.05 vs. morphine.1) Figure 2-10, Section 2.2, OLINVYK Evidence Dossier for Formulary Consideration. 2) Figure 2-11, Section 2.2, OLINVYK Evidence Dossier for Formulary Consideration. 3) GL complete response defined as the proportion of patients who did not experience the AE of vomiting and did not use rescue antiernetic medication throughout the

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## **Customer Facing Organization**

Partnering with Syneos Health to provide "best in class" commercial support



- Allows for execution speed and flexibility in deployment
- Full range support: source, hire, train and deploy customer-facing roles
- · Ability to flex as business needs evolve

#### 40 Customer-Facing Roles

- Sales: Institutional Account Managers
- Trade & Access: Regional Account Managers
- · Medical: Medical Science Liaisons



# Launch Team: Top Talent with Hospital Experience

Role	Highlights
Medical Science Liaisons	100% with Advanced degrees 100% with Health Econ background 100% with hospital and launch experience
Regional Sales Managers	20+ Years experience Buy & Bill Hospital & ASC experience
Key Account Managers	21 years (avg) in Pharma 100% with GPO/IDN experience 100% with recent launch experience
Representatives	18 years experience 100% with recent launch experience 100% with Hospital experience Majority with therapeutic experience

#### **Robust Set of Peer-Reviewed Publications**

Comprehensive overview of OLINVYK development program



- · 4 head-to-head studies vs. IV morphine
  - IV opioid efficacy
  - Well-characterized safety and tolerability
- · Data in complex patients / surgery types
- · Respiratory safety data in elderly / obese
- · Respiratory safety profile measured by dosing interruptions
- · Clinical utility vs. IV morphine benefit-risk analysis
- Reduced risk of N / V complete GI response analysis

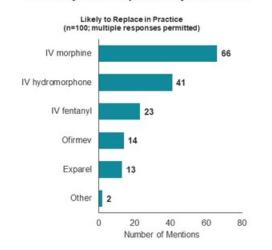


# Positive Feedback from Formulary Stakeholders<sup>1</sup>

~75% of formulary stakeholders find OLINVYK's published data clinically meaningful:<sup>2</sup>

Key Endpoint (vs. IV morphine)	Pharmacist (n=50)	Physician (n=50)
Respiratory Safety Events and GI		
Tolerability	72%	76%

# Majority of stakeholders view IV morphine as likely to be replaced by OLINVYK:



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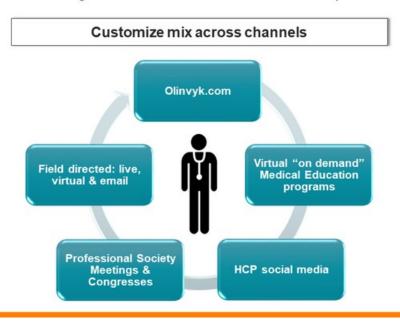
1) Qualitative Pricing research, Charles River Associates, April 2020. 2) "Are the improvements in respiratory safety events and GI tolerability clinically meaningful?"

Based on OLINVYK Ph3 clinical trial data.

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# **Omni-channel Approach for HCP Engagement**

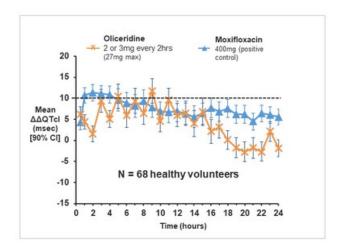
Communication across a full range of channels to maximize reach and impact



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# **No Accumulation Despite Repeated Dosing**

Multi-Dose tQT Study



#### Key results

- No accumulation through 24 hrs
   Mean QTcl <10ms at 22 of 24 points</li>
- No categorical QTc outliers
   Δ >60 ms; >500 ms absolute
- Well tolerated, no SAEs\*
   92% reached max daily dose

\*The effect on QT prolongation at total cumulative daily doses >27 mg has not been studied in a thorough QT study. Total cumulative daily doses exceeding 27 mg per day may increase the risk for QTc interval prolongation. Therefore, the cumulative total daily dose of OLINVYK should not exceed 27 mg.

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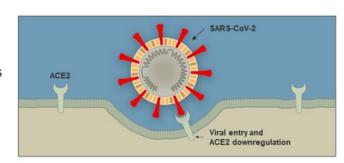
3 subjects not dosed due to lack of venous access: f discontinuation due to a non-serious adverse event (asymptomatic non-sustained ventricular tachycardia) with confounding bygosalemia and no meaningful OT prolongation during dosing full proposalemia and no meaningful OT prolongation during dosing full proposalemia and no meaningful OT prolongation during dosing full proposalemia and no meaningful of prolongation during dosing full proposalemia and no meaningful of prolongation during dosing full proposalemia and no meaningful of prolongation during dosing full proposalemia and no meaningful of prolongation during dosing full proposalemia and no meaningful of prolongation during dosing full proposalemia and no meaningful of prolongation during dosing full proposalemia and no meaningful of prolongation during dosing full proposalemia and no meaningful of prolongation during dosing full proposalemia and no meaningful of prolongation during dosing full proposalemia and no meaningful of prolongation during dosing full proposalemia and no meaningful of prolongation during dosing full proposalemia and no meaningful of prolongation during dosing full proposalemia and no meaningful of prolongation during dosing full proposalemia and no meaningful of prolongation during dosing full proposalemia and provided dosing full prolongation during during full prolongation during full prolongation during during full prolongation dur

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# Interaction Between the AT<sub>1</sub> Receptor and ACE2 in COVID-19

Downregulation of ACE2 by coronavirus indirectly promotes activation of the AT<sub>1</sub> receptor

- Coronavirus binds to and downregulates angiotensin converting enzyme 2 (ACE2)<sup>1</sup>
- Decrease in ACE2 elevates angiotensin II levels
  - Angiotensin II activates AT1 receptor
  - No breakdown of angiotensin II into Ang(1-7)
    - $\circ$  Normally, Ang(1-7) acts as a β-arrestin-biased ligand at the  $AT_1$  receptor  $^2$
    - Protective therapeutic benefits in the lungs<sup>3</sup>





#### **Delta Receptor Agonists Have Unique Benefits**

Potential utility for a variety of CNS indications

#### **Triptans / Ditans**

- Target: serotonin receptors → mediate vascular excitability (associated CV risk)¹
- · Migraine-specific treatment

#### **CGRPs**

- Target: CGRP receptors → regulate neuronal structures involved in pain signaling<sup>2</sup>
- · Migraine-specific treatment

#### **Delta receptor agonists**

- Target: delta receptors → located in pain pathways; also distributed throughout brain regions associated with sensory information, emotional processing, and reward / impulsivity<sup>3</sup>
- · Potential for broad therapeutic application



1) Rothrock JF & Friedman DI, American Headach Society we bester, https://american/headachesociety.org/sp-content/sploada/2018/05/John, Rothrock, and Deborah\_Friedman, John State Content of the Content

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# IMPORTANT SAFETY INFORMATION



WARNING: ADDICTION, ABUSE, AND MISUSE; LIFE-THREATENING RESPIRATORY DEPRESSION; NEONATAL OPIOID WITHDRAWAL SYNDROME; and RISKS FROM CONCOMITANT USE WITH BENZODIAZEPINES OR OTHER CENTRAL NERVOUS SYSTEM (CNS) DEPRESSANTS

#### Addiction, Abuse, and Misuse

OLINVYK 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 before prescribing OLINVYK, and monitor all patients regularly for the development of behaviors or conditions.

#### Life-Threatening Respiratory Depression

Serious, life-threatening, or fatal respiratory depression may occur with use of OLINVYK. Monitor for respiratory depression, especially during initiation of OLINVYK or following a dose

#### Neonatal Opioid Withdrawal Syndrome

Prolonged use of OLINVYK during pregnancy can result in neonatal opioid withdrawal syndrome, which may be life-threatening if not recognized and treated, and requires management according to protocols developed by neonatology experts. If opioid use is required for a prolonged period in a pregnant woman, advise the patient of the risk of neonatal opioid withdrawal syndrome and ensure that appropriate treatment will be available.

#### Risk From Concomitant Use With Benzodiazepines or Other CNS Depressants

Concomitant use of opioids with benzodiazepines or other 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.

#### INDICATIONS AND USAGE

OLINVYK is a new chemical entity indicated in adults for the management of acute pain severe enough to require an intravenous opioid analgesic and for whom alternative treatments are inadequate



#### Limitations of Use

Because of the risks of addiction, abuse, and misuse with opioids, even at recommended doses, reserve OLINVYK for use in patients for whom alternative treatment options [e.g., non-opioid analgesics or opioid combination

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

The cumulative total daily dose should not exceed 27 mg, as total daily doses greater than 27 mg may increase the risk for QTc interval prolongation.

#### CONTRAINDICATIONS

OLINVYK is contraindicated in patients with:

- Significant respiratory depression
- Acute or severe bronchial asthma in an unmonitored setting or in the absence of resuscitative equipment
   Known or suspected gastrointestinal obstruction, including paralytic ileus
- . Known hypersensitivity to oliceridine (e.g., anaphylaxis)

#### WARNINGS AND PRECAUTIONS

- OLINVYK contains oliceridine, a Schedule II controlled substance, that exposes users to the risks of addiction, abuse, and misuse. Although the risk of addiction in any individual is unknown, it can occur in patie appropriately prescribed OLINVYK. Assess risk, counsel, and monitor all patients receiving opioids.
- · Serious, life-threatening respiratory depression has been reported with the use of opioids, even when used as recommended, especially in patients with chronic pulmonary disease, or in elderly, cachectic and debilitated patients. The risk is greatest during initiation of OLINVYK therapy, following a dose increase, or when used with other drugs that depress respiration. Proper dosing of OLINVYK is essential, especially when converting patients from another opioid product to avoid overdose. Management of respiratory depression may include close observation, supportive measures, and use of opioid antagonists, depending on the patient's clinical
- · Opioids can cause sleep-related breathing disorders including central sleep apnea (CSA) and sleep-related hypoxemia with risk increasing in a dose-dependent fashion. In patients who present with CSA, consider decreasing the dose of opioid using best practices for opioid taper

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#### WARNINGS AND PRECAUTIONS

- Prolonged use of opioids during pregnancy can result in withdrawal in the neonate that may be life-threatening. Observe newborns for signs of neonatal opioid withdrawal syndrome and manage accordingly. Advise pregnant women using OLINVYK for a prolonged period of the risk of neonatal opioid withdrawal syndrome and ensure that appropriate treatment will be available.
- · Profound sedation, respiratory depression, coma, and death may result from the concomitant use of Protourna secution, respiratory depression, coma, and deatm may result from the concomitant use of OLINVYK with benzodiazepines or other CNS depressants (e.g., non-benzodiazepine sedatives/hypnobics, anxiolytics, tranquilizers, muscle relaxants, general anesthetics, anxipsychobics, other opioids, or alcohol). Because of these risks, reserve concomitant prescribing of these drugs for use in patients for whom alternative treatment options are inadequate, prescribe the lowest effective dose, and minimize the duration.
- OLINVYK was shown to have mild QTc interval prolongation in thorough QT studies where patients were dosed up to 27 mg. Total cumulative daily doses exceeding 27 mg per day were not studied and may rease the risk for QTc interval prolongation. Therefore, the cumu dative total daily dose of OLINVYK should not exceed 27 mg.
- Increased plasma concentrations of OLINVYK may occur in patients with decreased Cytochrome P450 (CYP) 2D6 function or normal metabolizers taking moderate or strong CYP2D6 inhibitors; also in patients taking a moderate or strong CYP3A4 inhibitor, in patients with decreased CYP2D6 function who are also receiving a moderate or strong CYP3A4 inhibitor, or with discontinuation of a CYP3A4 inducer. These patients may require less frequent dosing and should be closely monitored for respiratory depression and sedation at frequent intervals. Concomitant use of OLINVYK with CYP3A4 inducers or discontinuation of the continuation of a moderate or strong CYP3A4 inhibitor can lower the expected concentration, which may decrease efficacy, and may require supplemental doses.
- Cases of adrenal insufficiency have been reported with opioid use (usually greater than one month).
   Presentation and symptoms may be nonspecific and include nausea, vomiting, anorexia, fatigue, weakness, dizziness, and low blood pressure. If confirmed, treat with physiologic replacement doses of corticosteroids and wean patient from the opioid.
- OLINVYK may cause severe hypotension, including orthostatic hypotension and syncope in ambulatory
- · 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). Monitor these patients for signs of hypotension. In patients with circulatory shock, avoid the use of OLINVYK as it may cause vaso dilation that can further reduce cardiac output and blood pressure.
- Avoid the use of OLINVYK in patients with impaired consciousness or coma. OLINVYK should be used
  with caution in patients who may be susceptible to the intracranial effects of CO<sub>2</sub> retention, such as those with evidence of increased intracranial pressure or brain tumors, as a reduction in respiratory drive and the resultant CO<sub>2</sub> retention can further increase intracranial pressure. Monitor such patients for signs of sedation and respiratory depression, particularly when initiating therapy.

- · As with all opioids, OLINVYK may cause spasm of the sphincter of Oddi, and may cause increases in serum amylase. Monitor patients with biliary tract disease, including acute pancreatitis, for worsening
- 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). Monitor these patients for signs of hypotension. In patients with circulatory shock, avoid the use of OLINVYK. as it may cause vasodilation that can further reduce cardiac output and blood pressure.
- Avoid the use of OLINVYK in patients with impaired consciousness or coma. OLINVYK should be used with caution in patients who may be susceptible to the intracranial effects of CO2 retention, such as those with evidence of increased intracranial pressure or brain tumors, as a reduction in respiratory drive and the resultant CO<sub>2</sub> retention can further increase intracranial pressure. Monitor such patients for signs of sedation and respiratory depression, particularly when initiating therapy.
- · As with all opioids, OLINVYK may cause spasm of the sphincter of Oddi, and may cause increases in serum amylase. Monitor patients with biliary tract disease, including acute pancreatitis, for worsening symptoms
- OLINVYK may increase the frequency of seizures in patients with seizure disorders and may increase the
  risk of seizures in vulnerable patients. Monitor patients with a history of seizure disorders for worsened. seizure control.
- · Do not abruptly discontinue OLINVYK in a patient physically dependent on opioids. Gradually taper the dosage to avoid a withdrawal syndrome and return of pain. Avoid the use of mixed agonist/antagorist (e.g., pentarocine, nalbuphine, and butorphanol) or partial agonist (e.g., buprenorphine) analgesics in patients who are receiving OLINVYK, as they may reduce the analgesic effect and/or precipitate withdrawal
- OLINVYK may impair the mental or physical abilities needed to perform potentially hazardous activities such as driving a car or operating mach
- · Although self-administration of opioids by patient-controlled analgesia (PCA) may allow each patient to individually titrate to an acceptable level of analgesia, PCA administration has resulted in adverse outcomes and episodes of respiratory depression. Health care providers and family members monitoring patients receiving PCA analgesia should be instructed in the need for appropriate monitoring for excessive sedation, respiratory depression, or other adverse effects of opioid medications.

#### ADVERSE REACTIONS

Adverse reactions are described in greater detail in the Prescribing Information.

The most common (incidence ≥10%) adverse reactions in Phase 3 controlled clinical trials were nausea, vomiting, dizziness, headache, constipation, pruritus, and hypoxia.