

**UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION**  
Washington, D.C. 20549

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**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): November 19, 2015

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**TONIX PHARMACEUTICALS HOLDING CORP.**

(Exact name of registrant as specified in its charter)

Nevada  
(State or Other Jurisdiction  
of Incorporation)

001-36019  
(Commission  
File Number)

26-1434750  
(IRS Employer  
Identification No.)

509 Madison Avenue, Suite 306, New York, New York 10022  
(Address of principal executive offices) (Zip Code)

Registrant's telephone number, including area code: (212) 980-9155

**Copy of correspondence to:**

Marc J. Ross, Esq.  
James M. Turner, Esq.  
Sichenzia Ross Friedman Ference LLP  
61 Broadway  
New York, New York 10006  
Tel: (212) 930-9700 Fax: (212) 930-9725

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 (see General Instruction A.2. below):

- Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
  - Soliciting material pursuant to Rule 14a-12 under the 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))
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**ITEM 7.01 Regulation FD Disclosure.**

Tonix Pharmaceuticals Holding Corp. (the "Company") intends to utilize an updated investor presentation to conduct meetings with investors, stockholders and analysts and at investor conferences, and which the Company intends to place on its website, which may contain non-public information. A copy of the presentation is filed as Exhibit 99.01.

The information contained in Item 7.01 of this Current Report on Form 8-K, including Exhibit 99.01, is furnished pursuant to, and shall not be deemed to be "filed" for the purposes of, Section 18 of the Securities Exchange Act of 1934, as amended, or otherwise subject to the liabilities of that section. The information contained in Item 7.01 of this Current Report shall not be incorporated by reference into any registration statement or any other document filed pursuant to the Securities Act of 1933, as amended, except as otherwise expressly stated in such filing. By filing this Current Report on Form 8-K and furnishing the information contained in this Item 7.01, including Exhibit 99.01, the Company makes no admission as to the materiality of any such information that it is furnishing.

**ITEM 9.01 Financial Statements and Exhibits.**

(d) Exhibits.

99.01 Corporate Presentation by the Company for November 2015\*

\* Furnished herewith.

**SIGNATURE**

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

**TONIX PHARMACEUTICALS HOLDING CORP.**

Date: November 19, 2015

By: /s/LELAND GERSHELL  
Leland Gershell  
Chief Financial Officer



NASDAQ: TNXP

Investor Presentation

November 2015

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## Cautionary note on forward-looking statements

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Certain statements in this presentation regarding strategic plans, expectations and objectives for future operations or results are "forward-looking statements" as defined by the Private Securities Litigation Reform Act of 1995. These statements may be identified by the use of forward-looking words such as "anticipate," "believe," "forecast," "estimate" and "intend," among others. These forward-looking statements are based on Tonix's current expectations and actual results could differ materially. There are a number of factors that could cause actual events to differ materially from those indicated by such forward-looking statements. These factors include, but are not limited to, substantial competition; our possible need for additional financing; uncertainties of patent protection and litigation; uncertainties of government or third party payor reimbursement; limited research and development efforts and dependence upon third parties; and risks related to failure to obtain U.S Food and Drug Administration clearances or approvals and noncompliance with its regulations. As with any pharmaceutical under development, there are significant risks in the development, regulatory approval and commercialization of new products. The forward-looking statements in this presentation are made as of the date of this presentation, even if subsequently made available by the Company on its website or otherwise. Tonix does not undertake an obligation to update or revise any forward-looking statement, except as required by law. Investors should read the risk factors set forth in the Annual Report on Form 10-K for the year ended December 31, 2014 and Quarterly Report on Form 10-Q for the period ended September 30, 2015, as filed with the Securities and Exchange Commission (the "SEC") on February 27, 2015 and November 6, 2015, respectively, and future periodic reports filed with the SEC on or after the date hereof. All of the Company's forward-looking statements are expressly qualified by all such risk factors and other cautionary statements.



- ⦿ **Targeting common pain conditions and a serious psychiatric disorder**
  - Non-opiate, non-barbiturate, non-benzodiazepine medicines
  - Two clinical-stage proprietary medicines targeting three unique indications
  - Highly differentiated products with potential for sustainable competitive clinical advantages
  
- ⦿ **2016 to reveal results from three key clinical trials**
  - Fibromyalgia – Phase 3 will report in 3Q
  - Post-traumatic stress disorder – Phase 2 will report in 2Q
  - Episodic tension-type headache – proof-of-concept Phase 2 will report in 1Q
  
- ⦿ **All intellectual property owned by Tonix – from internal R&D**

# Pipeline led by Tonmya™ for fibromyalgia

Candidate	Indication	Preclinical	Phase 1	Phase 2	Phase 3	NDA	Market	Near-term Catalyst
Tonmya*	Fibromyalgia							Top line data 3Q 2016
TNX-102 SL	Post-Traumatic Stress Disorder							Top line data 2Q 2016
TNX-201	Episodic Tension-Type Headache							Top line data 1Q 2016

\* Tonmya has been conditionally accepted by the FDA as the proposed tradename of TNX-102 SL for fibromyalgia.

NDA = New Drug Application; FDA = U.S. Food and Drug Administration  
 Tonmya / TNX-102 SL (cyclobenzaprine HCl sublingual tablets 2.8 mg) and TNX-201 (dexisomethepene mucate) are Investigational New Drugs and are not approved for any indication.



# Fibromyalgia is a chronic, debilitating disorder that imposes a significant social and economic burden

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- ⦿ **Fibromyalgia is a neurobiological disorder characterized by:**
  - Chronic widespread pain
  - Nonrestorative sleep
  - Fatigue
  - Diminished cognition
  
- ⦿ **Believed to result from amplified sensory and pain signaling in central nervous system<sup>1</sup>**
  
- ⦿ **Causes significant impairment in all areas of life**
  - Lower levels of health-related quality-of-life – reduced daily functioning
  - Interference with work (loss of productivity, disability)
  
- ⦿ **Inflicts substantial strain on the healthcare system**
  - Average patient has 20 physician office visits per year<sup>2</sup>
  - Annual direct medical costs are twice those for non-fibromyalgia individuals<sup>3</sup>

<sup>1</sup> Phillips K & Clauw DJ, *Best Pract Res Clin Rheumatol* 2011;25:141.

<sup>2</sup> Robinson et al, *Pain Medicine* 2013;14:1400.

<sup>3</sup> White et al, *J Occupational Environ Med* 2008;50:13.



## Fibromyalgia is a prevalent disorder but remains under diagnosed

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- 1.1% diagnosis rate = 2.7 million U.S. adults
  - suggests under-diagnosis
- Approximately 2.3 million U.S. adults receive treatment<sup>2</sup>
- Approved drugs achieved 2014 U.S. sales of \$1.2 billion<sup>3</sup>**
  - Represent about 5.6 million prescriptions<sup>4</sup>

Estimated that >22 million prescriptions are issued for the treatment of fibromyalgia (on- and off-label usage) each year<sup>2,4</sup>

<sup>1</sup> Lawrence et al, *Arthritis Rheum* 2008;58:26; Vincent et al, *Arthritis Care Res* 2013;65:786; Jones et al, *Arthritis Rheum* 2015;67:568.

<sup>2</sup> Robinson RL et al, *Pain Med* 2012;13:1366.

<sup>3</sup> Product sales derived from IMS MIDAS; IMS NDTI used to factor usage for fibromyalgia; data accessed April 2015.

<sup>4</sup> Independent study conducted by IMS Consulting Group, April 2015 using IMS MIDAS (ex-manufacturing price), factored for fibromyalgia based on IMS National Disease and Therapeutic Index (NDTI).

## Fewer than half of those treated receive sustained benefit from the three FDA-approved drugs

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- ⦿ The treatment objective is to **restore functionality** and **quality of life** by broadly improving symptoms while avoiding significant side effects
- ⦿ The majority fail therapy due to **lack of a response** or **poor tolerability**<sup>1</sup>



<sup>1</sup> Market research by Frost & Sullivan, commissioned by Tonix (2011).

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# Large need for new fibromyalgia therapies that provide broad symptom relief with better tolerability

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- ⦿ **Currently-approved medications have side effects that limit long-term use<sup>1</sup>**
  - Many patients skip doses or discontinue altogether within months of treatment initiation
- ⦿ **Medication-related side effects may be similar to fibromyalgia symptoms**
- ⦿ **High rates of discontinuation, switching and augmentation**
  - Attempt to treat multiple symptoms and/or avoid intolerable side effects
  - Average of 2-3 medications used simultaneously<sup>2</sup>
  - The typical patient has tried six different medications<sup>3</sup>
- ⦿ **Substantial off-label use of drugs to treat pain and other symptoms**

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<sup>1</sup> Nuesch et al, *Ann Rheum Dis* 2013;72:955-62.

<sup>2</sup> Robinson RL et al, *Pain Medicine* 2012;13:1366

<sup>3</sup> "Patient Trends: Fibromyalgia", *Decision Resources*, 2011.

## Dissatisfaction with current fibromyalgia therapies results in inappropriate drug usage out of desperation

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- ⦿ **20-60%** of fibromyalgia patients receive opioid narcotics despite **no evidence to support chronic use**<sup>1,2</sup>
- ⦿ Patients treated with opioid narcotics are **less likely to receive guideline-recommended medications**<sup>1</sup>
- ⦿ Opioid narcotic users have **lower functional status, higher depression rates, and greater insomnia**<sup>3</sup>
- ⦿ **Medical and prescription costs** associated with chronic opioid narcotic use in fibromyalgia patients are **substantial**<sup>4</sup>

<sup>1</sup> Halpern et al, *Pain Practice* 2015 (10.1111/papr.12364)

<sup>2</sup> Vincent et al, *BMJ Open* 2015;5:e006681.

<sup>3</sup> Peng et al, *Clin J Pain* 2015;31:7013.

<sup>4</sup> Painter et al, *Am J Pharm Benefits* 2014;6:e177-e184.

## Tonix is developing Tonmya for fibromyalgia

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- ⦿ **Advanced sublingual tablet containing cyclobenzaprine (CBP) 2.8 mg**
  - Eutectic formulation rapidly delivers a low dose of CBP for transmucosal absorption
  - Avoids first-pass metabolism and reduces long-lived metabolite relative to oral administration
  - Designed for chronic bedtime administration, no titration
- ⦿ **Tonmya's therapeutic action is believed to be due to improved sleep quality**
  - Non-restorative sleep is a common clinical and diagnostic feature of fibromyalgia<sup>1</sup>
  - Evolving understanding of the role of sleep in pain control and fibromyalgia development<sup>2</sup>
  - Tonmya targets receptors believed to play key roles in sleep physiology
- ⦿ **Phase 2b "BESTFIT" study was successfully completed in 3Q14**
- ⦿ **Top line data from ongoing Phase 3 "AFFIRM" study expected to report in 3Q16**

<sup>1</sup> Swick TJ, *Ther Adv Musculoskel Dis* 2011;3:167-178.

<sup>2</sup> Choy EHS, *Nat Rev Rheumatol* adv online pub 28 April 2015.

*Tonmya is an Investigational New Drug and is not approved for any indication.*



## Phase 2b “BESTFIT” study of Tonmya in fibromyalgia

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- ⦿ **BESTFIT = BEdtime Sublingual TNX-102 SL as Fibromyalgia Intervention Therapy**
  - Randomized, double-blind, placebo-controlled trial
  - 2010 American College of Rheumatology diagnostic criteria for fibromyalgia
  - 205 participants randomized 1:1 at 17 U.S. sites
  - Sublingual tablet of Tonmya (TNX-102 SL 2.8 mg) or placebo daily at bedtime for 12 weeks
  - Evaluated measures of pain, sleep quality, and other assessments of fibromyalgia

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*Tonmya is an Investigational New Drug and is not approved for any indication.*

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## Tonmya provided broad clinical benefit in BESTFIT

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Category	Endpoint – week 12 <sup>1</sup>	p value
Pain Relief	30% responder analysis <sup>2</sup>	<b>0.033</b>
Sleep Quality	PROMIS Sleep Disturbance	0.005
Overall response to therapy	PGIC	0.025
Assessment of disease impact	FIQ-R Total score	0.014

*p < 0.05 → statistically significant*

BESTFIT pre-specified primary endpoint:  
change in week 12 mean pain score (p=0.172)

- ◆ PROMIS = Patient-Reported Outcomes Measurement Information System
- ◆ PGIC = Patient Global Impression of Change
- ◆ FIQ-R = Fibromyalgia Impact Questionnaire - Revised

<sup>1</sup> Intent-to-treat analysis, N=205 (Tonmya N=103, placebo N=102).

<sup>2</sup> FDA-accepted primary endpoint in current Phase 3 AFFIRM study.

Source: Phase 2b BESTFIT study data.

Tonmya is an Investigational New Drug and is not approved for any indication.



## Tonmya was well tolerated in the BESTFIT study and in a 12-month open-label extension study

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Systemic adverse events reported by at least 3.0% of the total BESTFIT study population	Tonmya (N=103)	Placebo (N=101)	Total (N=204)
Somnolence	1.9	6.9	4.4
Dry Mouth	3.9	4.0	3.9
Back Pain	4.9	3.0	3.9

- **Most frequent local adverse events were administration site reactions**
  - Previously reported in Phase 1 studies; no detectable bias on efficacy results
  - Transient tongue numbness (44% Tonmya vs. 2% placebo)
  - Abnormal taste (8% Tonmya vs. 0% placebo)
  - Similar incidences were observed in a completed 12-month open-label extension study
- **No serious adverse events (SAE) reported with Tonmya**
- **Trial completion rates of 86% with Tonmya vs. 83% with placebo**

*Source: Phase 2b BESTFIT study data.  
Tonmya is an Investigational New Drug and is not approved for any indication.*

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# Tonmya in Phase 3 clinical development for fibromyalgia

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## Phase 3 AFFIRM Study is underway

**Tonmya once-daily at bedtime**

2.8 mg

N = 250

**Placebo once-daily at bedtime**

N = 250

- Randomized, double-blind, placebo-controlled study in fibromyalgia
- N=500; approximately 35 U.S. clinical sites
- Primary efficacy endpoint:
  - Difference in 30% pain responder analysis at Week 12 between Tonmya and placebo

**Top line data expected 3Q 2016**

12 weeks → ..... open-label extension

## Second Phase 3 Study ("REAFFIRM") expected to begin in 2Q 2016

- Expected to be similar to AFFIRM in design and size

Source: Phase 2b BESTFIT study data.  
Tonmya is an Investigational New Drug and is not approved for any indication.

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## TNX-102 SL in Phase 2 development for post-traumatic stress disorder (PTSD)

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Candidate	Indication	Preclinical	Phase 1	Phase 2	Phase 3	NDA	Market	Near-term Catalyst
Tonmya	Fibromyalgia							Top line data 3Q 2016
TNX-102 SL	Post-Traumatic Stress Disorder							Top line data 2Q 2016
TNX-201	Episodic Tension-Type Headache							Top line data 1Q 2016

*Tonmya / TNX-102 SL and TNX-201 are Investigational New Drugs and are not approved for any indication.*

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# PTSD is a chronic stress disorder triggered by a traumatic event

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## ⦿ PTSD is characterized by:

- re-experiencing the triggering event
- situation/stimulus avoidance
- negative alterations in mood/cognition
- hypervigilance (anxiety, difficulty sleeping)

## ⦿ Considered a stress response, but prolonged and does not resolve with time

- 20% of women and 8% of men who experience significant trauma develop PTSD<sup>1</sup>

## ⦿ Associated with significant life disruption

- Social isolation, inability to maintain employment, loss of independent living
- Unpredictable acts of violence, suicidal thoughts

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<sup>1</sup> Kessler et al, Arch Gen Psychiatry 1995;52:1048.

# PTSD is a prevalent problem for both civilians and the military

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- ~70% are considered to have moderate to severe symptoms
- Of those diagnosed, ~50% utilize professional healthcare (psycho/pharmacotherapy)<sup>2</sup>

## • Higher prevalence in military population

- 20% of veterans from recent conflicts will have potential/provisional PTSD<sup>3</sup>
- ~638,000 veterans with PTSD in the VA health system (2012)<sup>4</sup>
- Majority are male
- Alcohol and substance abuse are common

<sup>1</sup> Kessler RC et al, *Arch Gen Psychiatry* 2013;62:617; U.S. Census Bureau, 2013 Projection.

<sup>2</sup> Wang et al, *Arch Gen Psychiatry* 2005;62:629.

<sup>3</sup> Report on VA Facility Specific Operation Enduring Freedom (OEF), Operation Iraqi Freedom (OIF), and Operation New Dawn (OND) Veterans Diagnosed with Potential or Provisional PTSD.

<sup>4</sup> Bowe et al, *J Dual Diagnosis* 2015;11:22.

## Significant gap in current therapeutic landscape for PTSD

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- ⦿ **Medicines approved for PTSD often provide inadequate and/or inconsistent benefit**
  - Limited to two SSRIs, both of which carry suicidality warnings
  - US Institute of Medicine (IOM) concluded that evidence of treatment effect is low<sup>1</sup>
  - Lack of efficacy evidence in those with a history of combat-related trauma<sup>2</sup>
- ⦿ **Sleep dysfunction in PTSD is resistant to currently-approved options**
  - 95%+ report insomnia, 83% report recurrent dreams of the trauma<sup>3</sup>
  - Correlated with disease severity, depression, substance abuse and suicide<sup>4</sup>
  - Drugs approved for insomnia have been shown to not improve PTSD sleep dysfunction
- ⦿ **Off-label use of anxiolytics, sedative-hypnotics, and antipsychotics is common**
  - limited evidence of effectiveness; may be harmful
  - may interfere with other treatments such as cognitive behavioral therapy (CBT)

SSRI = selective serotonin reuptake inhibitor.

<sup>1</sup> Marshall et al, *Am J Psychiatry* 2001;158:1982

<sup>2</sup> Jonathan Davidson, *personal communications*, 2014

<sup>3</sup> Green B. Post-traumatic stress disorder: Symptom profiles in men and women. *Curr Med Res Opin* 2003;19:200-4

<sup>4</sup> Germain et al, *J Anxiety Disord* 2005;19:233; Krakow et al, *J Nerv Ment Dis* 2002;190:442.

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# TNX-102 SL's potential as a treatment for PTSD is supported by clinical evidence and pharmacology

- ⦿ **TNX-102 SL\* targets mechanisms associated with treating disturbed sleep in PTSD**
  - Active on receptor sites believed to have treatment potential for sleep problems in PTSD (including 5-HT2a, alpha-1 adrenergic, and histamine-1 receptors)
- ⦿ **Efficacy of “tricyclic” drug class in PTSD is supported by clinical data<sup>1</sup>**
  - Older tricyclics have side effects that limited their use
- ⦿ **Improvements observed in BESTFIT study relate to PTSD core symptoms<sup>2</sup>**

Outcome Measure at Week 12 in BESTFIT	p value
PROMIS Sleep Disturbance	0.005
FIQ-R Anxiety Item	0.015
FIQ-R Sensitivity Item	0.017

*p < 0.05 → statistically significant*

<sup>1</sup> Davidson J, J Psychopharm 2015;29:264.

\* TNX-102 SL is the same drug product as Tonyma.

<sup>2</sup> Phase 2b BESTFIT study data.

TNX-102 SL is an Investigational New Drug and is not approved for any indication.



## Phase 2 "AtEase" trial of TNX-102 SL in PTSD is ongoing

[www.ateasestudy.com](http://www.ateasestudy.com)

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**TNX-102 SL at bedtime once-daily**

2.8 mg

N = 88

**TNX-102 SL at bedtime once-daily**

5.6 mg

N = 44

**Placebo at bedtime once-daily**

N = 88

• Randomized, double-blind, placebo-controlled trial in military-related PTSD

• N=220; approximately 25 U.S. clinical sites

• Primary efficacy endpoint:

- Difference in Clinician-Administered PTSD Scale (CAPS) score between TNX-102 SL 2.8 mg and placebo at 12 weeks

12 weeks → ..... open-label extension

**Top line data expected 2Q 2016**

TNX-102 SL is an Investigational New Drug and is not approved for any indication.

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# TNX-201 in Phase 2 development for episodic tension-type headache

Candidate	Indication	Preclinical	Phase 1	Phase 2	Phase 3	NDA	Market	Near-term Catalyst
Tonmya	Fibromyalgia							Top line data 3Q 2016
TNX-102 SL	Post-Traumatic Stress Disorder							Top line data 2Q 2016
TNX-201	Episodic Tension-Type Headache							Top line data 1Q 2016

*Tonmya / TNX-102 SL and TNX-201 are Investigational New Drugs and are not approved for any indication.*





## Episodic tension-type headache (ETTH) – the most common form of headache

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- **More than 75 million adults in the U.S. experience ETTH each year<sup>1</sup>**
  - Constant band of pressure on the back/sides of head; “squeezed in a vice” feeling
  - Most are *infrequent* (<1 per month); rarely require medical attention, mainly self-treated
- **21 million experience *frequent* ETTH each year<sup>1</sup>**
  - Frequent = one to 14 headaches per month over a three-month period
  - More likely to seek physician care and receive a prescription product<sup>1,2</sup>
- **ETTH is the major contributor to all ‘non-migraine headaches’<sup>1</sup>**
  - Non-migraine headaches lead to 9.2 million emergency room or office visits each year<sup>3,4</sup>

<sup>1</sup> Schwartz et al, *JAMA* 1998;279:381-383; Chowdhury, *Ann Ind Acad Neurol* 2012;15:83-88; Tonix analysis of public literature.

<sup>2</sup> Scher et al, *Cephalalgia* 2010;30:321-328; Tonix analysis of public literature.

<sup>3</sup> Health Care Utilization Project data, 2011.

<sup>4</sup> IMS National Disease and Therapeutic Index™ 2013.

## Many patients do not receive adequate relief from OTC treatments

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### ⦿ “First-line” treatment - NSAIDs are most common

- Many patients self-medicate with a course of over-the-counter NSAIDs before seeing a physician<sup>1</sup>
- Less than 50% of treated patients are pain-free at two hours<sup>2</sup>
- Some are refractory to NSAIDs when they first seek medical attention<sup>1</sup>
- Aspirin- and acetaminophen-containing products also used

OTC = over-the-counter; NSAID = non-steroidal anti-inflammatory drug.

<sup>1</sup> Based on independent study commissioned by Tonix, based on physician interviews using IMS National Prescription Audit (8/2013 – 7/14/2014) and IMS National Disease and Therapeutic Index™ Q3 2008 – Q3 2014.

<sup>2</sup> Moore et al, Pain 2014;155:2220-2228.

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## Prescription options for acute therapy are limited and potentially addictive

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- ⦿ **Butalbital combinations are the only FDA-approved prescription products for ETTH**
  - ~3.5 million prescriptions for these products are written per year for non-migraine headaches<sup>1</sup>
  - Butalbital is a barbiturate – and frequently combined with codeine, an opiate
  - Not recommended for extended use because of addiction, tolerance and abuse potential<sup>2</sup>
- ⦿ **Opioid narcotic combination products are used off-label to treat non-migraine headaches**
  - Include products that contain hydrocodone, codeine, and tramadol<sup>1</sup>
  - ~5.3 million prescriptions for these products issued annually for the treatment of non-migraine headaches<sup>1</sup>

<sup>1</sup> Based on independent study commissioned by Tonix based on physician interviews using IMS National Prescription Audit (8/2013 – 7/14/2014) and IMS National Disease and Therapeutic Index™ Q3 2008 – Q3 2014.

<sup>2</sup> Fioricet package insert.

### ⦿ Isometheptene (IMH) had been marketed for tension-type headache

- Single agent product for migraine was voluntarily withdrawn by Knoll Pharma in 1981
- IMH-containing combination products remained on the market without approved NDAs
- FDA label stated that IMH was “possible effective” for migraine<sup>1</sup>

### ⦿ 2.5 million prescriptions of IMH-containing combination products were filled in 1997

- Midrin® – NDA withdrawn (2011)
- Prodrin® – now marketed under “Unapproved Drug Other” category

<sup>1</sup> IMS Health, National Prescription Audit, 01/1995 – 12/2000 (extracted 8/2014);  
IMS Health, IMS National Disease and Therapeutic Index™, 01/1995 – 12/2000 (extracted 8/2014).

# Scientific rationale for development of TNX-201

## ⚙️ TNX-201 (dexisometheptene mucate) contains the (R) isomer of isometheptene

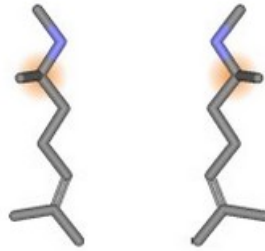
- Pharmacologic profile is distinct from (S) isomer per preclinical studies
- Represents a new class of analgesics (selective imidazoline-1 receptor agonists)

### (R) isomer ✓

- Analgesic in two rat models of headache<sup>1</sup>
- Binds to imidazoline-1 receptor
- Inactive on adrenergic receptors



TNX-201



### (S) isomer ✗

- Sympathomimetic

<sup>1</sup> Fried et al, *Headache* 2015;55:184.

TNX-201 is an Investigational New Drug and is not approved for any indication.

### ⦿ Key attributes

- Unique analgesic mechanism of action (imidazoline-1 receptor agonist)
- Differentiated pharmacology as a single isomer of isometheptene
- May offer a non-addictive treatment option for ETTH

### ⦿ May serve patients who:

- Do not adequately respond to an NSAID
- Would be candidates for treatment with butalbital and/or opioid narcotics
- Suffer from medication overuse headaches
  - May be caused by NSAIDs, butalbital, or opioid narcotics

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*TNX-201 is an Investigational New Drug and is not approved for any indication.*

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## Phase 2 proof-of-concept trial of TNX-201 in ETTH is ongoing

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TNX-201

140 mg

N = 100

Placebo

N = 100

- Randomized, double-blind, placebo-controlled trial in episodic tension-type headache
- Goal is to assess treatment of approx. 150 headaches
- ~10 U.S. clinical sites

**Top line data expected 1Q 2016**

- **A proof-of-concept study to evaluate:**

- Proportion of subjects who report "pain free" at several intervals post-dose
- Proportion of subjects who use rescue medication during the 24 hour post-dose period
- Change from baseline in pain severity score at several intervals post-dose

- **Results will be used to support discussion with FDA on Phase 3 study design**

*TNX-201 is an Investigational New Drug and is not approved for any indication.*

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## Wholly-owned by Tonix with no obligations to others

### **Tonmya / TNX-102 SL**

Fibromyalgia, PTSD

- **Composition-of-matter (eutectic)**
  - Patents filed
  - Protection expected to 2034
- **Pharmacokinetics (PK)**
  - Patents filed
  - Protection expected to 2033
- **Method-of-use**
  - Fibromyalgia: patents issued, 2020 expiry
  - PTSD: patents filed

### **TNX-201**

Headache

- **Composition-of-matter (isomer)**
  - Patents filed
  - Protection expected to 2033

*Tonmya / TNX-102 SL and TNX-201 are Investigational New Drugs and are not approved for any indication.*



### NASDAQ: TNXP

Cash, cash equivalents, and marketable securities reported at September 30, 2015 **\$ 55.0 million**

Cash used in operations in 2015 through September 30 **\$ 30.6 million**

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Shares outstanding (November 18, 2015) **18.8 million**

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## Management team

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**Seth Lederman, MD**  
President & CEO



**Leland Gershell, MD, PhD**  
Chief Financial Officer



**Bruce Daugherty, PhD**  
Chief Scientific Officer



**Gregory Sullivan, MD**  
Chief Medical Officer



COLUMBIA UNIVERSITY  
Department of Psychiatry

New York State  
Psychiatric Institute

**Ronald Notvest, PhD**  
SVP, Commercial Planning & Development



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## Milestones – recent and upcoming

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### Tonmya – Fibromyalgia

- May 2015 Began Phase 3 AFFIRM study
- November 2015 Presented additional data from Phase 2b BESTFIT study at ACR
- 3Q 2016 Report top-line results from AFFIRM study

### TNX-102 SL – Post-Traumatic Stress Disorder

- January 2015 Began Phase 2 AtEase study in military-related PTSD
- August 2015 Reported > 50% enrollment
- 2Q 2016 Report top-line results from AtEase study

### TNX-201 – Episodic Tension-Type Headache

- June 2015 Began randomization in proof-of-concept Phase 2 study
- June 2015 Presented non-clinical data at AHS (receptor, animal models)
- 1Q 2016 Report top-line results from proof-of-concept Phase 2 study

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*Tonmya / TNX-102 SL and TNX-201 are Investigational New Drugs and are not approved for any indication.*





NASDAQ: TNXP

509 Madison Avenue  
New York, NY 10022  
(212) 980-9155

[www.tonixpharma.com](http://www.tonixpharma.com)