



**GABA Therapeutics, Inc. – Jan 2026**

**GRX-917 - Next-Generation Anxiety Treatment**

 **gaba**  
THERAPEUTICS

- GRX-917 is a superior treatment for anxiety
- Derisked program (high POS)
- NDA in GAD by 2028 (\$2.5B peak revs)
- Additional blockbuster indications in pain, epilepsy,
- Strong IP with composition of matter patents through 2042 (US) and potentially 2046.

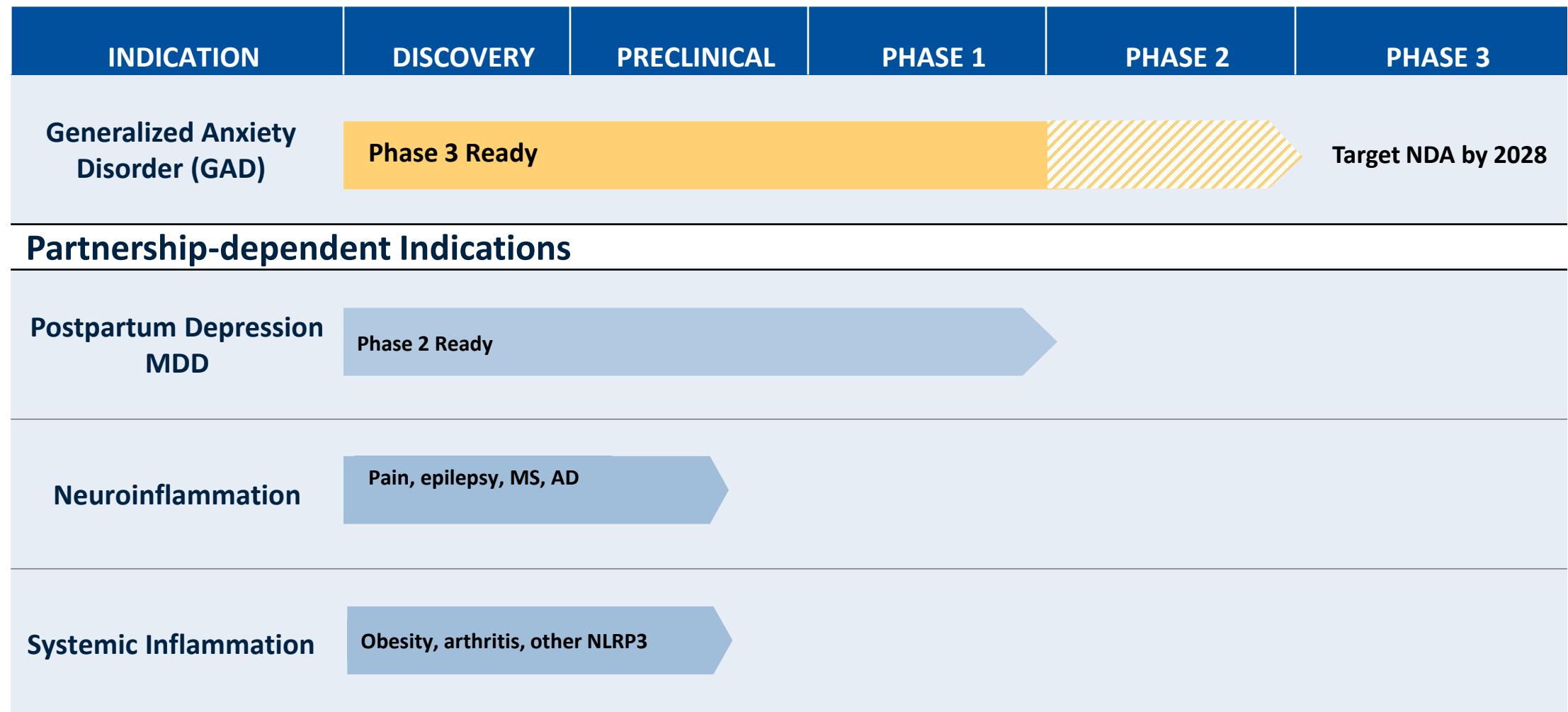
## De-Risked Program

GRX-917 is an improved analog of an approved anxiety medication

✓	<b>Target Engagement</b>
✓	<b>Pharmacokinetics (PK)</b>
✓	<b>Safety</b>
✓	<b>Efficacy</b>
✓	<b>Commercial Differentiation</b>

# GRX-917: Pipeline-in-a-Drug

*De-risked indications ready to begin clinical trials*

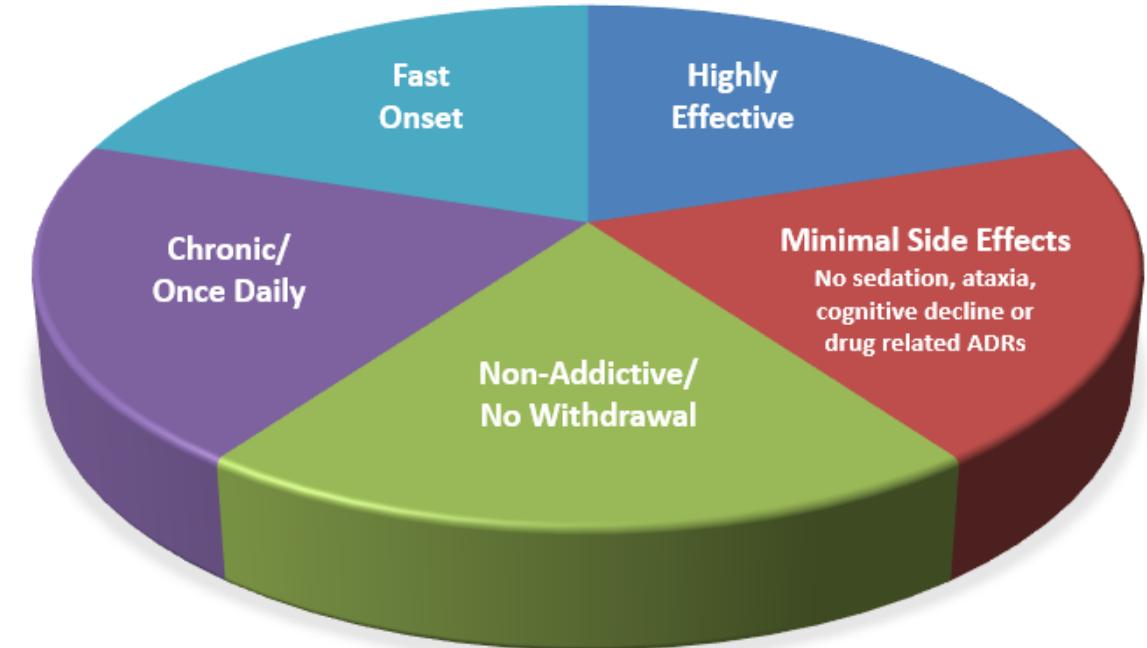


# GRX-917 Target Product Profile in Anxiety

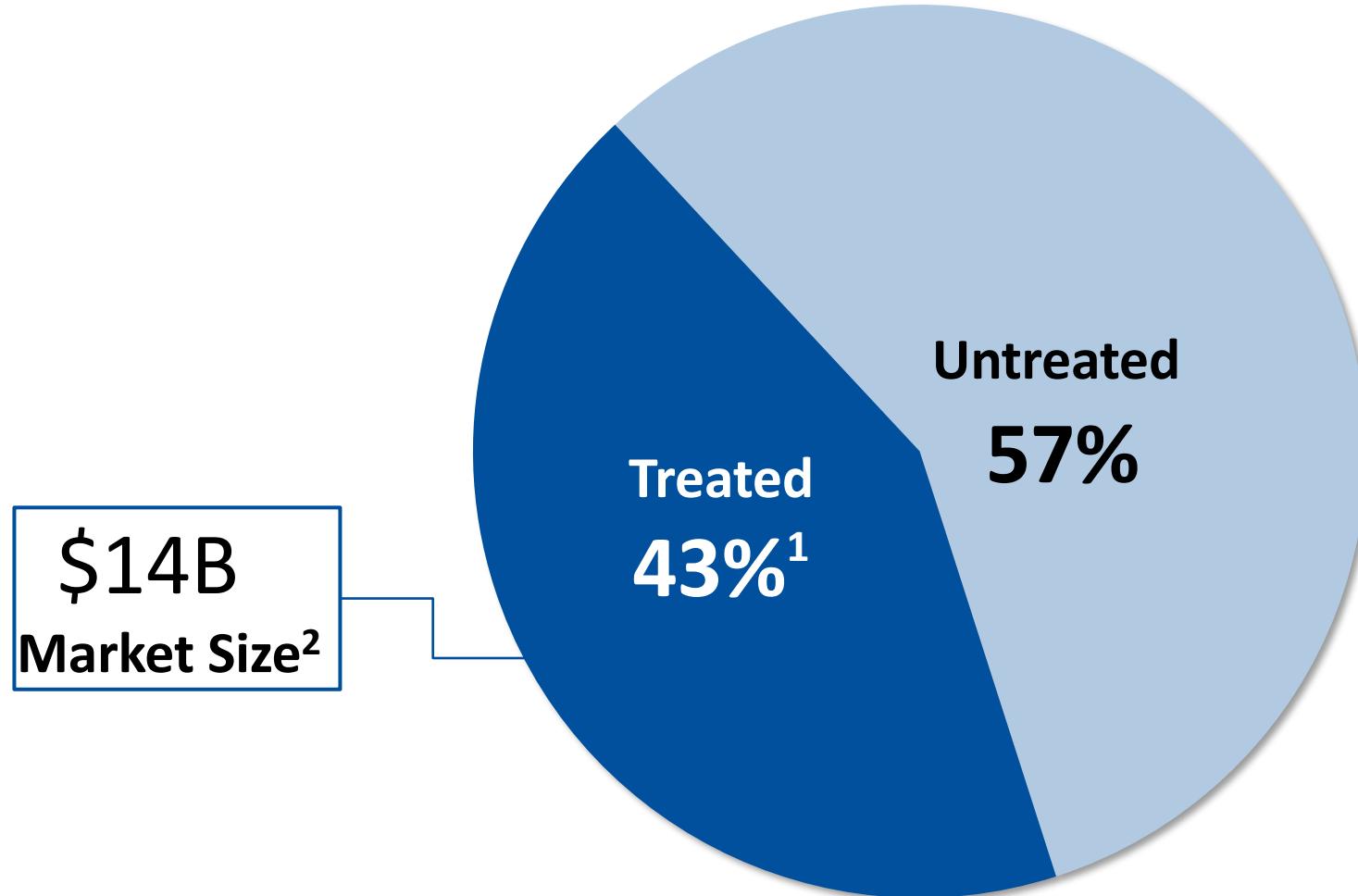


- **Optimal Efficacy**
  - Rapid-onset and efficacy superior/comparable to Xanax® & Ativan®
- **Minimal Adverse Events**
  - No sedation
  - No ataxia
  - No cognitive impairment
  - No addiction liability
- **Once Daily, Chronic Dosing**

***"A Fast and Effective Anxiolytic for Chronic Use"***



# Most GAD Patients Don't Receive Treatment



## GRX-917 vs. Current Available Treatments

Key Attributes	GRX-917	SSRIs/SNRIs	Benzodiazepines
<b>Rapid Onset</b>	✓	4-8-week delay	✓
<b>Efficacy</b>	✓	Inferior	✓
<b>Side Effects</b>	✓	GI, sexual dysfunction, insomnia, weight gain	Sedation, ataxia, impaired cognition
<b>Addiction Liability</b>	✓	✓	✗
<b>Chronic Usage</b>	✓	✓	✗

# GRX-917 is Deuterated Etifoxine

*Same profiles except for improved PK*

## Stresam® *Etifoxine*

**Three times daily (TID)**

- Safe & effective anxiolytic
- Approved in France 1979 (IP expired 80s)
- Prescribed >50% of new anxiety patients<sup>1</sup>
- 100+ published studies
- ETX will never compete with GRX-917 in any other major market (no IP protection)



Same safety & efficacy

## GRX-917

*Deuterated etifoxine*

**Once daily (QD)**

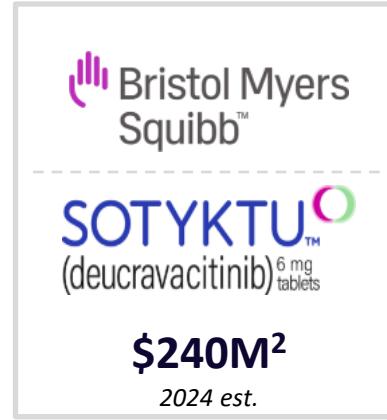
- Same safety, efficacy, MOA
- Improved PK and dosing
- Improved compliance expected

<sup>1</sup> Rosenblatt interviews with etifoxine high prescribers (GABA VDR Rosenblatt PMR Research)

# Deuterium Switch Strategy Has a Strong Track Record of Success

## *Multiple blockbuster deuterated therapeutics*

### Successful Outcomes from Deuterated Products



#### Deuteration:

- ✓ Improves drugs
- ✓ Minimizes risk in product development

<sup>1</sup>Per Teva FY 2024 Guidance

<sup>2</sup>Per broker consensus projections (Source: FactSet)

# Etifoxine Efficacy: Comparable to Xanax® and Ativan®

Etifoxine Study Result	Etifoxine Clinical Study	N	Reference	Date
Superior efficacy to Clonazepam (Klonopin®)	(P4) ETX vs Clonazepam (Klonopin®)	179	Vicente <sup>1</sup>	2020
Superior efficacy to Phenazepam	(P4) ETX vs Phenazepam	90	Aleksandrovsky <sup>2</sup>	2010
Superior efficacy to Buspirone	(P4) ETX vs Buspirone	170	STRETI S.226/GB	1998
Comparable onset and efficacy to Alprazolam (Xanax®)	(P3) ETX vs Alprazolam (Xanax®) Marketing Authorization in India 2024	260	Prabhakar et al (2024) <sup>3</sup>	2024
Comparable onset and efficacy to Alprazolam (Xanax®)	(P4) ETX vs Alprazolam (Xanax®)	202	ETIZAL S.650/EN	2015
Comparable onset and efficacy to Lorazepam (Ativan®)	(P4) ETX vs Lorazepam (Ativan®)	191	ETIROL S.392/EN	2006

1. Vicente et al., Psychopharmacology 237, 3357–3367 (2020)

2. Aleksandrovsky et al., Russian Psychiatric Journal; Therapy of the mentally ill; No. 1; 74-78 (2010)

3. Prabhakar et al. Role of Etifoxine in Generalized Anxiety Disorder: a phase III randomized, double-blind, double-dummy, active-controlled study in India. *Neuroscience Applied, Vol 3, Supplement 2, 104122 (2024)*.

Note – GABA management is not aware of any other region where this approval process is available.

# Etifoxine Safety: Excellent

**Table of Etifoxine Serious Adverse Events from All Controlled Clinical Trials**

Safety	Comment	Source
Non-Addictive	"No cases of abuse, misuse or pharmacodependence."	Cottin et al <sup>1</sup> (based on +15M Rx)
No Sedation	No effects on vigilance or psychomotor performance	Micallef et al <sup>2</sup>
No Impaired Cognition	No effect on alertness or other cognitive parameters in elderly	Deplanque et al <sup>3</sup>
No Serious Adverse Events	Very rare ADRs found in a PV database of etifoxine are <u>not drug related</u> : <ul style="list-style-type: none"> <li>Incidence rates &lt; 1 per million</li> <li>Never reported in any clinical trial of etifoxine (per EMA) or GRX-917</li> <li>Former FDA Director Psych Products advised:               <ul style="list-style-type: none"> <li>No reason to assume causation</li> <li>FDA will not refer to the etifoxine label</li> </ul> </li> </ul>	PV Analysis of Etifoxine Serious ADRs in EudraVigilance Database <sup>4</sup>

System Organ Class (SOC) MedDRA PT	Etifoxine hydrochloride	Blinded	Active comparator	Placebo
<b>Ear and labyrinth disorders</b>	0	0	1	0
Vertigo	0	0	1	0
<b>Eye disorders</b>	0	0	1	0
Retinal artery thrombosis	0	0	1	0
<b>Hepatobiliary disorders</b>	1	0	0	0
Jaundice	1	0	0	0
<b>Injury, poisoning and procedural complications</b>	1	4	1	1
Contusion	0	1	0	0
Ligament injury	1	0	0	0
Ligament sprain	0	1	0	0
Overdose	0	0	1	0
Road traffic accident	0	1	0	0
Wound	0	1	0	0
Injury	0	0	0	1
<b>Musculoskeletal and connective tissue disorders</b>	0	0	1	0
Back pain	0	0	1	0
<b>Neoplasms, benign malignant and unspecified (incl cyst)</b>	1	0	0	0
Fibroma	1	0	0	0
<b>Nervous system disorders</b>	0	0	1	0
Somnolence	0	0	1	0
<b>Psychiatric disorders</b>	0	0	1	0
Suicidal ideation	0	0	1	0
<b>Surgical and medical procedures</b>	1	0	0	0
Cervical conisation	1	0	0	0
<b>TOTAL</b>	4	4	6	1

1. Cottin et al., Fundamental & Clinical Pharmacology 30 (2016) 147–152

2. Micallef et al., 2001 Blackwell Science Fundamental & Clinical Pharmacology 15 (2001) 209-216

3. Deplanque et al., European Neuropsychopharmacology (2018) 28, 925-932

4. Kinexum-Pharmacovigilance Analysis of Etifoxine 2023-03-13

Source: EMA/CHMP Etifoxine Assessment Report, Jan 2022

# GRX-917 – Potent Neuromodulator and NLRP3 Inhibitor

## Via induction of endogenous neurosteroids

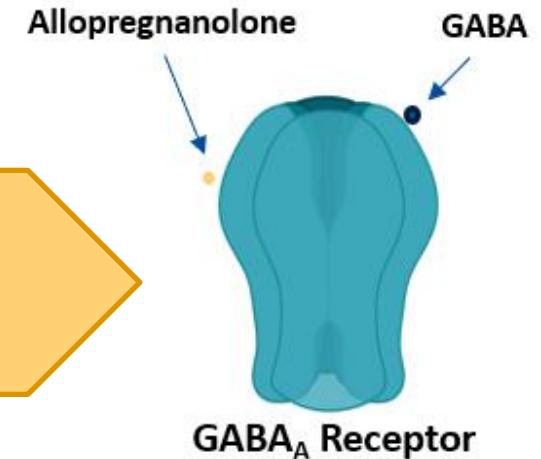
1

GRX-917/etifoxine increase neurosteroid synthesis<sup>1</sup>



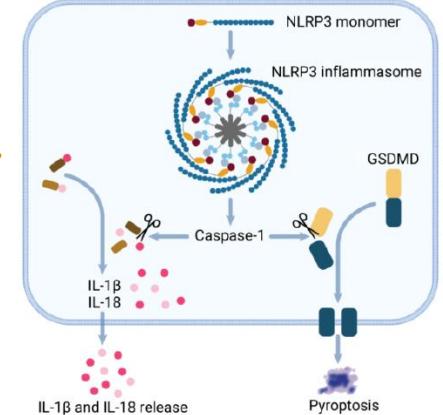
2a

Neurosteroids modulate receptors<sup>2</sup>  
(anxiety, depression, epilepsy)



2b

Neurosteroids inhibit NLRP3 inflammation<sup>3</sup>  
(epilepsy, MS, pain, obesity)



<sup>1</sup>do Rego JL et al (2015) PLoS ONE 10(3): E0120473 ; internal data

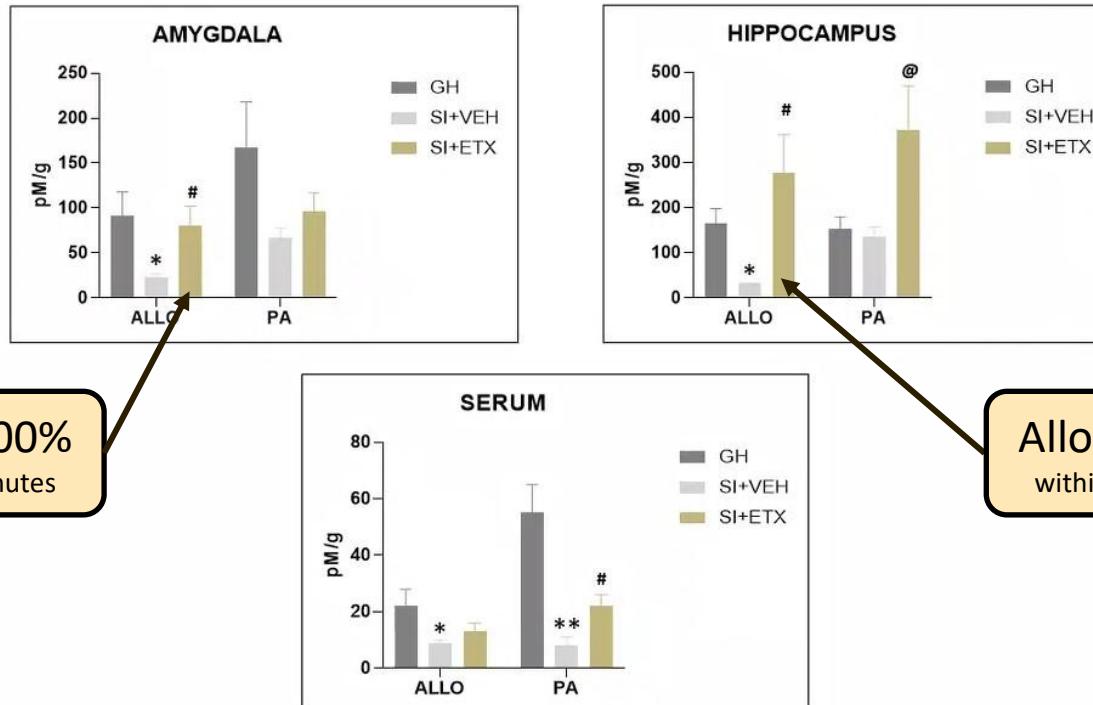
<sup>2</sup>Lambert et al (2003) Prog Neurobiol 71(1): 67-80.

<sup>3</sup>Osmond et al (2023)

# MOA - Rapidly Increases Neurosteroid Levels in Brain

*Neurosteroid replacement underlies the anti-inflammatory and neuromodulatory effects of GRX-917/ETX*

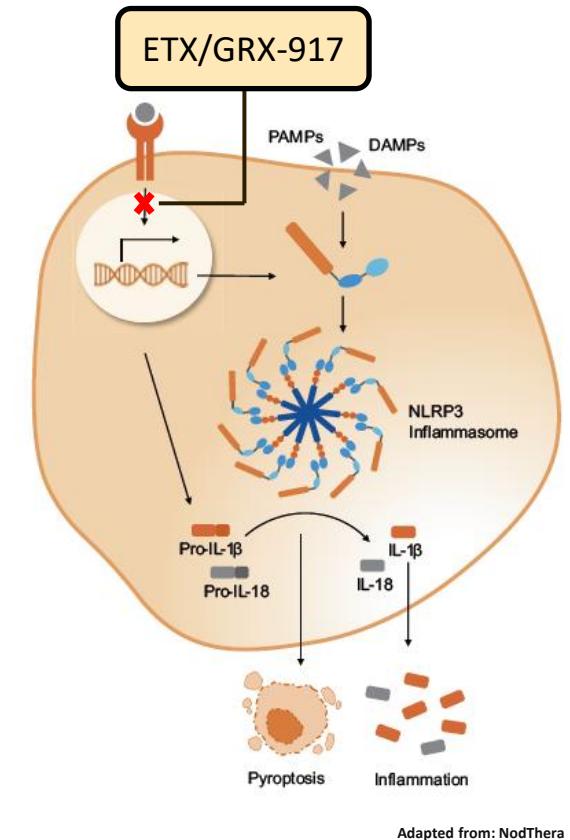
Allopregnanolone (ALLO) and pregnanolone (PA) levels in brain and serum of socially isolated mice treated with etifoxine



Etifoxine was administered at the dose of 50mg/kg IP and mice were killed 60 min after drug injections. Results are Mean  $\pm$  SEM of 5-10 mice. \*P<0.05 and \*\*P<0.001 compared with group-housed (GH) mice; #P<0.05 compared with socially isolated (SI) mice plus vehicle (VEH); @P=0.06 compare with SI + VEH

Source: Graziano Pinna PhD, Univ IL Chicago

# Potent Inhibition of NLRP3/ IL1B Pathway Inflammation



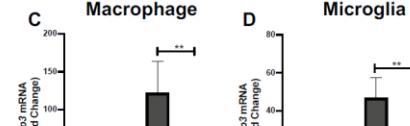
## NLRP3 inflammasome activity contributes to:

- IL-1 $\beta$ , IL-18 and cytokine release
- Cell death via pyroptosis
- CNS and peripheral inflammation

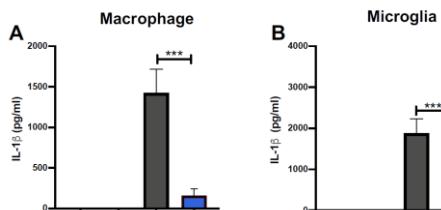
## Etifoxine<sup>(1)</sup>

- Blocks NLRP3 inflammasome pathway
- Reduces IL-1 $\beta$ , NLRP3, TNFalpha
- Improves clinical scores in EAE model

## ETX reduces *nlrp3*

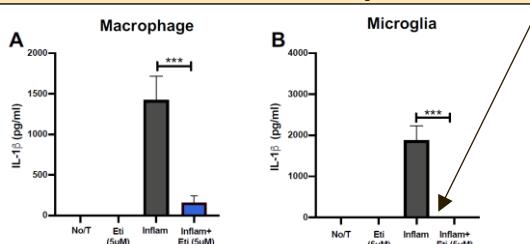


## ETX reduces IL1 $\beta$

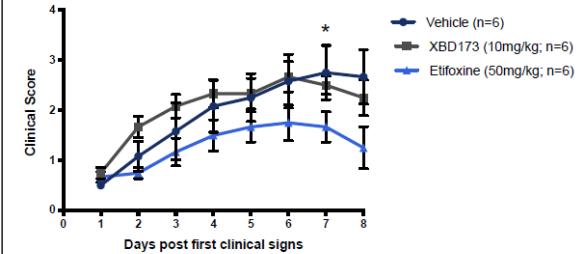


Reduces inflammatory markers by up to 100%

## ETX reduces *iil1 $\beta$*



## Improves Clinical Scores in EAE Model



## NLRP3 inhibition explains ETX efficacy in preclinical models:

- EAE (acute neuroinflammation)
- AD, PD
- Pain
- Obesity
- TBI, stroke

(1) Osmond et al (2023) - Etifoxine inhibits NLRP3 inflammasome activity in human and murine myeloid cells  
 Jordan M. Osmond, John B. Williams, Paul M. Matthews, David R. Owen, Craig S. Moore  
<https://doi.org/10.1101/2023.09.19.558428>

# GRX-917 Phase 1 – Minimal AEs and QD Dosing

Safe, well-tolerated,  
with minimal adverse events

Nervous System Disorders	GRX-917 (n=75)	Placebo (n=25)
Dizziness	4%	4%
Headache	17%	12%
Paresthesia	1%	4%
Somnolence	0%	8%
Ataxia	0%	0%
Lethargy	3%	0%
Cognitive Deficit	0%	0%

**GRX-917 Phase 1:** A Randomized, Double-Blind, Placebo-Controlled Study to Evaluate the Safety, Tolerability, Pharmacokinetics and Pharmacodynamics of Single and Multiple Ascending Doses of GRX-917 in Healthy Adult Subjects

GRX-917 demonstrated improved PK and once-daily dosing

	Etifoxine*	GRX-917
Half-life	4 hours	>12 hours
Daily dose	200 mg	60 mg
Dosing regimen	TID	QD

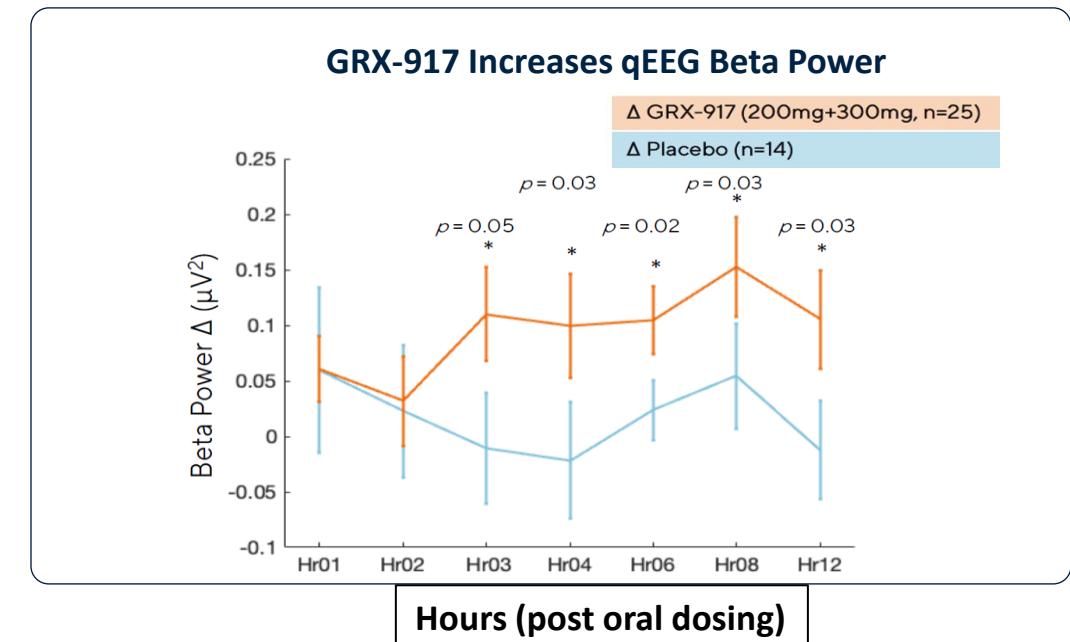
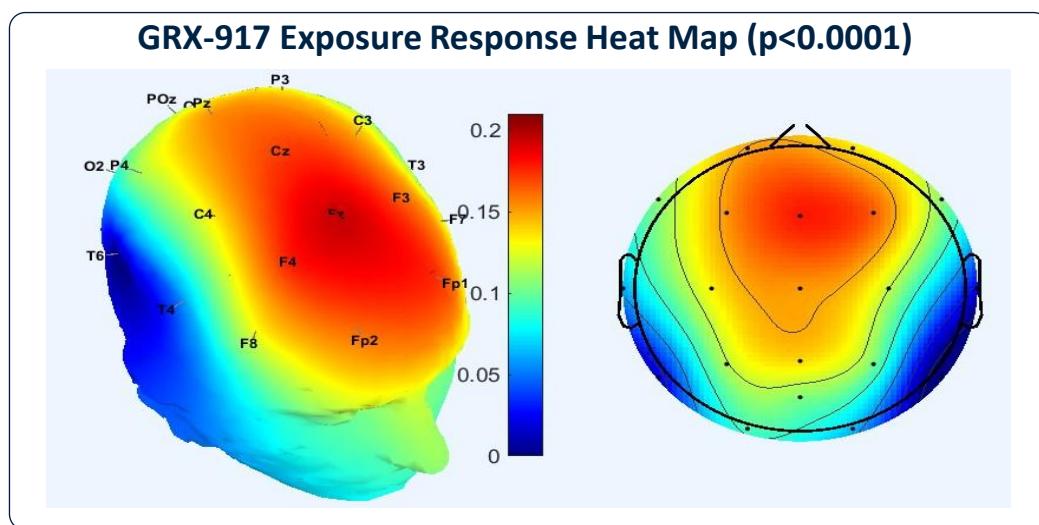
\* **Etifoxine Phase 1:** A Two Stage, Double-Blind, Placebo-Controlled Single and Multiple Dose Study To Evaluate The Pharmacokinetics, Pharmacodynamics, and Safety of Oral Etifoxine in Normal Healthy Volunteers

# GRX-917 Increases qEEG Beta Power in Phase 1

*qEEG biomarker confirms GABA-A target engagement and supports anxiolytic efficacy*

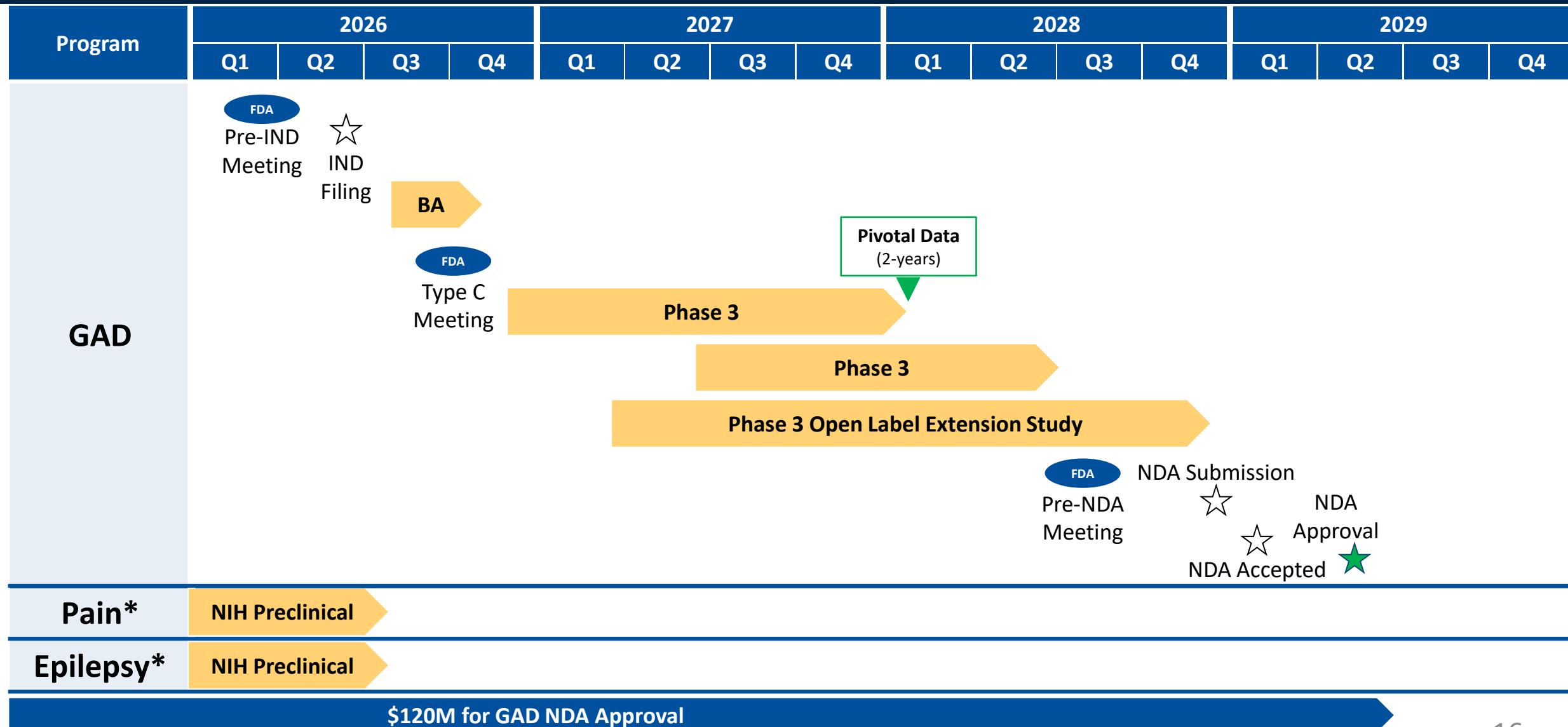
- Increased Beta Power confirms GABA<sub>A</sub> receptor target engagement
- Demonstrates exposure response ( $p<0.0001$ )
- Supports anxiolytic efficacy

- Increased Beta Power is dose- and time-dependent for at least 12 hours ( $p<0.05$ )
- Rapid onset, sustained



# GRX-917 Core GAD Clinical Program

## 2-Year Inflection Point (1<sup>st</sup> Phase 3 Readout)



\*NIH programs are entirely funded and executed by NIH.

# Key Advisors

*Decades of successful leadership in pharma development, psychiatry, and regulatory*



**Robert Berman, M.D.**

Scientific Advisory Board Chairman  
Co-Founder, Biohaven



**Maurizio Fava, M.D.**

Clinical & Regulatory Advisor  
Psychiatrist-in-Chief  
Mass General/ Harvard Med



**Thomas Laughren, M.D.**

Clinical & Regulatory Advisor  
Former Director, Div. Psych  
Products, FDA/CDER



YALE SCHOOL OF MEDICINE



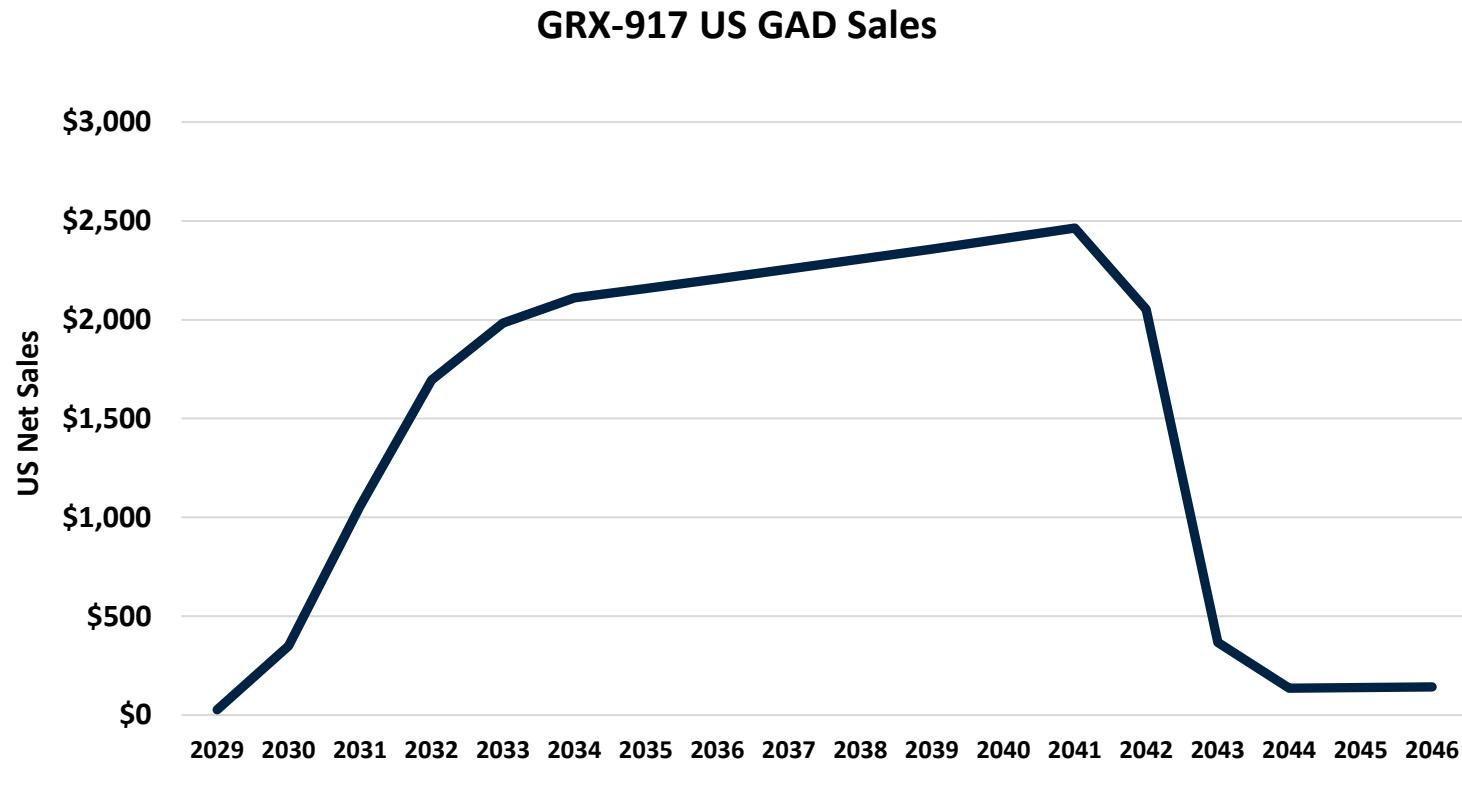
## GRX-917 Costs to NDA in GAD

- Novo Ventures wishes to fund clinical development in GAD through NDA
- Only due and payable if approved
- 3-4 x amount funded
- Requires commercial partner (pharma) to guarantee repayment

Use of Funds (\$US Millions)	Total to NDA
IND Opening Studies	\$4.5
Clinical Trials	\$58.0
Tox & Research	\$10.6
CMC	\$18.2
Regulatory	\$2.5
G&A	\$27.7
<b>Total</b>	<b>\$121.0</b>

*All costs supported by vendor quotes*

# GRX-917 US GAD Sales Forecast: \$2.5B Peak Revs



### Key Forecast Assumptions

- US GAD prevalence (2029): 10.8m
- US GAD treated patients (2029): 4.9m
- GRX-917 peak penetration:
  - First line treatment: 10%
  - Uncontrolled patients: 20%
- GRX-917 peak patients on drug: 653k
- Average Rx per year: 4.7
- GRX-917 gross price per Rx: \$623 at launch increasing 1.5% per year
- Gross to net discount: 30%
- US peak revenue: \$2.5B
- Gross margin: 90%

Source: Rosenblatt Life Science

# Intellectual Property Overview: Global CoM IP Potentially through 2046

Country	Date Applied	Application number	Status of the application	Publication No.	Publication date	Grant No.	Date of grant
Australia	2017-09-20	AU2020201728	Granted	AU2020201728A1	2020-03-26	AU2020201728B2	2021-12-23
Australia	2017-09-20	AU2016235495	Granted	AU2016235495A1	2020-05-14	AU2016235495B2	
Brazil	2017-09-20	BR112017020081-3A	Granted	BR112017020081A2	2018-05-06	BR112017020081B1	2021-11-30
Canada	2017-09-20	CA2979853A	Granted	CA2979853A1	2016-09-29	CA2979853C	2021-05-11
China	2017-09-20	CN201680028306.5	Granted	CN107530323A	2021-05-04	CN107530323B	2021-05-04
Europe	2017-09-20	EP16769437.1	Granted	EP3347006A1	2018-07-18	EP3347006B1	2022-07-27
Validated In: AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LI, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR							
India	2017-09-20	IN201727035718	Granted	IN201727035718	2017-12-29	IN201727035718	2025-01-28
Israel	2017-09-20	IL270627	Granted	IL270627A	2019-12-31	IL270627B2	2023-03-01
Israel	2017-09-20	IL254567	Granted	IL254567A	2017-11-30	IL254567B	2020-03-31
Japan	2017-09-20	2018-500276	Granted	JP2018508592A	2018-03-29	JP6762507B2	2020-09-30
Japan	2017-09-20	2022-176234	Granted	JP2023009114A	2023-01-19	JP7376668B2	2023-11-08
Mexico	2017-09-20	MX2017011978A	Granted	MX2017011978A	2018-09-02	383647	2021-06-16
South Korea	2017-09-20	KR10-2017-7028263	Granted	KR20170137085A	2018-02-09	KR102290766B1	2021-08-19
USA	2015-03-20	62/135,979	Converted - Provisional	-	-	-	-
USA	2016-03-18	15/557,748	Granted	US20180064717A1	2018-08-03	US10,080,755B2	2018-09-25
USA	2018-09-21	16/138,509	Granted	US20190015419A1	2019-01-17	US10,736,901B2	2020-08-11
USA	2020-08-07	16/988,586	Granted	US20200405726A1	2020-12-31	US11,672,805B2	2023-06-13
USA	2023-01-05	18/141,999	Pending - Published	US20230263805A1	2023-08-24	-	-

- Robust IP portfolio with composition patent protection through at least 2036
- Potential Hatch-Waxman extensions through 2042
- New patent filings could increase IP protection through 2046

# Key Executives

*Decades of successful leadership, clinical development, and commercialization in pharma and biotech*



**Mario Saltarelli, M.D., Ph.D.**  
Chief Executive Officer,  
Director



**Richard Farrell**  
Chief Financial Officer,  
Director, & Co-Founder



**Kathryn King, Ph.D.**  
Chief Operating Officer



**Mary Szela**  
Commercial Consultant



**David Putnam, Ph.D.**  
Chief Scientific Officer,  
Co-Founder



**Olivier Dasse, Ph.D.**  
Senior VP of Chemistry,  
Co-Founder



## Appendix & Additional Indications

# GRX-917's Clinical Profile is Superior to Other GAD Drug Candidates in Development

Drug	GRX-917/ETX	GAD Drug Candidates							
		Darigabat <sup>(1,2)</sup>	ENX-102 <sup>(3)</sup>	SEP-363856 (ulataront)	MM-120 (LSD)	SPT-300 (glyph-ALLO)	ITI-1284 (deulumateperone)	CYB-004 (deu-DMT)	ABBV-932
MOA	Induces the Production of Neurosteroids	GABA PAM	GABA PAM	TAAR1 agonist	5HT-1a/2a agonist	GABA PAM	Atypical antipsychotic	5HT2a agonist	D2/3 modulator
Mode of Administration	Oral QD/TID	Oral BID	Oral QD	Oral QD	Oral 1x dose	Oral TID-QID	QD sublingual	IM	oral
Onset of Action	Rapid	No Efficacy	N/A	N/A	Rapid	N/A	N/A	N/A	N/A
Efficacy (HAM-A Reduction)	60%	No Efficacy	No beta power increase	?	75%	N/A	N/A	N/A	N/A
AEs	Minimal	High	High	Moderate	High	High	High	High	N/A
Somnolence	0% (Phase 1)	25%-33%	Somnolence 90%; Fatigue 87%	8%	<10%	74%	24%	N/A	N/A
Other	None	Impaired cognition; Impaired Epworth; Sleepiness scale	Sustained reduced arousal; Alpha power decrease	GI AEs	Psychedelic AEs Suicidality	Balance Disorder Euphoria Dizziness Cognitive Disorder	Risk of death in elderly; suicidal ideation	Hallucinations Depersonalization Nausea/vomiting Hypertension	N/A
Addiction Liability	None	Schedule IV probable	Schedule IV probable	N/A	Schedule I currently	Schedule IV probable	None	Schedule I currently	N/A
Treatment Duration	Chronic	Unknown but likely short term	Unknown but likely short term	N/A	Restricted	Likely short term	Chronic	Restricted	N/A

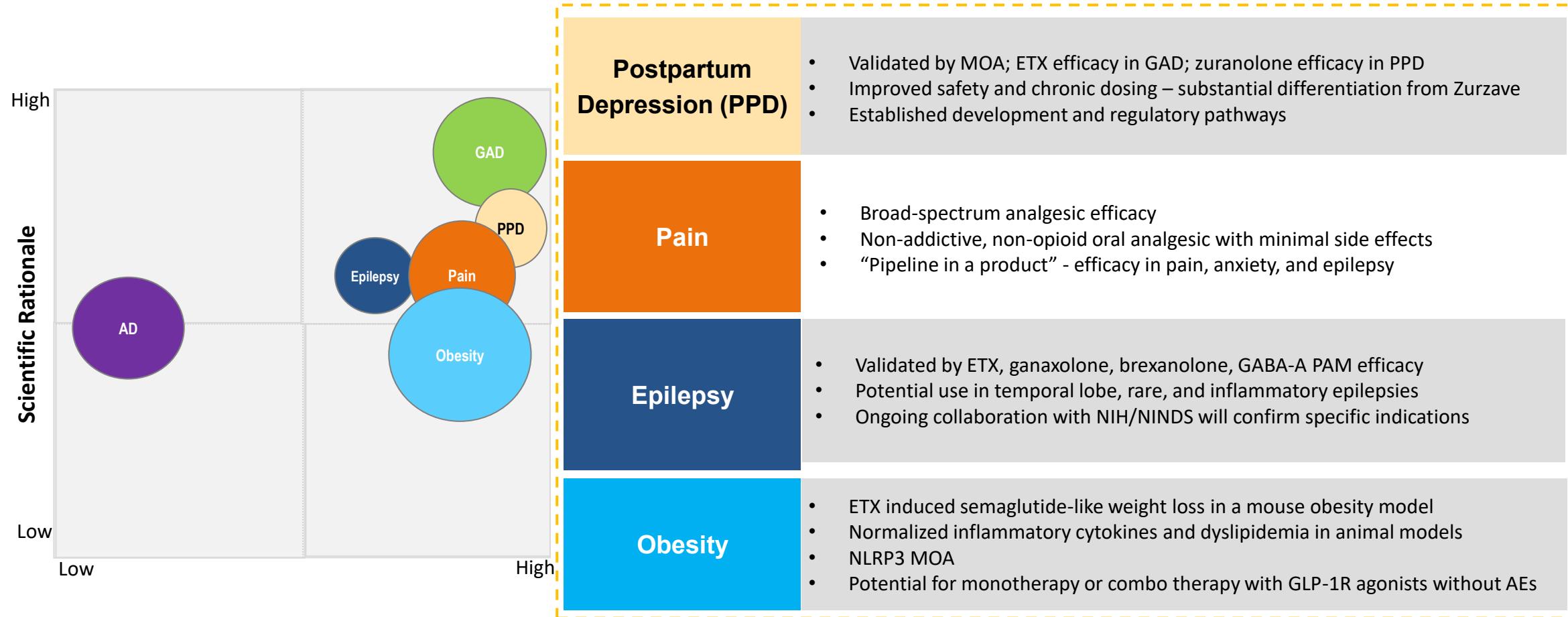
1) Dandurand, 2023

2) Simen et al, Journal of Clinical Psychopharmacology 39(1):p 20-27, 2019

3) Vanover et al., 2023

# GRX-917 Additional Indications Strategy

Strong scientific rationale and clinical/regulatory favorability exist for multiple blockbuster indications beyond GAD  
NLRP3/IL-1beta inflammation drives all GRX-917 indications



○ ○ Market size.

# GRX-917 Rationale in PPD – Zuranolone Approved in PPD

**MOA in PPD:** Allopregnanolone modulates the GABA<sub>A</sub> receptor.

## Zuranolone and its Limitations

Zuranolone (Zurzave) is a synthetic allopregnanolone pill

- Max dose: 50mg (8/130 patients fell unconscious in one study)
- Max duration: 14 days due to safety concerns

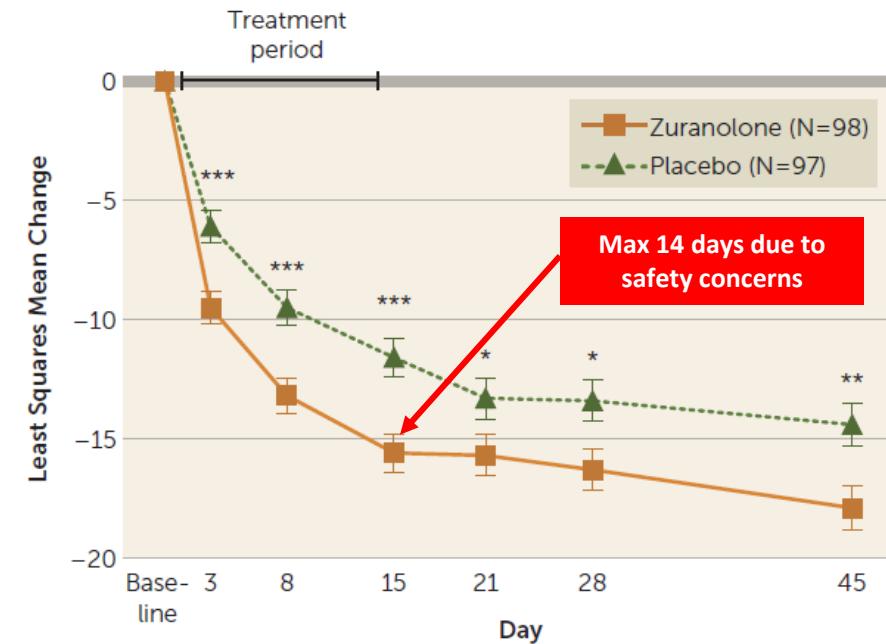
## GRX-917 and its Benefits

GRX induces the natural production of endogenous allopregnanolone in selective regions where it is needed

- Max dose: no MTD in Phase 1
- Max duration: chronic usage

These two key benefits should result in GRX-917 showing superior and prolonged efficacy in PPD.

FIGURE 2. Change from baseline in HAM-D score in a placebo-controlled trial of zuranolone 50 mg/day for postpartum depression (full analysis set)<sup>a</sup>



<sup>a</sup>The primary endpoint was change from baseline in score on the 17-item Hamilton Depression Rating Scale (HAM-D) at day 15, and the key secondary endpoints included change from baseline in HAM-D score at days 3, 28, and 45. Multiplicity was accounted for when analyzing primary and key secondary endpoints. All other secondary endpoints were not adjusted for multiplicity and are to be interpreted with nominal p values. Error bars indicate standard error. \*p<0.05. \*\*p<0.01. \*\*\*p<0.001.

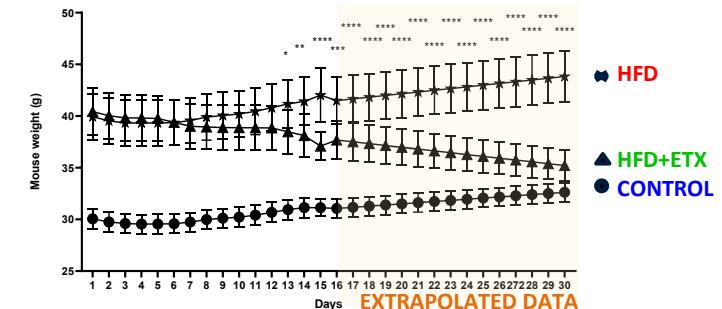
<https://doi.org/10.1176/appi.ajp.20220785>

# ETX Reverses Weight Gain In Mouse Diet-Induced Obesity Model

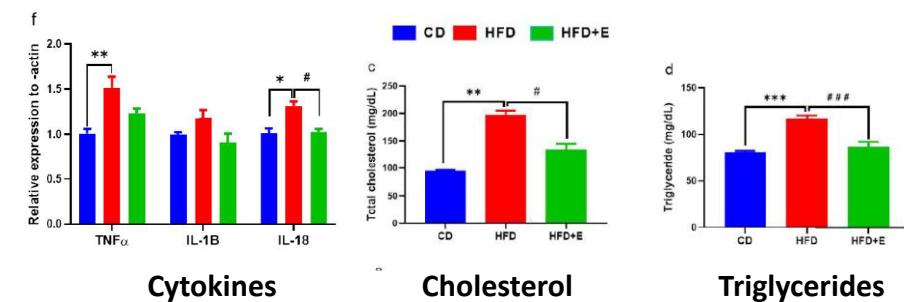
## *Normalization of inflammatory and lipid biomarkers in 15 days*

- Obesity is an NLRP3-driven neuroinflammatory disease
- Etifoxine is a potent inhibitor of NLRP3/IL-1beta pathway
- Obese HFD-fed mice lost 11% body weight following 15 days treatment with low dose ETX (50 mg/kg QD)
- ETX treatment normalized proinflammatory markers serum lipids
- ETX-induced weight loss is comparable to:
  - semaglutide
  - Brain-penetrant NLRP3 inhibitors (e.g. NT-0796)
- Following pre-clinical dose confirmation, GRX-917 is phase 2 POC ready to assess in obesity

### Etifoxine Induces Weight Loss (11% in 15 days)



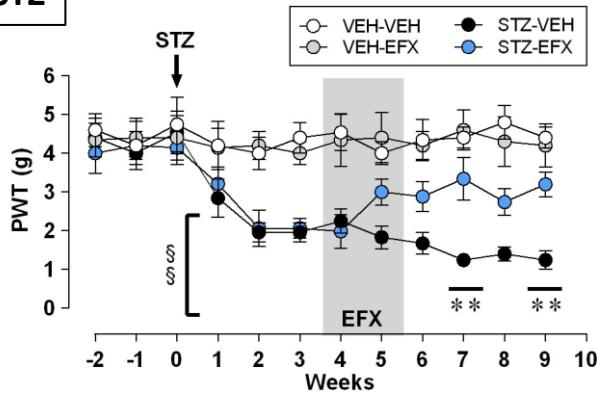
### Normalization of inflammatory and lipid biomarkers



# Etifoxine Demonstrates Broad Spectrum Efficacy in Rodent Pain Models

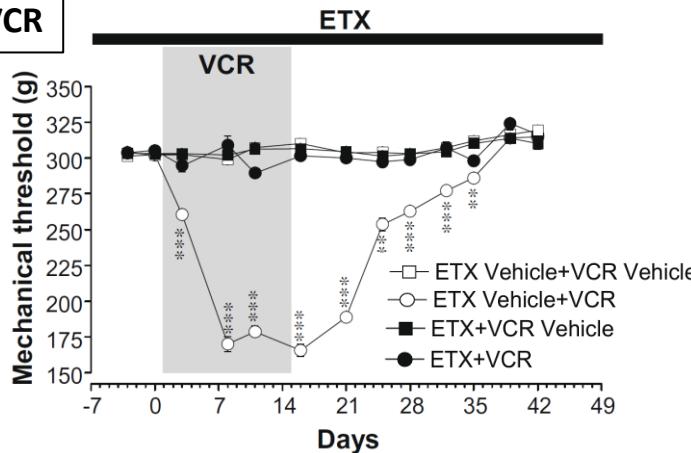
## *Supports human efficacy in neuropathic, diabetic, and inflammatory pain*

STZ



The non-benzodiazepine anxiolytic etifoxine limits mechanical allodynia and anxiety-like symptoms in a mouse model of streptozotocin-induced diabetic neuropathy  
Gazzo et al., PLOS ONE 2021  
<https://doi.org/10.1371/journal.pone.0248092>

VCR

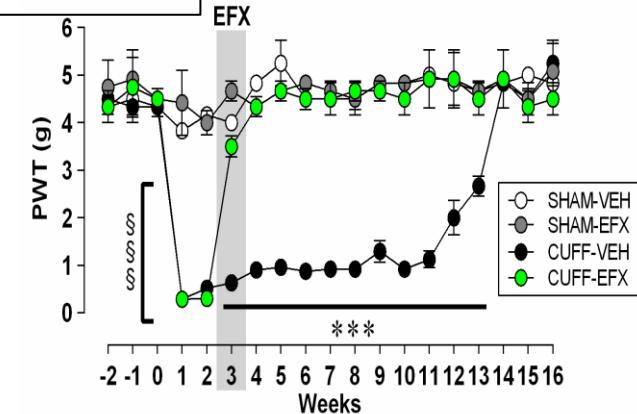


Reduction and prevention of vincristine-induced neuropathic pain symptoms by the non-benzodiazepine anxiolytic etifoxine are mediated by 3 $\alpha$ -reduced neurosteroids  
Aouad et al, Pain 2009  
DOI: 10.1016/j.pain.2009.08.001

### Impressive activity in rodent pain models:

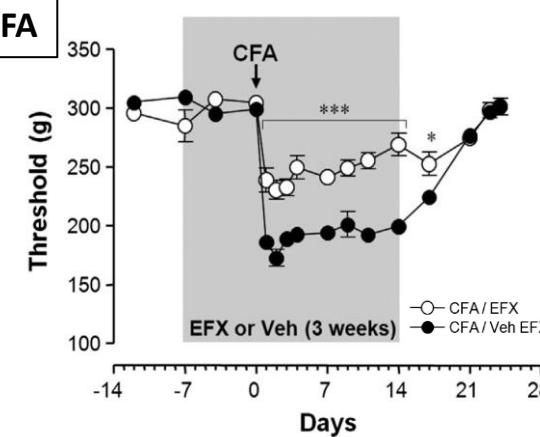
- Durable analgesia (equiv to gabapentin) in diabetic neuropathy (STZ)
- Rapid, complete, and durable analgesia in mononeuropathy (Sciatic Cuff)
- Rapid-onset efficacy in inflammatory pain (CFA)
- Total block of neuropathic pain in chemoRx-induced peripheral neuropathy (VCR)

### Sciatic Cuff



Long-lasting analgesic and neuroprotective action of the non-benzodiazepine anxiolytic etifoxine in a mouse model of neuropathic pain  
Kamoun et al. Neuropharmacology 2021  
<https://www.sciencedirect.com/science/article/abs/pii/S0028390820304755>

### CFA



Etifoxine analgesia in experimental monoarthritis: A combined action that protects spinal inhibition and limits central inflammatory processes Aouad et al 2014  
<http://dx.doi.org/10.1016/j.pain.2013.11.003>

# GRX-917/ETX-Class Drugs Inhibit NLRP3 Inflammation

*Potential therapy for multiple CNS and systemic NLRP3/IL-1Beta inflammatory diseases*

## NLRP3/IL-1Beta Inflammatory Diseases

Efficacy supported by ETX animal studies		
<b>Neuroinflammatory Diseases</b>	Multiple sclerosis, Alzheimer's disease, Parkinson's disease, anxiety, depression, epilepsy, traumatic brain injury, neuropathy, pain	ALS
<b>Systemic Inflammatory Diseases</b>	rheumatoid arthritis	IBD, OA, gout, asthma, systemic juvenile idiopathic arthritis, Still's disease, psoriasis, SLE, endometriosis, cystic fibrosis, hidradenitis suppurativa, lupus nephritis
<b>Cardiometabolic Diseases</b>	Obesity	MASH, NAFLD, atherosclerosis, diabetes