NeuroBo Pharmaceuticals & Gemphire Therapeutics Merger
July 2019

Novel Treatment Candidates for Neurodegenerative Conditions
Building a pipeline of treatment candidates for neurodegenerative diseases that affect millions of patients worldwide
Disclaimer

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Important Additional Information Will be Filed with the SEC. In connection with the proposed transaction, Gemphire intends to file relevant materials with the SEC, including a registration statement on Form S-4 that will contain a proxy statement/prospectus/information statement. GEMPHIRE URGES INVESTORS AND STOCKHOLDERS TO READ THESE MATERIALS CAREFULLY AND IN THEIR ENTIRETY WHEN THEY BECOME AVAILABLE BECAUSE THEY WILL CONTAIN IMPORTANT INFORMATION ABOUT GEMPHIRE, NEUROBO, THE PROPOSED TRANSACTION AND RELATED MATTERS. Investors and stockholders will be able to obtain free copies of the proxy statement/prospectus/information statement and other documents filed by Gemphire with the SEC (when they become available) through the website maintained by the SEC at www.sec.gov. In addition, investors and shareholders will be able to obtain free copies of the proxy statement/prospectus/information statement and other documents filed by Gemphire with the SEC by written request to Gemphire Therapeutics Inc., 17199 N. Laurel Park Drive, Suite 401, Livonia, MI 48152, Attention: Corporate Secretary. Investors and stockholders are urged to read the proxy statement/prospectus/information statement and the other relevant materials when they become available before making any voting or investment decision with respect to the proposed transaction.

Participants in the Solicitation—Gemphire and NeuroBo, and each of their respective directors and executive officers and certain of their other members of management and employees, may be deemed to be participants in the solicitation of proxies in connection with the proposed transaction. Information about Gemphire’s directors and executive officers is included in Gemphire’s Annual Report on Form 10-K for the year ended December 31, 2018, filed with the SEC on March 18, 2019. Additional information regarding these persons and their interests in the transaction will be included in the proxy statement relating to the transaction when it is filed with the SEC. These documents can be obtained free of charge from the sources indicated above.

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**NeuroBo Summary**

- **Robust Drug Pipeline**: NB-01, the lead drug candidate, is Phase 3-ready in Diabetic Neuropathic Pain (DNP). Additional pain indications and a second IND-ready drug candidate in neurodegenerative disease, NB-02, are being developed.

- **Large Market**: DNP estimated to affect up to 22% of all patients with diabetes and is projected to represent a global market of $7.1 billion by 2026 (GlobalData, 2018).

- **Differentiation**: NeuroBo drug candidates are based on natural product sources, shown to be efficacious with favorable safety profiles, and have potential disease-modifying properties.

- **Intellectual Property**: Strong IP portfolio consists of composition, method of use, and processes for both drug candidates NB-01 and NB-02.

- **Financing, Management**: Strong financial position with Series B financing yielding gross proceeds of $24 million closed in July 2019 and additional investor discussions are ongoing. Management team with 150+ years combined experience in drug development, innovation, and corporate strategy.
The NeuroBo Management Team

John L. Brooks III, MSBA, BBA  
President & CEO  
Experienced biotech, device, and healthcare executive

Nandan Padukone, PhD  
Senior Vice President, Business Development  
Experienced executive in innovation and venture development

Mark Versavel, MD, PhD, MBA  
Chief Medical Officer  
Senior medical and clinical drug development experience

Nicola Shannon, RegN.,BA  
Vice President, Clinical Operations  
Experienced senior executive in clinical operations
Roy Freeman, MD  
Founder and Chair of SAB  
Professor at Harvard Medical School and Physician at Beth Israel Leahy Health

Robert H. Dworkin, Ph.D.  
Leading Clinician in Neuropathy  
Renowned global leader in the treatment and prevention of chronic neuropathic and musculoskeletal pain

Bob Rappaport, MD  
Regulatory Expert  
Former Division Director of Anesthesia, Analgesia and Addiction Products at FDA
Diabetic Neuropathic Pain Background

• Diabetic Neuropathic Pain (DNP) arises due to hyperglycemia and other diabetes-related factors. Up to 22% of all patients with diabetes suffer from DNP

• Most common pain symptoms are reported to be numbness, tingling, burning, sharp, and dull ache, which are often localized to the extremities, impacting the feet and hands (Cakici et al., 2016)

• Current treatment options are efficacious in less than 50% of patients
  • Only three approved therapies for the treatment of DNP: Lyrica (pregabalin), Cymbalta (duloxetine), and Nucynta ER (tapentadol)
  • Outside of these drugs, the market consists of off-label use and generic medications

• Key treatment needs:
  • Minimal side effects with pain alleviation
  • Disease modification with nerve regeneration
Diabetic Neuropathic Pain Market Overview

2018 DNP Global Market:

- **Prevalent Population**: ~8.4M (~2.4M U.S.)
- **Total Diagnosed and Treated Population**: ~4M (~1.2M U.S.)
- **Market Sales**: ~$3.6B (~$2.6B U.S.)

Projected 2026 DNP Global Market:

- **Prevalent Population**: ~10.8M (~3.4M U.S.)
- **Total Diagnosed and Treated Population**: ~5.5M (~1.9M U.S.)
- **Market Sales**: ~$7.1B (~$4.8B U.S.)
# Development Pipeline In Neuropathic Pain and Neurodegenerative Disease

<table>
<thead>
<tr>
<th>Disease Indication</th>
<th>Discovery</th>
<th>Preclinical</th>
<th>Phase 1</th>
<th>Phase 2</th>
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<td><strong>NB-01</strong> Diabetic Neuropathic Pain (DNP)</td>
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<td>Chemotherapy-induced Neuropathic Pain</td>
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<td><strong>NB-02</strong> Alzheimer’s Disease</td>
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<td>Tauopathies</td>
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50% Responder Rates: NB-01 Shows Equivalent Efficacy to Approved Drugs Despite Higher Placebo Effect in Phase 2 Study

Moore et al, 2009; Lunn et al, 2014
Adverse Events of NB-01 from Phase 2 Studies Observed within 2-3% of Placebo

Safety data compiled from two Phase 2 studies (US and Korea)

Average incidence of AEs over Placebo of Approved Treatments for DNP

Range: 15-30%
NB-01 Improved Pain Scores in US Phase 2 Study of DNP

16 US sites, 128 subjects, 3 doses vs. placebo (600mg and 300mg doses shown here)

NRS: 11-point numeric rating scale
* <0.05, ** <0.01

Two End of Phase 2 meetings completed with the U.S. Food & Drug Administration (FDA)
300mg and 600mg suggested by FDA for advancement to Ph 3 Trial
Three Phase 3 Studies in DNP Powered For Efficacy and Safety

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<tr>
<th>2019</th>
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<td>NB-01-303 (Ext.)</td>
<td>CLIMB</td>
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**NB-01 ANCHOR Study: North American Pivotal Study**
- N=717; 2 doses – 300mg and 600mg daily vs. placebo
- Primary endpoint: Change from baseline to week 12 in the weekly mean of the average daily pain score measured by the PI-NRS, an 11-point numerical scale

**NB-01 BELAY Study: OUS Pivotal Study**
- Same as Anchor Study performed OUS

**NB-01 CLIMB Study: Extension Safety Study, All Patients**
- 12-month long-term safety extension study; n= ~1100-1200
- Disease modification: Blood samples assayed for AGEs, inflammatory markers; potential skin biopsies for assay of nerve growth
Potential Synergistic Disease-Modifying Action on Underlying Pathways in Rodent Models

Reverses inflammation, decreases advanced glycation end-products, and restores nerve growth factor as shown in preclinical models of diabetes

- **Anti-Inflammatory**
- **Reduction of Advanced Glycation End-products**
- **Elevation of Nerve Growth Factor (NGF)**

**TNF-α Reduction**

(*)p<0.05 vs N with vehicle,

(*#)p<0.05 vs STZ with vehicle)

**AGE**

(*)p<0.05 vs. STZ with vehicle)

**NGF Elevation**

(=*p<0.05 vs STZ with vehicle)

Note: DA-9801 = NB-01
Summary

• Planned merger of NeuroBo Pharmaceuticals and Gemphire Therapeutics

• NeuroBo has a strong team, a late-stage clinical candidate (NB-01), and a recent $24M investment of capital

• NB-01 targets diabetic neuropathic pain (DNP); NB-01 Phase 3 clinical trial in DNP expected to begin this year

• Post-merger John L. Brooks, III, will become CEO of the combined company and Steve Gullans will join the Board of Directors

• Gemphire shareholders will receive contingent value rights for gemcabene
Intellectual Property Portfolio (with current year of expiration)

**NB-01**
Drug Mixture Composition
Peripheral Neuropathy

- Granted patents in US, EU, and Asia on combination of plant species for drug composition – 2027
- Granted patents in EU, Asia, and allowance in US for composition and use in peripheral neuropathy - 2031
- Patents being prosecuted on drug applications in neurodegenerative disease - 2031

**NB-02**
Drug Mixture Composition
Neurodegenerative disease

- Patents in prosecution for US, EU and Asia on composition for treating degenerative neurological disease including Alzheimer’s – 2035
- Patents in prosecution in US, EU, and Asia on method for treating neurological disease including Alzheimer’s - 2035
High Level Terms and Conditions of NeuroBo-Gemphire Merger

Definitive agreement for all-stock merger announced on July 24, 2019

Expected to be completed 2H 2019; shares of common stock of post-merger combined company expected to trade on Nasdaq under new symbol NRBO

Requires NeuroBo and Gemphire stockholder approval among other customary closing conditions

Pre-closing financing by NeuroBo of approximately $24 million

On a pro forma basis, current Gemphire stockholders will own 4.06% of the post-merger company and current NeuroBo investors will own 95.94% of the post-merger company (subject to adjustment based on Gemphire’s net cash balance and the amount of additional financing proceeds received by NeuroBo above the minimum required amount and up to and including $50 million)

Gemphire stockholders to receive contingent value rights (CVRs) entitling them to certain cash payments in the event the gemcabene assets are sold or licensed during the CVR period

Post-Merger Leadership: John L. Brooks, III, President & CEO of NeuroBo

Post-Merger Board of Directors will be 6 directors, including Steve Gullans, Ph.D., Gemphire’s current President & CEO

The transaction has been approved by the Board of Directors of both companies