Disclaimers

This presentation includes forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. Except for statements of historical fact, any information contained in this presentation may be a forward-looking statement that reflects the Company’s current views about future events and are subject to risks, uncertainties, assumptions and changes in circumstances that may cause events or the Company’s actual activities or results to differ significantly from those expressed in any forward-looking statement. In some cases, you can identify forward-looking statements by terminology such as “may,” “will,” “could,” “would,” “should,” “plan,” “predict,” “potential,” “project,” “promising,” “expect,” “estimate,” “anticipate,” “intend,” “goal,” “strategy,” “believe,” and similar expressions and variations thereof. Forward-looking statements may include statements regarding the Company’s business strategy, market size, potential growth opportunities, potential strategic partnerships or opportunities, capital requirements and use of proceeds, clinical development activities, the timing and results of clinical trials, regulatory submissions, potential regulatory approval and commercialization of the product candidates. Although the Company believes that the expectations reflected in such forward-looking statements are reasonable, the Company cannot guarantee future events, results, actions, levels of activity, performance or achievements. These forward-looking statements are subject to a number of risks, uncertainties and assumptions, including those described under the heading “Risk Factors” in our Annual Report on Form 10-K for the year ending December 31, 2019 and our other filings with the SEC, including our Quarterly Reports on Form 10-Q. These forward-looking statements speak only as of the date of this presentation and the Company undertakes no obligation to revise or update any forward-looking statements to reflect events or circumstances after the date hereof.

This presentation also contains estimates and other statistical data made by independent parties and by us relating to market shares and other data about our industry. This data involves a number of assumptions and limitations, and you are cautioned not to give undue weight to such estimates.

The trademarks included herein are the property of the owners thereof and are used for reference purposes only. Such use should not be construed as an endorsement of such products.
Developing and commercializing multimodal disease-modifying therapies for viral, neuropathic and neurodegenerative diseases
Repurposing ANA001 as a rapid COVID-19 treatment (Priority)

ANA001–COVID-19 Trial

- Compelling in-vitro data showing evidence of efficacy, with 50+ years of safety data
- Shows great broad-spectrum antiviral activity
  - Data suggests effectiveness against other viruses such as influenza
  - Likely effective against novel SARS-CoV-2 variants
- Shows anti-inflammatory properties, without suppressing immune response
- Shows promise as a prophylactic

Pipeline Programs Addressing Large Unmet Needs

Gemcabene: Assessing for acute COVID-19

- 25 Phase 1 and Phase 2 trials completed in Chronic Orphan Dyslipidemia indications

NB-01—Targeting Pain in Orphan Indication

- Compelling Phase 2 data showing evidence of efficacy and safety for neuropathic pain
- Multimodal mechanism of action to treat pain supported by preclinical evidence

NB-02—Targeting Alzheimer’s Disease (AD) and other dementias

- IND Ready; compelling preclinical data
### Development Pipeline

#### Disease Indication

<table>
<thead>
<tr>
<th>Discovery</th>
<th>Preclinical</th>
<th>Phase 1</th>
<th>Phase 2</th>
<th>Phase 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANA001</td>
<td></td>
<td></td>
<td>Enrolling</td>
<td></td>
</tr>
<tr>
<td>COVID-19 Moderate to Severe Patients</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gemcabene</td>
<td></td>
<td></td>
<td>Assessing Program</td>
<td></td>
</tr>
<tr>
<td>COVID-19 Acute</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NB-01</td>
<td></td>
<td></td>
<td>Postponed*</td>
<td></td>
</tr>
<tr>
<td>Neuropathic Pain</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NB-02</td>
<td></td>
<td></td>
<td>IND Ready</td>
<td></td>
</tr>
<tr>
<td>Alzheimer’s and Dementia</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Due to constraints on initiating and conducting clinical studies during pandemic*
Proven Leadership Team

Richard J. Kang, PhD
President & CEO
- Founder of JK BioPharma Solutions and senior management at companies in immuno-oncology and natural products
- Visiting Fellow at NIH and senior research experience in host-disease pathogen interactions

Akash Bakshi, MsC.
Chief Operating Officer
- Co-Founder and CEO of ANA Therapeutics
- Co-Founder and CEO of YourChoice Therapeutics, a Y Combinator backed startup
- Previously Assistant Director of Marketing and Technology Analysis at UC Berkeley

Nadja Mannowetz, PhD
SVP, Scientific Affairs
- Co-Founder and CSO of ANA Therapeutics
- Co-Founder and CSO of YourChoice Therapeutics, a Y Combinator backed startup
- PhD in Infectious Biology from Eberhard Karls University, Tübingen, Germany

Andrew Bartynski, PhD
SVP, Manufacturing and CMC
- Co-Founder and COO of ANA Therapeutics
- Founding CEO for AesculaTech, a Y Combinator backed startup
- PhD in Chemical Engineering from the University of Southern California
Expert Scientific Advisory Boards

NEUROPATHIC PAIN
SCIENTIFIC CHAIR
Roy Freeman, M.D.
Expert in peripheral nerve disorders and neurodegenerative diseases
• Professor of Neurology, Harvard Medical School
• Director of the Center for Autonomic and Peripheral Nerve Disorders

COVID-19
Warner Greene, M.D., Ph.D.
Expert in virology
• Director of the Gladstone Institute
• Professor at UCSF
• Member of the national Academy of Medicine

Gunda Georg, Ph.D.
Expert in medicinal chemistry
• Professor and Head of the Department of Medicinal Chemistry at University of Minnesota
• Member of the national Academy of Medicine

Christopher Davis, Ph.D.
Expert in virology and clinical aspects
• Ex-BARDA
• Managed a NATO drug development program
• 10 years at British Intelligence as principal bioweapons analyst

ALZHEIMER’S DISEASE & OTHER DEMENTIAS
Brian Bacskaí, Ph.D.
Expert in Alzheimer’s Disease Research
• Professor of Neurology, Harvard Medical School
• Principal investigator, Neurology, Massachusetts General Hospital

Pierre N. Tariot, M.D.
Award-Winning Leader in Dementia
• Director, Banner Alzheimer’s Institute, Arizona
• Research Professor of Psychiatry, University of Arizona College of Medicine
ANA001
Targeting COVID-19
What is Niclosamide?

Background

• On World Health Organization’s (WHO) list of essential medicines
• Safely treated millions of patients
• Currently used to treat tapeworm

Safety Profile

• Well-established drug: oral administration known to be safe for 50+ years
• Very few, non-severe side effects
• Appealing characteristics for most at risk population: elderly patients, high comorbidity, and children
Acquired proprietary capsule formulation of niclosamide for COVID-19 treatment and prophylaxis

• ANA001 being studied in U.S. Phase 2/3 trial (currently enrolling patients)
• Generic niclosamide used safely for 50+ years globally as a treatment for tapeworm infections
• Niclosamide prevents replication of SARS-CoV-2 at very low concentrations
• Niclosamide also shown to have three distinct mechanisms of action:
  • Potential Antiviral: Lowers SARS-CoV-2 and a broad homology of other virus including Influenza.
  • Anti-Inflammatory: Unique MOA does not suppress immune system while reducing inflammation.
  • Bronchodilation: Useful mechanism for at-risk patients with underlying cardio/pulmonary conditions.
Niclosamide is effective against diverse virus families \textit{in vitro}. 

Source: https://pubs.acs.org/doi/10.1021/acsinfecdis.0c00052
Evidence: *In-Vitro* Efficacy Related to COVID-19

Inhibition of SARS-CoV-2 replication


Studies highlighting properties of niclosamide as COVID-19 treatment

Shi *et al.*, 2020, unpublished


<table>
<thead>
<tr>
<th>NICLOSAMIDE</th>
<th>Remdesivir</th>
<th>Chloroquine</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="NICLOSAMIDE.png" alt="Graph" /></td>
<td><img src="Remdesivir.png" alt="Graph" /></td>
<td><img src="Chloroquine.png" alt="Graph" /></td>
</tr>
<tr>
<td>IC50 = 0.28</td>
<td>IC50 = 11.41</td>
<td>IC50 = 7.28</td>
</tr>
</tbody>
</table>
Niclosamide as COVID-19 Prophylaxis

Pre-treating cells with niclosamide reduces viral replication by ~70% 

• VeroFM cells were pre-treated with spermidine (spd, 100 μM), niclosamide (nic, 5 μM) or control (veh) 24 h prior to infection with SARS-CoV-2

• Spermidine is a natural enhancer of autophagy to protect the body

• 24 h after infection, viral replication was assessed (normalized to control)

ANA001 and COVID-19

Clinical Program
## Update on ANA001-002 (Phase 1 study)

SAD n=30 (8 subjects on ANA001, 2 on placebo / per cohort)

<table>
<thead>
<tr>
<th>Cohort</th>
<th>Date</th>
<th>Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cohort 1: 1,000 mg</td>
<td>Nov 17, 2020</td>
<td>no AEs</td>
</tr>
<tr>
<td>Cohort 2: 2,000 mg</td>
<td>Nov 20, 2020</td>
<td>no AEs</td>
</tr>
<tr>
<td>Cohort 3: 3,000 mg</td>
<td>Nov 24, 2020</td>
<td>no AEs</td>
</tr>
</tbody>
</table>

**COMPLETED**
Clinical Trial Design: Phase 2/3

Screen incoming PTs (n=60)

Random

Regiment 1 (n=30)

Follow-up assessment

Continue to PH3

Placebo (n=30)

Criteria:
✓ Age >18
✓ Moderate/Severe COVID-19
✓ Confirmed by RT-PCR
✓ Not on a ventilator

Primary Objective:
Evaluate effect of dosing regimen on clinical outcomes after niclosamide therapy with 60 patients

Primary Endpoint:
Safety and adverse events

Outcomes:
Continue to Phase 3 to test efficacy
Competitive Activity in Clinical Development for Niclosamide

We believe NRBO is the lead program to NDA for niclosamide capsule formulation in the U.S.

<table>
<thead>
<tr>
<th>Company Name</th>
<th>Company Name</th>
<th>NCT</th>
<th>Phase</th>
<th>Start</th>
<th>End</th>
<th>Formulation</th>
<th>Sites</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANA Therapeutics</td>
<td>NCT04603924</td>
<td>2 &amp; 3</td>
<td>Oct-20</td>
<td>Nov-22</td>
<td>O</td>
<td>20 sites</td>
<td>436</td>
<td></td>
</tr>
<tr>
<td>Imuneks Farma ilac San. Tic A. S.</td>
<td>NCT04558021</td>
<td>3</td>
<td>Oct-20</td>
<td>Feb-21</td>
<td>O/Suspension</td>
<td>8 in Turkey</td>
<td>200</td>
<td></td>
</tr>
<tr>
<td>First Wave Bio</td>
<td>NCT04542434</td>
<td>2</td>
<td>Nov-20</td>
<td>May-21</td>
<td>O</td>
<td>N/A</td>
<td>148</td>
<td></td>
</tr>
<tr>
<td>First Wave Bio</td>
<td>NCT04436458</td>
<td>2</td>
<td>Dec-20</td>
<td>Apr-21</td>
<td>O</td>
<td>not listed</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>Bayer through Charite Research Organization GmbH</td>
<td>2020-002233-15</td>
<td>2</td>
<td>Jun-20</td>
<td>Feb/Mar 2021</td>
<td>O</td>
<td>Germany</td>
<td>72</td>
<td></td>
</tr>
<tr>
<td>Tufts</td>
<td>NCT04399356</td>
<td>2</td>
<td>Oct-20</td>
<td>Feb-21</td>
<td>O</td>
<td>not listed</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>Daewoong Pharmaceutical</td>
<td>NCT04592835</td>
<td>1</td>
<td>Oct-20</td>
<td>Dec-20</td>
<td>IM</td>
<td>Australia</td>
<td>24</td>
<td></td>
</tr>
<tr>
<td>Daewoong Pharmaceutical</td>
<td>NCT04541485</td>
<td>1</td>
<td>Oct-20</td>
<td>Jan-21</td>
<td>IM</td>
<td>Phillipines</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>Daewoong Pharmaceutical</td>
<td>NCT04524052</td>
<td>1</td>
<td>N/A</td>
<td>Dec-20</td>
<td>IM</td>
<td>India</td>
<td>32</td>
<td></td>
</tr>
<tr>
<td>Union Therapeutics</td>
<td>EU</td>
<td>1</td>
<td>Aug-20</td>
<td>N/A</td>
<td>Inhaled</td>
<td>N/A</td>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>

10 Active COVID Programs for Niclosamide Trials on U.S. and EU databases–ClinicalTrials.gov
COVID-19: Timeline Slide for ANA001
Commercial Development

Clinical Timeline

2021 Q1 - Q2
- DMC 24 patients (Q1-Q2)
- Complete PH2 Enrollment (June-July)

Q3
- 1st potential EUA Request
- PH 2 Data (Early Sept)

Q4
- EoP2 Meeting (Oct)
- Launch PH 3 Trial (Q4)

2022

Q1
- 2nd potential EUA Request (Jun-July)
- PH 3 Data Read (Jun-July)

Q2
- Submit NDA (Aug-Sep)

Q3
- Fast Track Approval (Dec)

Q4
ANA001 and COVID-19

The Changing Landscape
Potential Markets

COVID-19 Hospitalized Patients (1M in U.S.)¹

COVID-19 Infected Individuals (20M in U.S.)²

Prophylaxis Over 65 (55M in US)³
Front Line Healthcare (16M in U.S.)⁴

National Stockpile (25% of U.S. population)

1. COVID-19 Associated Hospitalization Surveillance Network (COVID-NET) Mar-Dec 2020
2. Johns Hopkins Coronavirus Resource Center Mar-Dec 2020
3. Statista: 16.5% of 331M
Challenges:

- RNA Vaccine—Ultra Cold storage
- Manufacturing: scale-up capacity
- Most vaccines are 2 doses
- Willingness of population to get vaccinated
- Mutation of viral sequence may require new vaccines

Unknowns:

- Long-term efficacy
- Efficacy in diverse populations
- Safety – Side effects
- Vaccinated individuals still spread COVID
- Efficacy on new mutations
TFF Pharma and UNION Therapeutics Ink Deal to Develop Niclosamide for COVID-19

Published: Aug 14, 2020  |  By Mark Terry

Under the terms of the deal, UNION is paying TFF Pharmaceuticals potential development, regulatory and sales milestones up to $210 million, as well as tiered single-digit royalties on product sales. UNION gains an option to a worldwide exclusive license to TFF technology for niclosamide, including oral and inhaled versions of the drug, potentially for COVID-19, but also for other niclosamide-based therapies. The two companies will also collaborate on securing government contracts and grants to fund the development of the therapies for COVID-19.

Roche Secures Covid-19 Treatment In $350 Million Deal With Boston-Based Atea

Robert Hart  Forbes Staff  Business  
I cover breaking news.

TOPLINE  Swiss pharma giant Roche has signed a $350 million deal with Boston-based Atea Pharmaceuticals for the exclusive right to research, develop and distribute a potential Covid-19 treatment outside the U.S., Atea said Thursday — the oral antiviral is currently in phase 2 clinical trials and there are plans to study it as a way of preventing Covid-19 infection.
Corporate Highlights
NRBO is pursuing an abbreviated regulatory pathway using A 505(b)(2) New Drug Application (NDA).

- This allows for referencing all the safety data from niclosamide’s original approval.

A 505(b)(2) New Drug Application (NDA) provides 3 years of market exclusivity.

- Niclosamide NDA was withdrawn in 1996 due to low incidence of tapeworm in the U.S.
- Three-year exclusivity period would block the approval of any generic drugs.

The three-year exclusivity period may be extended by 6 months with pediatric exclusivity.

Continue to supplement the provisional filings, which include clinical data from COVID patients.

- Potential to strengthen IP in priority regions globally.
Financials & Cap Structure

- Shares outstanding: 22.2 M
- Cash position: $12.4M as of 9/30/20
- $10M Raise in January 2021
- Debt position: No debt
Upcoming Targeted Milestones

• PK Data (SAD and MAD) (2Q 21)

• Complete Phase 2 enrollment of ANA001 in moderate to severe COVID-19 patients (Jun/Jul 21)

• Topline data from Phase 2 ANA001 in moderate to severe COVID-19 patients (Sep 21)

• Potential consideration for EUA based on Phase 2 topline data (3Q 21)

• Initiate the Phase 3 portion of the ANA001 clinical trials (4Q 21)
Thank You