ACADIA

Fourth Quarter and Full Year 2020 Earnings Call

February 24, 2021

4Q and FY20 Earnings Call Agenda

Introduction	**Mark Johnson** | Vice President, Investor Relations
CEO Opening Remarks	**Steve Davis** | Chief Executive Officer
Financial Update	**Elena Ridloff** | Chief Financial Officer
Commercial Update	**Amanda Morgan** | Chief Revenue and Customer Officer **Charmaine Lykins** | Global Product Planning and Chief Marketing Officer
R&D Update	**Serge Stankovic, M.D., M.S.P.H** | President
CEO Closing Remarks	**Steve Davis** | Chief Executive Officer
Q&A	

Forward-Looking Statements

This presentation contains forward-looking statements. These statements relate to future events and involve known and unknown risks, uncertainties and other factors which may cause our actual results, performance or achievements to be materially different from any future results, performances or achievements expressed in or implied by such forward-looking statements. Each of these statements is based only on current information, assumptions and expectations that are inherently subject to change and involve a number of risks and uncertainties. Forward-looking statements include, but are not limited to, statements about (i) plans for, including timing and progress of commercialization of, NUPLAZID® or for the clinical development of our product candidates, including pimavanserin and trofinetide; (ii) benefits to be derived from and efficacy of our product candidates, including the use of pimavanserin in dementia-related psychosis, schizophrenia or other neurological or psychiatric indications, potential advantages of NUPLAZID versus existing antipsychotics or antidepressants, and expansion opportunities for NUPLAZID; (iii) estimates regarding the prevalence of Parkinson's disease psychosis, dementia-related psychosis, schizophrenia and the potential use of trofinetide in Rett syndrome; (iv) potential markets for any of our products, including NUPLAZID and trofinetide; (v) our estimates regarding our future financial performance, cash position or capital requirements; and (vi) currently anticipated impacts of COVID-19 on Acadia's business, including its commercial sales operations, current and planned clinical trials, supply chain, and guidance for full-year 2021 NUPLAZID net sales and certain expense line items.

In some cases, you can identify forward-looking statements by terms such as "may," "will," "should," "could," "would," "expects," "plans," "anticipates," "believes," "estimates," "projects," "predicts," "potential" and similar expressions (including the negative thereof) intended to identify forward-looking statements. Given the risks and uncertainties, you should not place undue reliance on these forward-looking statements. For a discussion of the risks and other factors that may cause our actual results, performance or achievements to differ, please refer to our annual report on Form 10-K for the year ended December 31, 2019 as well as our subsequent filings with the SEC. The forward-looking statements contained herein are made as of the date hereof, and we undertake no obligation to update them for future events.

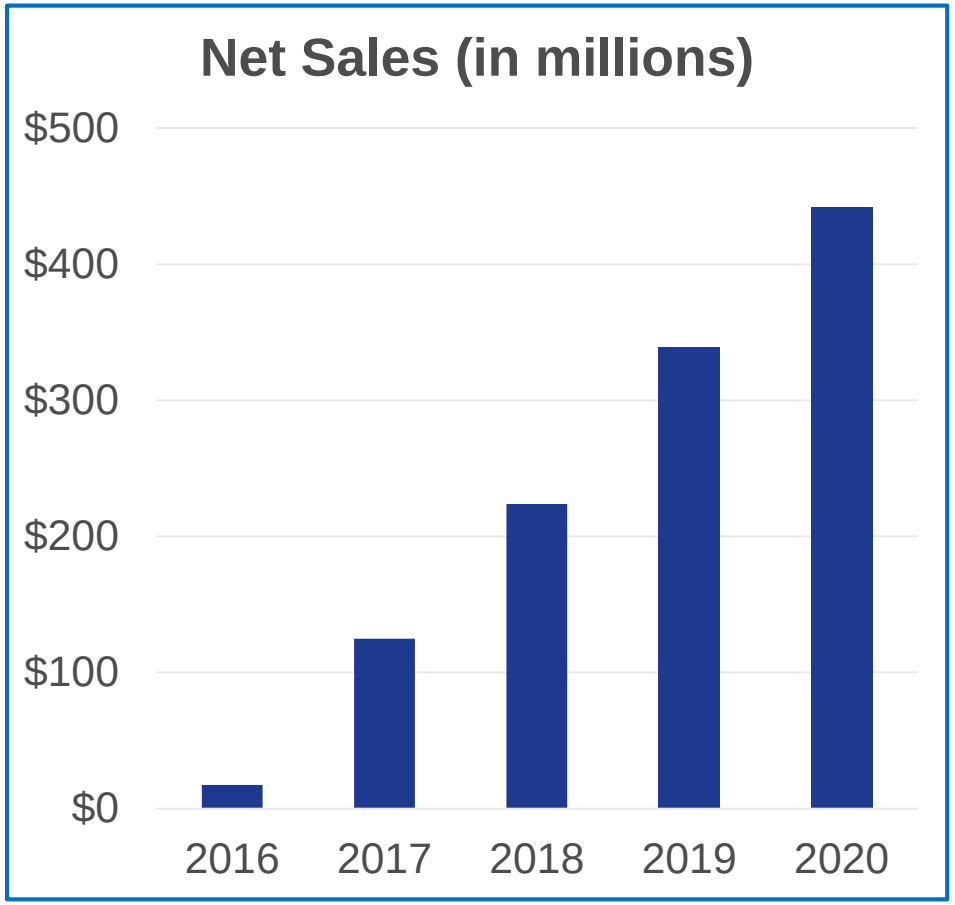
CEO Opening Remarks

Steve Davis

Chief Executive Officer

2020 Full-Year Highlights

$441.8M FY20 Net Sales



- ✓ 30% YoY growth for NUPLAZID® in PDP
- ✓ Submitted sNDA for pimavanserin for the treatment of hallucinations and delusions associated with DRP
- ✓ Progressed enrollment in Phase 3 trofinetide program for Rett syndrome (LAVENDER)
- ✓ Initiated pimavanserin Phase 3 program for the negative symptoms of schizophrenia (ADVANCE-2)
- ✓ Acquired first-in-class, non-opioid pain program (ACP-044) entering Phase 2
- ✓ Expanded early-stage pipeline with novel muscarinic receptor program (ACP-319) and research collaboration with Vanderbilt University

PDP = Parkinson's disease psychosis; **DRP** = Dementia-related psychosis.
NUPLAZID (pimavanserin) is only approved in the U.S. by the FDA for the treatment of hallucinations and delusions associated with Parkinson's disease psychosis.
Provided February 24, 2021 as part of an oral presentation and is qualified by such; contains forward-looking statements; actual results may vary materially; Acadia disclaims any duty to update.

Three Strategic Pillars

Drive
Growth of NUPLAZID®

Deliver
On the DRP Opportunity

Develop
Next Wave of Breakthroughs

Building a Leading CNS Company

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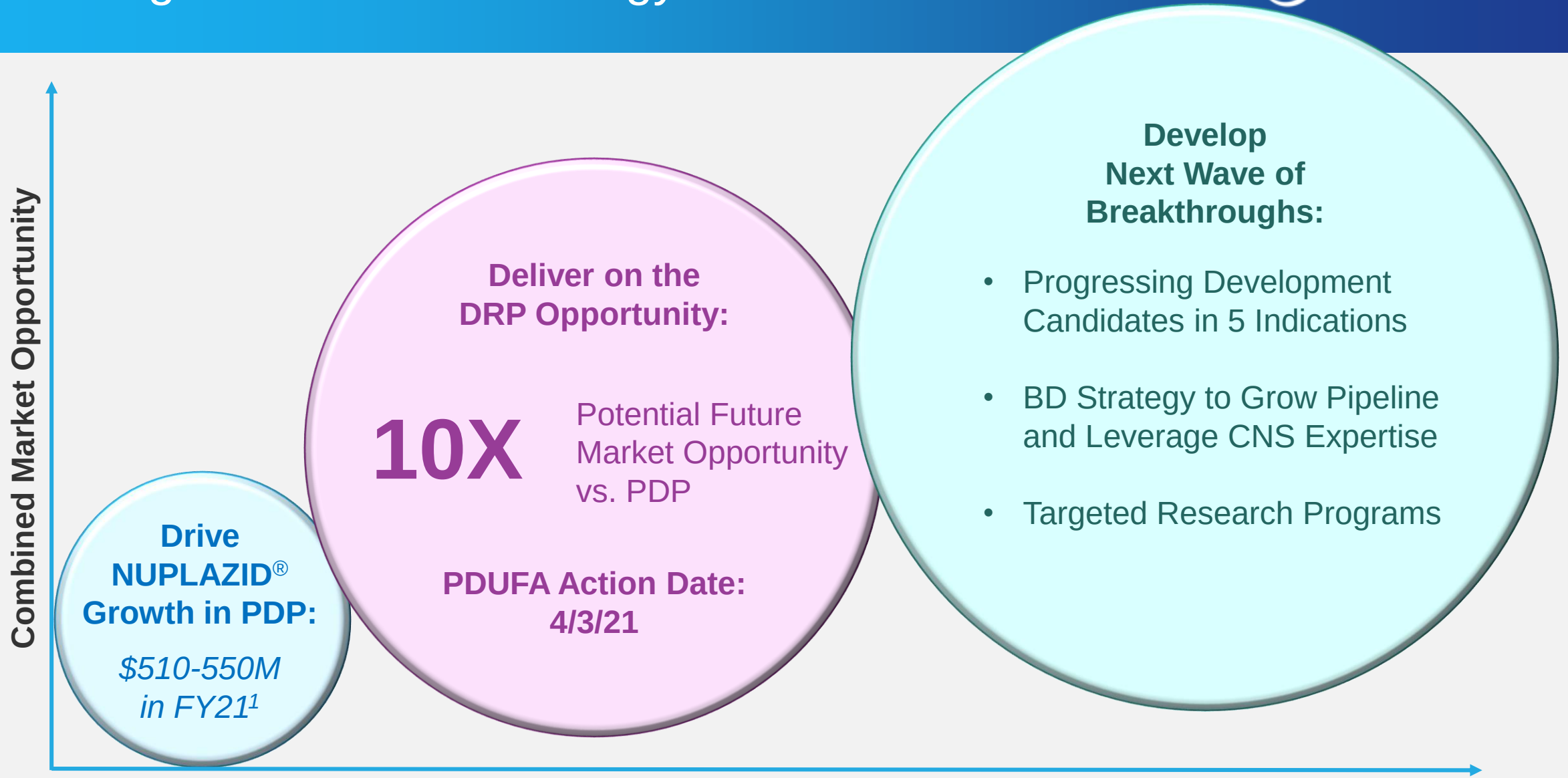
Long-Term Growth Strategy



PDUFA = Prescription Drug User Fee Act

[1]2021 net sales guidance of $510-550M provided on 4Q20 earnings call on 2/24/2021.

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Finance Update

Elena Ridloff

Chief Financial Officer

4Q20 Financial Highlights

	4Q20 (GAAP)	4Q19 (GAAP)	YoY Change
Total Revenue	**$121.0**	**$98.3**	**+23%**
Cost of Product Sales, License Fees and Royalties	$5.3	$5.3	0%
R&D	$62.1	$57.5	+8%
SG&A	$120.8	$91.9	+31%
Net Loss	$66.8	$53.0	+26%
EPS	($0.42)	($0.34)	-24%

FY2020 Financial Highlights

	2020 (GAAP)	2019 (GAAP)	YoY Change
Total Revenue	**$441.8**	**$339.1**	**+30%**
Cost of Product Sales, License Fees and Royalties	$20.5	$19.6	+5%
R&D	$319.1	$240.4	+33%
SG&A	$388.7	$325.6	+19%
Net Loss	$281.6	$235.3	+20%
EPS	($1.79)	($1.60)	-12%
Cash Balance 12/31/2020[1]	$632.0		

[1]Cash balance includes cash, cash equivalents and investments.

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FY2021 Financial Guidance

FY2021	Guidance	Commentary
NUPLAZID® Net Sales in PDP	**$510 to $550M**	• PDP growth at midpoint of the range reflects ~20% YoY growth • Not including revenue expectations for potential DRP launch in 2021 guidance
GAAP R&D Expense	**$300 to $320M**	• Progressing candidates in 5 indications • Includes ~$30M of SBC expense
GAAP SG&A Expense	**$560 to $590M**	• Similar YoY investments in PDP and increased investments in DRP launch • Includes ~$60M of SBC expense

SBC = Stock based compensation.
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Commercial Update

Amanda Morgan
Chief Revenue and Customer Officer

Charmaine Lykins
Global Product Planning and
Chief Marketing Officer

NUPLAZID® Growth in 2020

2020 Highlights

- ✓ **$441.8M net sales; 30% YoY Growth**
- ✓ **Strong continued growth in prescribers despite pandemic**
  - Double-digit percent growth in prescriber base YoY[1]
- ✓ **Grew overall PDP market and increased market share**
  - Market growing (~4-5% YoY[2]) due to disease education/awareness and promotion of first and only FDA approved treatment option
- ✓ **YoY growth across all aspects of the business**
  - Office-based channel: Continued growth with new patient starts at pre-COVID levels
  - Continued high fulfilment rates for continuing patients on NUPLAZID
  - Long-term care channel: Growth YoY; Remaining stable QoQ in 4Q

[1]Prescriber base defined as sum of total unique prescribers writing new or refill prescriptions of NUPLAZID in the office-based channel.
[2]Acadia market research and IQVIA custom study.
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NUPLAZID® 2021 Growth Initiatives in PDP

ACADIA

Grow

- Continue to grow base of new prescribers
- Drive growth in overall PDP market size
- Increase market share with high new-to-treatment patient penetration

Educate

- Bridge the communication gap between physicians and patients/caregivers on PDP and treatment with NUPLAZID
- Stimulate conversations through digital patient/caregiver consumer campaigns and educational events for healthcare providers

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Dementia-Related Psychosis: A Significant New Opportunity

Dramatic Unmet Need

No FDA-approved treatment

Unapproved atypical antipsychotics used for DRP:

- Significant worsening of cognition[1]
- Significant worsening of extrapyramidal symptoms[1]
- Increased sedation[1]
- Higher risk of mortality[1]

HCP Awareness

Disease state education through websites and events

MoreThanCognition.com

Caregiver Involvement

Disease awareness to include multi-generational caregivers who often contribute to treatment decisions

MoreThanMemoryLoss.com

Pimavanserin could be the first and only approved treatment for DRP

[1]US Food and Drug Administration. FDA Public Health Advisory. April 11, 2005; Schneider LS, et al. N Engl J Med. 2006;355:1525-1538.
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Dementia-Related Psychosis: Ready for Launch

Brand Awareness	✓ NUPLAZID® brand established since 2016 launch
Acadia Connect	✓ Established support services (*Acadia Connect*) help patients start and continue on NUPLAZID
Market Access	✓ NUPLAZID has broad formulary access for PDP with a well recognized value proposition
Leadership in LTC	✓ Strong and experienced LTC sales force leveraging key partnerships with patient advocacy organizations, national EHR systems and LTC pharmacies

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R&D Update

Serge Stankovic

President

Innovative Development Pipeline

Program	Indication	Phase 1	Phase 2	Phase 3	Registration	Marketed
NUPLAZID® (pimavanserin)[1]	Parkinson's Disease Psychosis					
Pimavanserin	Dementia-Related Psychosis					
Pimavanserin	Negative Symptoms of Schizophrenia					
Trofinetide[2]	Rett Syndrome					
ACP-044	Acute & Chronic Pain					
ACP-319[3]	Cognition & Schizophrenia					

[1]NUPLAZID (pimavanserin) is only approved in the U.S. by the FDA for the treatment of hallucinations and delusions associated with Parkinson's disease psychosis.
[2]Acadia has an exclusive license to develop and commercialize trofinetide in North America from Neuren Pharmaceuticals.
[3]Acadia has an exclusive worldwide license to develop and commercialize ACP-319 and other M1 PAM program compounds from Vanderbilt University.
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Trofinetide for the Treatment of Rett Syndrome

Trofinetide MOA:

Novel synthetic analog of amino-terminal tripeptide of IGF-1 with potential to reduce neuroinflammation and support synaptic function

High Unmet Need:

- No FDA-approved treatment for Rett syndrome
- 6,000 to 9,000 patients in the U.S.[1]

Debilitating Symptoms[2]:

- Severe cognitive, emotional, sensory, and motor impairment
- Loss of spoken communication, purposeful hand use
- Loss of independence

Phase 2 Study Results[3]

- 6-week, placebo-controlled dose ranging study in 82 young females (ages 5 – 15)
- Statistically significant and clinically meaningful improvements in 3 core efficacy endpoints including RSBQ and CGI-I*
- Positive Phase 2 study results published in ***Neurology***®[3]

Phase 3 LAVENDER Study

- 12-week, placebo-controlled study in ~180 females (ages 5 – 20) with trofinetide
- **Co-primary endpoints:** RSBQ and CGI-I
- **Top-line results expected:** 4Q21

***RSBQ =** Rett Syndrome Behaviour Questionnaire (caregiver assessment) and **CGI-I =** Clinical Global Impression Scale-Improvement (physician assessment).

[1]U.S. prevalence estimate based on incidence rates from the National Institutes of Health – National Institute of Neurological Disorders and Stroke.

[2]Acadia market research and https://www.rettsyndrome.org/about-rett-syndrome/what-is-rett-syndrome/.

[3]Glaze D, et al. *Neurology*. Apr 2019, 92 (16) e1912-e1925.

Pimavanserin for the Treatment of the Negative Symptoms of Schizophrenia

High Unmet Need[1]:

- No FDA-approved treatment for the negative symptoms of schizophrenia
- **>700K** patients receiving treatment have persistent negative symptoms in the U.S.

Negative Symptoms Include[1]:

- Social withdrawal
- Lack of emotion
- Restricted speech
- Blunted affect

This Can Lead to[1]:

- Long-term disability
- Significant caregiver burden

ADVANCE-1 Results[2]

- 26-week pivotal study in 403 patients with predominant negative symptoms[3]
- **Primary endpoint:** Improvement in NSA-16 compared to placebo at 26 weeks (***p=0.043***)
- **Patients on 34 mg** (n=107) had greatest improvement in NSA-16 ***(unadjusted p=0.0065)***
- Pimavanserin was well-tolerated

Phase 3 ADVANCE-2 Study

- 26-week pivotal study in ~386 patients with predominant negative symptoms[3]
- Evaluating **34 mg dose** of pimavanserin
- **Primary endpoint:** Improvement in NSA-16 compared to placebo at 26 weeks
- Study initiated in 3Q20

[1]Studies suggest that ~40-50% of schizophrenia patients experience predominant negative symptoms; Patel et al. 2015, Haro et al., 2015, Bobes et al. 2010, and Chue and Lalonde, 2014. According to National Institute of Mental Health; Martin Lepage et al. The Prevalence of Negative Symptoms Across the Stages of the Psychosis Continuum, Schizophrenia Bulletin. Mar 2017, Vol 43 and Acadia market research.
[2]Bugarski-Kirola D. et al. ADVANCE: Phase 2, Randomised, Double-Blind, Placebo-Controlled Study of Adjunctive Pimavanserin in Patients With Negative Symptoms of Schizophrenia. Presented at SIRS 2020 Congress.
[3]Patients in the ADVANCE studies are on a stable background antipsychotic to control their positive symptoms.
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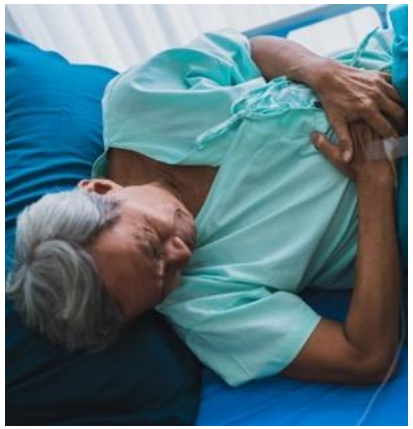
ACP-044 for the Treatment of Acute and Chronic Pain

ACP-044 MOA:

- A novel, first-in-class, orally administered, ***non-opioid*** analgesic
- Interrupts multiple pain pathways and sensitization of neurons to pain, by accelerating the decomposition of peroxynitrite, a nitroxidative agent elevated following tissue injury

High Unmet Need for more effective, safe, non-opioid and non-addictive treatments for pain management

Opioid epidemic in the U.S. leading to average of 128 overdose deaths each day[1]



Acute Postoperative Pain:

- >13 million ambulatory surgeries in hospital-owned facilities annually in the U.S.[2]
- ~75% patients report postoperative pain as moderate to extreme[3]
- Opioids mainstay treatment for pain with significant risks of abuse and addiction

Chronic Pain:

- >30 million patients suffer from osteoarthritis in the U.S.[4] (~25% prescribed opioids[5])
- Other treatments (NSAIDs) associated with GI bleeding and other complications[6]

Phase 2 Program

- Initiating a Phase 2 study in acute postoperative pain (bunionectomy) in 1Q21
- Initiating a Phase 2 study in chronic pain (osteoarthritis) in 2Q21

Additional Molecules

- Portfolio of preclinical molecules, including brain penetrant molecules, with potential for symptomatic and disease modifying treatments

[1]Wilson N, Kariisa M, Seth P, Smith H IV, Davis NL. *Drug and Opioid-Involved Overdose Deaths — United States, 2017–2018.* MMWRWkly Rep 2020;69:290–297. [2] Karaca Z, McDermott KW. *High-volume invasive, therapeutic ambulatory surgeries performed in hospital-owned facilities. 2016.* Statistical brief #252. September 2019; [3]Chou R, Gordon et al *Management of Postoperative Pain: A Clinical Practice Guideline* J Pain. 2016 Feb;17(2):131-57. doi: 10.1016/j.jpain.2015.12.008.
[4]https://www.cdc.gov/arthritis/basics/osteoarthritis.htm. [5]Alamanda VK et al. Arthritis Care Res (Hoboken). 2019. doi: 10.1002/acr.23933.
[6]Laufer S. *Osteoarthritis therapy--are there still unmet needs?* Rheumatology (Oxford). 2004 Feb;43 Suppl 1:i9-15. doi: 10.1093/rheumatology/keh103.
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ACP-319 for the Treatment of Cognition and Schizophrenia

ACP-319 MOA:

- Positive Allosteric Modulator of the M1 receptor (M1 PAM)
  - Targets muscarinic (M1) receptors
  - Challenge with targeting the muscarinic system has been tolerability; associated with cholinergic side effects
- Allosteric modulation of the M1 receptor may achieve the potential therapeutic benefits without these side effects

Preclinical Evidence:

✓ Animal studies demonstrate improvement in models of cognition and schizophrenia without cholinergic side effects

ACP-319 Development Status

- Phase 1 program ongoing

Research Collaboration

- Research collaboration with **Warren Center for Neuroscience Drug Discovery** at Vanderbilt University
- Collaboration focused on additional M1 PAM in preclinical development and discovery

Clinical Development Timelines

COMPOUND	INDICATION	MILESTONE	EXPECTED TIMING
Pimavanserin	Dementia-Related Psychosis	PDUFA Date	April 3, 2021
ACP-044	Acute Pain *(Bunionectomy)*	Initiate Phase 2 Study	1Q21
ACP-044	Chronic Pain *(Osteoarthritis)*	Initiate Phase 2 Study	2Q21
Trofinetide	Rett Syndrome	Phase 3 LAVENDER Study Top-line Results	4Q21
Pimavanserin	Negative Symptoms of Schizophrenia	Phase 3 ADVANCE-2 Study	Ongoing
ACP-319	Cognition and Schizophrenia	Phase 1 Program	Ongoing

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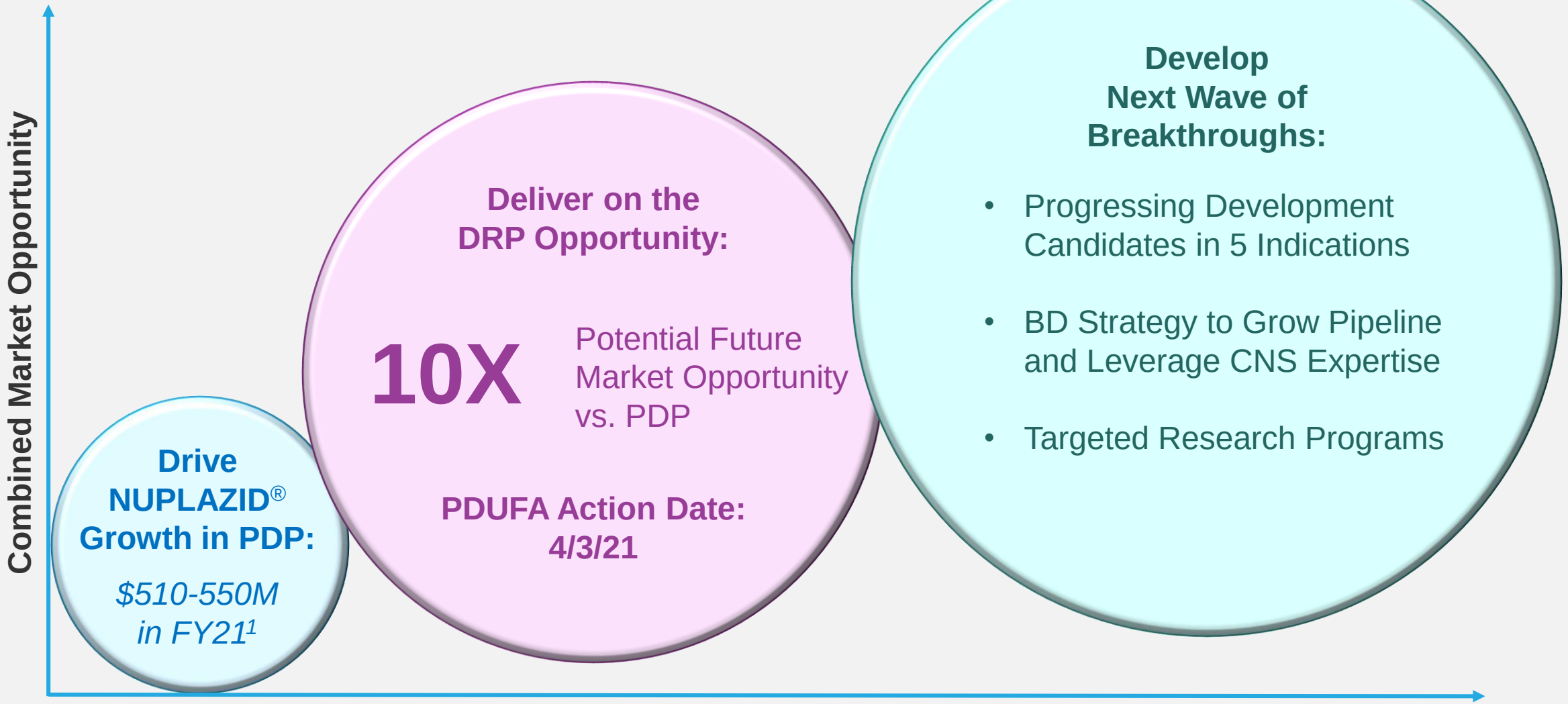
CEO Closing Remarks

Steve Davis

Chief Executive Officer

Building a Leading CNS Company



[1]2021 net sales guidance of $510-550M provided on 4Q20 earnings call on 2/24/2021.
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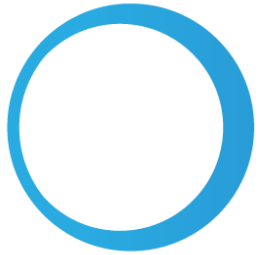

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Q&A Session