ACADIA

Steve Davis, CEO

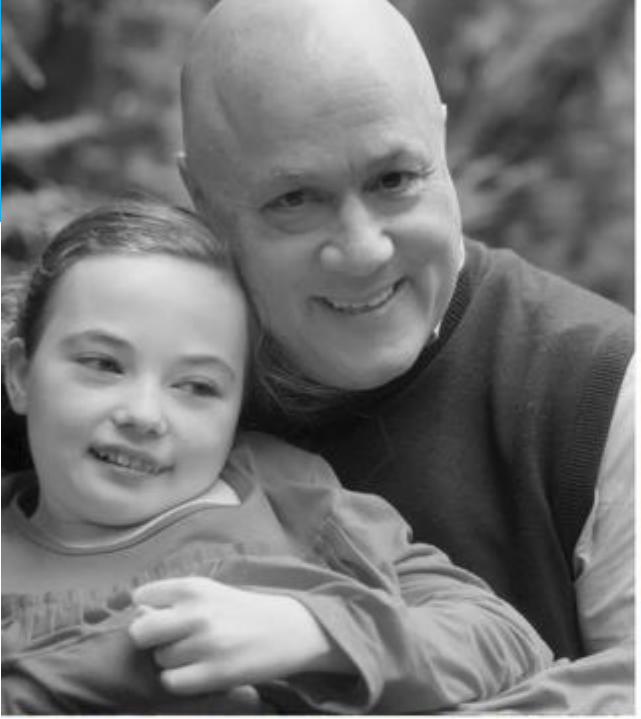
39th Annual J.P. Morgan Healthcare Conference

January 12, 2021

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 2020 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.



ACADIA™

Elevate Life

Three Strategic Pillars

Drive
Growth of NUPLAZID®

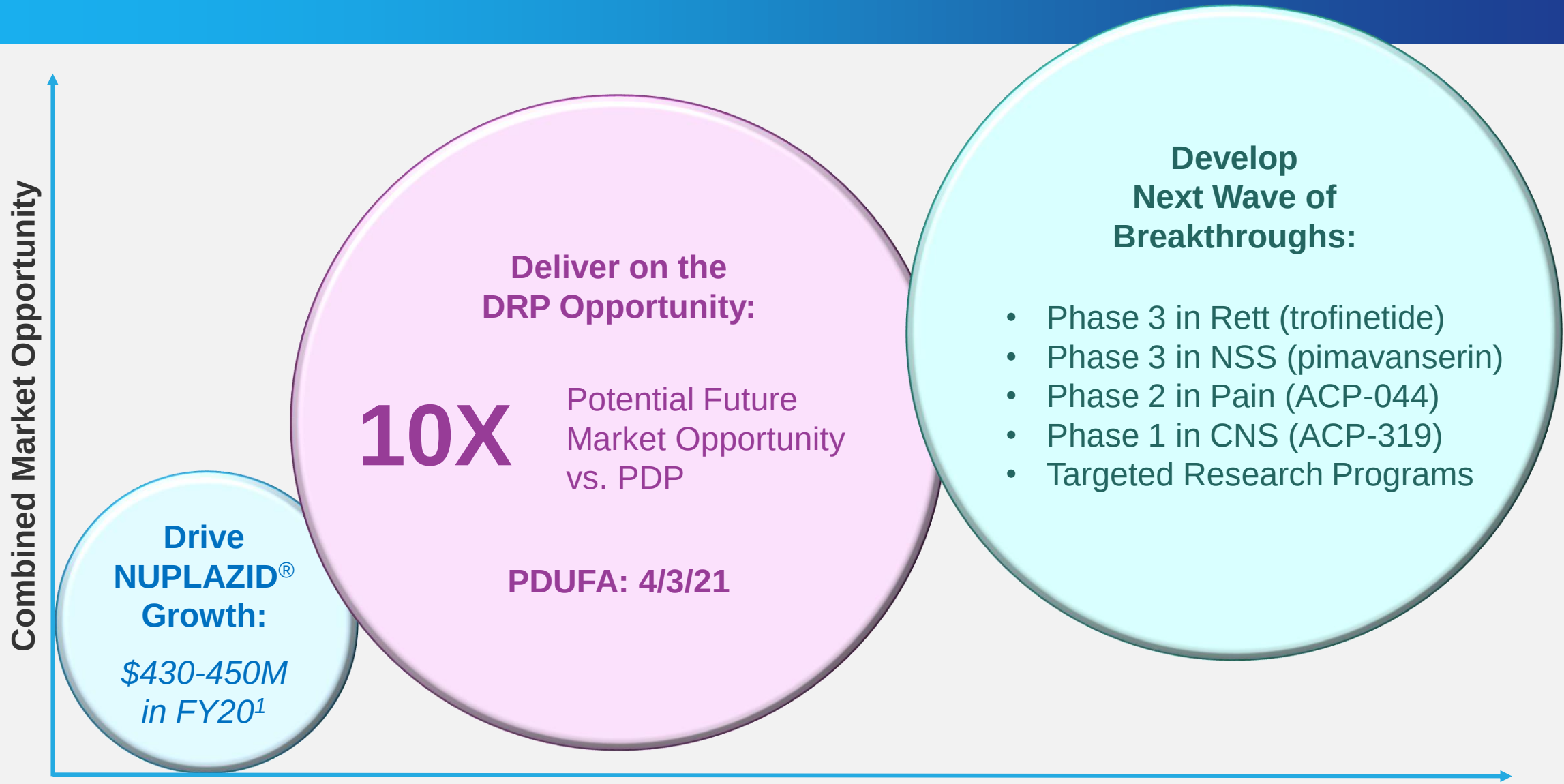
Deliver
On the DRP Opportunity

Develop
Next Wave of Breakthroughs

Building a Leading CNS Company

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 January 12, 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.

Long-Term Growth Strategy



PDUFA = Prescription Drug User Fee Act; **Rett** = Rett syndrome; **NSS** = Negative Symptoms of Schizophrenia

[1]2020 net sales guidance of $430-450M provided on 3Q20 earnings call on 11/04/2020

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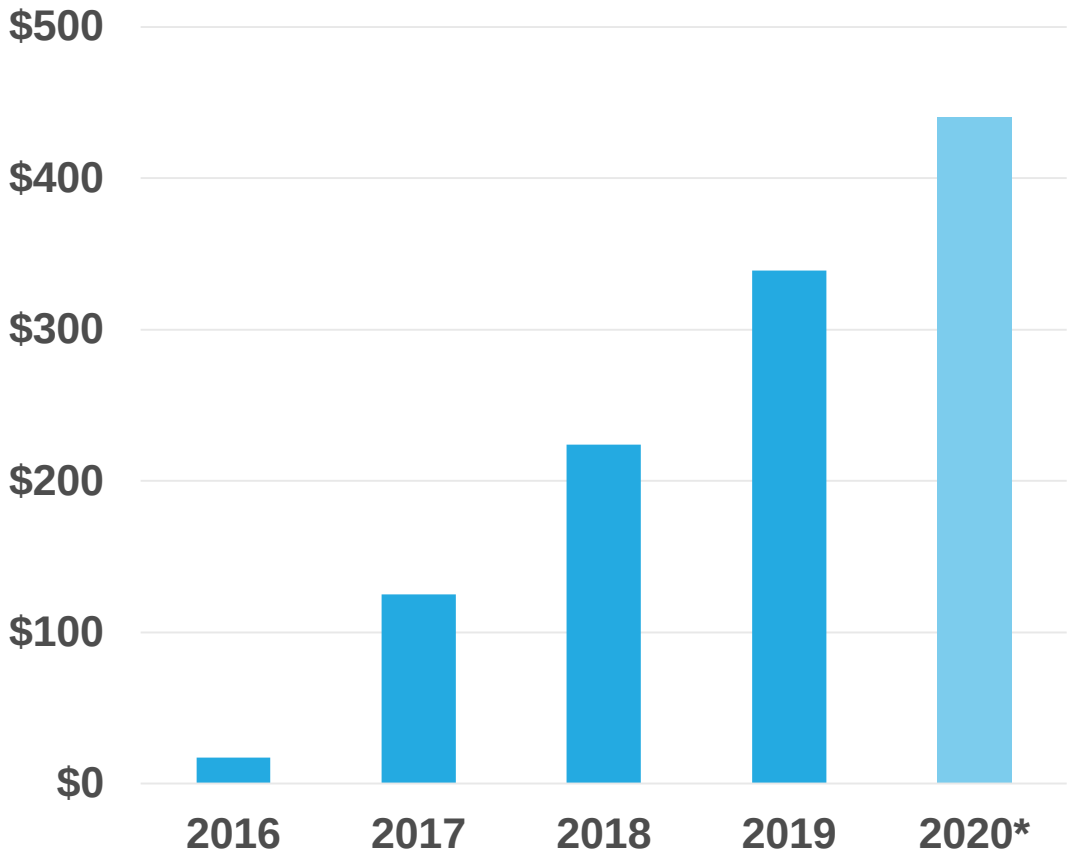
ACADIA™

Drive Growth of NUPLAZID®

Strong Commercial Execution in PDP

Net Sales (in millions)



PDP Highlights

- 2020 net sales guidance: **$430 - $450M; ~30% YoY**[1]
- 4Q20: FDA approved label addition to ***"sprinkle"*** NUPLAZID® capsule[2]

Significant market opportunity in PDP:

- Growing base of prescribers
- New patient share **>** Overall market share
- Leveraging additional clinical data on pimavanserin, including the 2020 long-term safety publication[3]

[1]2020 net sales guidance of $430-450M provided on 3Q20 earnings call on 11/04/2020, represents a 30% increase in revenue year-over-year at the mid-point of the range; *$440M represents mid-point of the range.
[2]Capsule is now approved to be sprinkled over certain types of foods and liquids; tablespoon (15 mL) of applesauce, yogurt, pudding, or a liquid nutritional supplement.
[3]Ballard, C.G. et al. Long-term evaluation of open-label pimavanserin safety and tolerability in Parkinson's disease psychosis. *Parkinsonism and Related Disorders* 77 (2020) 100–106.
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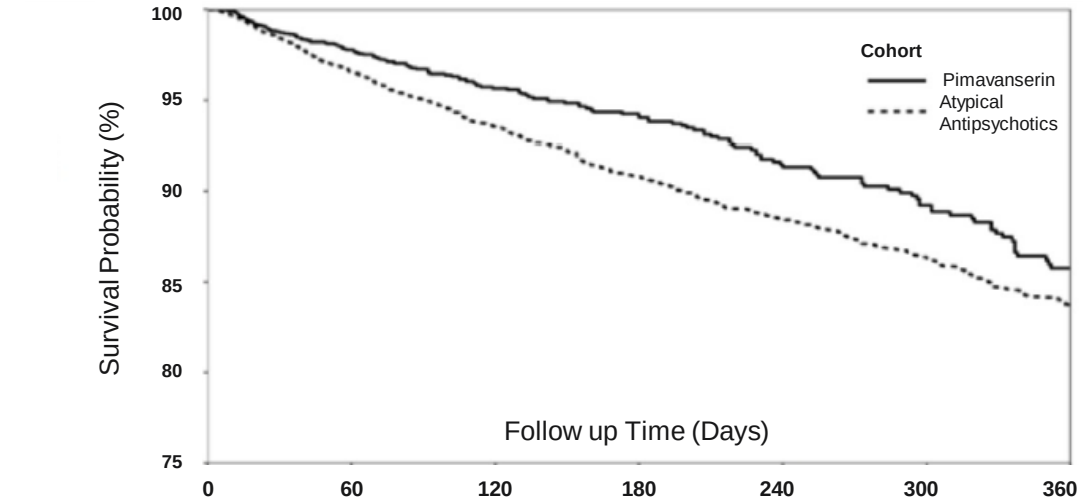
Pimavanserin Data Presented at MDS 2020

All-Cause Mortality in Pimavanserin and Atypical Antipsychotic Users with Parkinson's Disease in Medicare

A retrospective cohort study of Parkinson's disease patients initiating pimavanserin (n=3,227) or atypical antipsychotics (n=18,448, quetiapine 78% of users) from April 2016 to March 2019

Figure 2. Kaplan-Meier survival curve for the weighted pimavanserin and atypical antipsychotics cohorts



Weighted Number at Risk	0	60	120	180	240	300	360
Atypical Antipsychotics	3,251	1,878	1,118	790	562	426	318
Pimavanserin	3,227	1,943	1,257	893	662	492	373

Authors' Conclusion:

Pimavanserin was associated with reduced all-cause mortality compared to atypical antipsychotics

- The reduced mortality was restricted to patients not in nursing homes (85% of patients)
- This finding applied chiefly to the first 180 days of treatment

Sources: MDS 2020 Posters and Abstract.
A Mosholder. *All-cause mortality in pimavanserin and atypical antipsychotic users with Parkinson's disease in Medicare.* Movement Disorders, Vol. 35, Suppl. S1, 2020. Page S469
https://onlinelibrary.wiley.com/doi/epdf/10.1002/mds.28268

The authors included members of the FDA, CMS and Stanford University; This poster reflects the views of the authors and should not be construed to represent FDA's views or policies.
Results should be interpreted with the following limitations: A no-treatment comparison was not feasible, and because of the observational nature of the study, results may be subject to residual confounding.
NUPLAZID's benefit/risk profile, including the Boxed WARNING, as described in the current FDA-approved Prescribing Information has not changed.
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ACADIA

Deliver
On the DRP Opportunity

Hallucinations and Delusions Associated with Dementia-Related Psychosis (DRP)

High Burden of Disease:

- ~30% of dementia patients experience psychosis[1]
- Symptoms occur **2-6X** per week and can recur and worsen over time[2]
- Higher risk of cognitive decline, institutionalization and mortality[3]

Healthcare System Burden:

- Dementia patients are ~**2X** more costly (~$90K) within 1st year of diagnosis of psychosis[4]
- Increases likelihood of nursing home placement and hospitalizations[5]

Unapproved Atypical Antipsychotics Used for DRP:

- Significant worsening of cognition[6]
- Significant worsening of extrapyramidal symptoms[6]
- Increased sedation[6]
- Higher risk of mortality[6]

[1]Acadia market research and 2017 Alzheimer's Disease Facts and Figures.
[2]Ballard C, et al. Int J Geriatr Psychiatry. 1995;10(6):477-485. van der Linde RM, et al. Br J Psychiatry. 2016;209(5):366-377. Levy ML, et al. Am J Psychiatry. 1996;153(11):1438-1443.
[3]Scarmeas N, et al. Arch Neurol. 2005;62:1601-160.
[4]Rashid et al, Healthcare Resource Utilization and Associated Costs for Dementia Patients with Psychosis: A Medicare Database Study; poster presented at AMCP Nexus Oct 2020.
[5]Connors MH et al. Am J Geriatr Psychiatry 2018;26(3).
[6]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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Pimavanserin for the Treatment of DRP

Pimavanserin MOA:

Serotonin inverse agonist/antagonist selectively targeting 5-HT_{2A} receptors[1]

Large Market Opportunity[2]:

- No FDA approved therapy
- ~1.2M patients in the U.S. treated for DRP
  - *~2/3 treated with off-label, atypical antipsychotics*

PDUFA Date: 4/3/2021

Efficacy

Positive Phase 3 HARMONY Study:

✓ Significantly reduced risk of relapse of psychosis by **2.8 fold** compared to placebo
Hazard Ratio = 0.353 // *One-sided p-value = 0.0023*

Positive Results from Supportive Efficacy Studies:

✓ Phase 2 Alzheimer's disease psychosis study
✓ Phase 3 Parkinson's disease psychosis study[3]

Safety

Well-tolerated with safety database **>1500** elderly patients with neurodegenerative diseases

In clinical trials, patients on pimavanserin exhibited[4]:

✓ **No worsening of cognition**
✓ **No worsening of extrapyramidal symptoms**
✓ **No increase in sedation vs. placebo**

[1]Based on *in vitro* data. [2]Acadia market research and 2017 Alzheimer's Disease Facts and Figures.
[3]In addition to overall positive PDP results; the positive -020 study showed similar results in safety and effectiveness among patient with MMSE >25 or MMSE between 21 to 24.
[4]As measured by MMSE (Mini-Mental State Examination) and ESRS-A (Extrapyramidal Symptom Rating Scale A) scores. Data presented at CTAD 2020 and Acadia data on file.
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DRP Launch Capabilities Already Established

Brand Awareness	✓ NUPLAZID® brand established ✓ Over **30K** prescriptions written for PDP[1]
Acadia Connect	✓ Established support services help patients start and continue on NUPLAZID
Market Access	✓ NUPLAZID has broad formulary access for PDP ✓ Value proposition well recognized with broad payor access for PDP
Leadership in LTC	✓ Strong dedicated LTC sales force leveraging key partnerships with patient advocacy organizations, national EHR systems and LTC pharmacies

[1]Based on IQVIA data from approval date to September 30, 2020.
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Expanding into the DRP Opportunity

Key Similarities between PDP & DRP

- No previous FDA approved treatments
- High patient and caregiver burden[1]
- Off-label treatments may worsen the primary symptoms of the disease[2]
- Prescribing population includes:
  - Neurologists, psychiatrists, geriatric-focused PCPs, and long-term care focused HCPs

Key Differences between PDP & DRP

- **10X** DRP patient population vs. PDP
- Greater physician recognition for:
  - Dementia and psychosis ***vs.*** Parkinson's disease and psychosis

Acadia well-positioned to launch potential first and only FDA approved treatment for DRP

[1]Vernon EK, et al. Am J Geriatr Psychiatry 2019;27(4):349-59. Scarmeas N, et al. Arch Neurol. 2005;62:1601-160. Martinez-Martin, et al. Parkinsonism Relat Disord. 2015 Jun;21(6):629-34. Alvarado-Bolaños A, et al. J Parkinsons Dis. 2015;5(3):541-8.
[2]Goldman JP, et al. Expert Opin Pharmacother. 2011 Sep;12(13):2009-24. Vigen CL, et al. Am J Psychiatry. 2011 Aug;168(8):831-9.
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ACADIA™

Develop
Next Wave of
Breakthroughs

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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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
- **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[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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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***®

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:** 2H21

***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.

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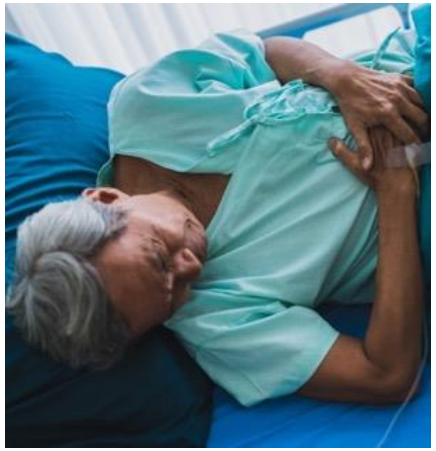
ACP-044 for the Treatment of Acute and Chronic Pain

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 by-product of tissue damage

High Unmet Need for more effective, safe, non-opioid and non-addictive treatments for pain management[1]



Acute Pain:

- ~80% of patients receive opioids following surgery [2]
- Pain is leading cause of unanticipated hospital readmission following surgery[3]
- Other treatments can be associated with GI bleeding, cardiovascular events, and liver toxicity[1]

Chronic Pain:

- Affects 20% of U.S. adults; major cause of disability and low QoL[4]
- Available treatments are often inadequately effective and/or poorly tolerated[1]
- Opioids often used when other treatments fail (e.g. NSAIDS)[1]

Phase 1 and Preclinical Results

- Favorable tolerability and PK profile
- Efficacy observed in animal models in both acute and chronic pain models

Phase 2 Program

- Initiating a Phase 2 clinical program in models of acute and chronic pain in 1H21

Additional Molecules

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

[1]Acadia market research and WHO. Cuomo A et al. J Pain Res. 2019. Wardhan R, Chelly J. F1000Res. 2017;6:2065. Johnson Q, Borsheski RR, Reeves-Viets JL. Mo Med. 2013;110(1):74–79.
[2]Coley K et al. Retrospective evaluation of unanticipated admissions and readmissions after same day surgery and associated costs. J Clin Anesth. 2002;14(5):349-353.
[3]Hah, Jennifer M et al. "Chronic Opioid Use After Surgery: Implications for Perioperative Management in the Face of the Opioid Epidemic." Anesthesia and analgesia vol. 125,5 (2017): 1733-1740. doi:10.1213/ANE.0000000000002458
[4]Dahlhamer J, Lucas J, Zelaya, C, et al. Prevalence of Chronic Pain and High-Impact Chronic Pain Among Adults — United States, 2016. MMWR Morb Mortal Wkly Rep 2018;67:1001–1006. DOI: http://dx.doi.org/10.15585/mmwr.mm6736a2
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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 the unwanted 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 and Chronic Pain	Initiate Phase 2 Program	1H21
Trofinetide	Rett Syndrome	Phase 3 LAVENDER Study Top-line Results	2H21
Pimavanserin	Negative Symptoms of Schizophrenia	Phase 3 ADVANCE-2 Study	Ongoing
ACP-319	Cognition and Schizophrenia	Phase 1 Program	Ongoing

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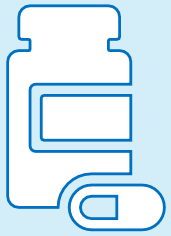
Building a Leading CNS Company

ACADIA

NUPLAZID® Significant Market Expansion



Leverage Best-in-Class Capabilities

Expanding Pipeline Across CNS

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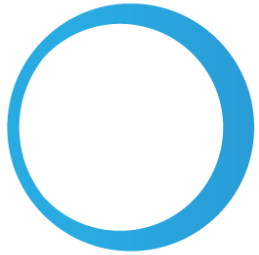

ACADIA™

Q&A Session