ACADIA® Pharmaceuticals

Fourth Quarter and Full Year 2019 Earnings Call

FEBRUARY 26, 2020

4Q and FY19 Earnings Call Agenda

INTRODUCTION	Mark Johnson | Vice President, Investor Relations
OPENING REMARKS	Steve Davis | Chief Executive Officer
COMMERCIAL UPDATE	Michael Yang | Chief Commercial Officer
R&D UPDATE	Serge Stankovic, M.D., M.S.P.H. | President
FINANCE UPDATE	Elena Ridloff | Chief Financial Officer
CLOSING REMARKS	Steve Davis | Chief Executive Officer
Q&A	

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Forward-Looking Statement

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, depression 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 PD, PD Psychosis, dementia-related psychosis, schizophrenia or depression and the potential use of trofinetide in Rett syndrome; (iv) potential markets for any of our products, including NUPLAZID and trofinetide; and (v) our estimates regarding our future financial performance, cash position or capital requirements.

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, 2018 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.

Opening Remarks

Steve Davis
CEO

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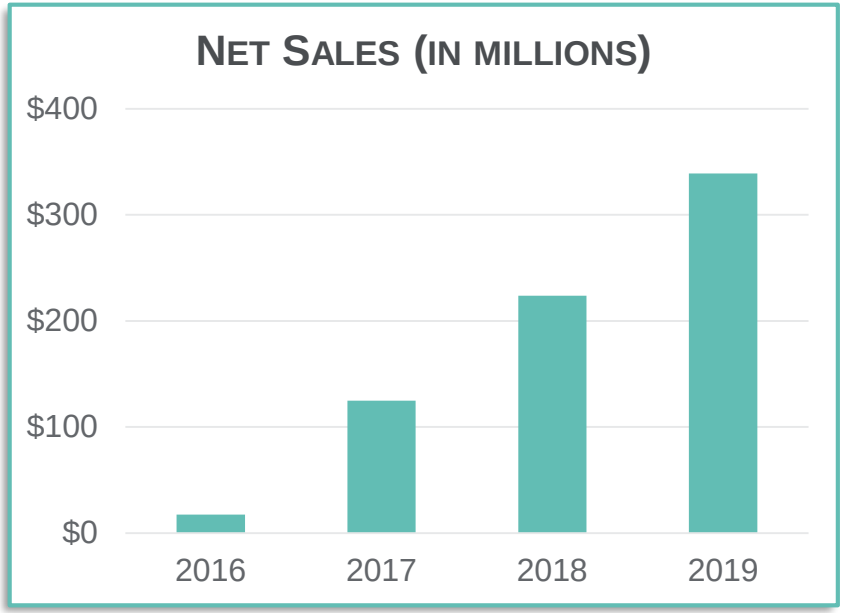
2019 Full-Year Highlights



$339.1M FY 2019 Net Sales

52% NUPLAZID® Net Sales Growth YoY

Positive HARMONY Study

Pivotal Results Announced for Dementia-Related Psychosis

Positive ADVANCE Study

Pivotal Results Announced for the Negative Symptoms of Schizophrenia

Initiated CLARITY-2 and CLARITY-3 Studies

Phase 3 Program for Adjunctive Major Depressive Disorder

Initiated LAVENDER Study

Phase 3 Program for Trofinetide in Rett Syndrome

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.
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Multi-Year Cadence of Potential Approvals

Dementia-Related Psychosis

sNDA Submission:
Summer 2020
Potential Approval:
~YE 2020

2.8 fold reduction in risk of relapse of psychosis vs. placebo

No negative impact on cognition, motor function; well-tolerated[1]

Major Depressive Disorder (*Adjunctive*)

Pivotal Phase 3 data:
4Q 2020
Potential Approval:
~YE 2021/2022

Reduced symptoms of depression & disability

Improved symptoms of sexual dysfunction; well-tolerated[2]

Trofinetide for Rett Syndrome

Pivotal Phase 3 data:
2021
Potential Approval:
2022

Improvements observed on validated caregiver and physician assessment; well-tolerated[3]

Negative Symptoms of Schizophrenia

2nd Pivotal to Commence:
Summer 2020
Potential Approval:
~YE 2023

Early and sustained improvement on the negative symptoms of schizophrenia vs. placebo; well tolerated[4]

2020 → **2023**

[1]Data presented at CTAD 2019 on 12/4/2019. [2]Fava M, Dirks B, Freeman MP, et al. A phase 2, randomized, double-blind, placebo-controlled study of adjunctive pimavanserin in patients with major depressive disorder and an inadequate response to therapy (CLARITY). *J Clin Psychiatry*. 2019;80(6):19m12928.
[3]Glaze D, et al. *Neurology*. Apr 2019, 92 (16) e1912-e1925. [4]Top-line results from ADVANCE study, additional details in company press release issued on 11/25/2019.
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2020 Strategic Pillars

Drive
NUPLAZID® Growth in PDP

Deliver
DRP Opportunity to the Market

Develop
Innovative Treatments For Unmet Needs

2020: A Transformational Year

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2020: A Transformational Year

Drive
NUPLAZID® Growth in PDP

FY 2020 Net Sales Guidance: $440 to $470M

Represents 34% YoY growth at midpoint of range

Deliver
DRP Opportunity to the Market

2nd Indication for Pimavanserin

Regulatory Timelines On-Track:
Pre-sNDA meeting in 1Q20;
sNDA submission summer 2020

Commercial Expansion:
Growing from
~200 to ~500 field roles
for launch

Develop
Innovative Treatments For Unmet Needs

Major Depressive Disorder:
Phase 3 results 4Q20

Negative Symptoms of Schizophrenia:
ADVANCE-2
initiating summer 2020

Business Development:
Leverage proven
commercial and R&D capabilities
with new opportunities

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Commercial Update

Michael Yang
Chief Commercial Officer

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NUPLAZID® 2020 Growth Initiatives in PDP

Grow	➢ Significant opportunity to grow market share (*currently in high-teens*) ➢ New patient market share continues to exceed overall market share
Elevate	➢ Highlight inclusion in MDS evidence-based guidelines review update ➢ New long-term, open-label NUPLAZID safety data ➢ Data highlighting reduction of caregiver burden for patients on NUPLAZID[1] ➢ Integrated patient/caregiver consumer campaigns
Leverage	➢ 34 mg capsule benefits ➢ Continued high compliance and long-term adherence rate

[1]As measured by a reduction in the Zarit 22-item caregiver burden scale over six weeks compared to placebo.
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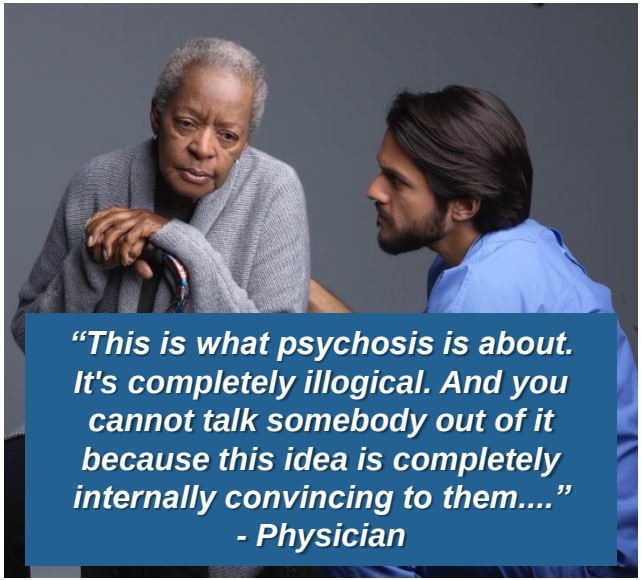
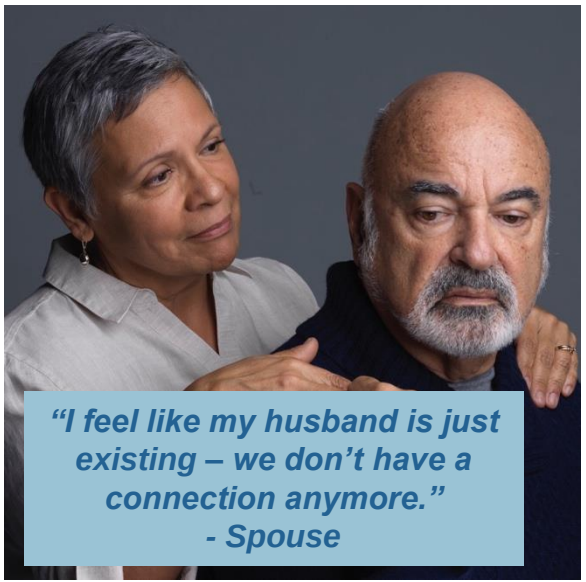
High Burden of Disease: Dementia-Related Hallucinations and Delusions





Hallucinations and delusions may increase likelihood of nursing home placement

Increased burden for caregivers, who are often the target of patient's delusions

Learn more at: www.morethancognition.com

References: Quotations above sourced from ACADIA market research surveys and CTAD Investor Event on 12/4/2019. Hogan DB, et al. The prevalence and incidence of dementia with Lewy Bodies: a systematic review. *Can J Neurol Sci*. 2016:43(suppl 1):583-595. Ballard C., et al. The prevalence and phenomenology of psychotic symptoms in dementia sufferers. *Int J Geriatr Psychiatry*. 1995;10(6):477-485. Mohamed S., et al. Caregiver burden in Alzheimer's disease: cross sectional and longitudinal patient correlates. *Am J Geriatr Psychiatry*. 2010; 18(10):917-927.
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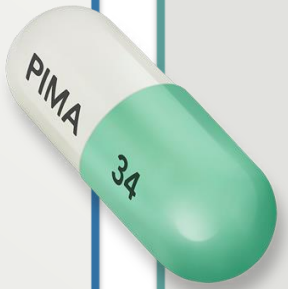
Market Expansion with Second Indication: Dementia-Related Psychosis

Key Similarities between PDP & DRP:

- High unmet need
- First and only FDA approved treatment[1]
- Off-label treatments associated with troublesome side-effects and may worsen the primary disease
- Elderly patient population
- High caregiver burden
- High need for awareness and education



Key Differences between PDP & DRP:

- 1.2M treated population that is **10X** larger than the treated PDP population[2]
  - ~2/3 treated with antipsychotics (DRP)
- Greater physician recognition for the association between dementia and psychosis, compared to PD and psychosis
- Expanded audience of healthcare providers:
  - Psychiatrists & geriatric general practitioners
- Larger commercial footprint:
  - Growing from 200 to ~500 field roles

[1]If approved for dementia-related psychosis based on planned sNDA submission. [2]2017 Alzheimer's Disease Facts and Figures and ACADIA market research.
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R&D Update

Serge Stankovic, M.D., M.S.P.H.
President

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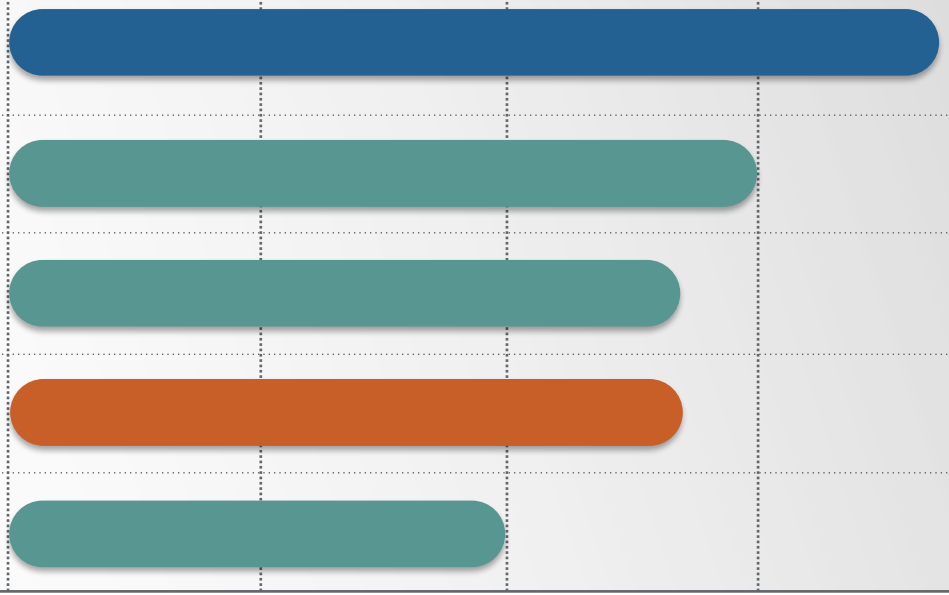
Innovative Late-Stage Pipeline

COMPOUND/ PROGRAM	INDICATION	PHASE 1	PHASE 2	PHASE 3	MARKETED
NUPLAZID® (pimavanserin)[1]	Parkinson's Disease Psychosis				
Pimavanserin	Dementia-Related Psychosis				
Pimavanserin	Major Depressive Disorder *Adjunctive Therapy*				
Trofinetide[2]	Rett Syndrome				
Pimavanserin	Negative Symptoms of 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.
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Major Depressive Disorder – Adjunctive Therapy

High unmet need for differentiated adjunctive therapy

- **~17M patients in the U.S. have MDD**[1]
  - Majority of patients with MDD do not respond to initial antidepressant therapy
- **~2.5M treated with adjunctive therapy**[2]
- **Adjunctive use of existing antipsychotics can lead to significant side effects:**
  - Sexual dysfunction
  - Sedation
  - Weight gain
  - Cognitive impairment
  - Extrapyramidal symptoms
  - Rare but serious tardive dyskinesia

[1]National Institute of Mental Health. (2017). Major Depression. Retrieved from http://www.nimh.nih.gov/health/statistics/major-depression.shtml.[2]IMS NSP, NPA, NDTI MAT-24 month data through Aug-2017; *PLOS One*, Characterization of Treatment Resistant Depression Episodes in a Cohort of Patients from a US Commercial Claims Database, Oct 2013, Vol 8, Issue 10.
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Advancing Adjunctive Treatment for MDD

CLARITY Results

Meaningful Efficacy:

Primary endpoint achieved – Depression[1]

- **HAMD-17 (*p-value=0.039*)**

Robust effect in the parallel design Stage 1

- **HAMD-17 (*p-value = 0.0003;* Effect size = 0.63*)***

Key secondary endpoint achieved - Disability[1]

- **SDS (*p-value=0.004*)**

Secondary Outcome Findings:

- Early and sustained antidepressant treatment effect[2]
- Improvement in sexual dysfunction symptoms
- Improvement in daytime sleepiness
- No meaningful weight gain
- No cognitive side effects observed
- No extrapyramidal symptoms observed
- No tardive dyskinesia observed

CLARITY-2 Phase 3 Results 4Q20
CLARITY-3 Phase 3 Results 1Q21
Two ongoing Phase 3 studies with only one additional positive study necessary for sNDA

[1]HAMD-17: 17-item Hamilton Depression Rating Scale; SDS = Sheehan Disability Scale.
[2]Week 1 separation from placebo observed in Stage 1 (n=203) and Week 10 separation from placebo observed in Stage 1 patients who were not re-randomized in Stage 2 (n=174).
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Negative Symptoms of Schizophrenia

No FDA-approved treatment for the negative symptoms of schizophrenia

- **~40 - 50% of schizophrenia patients experience predominant negative symptoms**[1]
- **Negative symptoms include** social withdrawal, lack of emotion, restricted speech, and blunted affect and can lead to:
  - Low social functioning
  - Long-term disability
  - Significant caregiver burden

[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.
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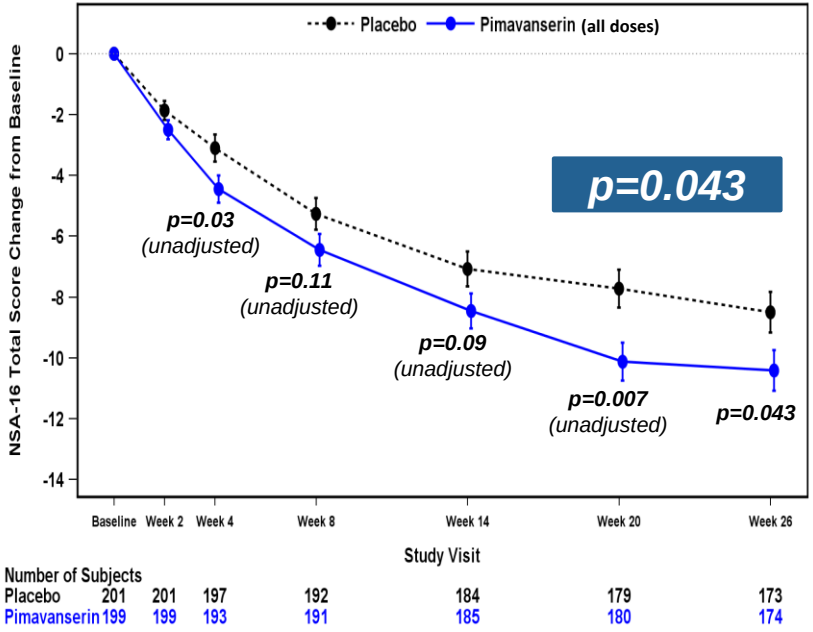
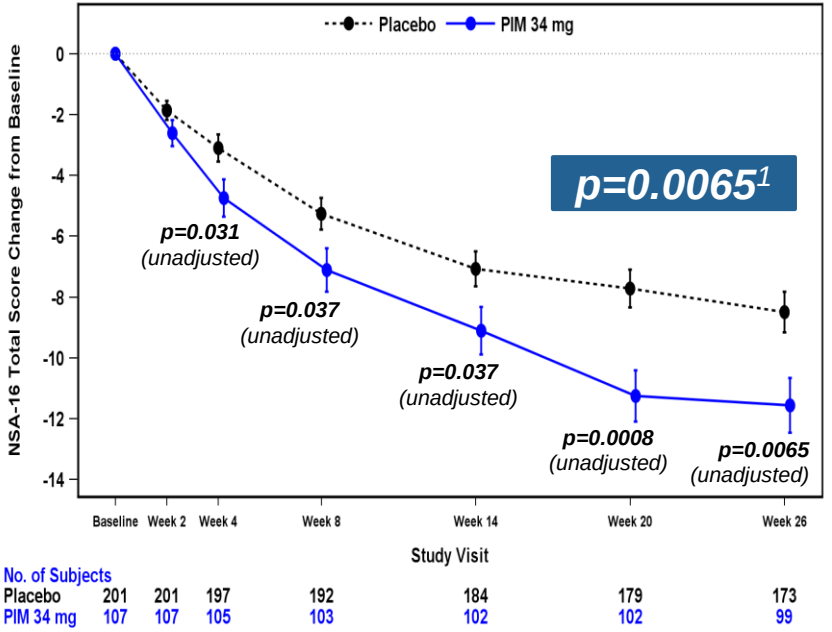
Positive ADVANCE Study Results
Primary Endpoint: NSA-16 Total Score

Overall Study



Number of Subjects							
Placebo	201	201	197	192	184	179	173
Pimavanserin	199	199	193	191	185	180	174

34 mg Dose[1]



No. of Subjects							
Placebo	201	201	197	192	184	179	173
PIM 34 mg	107	107	105	103	102	102	99

ADVANCE-2, Second Pivotal Study, Expected to Commence Summer 2020

ADVANCE-2 to evaluate fixed dose of 34 mg vs. placebo

[1]Prespecified subgroup with p-values calculated post-hoc. ADVANCE study included flexible dosing regimen. Both pimavanserin and placebo groups were on a stable background antipsychotic treatment.
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Trofinetide for the Treatment of Rett Syndrome

No FDA-approved treatment for Rett syndrome

- **Debilitating rare neurologic disease**
- **6,000 to 9,000 patients in the U.S.**[1]
- **Symptoms manifest primarily in young females:**
  - Cognitive, sensory, emotional, and motor impairment
  - Loss of independence
  - Loss of purposeful hand use
  - Loss of spoken communication

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

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Trofinetide Clinical Program

Trofinetide

Trofinetide is a novel synthetic analog of the amino-terminal tripeptide of IGF-1

Designed to treat the core symptoms of Rett syndrome by potentially reducing neuroinflammation and supporting synaptic function

Clinical Program

LAVENDER Phase 3 study ongoing:

- ~180 females (ages 5 – 20) with Rett syndrome
- Double-blind, placebo-controlled
- Co-primary endpoints: **RSBQ and CGI-I**
- 12-week study duration

LILAC 9-month extension study:

- To evaluate LT tolerability and safety of trofinetide

Phase 2 study:

- Statistically significant results in **RSBQ** and **CGI-I**
- Positive Phase 2 study results published in ***Neurology***®[1]

LAVENDER Results Expected in 2021

RSBQ = Rett Syndrome Behaviour Questionnaire (caregiver assessment)
CGI-I = Clinical Global Impression Scale-Improvement (physician assessment)
[1]Glaze D, et al. *Neurology*. Apr 2019, 92 (16) e1912-e1925.
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Upcoming Clinical and Regulatory Milestones

COMPOUND	INDICATION	MILESTONE	EXPECTED TIMING
Pimavanserin	Dementia-Related Psychosis	Pre-sNDA Meeting	1Q20
		sNDA Submission	Summer 2020
Pimavanserin	Major Depressive Disorder *Adjunctive Therapy*	CLARITY-2 Results Expected	4Q20
		CLARITY-3 Results Expected	1Q21
Pimavanserin	Negative Symptoms of Schizophrenia	Initiate ADVANCE-2	Summer 2020
Trofinetide	Rett Syndrome	LAVENDER Results Expected	2021

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Finance Update

Elena Ridloff
Chief Financial Officer

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4Q19 Financial Highlights

Millions, Except EPS	4Q19 (GAAP)	4Q18 (GAAP)	YoY Change
Total Revenue	$98.3[1]	$59.6	+65%
Cost of Product Sales, License Fees and Royalties	$5.3	$4.4	+21%
R&D	$57.5	$48.2	+19%
SG&A	$91.9	$74.3	+24%
Net Loss	($53.0)	($65.5)	-19%
Weighted Average Basic Shares Outstanding	154.5	131.6	+17%
EPS	($0.34)	($0.50)	+32%

[1]End of fourth quarter days-on-hand channel inventory increased relative to the third quarter 2019, which resulted in approximately a $2.5 million increase in fourth quarter 2019 net sales.

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2019 Financial Highlights

Millions, Except EPS	2019 (GAAP)	2018 (GAAP)	YoY Change
Total Revenue	$339.1	$223.8	+52%
Cost of Product Sales, License Fees and Royalties	$19.6	$18.3	+7%
R&D	$240.4	$187.2	+28%
SG&A	$325.6	$265.8	+23%
Net Loss	($235.3)	($245.2)	- 4%
Weighted Average Basic Shares Outstanding	147.2	126.6	+16%
EPS	(1.60)	(1.94)	+18%
Cash Balance 12/31/2019[1]	$697.4		

[1]Cash balance includes cash, cash equivalents and investments as of 12/31/2019.
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FY2020 Financial Guidance

FY 2020	Guidance	Commentary
NUPLAZID® Net Sales	$440 to $470M	+34% YoY Growth[1]
Gross-to-Net	17-18%	*Increase in donut hole obligation in 2020*
GAAP R&D Expense	$270 to $285M	*Reflects progression of 4 pivotal studies*
GAAP SG&A Expense	$440 to $460M	*Reflects similar YoY investments in PDP and launch prep for DRP*
Non-Cash Stock-Based Compensation Expense	$90 to $100M	
Projected 2020 Year-End Cash Balance[2]	$470 to $500M	

[1]YoY growth number based on mid-point of the guidance range.
[2]Projected cash balance includes cash, cash equivalents and investments.
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Closing Remarks

Steve Davis
CEO

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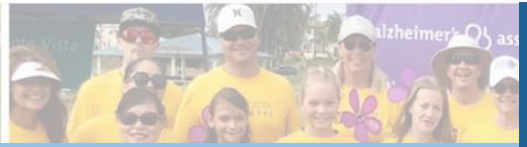
ACADIA in 2020 – Building a Leading CNS Platform



Drive NUPLAZID® Growth in PDP

$440 - $470M

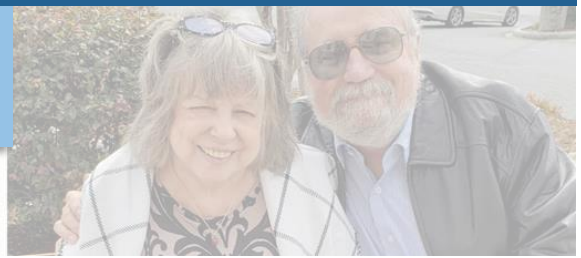
FY2020 Net Sales Guidance

Deliver DRP Opportunity to the Market

Potential Approval: ~YE 2020

Develop Innovative Treatments For Unmet Needs

4 Pivotal studies to Advance in 2020



2020: A Transformational Year

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Q&A

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