



Acadia Pharmaceuticals (NASDAQ: ACAD) — Psychosis Cured?

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December 2024



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Executive Summary

- DCF Price: \$42.66 [P. 25](#)
- RV Price: \$29.85 [P. 31](#)
- Reverse DCF Assumptions (what market is pricing) [P. 28](#)
- Forecasts [P. 20](#)
- Scientific Analysis [P. 33 to 37](#)
- Summary [P. 38](#)
- Bibliography [P. 39](#)

Recommendation

- Long \$ACAD (PT: \$42.66)
- Long June 20th, 2025, \$12 puts (30% - 40% of pos. roll out if needed)



Business Overview

ACAD Snapshot

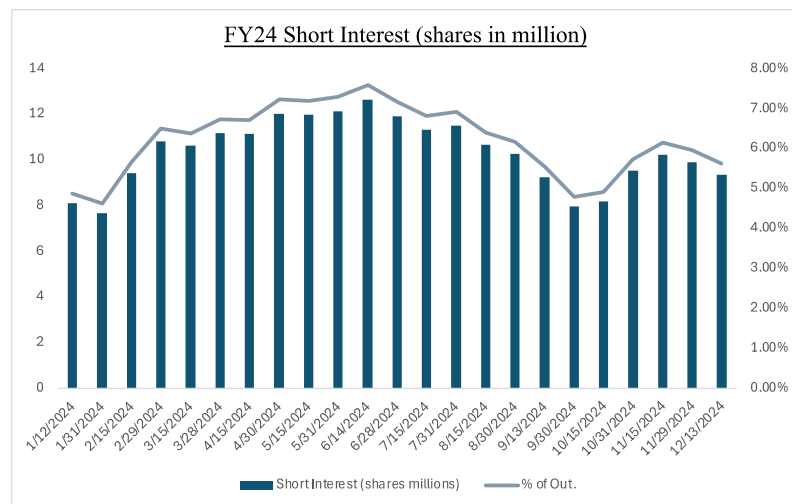
Dec. 27th, 2024 usd millions

Price	\$16.87
Shares	166.39
Mkt Cap	2,807
(-) Cash	565
(+) Debt	40
EV	2,282
EV/Share	\$13.72

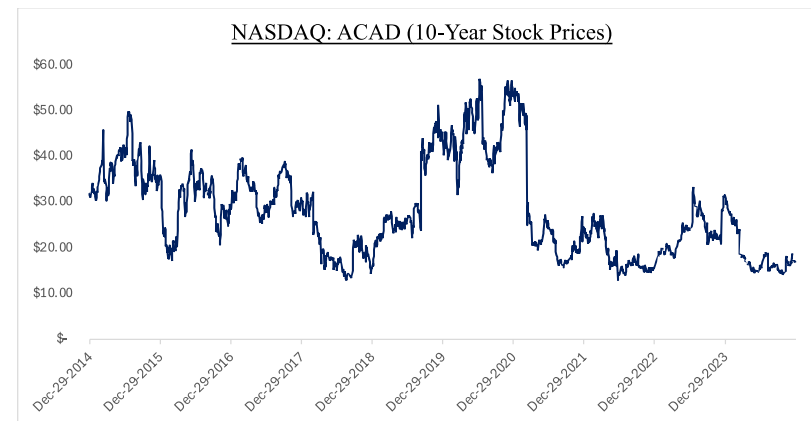
Major Holders (as of Sept. 30th, 2024)

Holder	Shares (millions)	% of Out.
Baker Bros. Advisors Lp	42.88	25.77%
Vanguard Group Inc	13.84	8.32%
Rtw Investments Lp	13.71	8.24%
Blackrock, Inc.	12.79	7.69%
State Street Corp	5.97	3.59%
D.E. Shaw & Co., Inc.	3.5	2.10%
Fred Alger Management, Llc	3.19	1.92%

Source: NASDAQ



Source: NASDAQ





Business Overview

How Acadia Makes Money

Acadia Pharmaceuticals is a clinical-stage biopharmaceutical company focused on the development and commercialization of drugs for diseases relating to the central nervous system (CNS) and other rare diseases. Acadia is currently commercializing two approved drugs, NUPLAZID (for hallucinations in Parkinson's) and DAYBUE (for Rett Syndrome). The two main targeted indications are Hyperphagia in PWS and Alzheimer's Psychosis. The firm was incorporated in 1993 and is headquartered in San Diego, California.

[Acadia Corporate Presentation, Nov '24](#)

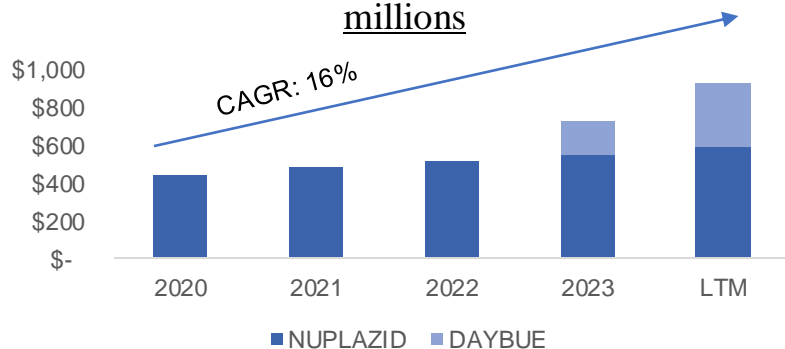
Program	Indication	Preclinical	Phase 1	Phase 2	Phase 3	Marketed	
NUPLAZID® (pimavanserin) ¹	Parkinson's Disease Psychosis	[Progress bar spanning Preclinical, Phase 1, Phase 2, and Phase 3]					
DAYBUE™ (trofinetide) ²	Rett Syndrome	[Progress bar spanning Preclinical, Phase 1, Phase 2, and Phase 3]					
ACP-101 ^{3,4}	Hyperphagia in Prader-Willi Syndrome	[Progress bar spanning Preclinical, Phase 1, and Phase 2]					
ACP-204 ⁴	Alzheimer's Disease Psychosis	[Progress bar spanning Preclinical and Phase 1]					
ACP-2591 ⁴	Rett Syndrome; Fragile X Syndrome	[Progress bar spanning Preclinical and Phase 1]					
ASO Programs ⁵	SYNGAP1; Rett; Undisclosed	[Progress bar in Preclinical]					
Undisclosed	Neuropsychiatric Symptoms	[Progress bar in Preclinical]					



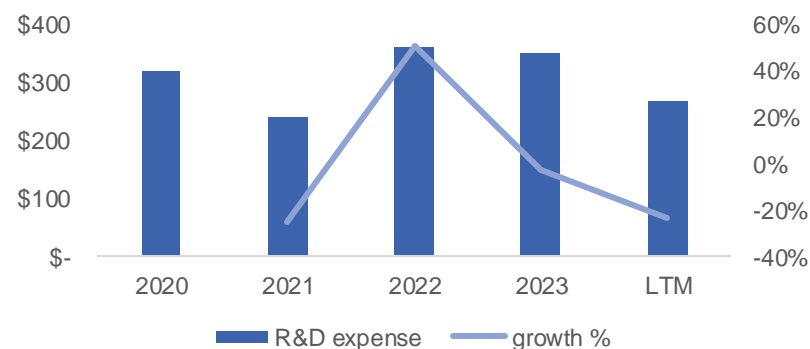
Business Overview

Financial Snapshot

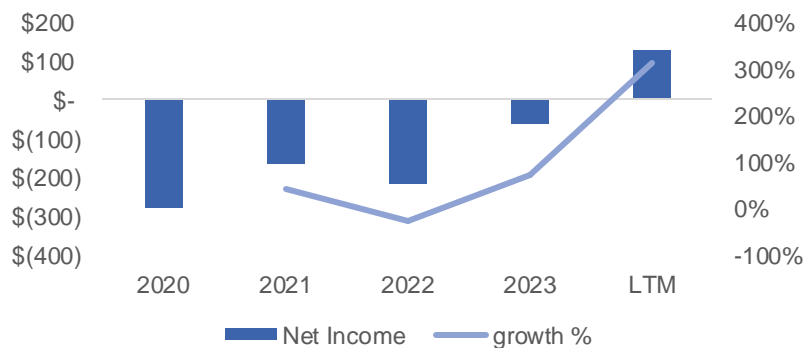
Historical Segmented Revenue, usd millions



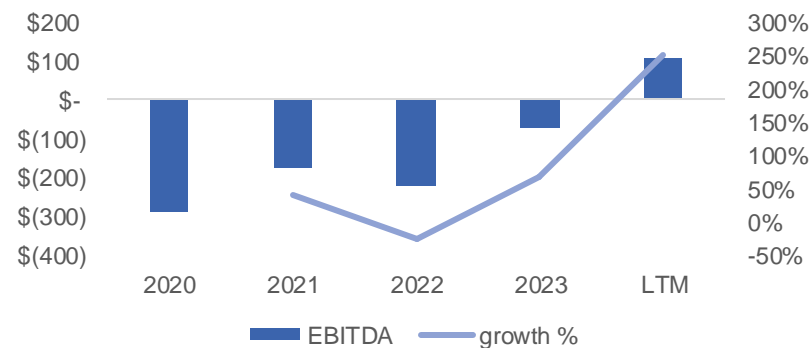
Historical R&D Expenses, usd millions



Historical Net Income, usd millions



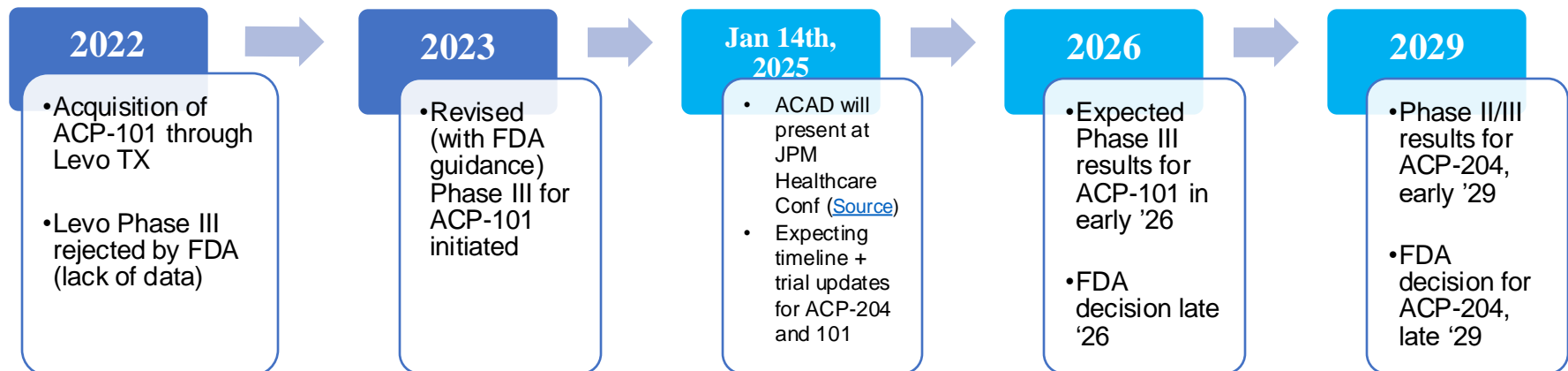
Historical EBITDA, usd millions





Business Overview

Timeline of Catalysts





Industry Overview



Industry Overview

Parkinson's, Alzheimer's, Rett and Schizophrenia

Name	Indication	Economics	Event	Timing
NGN-401	Rett Syndrome	Neurogene	Phase II start	2025
CVL-231	Schizophrenia	Abbvie	Phase II data	Q4'24
Anavex2-73	Parkinson's dimensia	Anavex	Phase IIb/III	Q4'24
TSHA-102	Rett Syndrome	Taysha	Phase I/II data	1H '25
CVL-231	Alzheimer's psychosis	Abbvie	Phase I results	Q1'25
RP5063	Schizophrenia	Reviva	Phase III Results	Q2'25
Pitolisant	Prader-Willi syndrome	Harmony Bio	Phase III Results	Q2'26

[ClinicalTrials.gov](#), [PubMed](#)

- Currently no other approved drug for Parkinson's psychosis and Rett Syndrome
- Potential new NUPLAZID competitor in ~'30 (Anavex2-73), depending on results
- Biggest threat is CVL-231, but it has a different MOA to NUPLAZID and ACP-101



Industry Overview

Macro Trends

- Historically, small-cap biotech/pharma stocks are immune to macro trends
- Elon and Vivek's D.O.G.E might change the patent protection duration for certain indications that require longer trial periods
- Alzheimer's and Parkinson's among the top patent extension priorities for Vivek
- Vivek also wants the FDA to approve drugs faster and monitor side effects after administration
- If these changes DO happen, my analysis will need positive remodeling



Investment Theses



Investment Theses

Upcoming Approvals

- **I expect ACP-101 (for Hyperphagia in PWS) to get approved in late '26**
- **I also expect ACP-204 (for Alzheimer's Psychosis) to get approved in late '28**

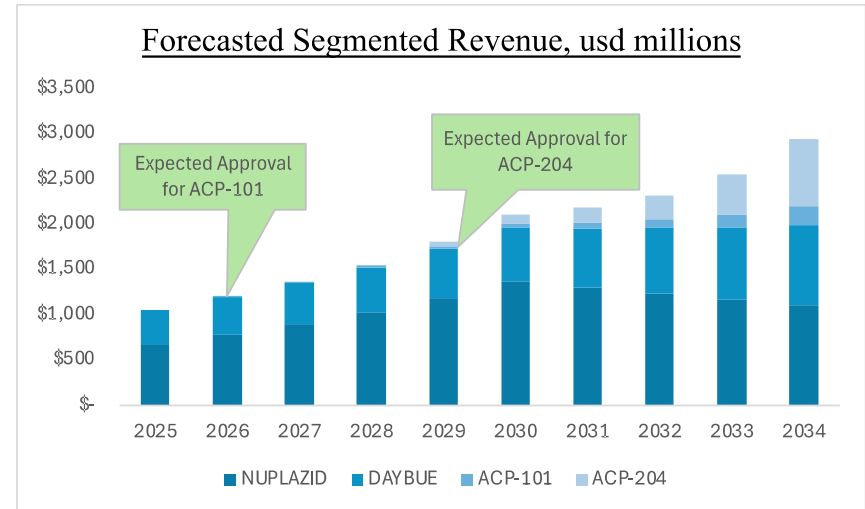
Why Will ACP-101 Get Approved?

- Previous Phase III reached statistically significant primary endpoint efficacy target
- ACAD designed its new Phase III around FDA guidance (closely resembles last trial = same results?)
- Direct delivery to the brain with intranasal admin. Overall reduction in hyperphagia behaviors in last trial.

[Acadia Phase III Results, Prader-Willi News](#)

[Pivotal Phase III Design, Acadia Pharmaceuticals IR](#)

ACADIA



Why Will ACP-204 Get Approved?

- Both NUPLAZID (approved) and ACP-204 have the same MOA and targets
- Both indications for NUPLAZID and ACP-204 are very similar (neuropsychiatric diseases similar in symptoms)
- Scientifically, very unlikely that ACP-204 doesn't reach stat sig, given reverse agonist of 5-HT2A receptors and similar trial design to NUPLAZID

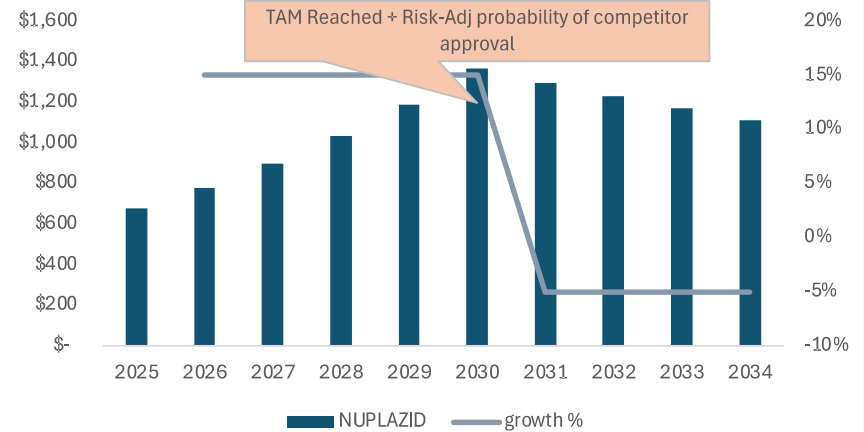


Investment Theses

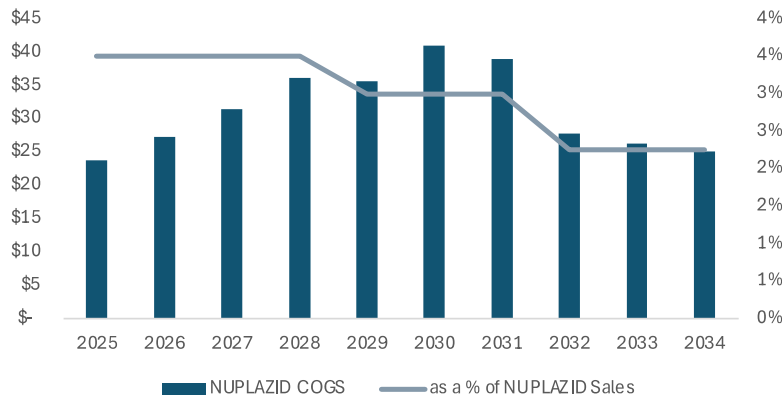
Patent Extensions for NUPLAZID (Until '38)

- In December '23, Acadia won a court ruling resulting in a patent protection extension for NUPLAZID until 2038
- Major catalyst, because it fuels longer term growth for NUPLAZID (immense TAM)
- This patent extension also enables Acadia to gradually lower COGS and SG&A expenses

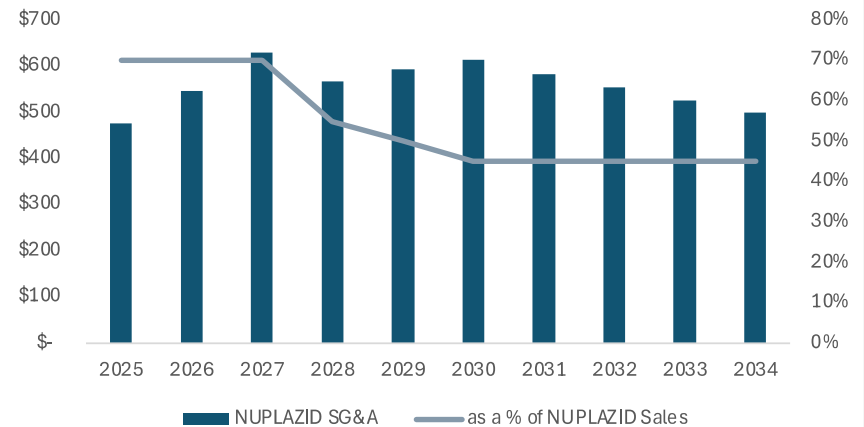
Forecasted NUPLAZID Sales, usd millions



Forecasted NUPLAZID COGS, usd millions



Forecasted NUPLAZID SG&A, usd millions



[Acadia Court Ruling, Pharmaceutical Technology, Dec '23](#)



Risks & Catalysts



Risks & Catalysts

Where I Might be Wrong

- I'm confident that both ACP-101 and ACP-204 will get approved, but probabilistically, the approval odds are not 100%
- **The main risk in my analysis stems from ACP-101 and ACP-204 not getting approved and never materializing sales**
- **The other substantial risk is the approval of a competitor's drug (most likely CLV-231 and Anavex2-73), which could hinder future sales**
- If any of these two risks/catalysts were to occur, my assumptions and forecasts would need to be revised



Appendix



Appendix

Historical Income Statement

<i>usd millions</i>	Q123	Q223	Q323	Q423	Q124	Q224	Q324	2020	2021	2022	2023	LTM
NUPLAZID	118	142	145	144	130	157	159	442	484	517	549	590
DAYBUE	0	23	67	87	76	85	91	0	0	0	177	339
ACP-101												
ACP-204												
growth %												
Revenue	118	165	212	231	206	242	250	442	484	517	726	929
COGS	2	7	15	18	23	18	19	21	19	10	42	78
Gross Profit	117	158	197	213	183	224	232	421	465	507	685	851
R&D	69	59	157	67	60	76	67	319	239	362	352	269
SG&A	101	96	98	111	108	117	133	389	396	369	407	470
Opex	170	155	255	178	168	193	200	708	635	731	758	739
Operating Profit	(54)	3	(58)	35	15	30	32	(287)	(170)	(224)	(73)	112
Interest income	4	5	4	5	6	6	7	7	1	7	17	23
Other income	5	(1)	2	0	0	0	1	(1)	2	4	5	1
Pretax income	(45)	6	(52)	40	21	37	39	(281)	(168)	(213)	(51)	137
Taxes	(2)	5	13	(6)	4	4	6	1	0	3	10	8
NI	(43)	1	(65)	46	17	33	33	(282)	(168)	(216)	(61)	129
Shares	162	165	164	164	167	166	166	157	160	162	164	166
EPS	-\$0.27	\$0.01	-\$0.40	\$0.28	\$0.10	\$0.20	\$0.20	-\$1.79	-\$1.05	-\$1.34	-\$0.37	\$0.77
D&A	(2)	0	(0)	(0)	4	1	0	4	6	(1)	(2)	5
EBITDA	(52)	3	(58)	35	11	30	31	(291)	(176)	(223)	(71)	108
Gross margin %	99%	95%	93%	92%	89%	92%	92%	95%	96%	98%	94%	92%
Operating margin %	-45%	2%	-27%	15%	7%	13%	13%	-65%	-35%	-43%	-10%	12%
Net margin %	-36%	1%	-31%	20%	8%	14%	13%	-64%	-35%	-42%	-8%	14%
Effective tax %	4%	172%	-23%	-17%	29%	12%	19%	0%	0%	1%	14%	7%



Appendix

Historical Balance Sheet

<i>usd millions</i>	Q123	Q223	Q323	Q423	Q124	Q224	Q324	2020	2021	2022	2023	LTM
Cash	291	108	98	189	205	177	155	326	147	115	189	155
ST investments	112	267	248	250	266	324	410	306	373	302	250	410
AR+OR	70	84	95	102	100	110	110	50	65	63	102	110
Inventory	6	9	21	36	62	72	61	10	8	7	36	61
Prepays	24	24	38	39	43	46	52	26	24	21	39	52
TCA	503	493	499	616	675	729	788	718	618	508	616	788
PP&E	6	5	5	5	4	4	4	9	8	6	5	4
Operating lease asset	54	52	51	52	54	52	44	47	58	56	52	44
Intangibles	70	68	67	65	110	108	106	1	0	0	65	106
Restricted Cash	6	8	6	6	6	6	9	6	6	6	6	9
LT inventory	5	5	5	5	5	15	26	0	6	5	5	26
Other assets	12	11	0	0	0	0	0	2	4	8	0	0
TNCA	152	150	133	133	180	185	189	65	82	80	133	189
TA	655	643	633	749	855	914	977	783	700	588	749	977
AP	17	19	12	18	19	20	19	8	7	13	18	19
Accrued	207	169	197	237	311	318	325	97	89	113	237	325
TCL	224	188	210	254	331	338	344	106	96	126	254	344
NC Lease	51	50	48	48	49	47	40	44	56	53	48	40
Other NCL	5	9	13	15	11	12	15	5	7	9	15	15
TNCL	57	59	61	63	60	60	56	50	63	62	63	56
TL	281	247	270	317	391	397	400	156	159	187	317	400
PIC	2,787	2,808	2,839	2,863	2,879	2,898	2,924	2,613	2,695	2,771	2,863	2,924
AD	(2,413)	(2,411)	(2,477)	(2,431)	(2,414)	(2,381)	(2,348)	(1,986)	(2,154)	(2,370)	(2,431)	(2,348)
SE	374	396	362	432	464	517	577	627	541	400	432	577



Appendix

Historical Cash Flow Statement

<i>usd millions</i>	Q123	Q223	Q323	Q423	Q124	Q224	Q324	2020	2021	2022	2023	LTM
Model NI	(43)	1	(65)	46	17	33	33	(282)	(168)	(216)	(61)	129
Reported NI	(43)	1	(65)	46	17	33	33	(168)	(168)	(216)	(61)	129
SBC	15	15	19	18	15	16	26	84	64	68	66	75
Amortization	(2)	(0)	(1)	(0)	4	0	(0)	3	4	(3)	(3)	3
Depreciation	0	0	0	0	0	0	1	1	2	2	1	1
AR+OR	(7)	(14)	(10)	(8)	2	(10)	(8)	(12)	(15)	2	(39)	(24)
Inventory	0	(3)	(11)	(15)	(17)	(27)	(45)	(3)	(4)	2	(29)	(104)
Prepays	(2)	(0)	(14)	(1)	(4)	(3)	(12)	(7)	2	2	(18)	(21)
Lease asset	2	2	2	1	2	2	1	4	6	7	6	6
AP	5	1	(7)	5	2	1	(1)	1	(2)	6	5	7
Accrued	25	2	28	38	12	15	13	28	(8)	24	93	78
Lease	(2)	5	(8)	(1)	0	(2)	(6)	(2)	(5)	(8)	(6)	(9)
LT liabilities	(4)	4	3	2	(4)	1	3	2	2	2	6	3
CFFO	(14)	14	(64)	85	29	25	5	(68)	(123)	(110)	21	144
Purchase of investments	(67)	(229)	30	(104)	(80)	(138)	(151)	(340)	(494)	(363)	(370)	(473)
Sale of investments	259	267	(200)	104	66	82	69	540	423	436	430	320
CFFI	193	38	(171)	(0)	(14)	(56)	(82)	200	(71)	73	60	(153)
Stock issuance proceeds	1	7	11	5	1	4	0	81	18	8	25	10
CFFF	1	7	11	5	1	4	0	81	18	8	25	10
CIC	180	59	(224)	90	16	(28)	(77)	213	(176)	(29)	106	2



Appendix

Financials' Forecast

<i>usd millions</i>	LTM	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
NUPLAZID	590	679	781	898	1,033	1,188	1,366	1,297	1,233	1,171	1,112
DAYBUE	339	373	410	451	496	546	600	660	726	799	879
ACP-101			6	12	18	27	41	61	91	137	205
ACP-204						50	100	165	272	449	741
Revenue	929	1,052	1,191	1,349	1,529	1,733	1,966	1,958	1,959	1,970	1,991
COGS	78	53	60	67	76	87	98	98	98	98	100
Gross Profit	851	999	1,131	1,281	1,452	1,647	1,868	1,860	1,861	1,871	1,892
R&D	269	283	297	312	327	344	361	379	398	418	439
SG&A	470	789	893	809	917	1,040	1,180	1,175	1,175	1,182	1,195
Opex	739	1,071	1,190	1,121	1,245	1,384	1,540	1,553	1,573	1,600	1,633
Operating Profit	112	(72)	(59)	160	208	263	327	306	288	272	258
Interest income	23	25	27	29	32	34	37	40	43	46	50
Other income	1	1	1	1	1	1	2	2	2	2	2
Pretax income	137	(46)	(30)	191	241	299	366	348	332	320	310
Taxes	8	14	12	32	42	53	65	61	58	54	52
NI	129	(61)	(42)	159	199	246	300	286	275	265	258
Shares	166	166	166	166	166	166	166	166	166	166	166
EPS	\$0.77	-\$0.36	-\$0.25	\$0.96	\$1.20	\$1.48	\$1.81	\$1.72	\$1.65	\$1.60	\$1.56
D&A	5	5	5	5	5	5	5	5	5	6	6
EBITDA	108	(77)	(63)	156	203	258	322	301	282	266	253
Gross margin %	92%	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%
Operating margin %	12%	-7%	-5%	12%	14%	15%	17%	16%	15%	14%	13%
Net margin %	14%	-6%	-4%	12%	13%	14%	15%	15%	14%	13%	13%
Effective tax %	7%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%



Appendix

Funded Debt + D/E + Bottoms-Up Beta

Debt/Equity Weightings

Funded Debt (usd millions)	40
Market Cap (usd millions)	2,807
Firm Value	2,847
Debt Weighting	1.42%
Equity Weighting	98.58%

Funded Debt (Q324), usd millions

Non-current operating lease liability	40.42
Weighted-avg lease discount rate	4.20%

Bottoms-Up Beta, usd millions

TICKER	INDICATION	GEOGRAPHY	MKT CAP	LTM EBITDA Margin	Levered Beta (5Y)	D/E	Effective Tax Rate LTM	Unlevered Beta	Weight	Weight Rationale	
NASDAQ: HALO	Human Hyaluronizade	US	6,048	58.40%	1.24	0.77x	18.30%	0.76	10%	Abnormal DE	
NASDAQ: CORT	Hypocortisotism	US	5,466	22.90%	0.52	0.01x	14.70%	0.52	22.50%	Similar Growth and Mkt Cap to ACAD	
NASDAQ: CPRX	Lambert-Eaton myasthenic	US	2,579	45.90%	0.77	0.00x	24.40%	0.77	22.50%	Similar Growth and Mkt Cap to ACAD	
NASDAQ: PTGX	Plaque psoriasis	US	2,342	46.30%	2.2	0.02x	1.30%	2.16	22.50%	Similar Growth and Mkt Cap to ACAD	
NASDAQ: LGND	IgA Nephropathy	US	2,142	34.50%	0.93	0.01x	23.10%	0.92	22.50%	Similar Growth and Mkt Cap to ACAD	
NASDAQ: ACAD	Neuropsychiatric syndromes	US	2,807	11.59%	0.38	0.09x	7.30%	0.35			
								Relevered Beta	1.14		



Appendix

WACC + TV WACC Calculations

Cost of Equity (Ke)	Ke = Rf + B(ERP)	
Rf	4.59%	10-year avg US 10Y
Beta	1.14	bottoms up
ERP	3.85%	Damodaran's Dec. '24
Cost of Equity (Ke)	8.98%	

Cost of Debt (Kd)	Kd = Rf + Credit Spread	
Credit Rating	4.20%	Weighted-avg op. lease discount
Credit Spread	1.47%	Damodaran credit spread
Rf	4.59%	24-Dec US 10y
Cost of Debt (Kd)	6.06%	

$$WACC = ((E/V * Ke) + ((D/V * Kd) * (1 - Tc)))$$

WACC Calculations FCF

Cost of Debt	6.06%
Weight of Debt	1.42%
Marginal Tax Rate	25.00%

Cost of Equity	8.98%
Weight of Equity	98.58%

WACC	8.92%
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$$WACC = ((E/V * Ke) + ((D/V * Kd) * (1 - Tc)))$$

TV WACC Calculations

Cost of Debt	6.06%
Weight of Debt	1.42%
Marginal Tax Rate	25.00%

Cost of Equity	11%
Weight of Equity	98.58%

TV WACC	10.91%
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Larger WACC, bc of current growth phase



Appendix

Non-Cash Working Capital (NCWC)

USD millions	Historicals					Assumptions	Forecasts									
	2020	2021	2022	2023	LTM		2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Revenues	442	484	517	726	929		1,052	1,191	1,349	1,529	1,733	1,966	1,958	1,959	1,970	1,991
growth %		10%	7%	40%	28%		13%	13%	13%	13%	13%	13%	0%	0%	1%	1%
Accounts Receivable	50	65	63	102	110											
% of revenue	11%	14%	12%	14%	12%											
Inventory	10	8	7	36	61											
% of revenue	2%	2%	1%	5%	7%											
Prepays + Other CA	26	24	21	39	52											
% of revenue	6%	5%	4%	5%	6%											
Non-Cash Current Assets	86	97	91	177	223											
% of revenue	19%	20%	18%	24%	24%											
Accounts Payable	8	7	13	18	19											
% of revenue	2%	1%	2%	2%	2%											
Accrued + Other CL	97	89	113	237	325											
% of revenue	22%	18%	22%	33%	35%											
Current Liabilities	106	96	126	254	344											
% of revenue	24%	20%	24%	35%	37%											
Non-Cash Working Capital	(20)	1	(35)	(77)	(121)		(53)	(60)	(67)	(76)	(87)	(98)	(98)	(98)	(98)	(100)
% of revenue	-5%	0%	-7%	-11%	-13%		-5%	-5%	-5%	-5%	-5%	-5%	-5%	-5%	-5%	-5%
Change in NCWC		21	(36)	(42)	(44)		68	(7)	(8)	(9)	(10)	(12)	0	(0)	(1)	(1)



Appendix

DCF Matrix

USD millions	Historical	1	2	3	4	5	6	7	8	9	10
		Forecasts									
	LTM	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
NUPLAZID	590	679	781	898	1,033	1,188	1,366	1,297	1,233	1,171	1,112
DAYBUE	339	373	410	451	496	546	600	660	726	799	879
ACP-101			6	12	18	27	41	61	91	137	205
ACP-204						50	100	165	272	449	741
Total Revenue	929	1,052	1,197	1,361	1,547	1,810	2,106	2,183	2,322	2,556	2,937
<i>growth %</i>		<i>13%</i>	<i>14%</i>	<i>14%</i>	<i>14%</i>	<i>17%</i>	<i>16%</i>	<i>4%</i>	<i>6%</i>	<i>10%</i>	<i>15%</i>
COGS	78	53	60	67	76	87	98	98	98	98	100
<i>% of revenue</i>	<i>8%</i>	<i>5%</i>	<i>5%</i>	<i>5%</i>	<i>5%</i>	<i>5%</i>	<i>5%</i>	<i>4%</i>	<i>4%</i>	<i>4%</i>	<i>3%</i>
Gross Profit	851	999	1,137	1,293	1,470	1,724	2,008	2,086	2,224	2,457	2,838
<i>% of revenue</i>	<i>92%</i>	<i>95%</i>	<i>95%</i>	<i>95%</i>	<i>95%</i>	<i>95%</i>	<i>95%</i>	<i>96%</i>	<i>96%</i>	<i>96%</i>	<i>97%</i>
R&D	269	283	297	312	327	344	361	379	398	418	439
<i>% of revenue</i>	<i>29%</i>	<i>27%</i>	<i>25%</i>	<i>23%</i>	<i>21%</i>	<i>19%</i>	<i>17%</i>	<i>17%</i>	<i>17%</i>	<i>16%</i>	<i>15%</i>
SG&A	470	789	893	809	917	1,040	1,180	1,175	1,175	1,182	1,195
<i>% of revenue</i>	<i>51%</i>	<i>75%</i>	<i>75%</i>	<i>59%</i>	<i>59%</i>	<i>57%</i>	<i>56%</i>	<i>54%</i>	<i>51%</i>	<i>46%</i>	<i>41%</i>
EBIT	112	(72)	(53)	172	226	340	468	532	651	858	1,205
<i>% of revenue</i>	<i>12%</i>	<i>-7%</i>	<i>-4%</i>	<i>13%</i>	<i>15%</i>	<i>19%</i>	<i>22%</i>	<i>24%</i>	<i>28%</i>	<i>34%</i>	<i>41%</i>
Interest + Other Income	24	26	28	31	33	36	38	41	45	48	52
<i>% of revenue</i>	<i>3%</i>	<i>3%</i>	<i>2%</i>	<i>2%</i>	<i>2%</i>	<i>2%</i>	<i>2%</i>	<i>2%</i>	<i>2%</i>	<i>2%</i>	<i>2%</i>
Tax Expense	8	14	12	32	42	53	65	61	58	54	52
<i>% of EBIT</i>	<i>7%</i>	<i>20%</i>	<i>22%</i>	<i>19%</i>	<i>18%</i>	<i>15%</i>	<i>14%</i>	<i>12%</i>	<i>9%</i>	<i>6%</i>	<i>4%</i>
NOPAT	129	(61)	(36)	171	217	323	441	512	638	851	1,205
D&A	5	5	5	5	5	5	5	5	5	6	6
<i>% of revenue</i>	<i>0.48%</i>	<i>0.44%</i>	<i>0.40%</i>	<i>0.36%</i>	<i>0.32%</i>	<i>0.28%</i>	<i>0.25%</i>	<i>0.24%</i>	<i>0.24%</i>	<i>0.22%</i>	<i>0.20%</i>
CAPEX	0	0	0	0	0	0	0	0	0	0	0
<i>% of revenue</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>
Change in NCWC	(44)	68	(7)	(8)	(9)	(10)	(12)	0	(0)	(1)	(1)
FCFF	177	(124)	(24)	184	231	338	457	517	644	857	1,211
PV of FCFF = FCFF/((1+WACC)^t)		-114	-21	142	164	221	274	284	325	397	516

[Acadia 10Ks and 10Qs](#)

My forecasts





Appendix

DCF Implied Price

usd millions

WACC	8.92%
TV WACC	10.91%
TV Growth	1.00%

Sum of PV of FCFF	2,189	
Terminal Value	12,347	TV = (FCFFlast*(1+TVg))/(TVWACC-TVg)
PV of TV	4,384	PV of TV = TV/((1 + TVWACC)^ 10)
Enterprise Value	6,572	Sum of PV of FCFF + PV of TV
(+) Cash	565	Q3'24
(-) Funded Debt	40	Q3'24
Equity Value	7,097	
Shares Outstanding	166.39	Q3'24
Implied Share Price	\$ 42.66	
VS Current Share Price	\$ 16.95	
Upside	152%	



Appendix

DCF Sensitivity Analysis

		NUPLAZID Total Next 10-Years Revenue						
<i>usd millions</i>		8,000	9,000	10,000	10,758	12,000	13,000	14,000
WACC	6.00%	\$ 28.03	\$ 34.63	\$ 41.22	\$ 45.76	\$ 54.42	\$ 61.02	\$ 67.62
	7.00%	\$ 27.58	\$ 33.97	\$ 40.37	\$ 44.61	\$ 53.16	\$ 59.56	\$ 65.95
	8.00%	\$ 27.17	\$ 33.38	\$ 39.59	\$ 43.55	\$ 52.00	\$ 58.21	\$ 64.42
	8.92%	\$ 26.83	\$ 32.88	\$ 38.92	\$ 42.66	\$ 51.01	\$ 57.06	\$ 63.10
	10.00%	\$ 26.46	\$ 32.34	\$ 38.20	\$ 41.69	\$ 49.94	\$ 55.81	\$ 61.67
	11.00%	\$ 26.16	\$ 31.88	\$ 37.59	\$ 40.86	\$ 49.02	\$ 54.73	\$ 60.45
	12.00%	\$ 25.89	\$ 31.46	\$ 37.03	\$ 40.10	\$ 48.17	\$ 53.74	\$ 59.31

Average Price	\$	44.72
Average Price	\$	44.52
Average Price	\$	44.17
Actual Price	\$	42.66



Appendix

Reverse DCF Matrix (What the Market is Forecasting) – Assuming ACP-101 + ACP-204 Don't Get Approved

		Reverse DCF									
		1	2	3	4	5	6	7	8	9	10
usd millions	Historical	Forecasts									
	LTM	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
NUPLAZID	590	701	806	927	1066	1226	1410	1340	1273	1209	1149
DAYBUE	339	373	410	451	496	546	600	660	726	799	879
ACP-101											
ACP-204											
Total Revenue	929	1,074	1,216	1,378	1,562	1,772	2,010	2,000	1,999	2,008	2,027
<i>growth %</i>		<i>16%</i>	<i>13%</i>	<i>13%</i>	<i>13%</i>	<i>13%</i>	<i>13%</i>	<i>-1%</i>	<i>0%</i>	<i>0%</i>	<i>1%</i>
COGS	78	53	60	67	76	87	98	98	98	98	100
<i>% of revenue</i>	<i>8%</i>	<i>5%</i>	<i>5%</i>	<i>5%</i>	<i>5%</i>	<i>5%</i>	<i>5%</i>	<i>5%</i>	<i>5%</i>	<i>5%</i>	<i>5%</i>
Gross Profit	851	1,021	1,157	1,311	1,486	1,685	1,912	1,902	1,901	1,909	1,928
<i>% of revenue</i>	<i>92%</i>	<i>95%</i>	<i>95%</i>	<i>95%</i>	<i>95%</i>	<i>95%</i>	<i>95%</i>	<i>95%</i>	<i>95%</i>	<i>95%</i>	<i>95%</i>
R&D	269	283	297	312	327	344	361	379	398	418	439
<i>% of revenue</i>	<i>29%</i>	<i>26%</i>	<i>24%</i>	<i>23%</i>	<i>21%</i>	<i>19%</i>	<i>18%</i>	<i>19%</i>	<i>20%</i>	<i>21%</i>	<i>22%</i>
SG&A	470	789	893	809	917	1,040	1,180	1,175	1,175	1,182	1,195
<i>% of revenue</i>	<i>51%</i>	<i>73%</i>	<i>73%</i>	<i>59%</i>	<i>59%</i>	<i>59%</i>	<i>59%</i>	<i>59%</i>	<i>59%</i>	<i>59%</i>	<i>59%</i>
EBIT	112	(50)	(33)	190	241	302	372	348	328	310	294
<i>% of revenue</i>	<i>12%</i>	<i>-5%</i>	<i>-3%</i>	<i>14%</i>	<i>15%</i>	<i>17%</i>	<i>18%</i>	<i>17%</i>	<i>16%</i>	<i>15%</i>	<i>15%</i>
Interest + Other Income	24	26	28	31	33	36	38	41	45	48	52
<i>% of revenue</i>	<i>3%</i>	<i>2%</i>	<i>2%</i>	<i>2%</i>	<i>2%</i>	<i>2%</i>	<i>2%</i>	<i>2%</i>	<i>2%</i>	<i>2%</i>	<i>3%</i>
Tax Expense	8	14	12	32	42	53	65	61	58	54	52
<i>% of EBIT</i>	<i>7%</i>	<i>29%</i>	<i>35%</i>	<i>17%</i>	<i>17%</i>	<i>17%</i>	<i>18%</i>	<i>18%</i>	<i>18%</i>	<i>18%</i>	<i>18%</i>
NOPAT	129	(38)	(17)	188	233	285	345	329	315	303	295
D&A	5	5	5	5	5	5	5	5	5	6	6
<i>% of revenue</i>	<i>0.48%</i>	<i>0.43%</i>	<i>0.39%</i>	<i>0.35%</i>	<i>0.32%</i>	<i>0.29%</i>	<i>0.26%</i>	<i>0.27%</i>	<i>0.27%</i>	<i>0.28%</i>	<i>0.28%</i>
CAPEX	0	0	0	0	0	0	0	0	0	0	0
<i>% of revenue</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>
Change in NCWC	(44)	68	(7)	(8)	(9)	(10)	(12)	0	(0)	(1)	(1)
FCFF	177	(102)	(5)	201	247	300	361	333	320	310	301
PV of FCFF = FCFF/((1+WACC) ^t)		-94	-4	155	175	195	215	182	161	143	127



Appendix

Reverse DCF

Reverse DCF Implied Price

usd millions

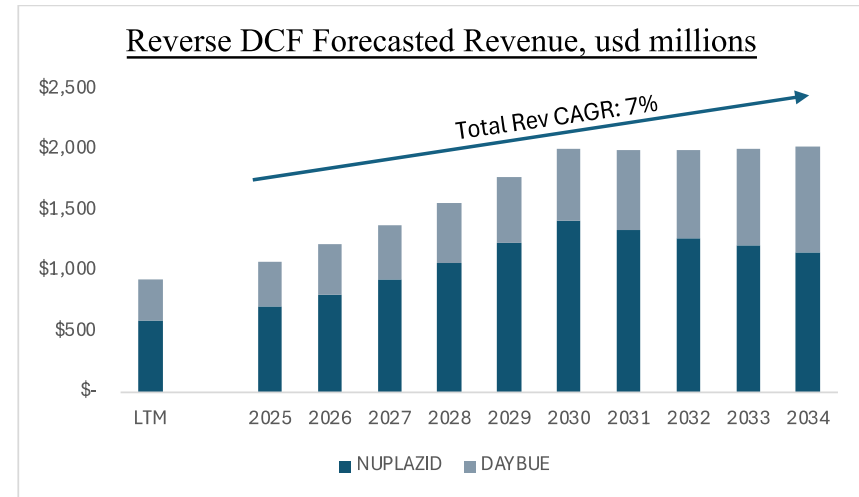
WACC	9.00%
TV WACC	10.00%
TV Growth	-1.00%

Sum of PV of FCFF	1,255	
Terminal Value	2,713	$TV = (FCFF_{last} * (1 + TVg)) / (TVWACC - TVg)$
PV of TV	1,046	$PV \text{ of TV} = TV / ((1 + TVWACC)^{10})$
Enterprise Value	2,301	Sum of PV of FCFF + PV of TV
(+) Cash	565	Q3'24
(-) Funded Debt	40	Q3'24
Equity Value	2,826	
Shares Outstanding	166.39	Q3'24

Implied Share Price \$ 16.99

VS Current Share Price	\$	16.95
Upside		0%

Reverse DCF Forecasted Revenue, usd millions



- The implied market assumptions are that ACP-101 and ACP-204 might not get approved and that revenues will grow 7%/year for the next 10 years
- This means that if Acadia can get a new drug approved and/or grow revenues by more than 7%/year (while maintaining the same historical margins), **the stock will increase**



Appendix

Relative Valuation – Comparables (Equal Weights)

Relative Valuation, CIQ and SEC 10Ks +10Qs (usd millions) - December 27th, 2024

TICKER	Price	Shares	MKT CAP	Cash	Debt	EV	LTM EPS	PE	2026 Sales	2027 FCF	P/'26 Sales	EV/'26 Sales	P/'27FCF	EV/'27FCF
NASDAQ: HALO	\$ 48.13	127.2	6,122	666	1,535	6,991	\$ 2.26	21.30x	1,400	865	4.37x	4.99x	7.08x	8.09x
NASDAQ: CORT	\$ 52.47	104.8	5,499	380	7	5,125	\$ 0.93	56.42x	1,042	417	5.28x	4.92x	13.19x	12.29x
NASDAQ: CPRX	\$ 21.47	119.3	2,561	442	3	2,122	\$ 0.96	22.36x	653	315	3.92x	3.25x	8.14x	6.75x
NASDAQ: PTGX	\$ 38.96	59.6	2,322	469	11	1,864	\$ 1.70	22.92x	128	(41)	18.17x	14.58x	NA	NA
NASDAQ: LGND	\$ 109.19	18.9	2,064	220	7	1,851	\$ (0.98)	NA	222	109	9.30x	8.34x	18.87x	16.93x
AVG (ex. ACAD)			3,714	435	313	3,591		30.75x	689	333	8.21x	7.22x	11.82x	11.01x
MEDIAN (ex. ACAD)			2,561	442	7	2,122		22.64x	653	315	5.28x	4.99x	10.67x	10.19x
NASDAQ: ACAD	\$ 16.95	166.39	2,820	565	40	2,295	\$ 0.77	22.01x	1,197	184	2.36x	1.92x	15.33x	12.47x



Appendix

Forward Multiples and Implied Prices

Forward P/Sales (2026)	
2026 Sales	1,197
WACC	8.92%
PV of 2026 Sales	1,009
Comparable ratio	8.21x
Equity Value	\$ 8,282
Shares	166.39
Estimated Share Price	\$ 49.77

= $FV / ((1 + WACC)^t)$

Forward EV/Sales (2026)	
2026 Sales	1,197
WACC	8.92%
PV of 2026 Sales	1,009
Comparable ratio	7.22x
Enterprise Value	7,283
(+) Cash	565
(-) Debt	40
Equity Value	7,808
Shares	166.39
Estimated Share Price	\$ 46.93

= $FV / ((1 + WACC)^t)$

Forward P/FCF (2027)	
2027 FCF	184
WACC	8.92%
PV of 2027 FCF	142
Comparable ratio	11.82x
Equity Value	1,683
Shares	166.39
Estimated Share Price	\$ 10.12

= $FV / ((1 + WACC)^t)$

Forward EV/FCF (2027)	
2027 FCF	184
WACC	8.92%
PV of 2027 FCF	142
Comparable ratio	11.01x
Enterprise Value	1,568
(+) Cash	565
(-) Debt	40
Equity Value	2,093
Shares	166.39
Estimated Share Price	\$ 12.58

= $FV / ((1 + WACC)^t)$



Appendix

Relative Valuation Reconciled Implied Price

Consolidated RV Implied Price

Method	Estimated Price	Average Price
Forward P/Sales (2026)	\$ 49.77	\$ 29.85
Forward EV/Sales (2026)	\$ 46.93	
Forward P/FCF (2027)	\$ 10.12	
Forward EV/FCF (2027)	\$ 12.58	

Reconciled price with equal weights for all four methods gives an implied price of \$29.85



Scientific Analysis



Scientific Analysis

Indication Descriptions

- **Hyperphagia in Prader-Willi Syndrome (PWS)** is characterized by an intense and insatiable sensation of hunger.

- Approx. 9,000 patients in the U.S.

- 30 years average life expectancy

- Currently NO APPROVED DRUG for the disease

- **Alzheimer's disease psychosis** is a common complication of AD, characterized by delusions and hallucinations.

- 50% of AD cases (~3.5m) in the U.S. and 27.5m in the World (in '19).

- Acadia believes AD psychosis is very similar to Parkinson's psychosis (already approved NUPLAZID)

- Currently NO APPROVED DRUG for both Alzheimer's and AD psychosis

[How many AD Cases in the World and US? - Perplexity AI](#)



Scientific Analysis

ACP-101 (Intranasal Carbetocin)

- **Indication:** Hyperphagia in PWS
- **MOA:** selective oxytocin receptor agonist
- **Target:** oxytocin receptors in the central nervous system
- **Safety:** Phase III showed drug is safe and well-tolerated
- Previously owned by Levo TX (acquired by Acadia in '22) – drug was named LV-101

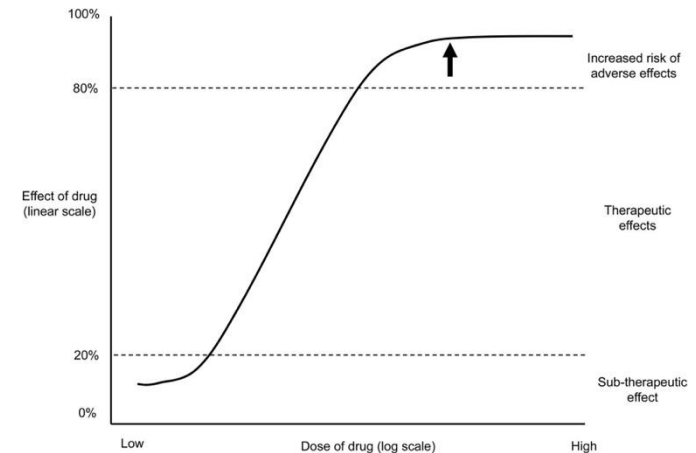
- Previous Phase III trial of LV-101 didn't reach stat sig PE for 9.6mg
- The drug wasn't approved, by lack of data
- Prior study (NCT03649477) was 8-week, double-blind, randomized, placebo-controlled (130 patients)
- New study (COMPASS PWS) is a double-blind, randomized, placebo-controlled 12-week trial (170 patients)



Scientific Analysis

ACP-101 Phase III COMPASS PWS Prediction

- Prior Phase III showed 3.2mg dose more efficient than 9.6mg dose
- Higher dose showing lower efficacy (& not reaching stat sig) isn't impossible, but very uncommon (dose response curve plateau) →
- Possible that 9.6mg dose was inefficacious because of receptor saturation and by activating off-target pathways



- ACP-101 and LV-101 Phase 3 **PE**: Δ in hyperphagia behaviors assessed by HQ-CT questionnaire
- ACP-101 and LV-101 **other endpoints**:
 - Δ in Clinical Global Impression of Improvement (CGI-I) score
 - Δ in anxiety and distress behaviors, measured by the PWS Anxiety and Distress Behaviors Questionnaire (PADQ)
 - Δ in obsessive-compulsive behaviors, assessed by Yale-Brown Obsessive Compulsive Scale (CY-BOCS)

Approval Pros

- 3.2mg dose reduced hyperphagia behaviors at ($p = 0.016$)
- 3.2mg improvements in CGI-I ($p = 0.027$) and PADQ ($p = 0.027$)
- Preclinical science + research supports mechanistic rationale of PWS pathophysiology (1, 2 and 3 in bibliography)
- Mild side effects + prior FDA concerns have been addressed



Scientific Analysis

ACP-204

- **Indication:** Alzheimer's disease psychosis
- **MOA:** inverse agonist 5-HT_{2A} serotonin receptor
- **Target:** 5-HT_{2A} serotonin receptor
- **Safety:** Phase I showed safety, Phase II/III will further investigate this

Preclinical Science

- ACP-204 successfully targets 5-HT_{2A} receptor, which we know is responsible for AD psychosis (3, bibliography)
- Both NUPLAZID and ACP-204 share the same target, and one drug is already approved (proved meaningful target and cured psychosis in Parkinson's)
- Phase I showed steady state PK reached in 5 days VS 12 days for NUPLAZID



Scientific Analysis

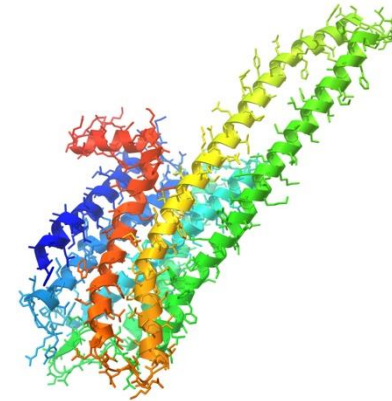
ACP-204 Phase II/III Trial Prediction

- We don't have any data regarding Phase I of ACP-204, instead I'll analyze NUPLAZID's Phases II and III as a baseline of what to expect for ACP-204
- Phase II (4 –week, double-blind, randomized, placebo-controlled)
 - PE: change in psychosis measured with Scale for the Assessment of Positive Symptoms (SAPS)
 - **SAPS overall ($p = 0.09$)**, but **improvement in SAPS hallucinations ($p = 0.02$) and delusions ($p = 0.03$)**
- Phase III (six-week, randomized, double-blind, placebo-controlled)
 - PE: change in SAPS at 34mg dose
 - Mean Δ in SAPS 5.79 vs 2.73 (placebo) – 95% CI (-4.91, -1.20) at $p = 0.0014$

Phase II/III Trial Design

- 3 independent trials
 - **Substudy 1 (Phase II)**: to assess optimal dose of ACP-204, against placebo, between 30mg and 60mg
 - **Substudy 2A and 2B (Phase III)**: to assess safety and efficacy (initiation upon Phase II success)
- seamless and continuous enrollment, double-blind and placebo-controlled
- Phase II N = 318 and two other Phase III's expect similar N

5-HT_{2A} Serotonin Receptor



Approval Pros

- Directly targets 5-HT_{2A} receptor, pertinent in AD psychosis
- Currently no approved drug for the indication + huge patient population
- Builds on NUPLAZID's success in similar indication
- Enhanced and better PK profile for faster and safer delivery



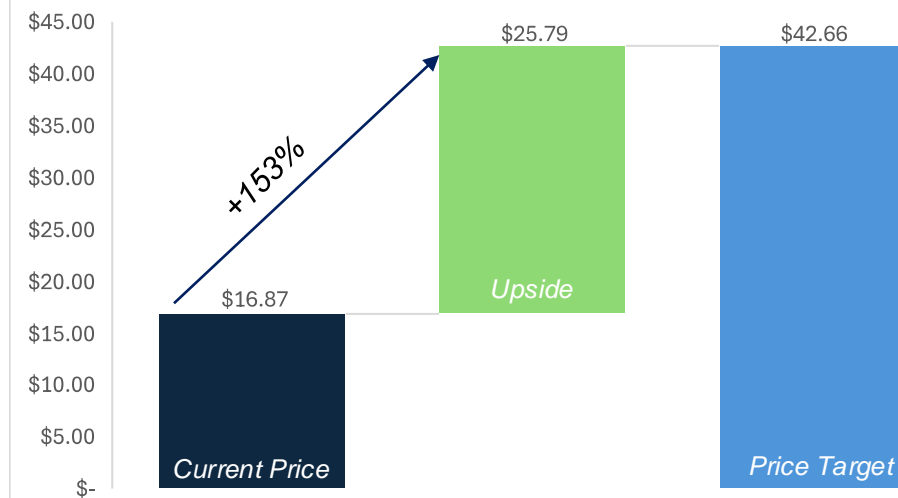
Summary

How The Stock Will Go Up

- The reverse DCF implies that the market isn't pricing the approval of either ACP-101 and ACP-204
- The reverse DCF implies that the market is forecasting ~7%/year sales growth (next 10 yrs) with ~12% net margin
- **This means if any new drug gets approved, if sales grow more than 7%/year or net margin is higher than 12% THE STOCK WILL RISE**

- I believe ACP-101 will get APPROVED because its past Phase III successfully reached PE for the 3.2mg(stat sig), but only got rejected because FDA "lacked data"
- The new Phase III (COMPASS PWS) is designed similarly to the successful past trial, but directly assessed FDA concerns with bigger patient population
- I believe ACP-204 will get approved, because the target has already demonstrated efficacious outcomes in psychosis
- Both Parkinson's and AD have been shown to have similar psychosis origins

Price Target, per share usd



- **If any of the following occur, my price target will incrementally decrease:**
 - SG&A expenses stay the same or increase
 - Sales grow below 7%/year
 - ACP-101 failed Phase III
 - ACP-204 failed Phase II/III



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