

Equity Research

March 17, 2015

**Price: \$10.05** (03/16/2015)

**Price Target: \$23.00**

**OUTPERFORM (1)**

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**Key Data**

Symbol	NASDAQ: AKAO
52-Week Range:	\$19.69 - 7.72
Market Cap (MM):	\$178.5
Net Debt (MM):	\$(4.1)
Cash/Share:	\$27.33
Dil. Shares Out (MM):	17.8
Enterprise Value (MM):	\$106.4
ROIC:	NA
ROE (LTM):	NA
BV/Share:	\$3.85
Dividend:	NA

FY (Dec)	2014A	2015E	2016E
<b>Earnings Per Share</b>			
Q1	\$(1.00)	\$(0.19)	-
Prior Q1	-	-	-
Q2	\$(0.20)	\$(0.27)	-
Prior Q2	-	-	-
Q3	\$(0.47)	\$(0.32)	-
Prior Q3	-	-	-
Q4	\$(0.27)	\$(0.18)	-
Prior Q4	\$(0.47)	\$0.00	-
Year	\$(1.42)	\$(0.96)	\$(1.30)
Prior Year	\$(1.67)	\$(0.78)	\$(1.04)
P/E	NM	NM	NM
Consensus EPS	\$(1.42)	\$(1.08)	\$(1.14)

Consensus source: Thomson Reuters

**Revenue (MM)**

Year	\$20.0	\$28.0	\$23.0
Prior Year	\$22.6	-	-
EV/S	5.3x	3.8x	4.6x

Earnings Update

## 4Q14: Looking At A Year Of Execution Of The Ongoing Ph3

### The Cowen Insight

2015 will be a key year in which AKAO will have to execute on enrollment of its Ph3 plazomicin CRE superiority trial. The company is also continuing talks with FDA on how to expand enrollment and still maintain trial integrity. We expect an update on these talks in 2Q15 as US legislation to improve novel in-patient gram-negative antibiotics reimbursement continues to advance.

### 4Q14 Financial Highlights

AKAO reported a net loss of (\$4.9MM) versus our (\$6.9MM) and consensus of (\$6.1MM). Reported (\$0.27) EPS was lower than our (\$0.47) and consensus (\$0.33) estimate. AKAO has approximately \$63.7MM in cash and equivalents as of YE14 which means AKAO should have sufficient cash to fund operations into 2017.

### Boosting Enrollment Timelines In The Ph3 Plazomicin CRE Superiority Trial Remains Key; KOLs Positive on Trial Chances

Enrollment in plazomicin's Ph3 CRE superiority study continues to be more modest than AKAO expectations, we believe. Nevertheless, we think the company has options that could expand enrollment criteria (while preserving and formally modifying the existing FDA SPA) and increase the enrollment rate of the trial. We think AKAO could expand enrollment to CRE HAP (not just VAP) and allow patients with colistin resistant infection into the trial. We think these infections would have similar mortality, and therefore not impact the powering of the primary endpoint of mortality reduction. Infectious disease specialists we surveyed as part of our recent Cowen Health Care Conference Antibiotics panel were incrementally positive of the chances of this trial, with a greater than 50% weighted average estimated chance of success. Surveyed specialists also believe colistin is a poor treatment option with reasonable efficacy against CRE but unacceptable side effects, underscoring the need for new treatment options for CRE.

### DISARM Act Could Fundamentally Change In-Patient Antibiotic Reimbursement for Gram Negative Infections

We note there is legislation currently working its way through Congress that would decouple reimbursement for in-patient novel antibiotics (particularly those for serious gram-negative infections) from the DRG reimbursement bundle. This could make these new, premium priced antibiotics profit-centers rather than cost-centers for hospitals. However experts on our conference panel noted that despite changes in reimbursement, ID specialists would continue to use new antibiotics in second-line or later treatment, in an effort to reserve potency. Nevertheless, the DISARM legislation, which could pass this year, would allow for significantly more pricing and hospital formulary flexibility for plazomicin and other drug candidates, things that were significant commercial hurdles for previous novel antibiotics regardless of unmet medical need or improved profile.

## At A Glance

### Our Investment Thesis

Plazomicin is Achaogen's Phase 3 novel modified aminoglycoside antibiotic that we think has significant clinical promise for treatment of resistant gram negative strains including CRE (carbapenem resistant enterobacteriaceae). The drug has shown impressive activity in a number of serious infection types caused by different resistant gram-negative pathogens. Data suggests even better activity than standard of care, which we think may lead to better clinical outcomes such as improved survival, shorter ICU time and shorter hospital stays.

### Base Case Assumptions

- Plazomicin receives FDA approval for CRE based on positive data from the Phase 3 clinical trial and is launched in the U.S. in 2H18
- Plazomicin receives EMA approval for CRE based on positive data from the Phase 3 clinical trial and is launched in the U.S. in 2H19
- Achaogen is able to secure good premium pricing for plazomicin in the CRE market

### Price Performance



Source: Bloomberg

### Forthcoming Catalysts

- Initiation of the supportive efficacy trial in 1H15
- First and second interim analyses in the pivotal Phase III clinical trial in 1H16 and 1H17, respectively
- Initiation of the safety study after the first interim analysis

### Upside Scenario

- Achaogen is acquired at or before positive data from its Phase III clinical trial
- Plazomicin is approved based on smaller supplementary trial even before current Ph3 pivotal completes
- Plazomicin achieves faster than expected market penetration

### Downside Scenario

- Plazomicin fails to meet the superiority primary endpoint in the pivotal study in spite of strong *in vitro* and preclinical data
- Achaogen is unable to price plazomicin at a premium or receives strong pushback from payers

### Company Description

Achaogen is developing novel antibiotics for the treatment of multi-drug resistant (MDR) Gram-negative bacterial infections. The lead product candidate plazomicin, a next-generation aminoglycoside antibiotic, is in a pivotal Phase 3 clinical trial for bloodstream infections and nosocomial pneumonia caused by carbapenem-resistant Enterobacteriaceae (CRE). Achaogen has received an SPA from the FDA, as well as a grant of approximately \$60MM from BARDA, for the pivotal study. The study was initiated in 1Q14 and top-line data are expected in 2017. Achaogen has completed a Phase II clinical trial of plazomicin in cUTI and the drug candidate demonstrated non-inferiority to active comparator levofloxacin. *In vitro* and preclinical studies suggest that plazomicin will be efficacious in treating CRE infections and if the pivotal study succeeds, plazomicin will be the first antibiotic specifically developed for CRE pathogens. Achaogen also has preclinical programs for *Pseudomonas aeruginosa*.

### Analyst Top Picks

	Ticker	Price (03/16/2015)	Price Target	Rating
Intercept Pharmaceuticals	ICPT	\$294.48	\$420.00	Outperform
Cempra	CEMP	\$39.86	\$35.00	Outperform

## AKAO Quarterly P&L

	2013A	Q1:14A	Q2:14A	Q3:14A	Q4:14A	2014A	Q1:15E	Q2:15E	Q3:15E	Q4:15E	2015E
Plazomicin Sales Revenue	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Plazomicin Royalty Revenue	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Contract Revenue	18.5	6.0	5.2	4.5	4.3	20.0	6.0	6.5	6.6	8.9	28.0
<b>Total Revenues</b>	<b>\$18.5</b>	<b>\$6.0</b>	<b>\$5.2</b>	<b>\$4.5</b>	<b>\$4.3</b>	<b>\$20.0</b>	<b>\$6.0</b>	<b>\$6.5</b>	<b>\$6.6</b>	<b>\$8.9</b>	<b>\$28.0</b>
COGS	-	-	-	-	-	-	-	-	-	-	-
Research and Development	23.5	6.6	6.2	10.7	6.6	30.1	6.6	8.8	9.4	9.2	34.0
General and Administrative	7.0	2.6	2.3	2.2	2.5	9.6	2.6	2.3	2.7	3.1	10.7
Sales	-	-	-	-	-	-	-	-	-	-	-
<b>Total Operating Expenses</b>	<b>30.5</b>	<b>9.2</b>	<b>8.5</b>	<b>12.9</b>	<b>9.1</b>	<b>39.8</b>	<b>9.2</b>	<b>11.1</b>	<b>12.1</b>	<b>12.3</b>	<b>44.7</b>
<b>Income (Loss) from Operations</b>	<b>(\$12.0)</b>	<b>(\$3.2)</b>	<b>(\$3.3)</b>	<b>(\$8.3)</b>	<b>(\$4.9)</b>	<b>(\$19.8)</b>	<b>(\$3.2)</b>	<b>(\$4.6)</b>	<b>(\$5.5)</b>	<b>(\$3.4)</b>	<b>(\$16.7)</b>
Interest Expense and Other, net	(1.3)	(0.2)	(0.2)	0.0	0.0	(0.4)	(0.2)	(0.2)	(0.2)	0.1	(0.5)
Interest Income and Other, net	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Net Income (Loss)</b>	<b>(\$13.1)</b>	<b>(\$3.5)</b>	<b>(\$3.6)</b>	<b>(\$8.3)</b>	<b>(\$4.9)</b>	<b>(\$20.2)</b>	<b>(\$3.5)</b>	<b>(\$4.8)</b>	<b>(\$5.7)</b>	<b>(\$3.3)</b>	<b>(\$17.2)</b>
<i>Tax Rate</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>
Income Tax	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Net Income (Loss) Attributable to Common Shareholders</b>	<b>(13.1)</b>	<b>(3.5)</b>	<b>(3.6)</b>	<b>(8.3)</b>	<b>(4.9)</b>	<b>(20.2)</b>	<b>(3.5)</b>	<b>(4.8)</b>	<b>(5.7)</b>	<b>(3.3)</b>	<b>(17.2)</b>
<b>GAAP EPS, Basic and Diluted</b>	<b>(\$3.08)</b>	<b>(\$1.00)</b>	<b>(\$0.20)</b>	<b>(\$0.47)</b>	<b>(\$0.27)</b>	<b>(\$1.42)</b>	<b>(\$0.19)</b>	<b>(\$0.27)</b>	<b>(\$0.32)</b>	<b>(\$0.18)</b>	<b>(\$0.98)</b>
Weighted Average Shares Outstanding - Basic and Diluted	4.3	3.5	17.7	17.7	17.8	14.2	18.0	18.0	18.0	18.0	18.0

Source: Cowen and Company

## AKAO Annual P&L

	2013A	2014A	2015E	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E
Plazomicin Sales Revenue	0.0	0.0	0.0	0.0	0.0	3.0	98.7	181.5	245.2	286.3	330.8	379.2	415.1
Plazomicin Royalty Revenue	0.0	0.0	0.0	0.0	0.0	0.0	7.8	17.6	24.7	30.3	40.4	47.8	55.8
Contract Revenue	18.5	20.0	28.0	23.0	17.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total Revenues</b>	<b>\$18.5</b>	<b>\$20.0</b>	<b>\$28.0</b>	<b>\$23.0</b>	<b>\$17.5</b>	<b>\$3.0</b>	<b>\$106.5</b>	<b>\$199.1</b>	<b>\$269.9</b>	<b>\$316.6</b>	<b>\$371.3</b>	<b>\$427.0</b>	<b>\$470.8</b>
COGS	-	-	-	-	-	0.5	13.8	23.6	29.4	31.5	33.1	37.9	41.5
Research and Development	23.5	30.1	34.0	34.5	35.0	40.0	50.0	60.0	60.0	60.0	60.0	60.0	60.0
General and Administrative	7.0	9.6	10.7	13.0	15.0	20.0	25.0	30.0	30.0	30.0	30.0	30.0	30.0
Sales	-	-	-	-	-	4.5	8.0	8.4	8.8	9.3	9.7	10.2	10.7
<b>Total Operating Expenses</b>	<b>30.5</b>	<b>39.8</b>	<b>44.7</b>	<b>47.5</b>	<b>50.0</b>	<b>65.0</b>	<b>96.8</b>	<b>122.0</b>	<b>128.2</b>	<b>130.7</b>	<b>132.8</b>	<b>138.1</b>	<b>142.2</b>
<b>Income (Loss) from Operations</b>	<b>(\$12.0)</b>	<b>(\$19.8)</b>	<b>(\$16.7)</b>	<b>(\$24.5)</b>	<b>(\$32.5)</b>	<b>(\$61.9)</b>	<b>\$9.7</b>	<b>\$77.2</b>	<b>\$141.7</b>	<b>\$185.8</b>	<b>\$238.5</b>	<b>\$288.9</b>	<b>\$328.6</b>
Interest Expense and Other, net	(1.3)	(0.4)	(0.5)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Interest Income and Other, net	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Net Income (Loss)</b>	<b>(\$13.1)</b>	<b>(\$20.2)</b>	<b>(\$17.2)</b>	<b>(\$24.5)</b>	<b>(\$32.5)</b>	<b>(\$61.9)</b>	<b>\$9.7</b>	<b>\$77.2</b>	<b>\$141.7</b>	<b>\$185.8</b>	<b>\$238.5</b>	<b>\$288.9</b>	<b>\$328.6</b>
<i>Tax Rate</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>	<i>8%</i>	<i>13%</i>	<i>18%</i>	<i>23%</i>	<i>27%</i>	<i>35%</i>
Income Tax	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.2	18.4	33.4	54.8	78.0	115.0
<b>Net Income (Loss) Attributable to Common Shareholders</b>	<b>(13.1)</b>	<b>(20.2)</b>	<b>(17.2)</b>	<b>(24.5)</b>	<b>(32.5)</b>	<b>(61.9)</b>	<b>9.7</b>	<b>71.0</b>	<b>123.3</b>	<b>152.4</b>	<b>183.6</b>	<b>210.9</b>	<b>213.6</b>
<b>GAAP EPS, Basic and Diluted</b>	<b>(\$3.08)</b>	<b>(\$1.42)</b>	<b>(\$0.98)</b>	<b>(\$1.30)</b>	<b>(\$1.27)</b>	<b>(\$2.34)</b>	<b>\$0.29</b>	<b>\$2.09</b>	<b>\$3.52</b>	<b>\$4.23</b>	<b>\$4.96</b>	<b>\$5.55</b>	<b>\$5.48</b>
Weighted Average Shares Outstanding - Basic and Diluted	4.3	14.2	18.0	18.8	25.5	26.5	33.0	34.0	35.0	36.0	37.0	38.0	39.0

Source: Cowen and Company

## AKAO pNPV

Assumptions / Results	
Total NPV	23.2
Number of Shares (m)	17.8
Pharma PE	13.5x
Discount rate	30%
Current year	2015.00

### Product Development

Drug name	Indication	Status	Launch	Success	Peak Sales (US\$m)	Royalty	Profitability	NPV (US\$)
US Plazomicin	CRE	Phase 3	2018	60%	391	100%	80%	22.21
EU top 5 Plazomicin	CRE	Phase 3	2019	60%	204	20%	100%	1.00
<b>TOTAL</b>								<b>23.21</b>

Source: Cowen and Company

## US Plazmomicin Market Model

US PLAZOMICIN MARKET ANALYSIS																	
		1H18E	2H18E	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	
US Bloodstream Confirmed CRE on label (000s)	60%	5.62	5.62	11.24	11.35	11.46	11.58	11.69	11.81	11.93	12.05	12.17	12.29	12.41	12.54	12.66	
Plazomicin Bloodstream Confirmed CRE Penetration			8%	4%	20%	35%	50%	60%	60%	60%	60%	60%	60%	60%	60%	60%	
Plazomicin Bloodstream Confirmed CRE Patients			0.45	0.45	2.27	4.01	5.79	7.02	7.09	7.16	7.23	7.30	7.37	7.45	7.52	7.60	
US Pneumonia Confirmed CRE on label (000s)	60%	3.75	3.75	7.49	7.57	7.64	7.72	7.80	7.87	7.95	8.03	8.11	8.19	8.28	8.36	8.44	
Plazomicin Pneumonia Confirmed CRE Penetration			5%	3%	12%	19%	25%	35%	40%	40%	40%	40%	40%	40%	40%	40%	
Plazomicin Pneumonia Confirmed CRE Patients			0.19	0.19	0.91	1.45	1.93	2.73	3.15	3.18	3.21	3.25	3.28	3.31	3.34	3.38	
US Abdominal Infections Confirmed CRE off label (000s)	60%	21.23	21.23	42.46	42.88	43.31	43.74	44.18	44.62	45.07	45.52	45.97	46.43	46.90	47.37	47.84	
Plazomicin Abdominal Confirmed CRE Penetration			4%	2%	10%	15%	20%	24%	27%	30%	30%	30%	30%	30%	30%	30%	
Plazomicin Abdominal Confirmed CRE Patients			0.85	0.85	4.29	6.50	8.75	10.60	12.05	13.52	13.66	13.79	13.93	14.07	14.21	14.35	
US UTI Confirmed CRE off label (000s)	60%	3.75	3.75	7.49	7.57	7.64	7.72	7.80	7.87	7.95	8.03	8.11	8.19	8.28	8.36	8.44	
Plazomicin UTI Confirmed CRE Penetration			1%	1%	2%	4%	6%	7%	8%	9%	10%	10%	10%	10%	10%	10%	
Plazomicin UTI Confirmed CRE Patients			0.04	0.04	0.15	0.31	0.46	0.55	0.63	0.72	0.80	0.81	0.82	0.83	0.84	0.84	
<b>TOTAL US CRE Confirmed Plazomicin Patients (000s)</b>			1.52	1.52	7.62	12.27	16.93	20.89	22.91	24.58	24.90	25.15	25.40	25.66	25.91	26.17	
Treatment duration in days			10	10	10	10	10	10	10	10	10	10	10	10	10	10	
Cost per treatment course	\$	1,250	per day	1250	\$ 12,500	\$ 12,500	\$ 12,500	\$ 12,500	\$ 12,500	\$ 12,500	\$ 12,500	\$ 12,500	\$ 12,500	\$ 12,500	\$ 12,500	\$ 12,500	
<b>TOTAL US PLAZOMICIN CONFIRMED REVENUE (mil)</b>				\$ 19.04	\$ 95.22	\$ 153.34	\$ 211.64	\$ 261.19	\$ 286.44	\$ 307.20	\$ 311.27	\$ 314.36	\$ 317.53	\$ 320.70	\$ 323.91	\$ 327.15	
US Bloodstream Suspected CRE on label (000s)	60%	37.46	37.46	74.92	75.67	76.43	77.19	77.97	78.75	79.53	80.33	81.13	81.94	82.76	83.59	84.43	
Plazomicin Bloodstream Suspected CRE Penetration			2%	1%	4%	8%	11%	13%	16%	18%	20%	20%	20%	20%	20%	20%	
Plazomicin Bloodstream Suspected CRE Patients			0.75	0.75	3.03	6.11	8.49	10.14	12.60	14.32	16.07	16.23	16.39	16.55	16.72	16.89	
US Pneumonia Suspected CRE on label (000s)	60%		0.00	49.95	50.45	50.95	51.46	51.98	52.50	53.02	53.55	54.09	54.63	55.17	55.73	56.28	
Plazomicin Pneumonia Suspected CRE Penetration			0.5%	0.3%	2%	4%	6%	7%	8%	9%	10%	10%	10%	10%	10%	10%	
Plazomicin Pneumonia Suspected CRE Patients			0.00	0.12	1.01	2.04	3.09	3.64	4.20	4.77	5.36	5.41	5.46	5.52	5.57	5.63	
US Abdominal Suspected CRE off label (000s)	60%		42.46	286.58	289.45	292.34	295.27	298.22	301.20	304.21	307.26	310.33	313.43	316.57	319.73	322.93	
Plazomicin Abdominal Suspected CRE Penetration			0.5%	0.3%	2%	4%	6%	7%	8%	9%	10%	10%	10%	10%	10%	10%	
Plazomicin Abdominal Suspected CRE Patients			0.21	0.72	5.79	11.69	17.72	20.88	24.10	27.38	30.73	31.03	31.34	31.66	31.97	32.29	
US UTI Suspected CRE off label (000s)	60%		7.49	50.57	51.08	51.59	52.11	52.63	53.15	53.68	54.22	54.76	55.31	55.86	56.42	56.99	
Plazomicin UTI Suspected CRE Penetration			0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Plazomicin UTI Suspected CRE Patients			0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
<b>TOTAL US CRE Suspected Plazomicin Patients (000s)</b>			0.96	1.59	9.82	19.85	29.30	34.65	40.90	46.47	52.15	52.67	53.19	53.73	54.26	54.81	
Treatment duration in days			10	3	3	3	3	3	3	3	3	3	3	3	3	3	
Cost per day	\$	1,250		\$ 3,750	\$ 3,750	\$ 3,750	\$ 3,750	\$ 3,750	\$ 3,750	\$ 3,750	\$ 3,750	\$ 3,750	\$ 3,750	\$ 3,750	\$ 3,750	\$ 3,750	
<b>TOTAL US PLAZOMICIN SUSPECTED REVENUE (mil)</b>				\$ 5.96	\$ 86.84	\$ 74.42	\$ 109.86	\$ 129.93	\$ 153.36	\$ 174.25	\$ 195.55	\$ 197.50	\$ 199.49	\$ 201.47	\$ 203.49	\$ 205.52	
<b>TOTAL US PLAZOMICIN REVENUE (mil)</b>				\$ 25.01	\$ 182.06	\$ 227.76	\$ 321.50	\$ 391.12	\$ 439.79	\$ 481.45	\$ 506.82	\$ 511.88	\$ 517.01	\$ 522.18	\$ 527.40	\$ 532.67	

Source: Cowen and Company

## EU Plazmomicin Market Model

EU PLAZOMICIN MARKET ANALYSIS																
		2018E	1H19E	2H19E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
EU Bloodstream Confirmed CRE on label (000s)	40%	7.49	3.78	3.78	7.57	7.64	7.72	7.80	7.87	7.95	8.03	8.11	8.19	8.28	8.36	8.44
Plazomicin Bloodstream Confirmed CRE Penetration				8%	4%	20%	30%	40%	50%	50%	50%	50%	50%	50%	50%	50%
Plazomicin Bloodstream Confirmed CRE Patients				0.30	0.30	1.53	2.32	3.12	3.94	3.98	4.02	4.06	4.10	4.14	4.18	4.22
EU Pneumonia Confirmed CRE on label (000s)	40%	4.99	2.52	2.52	5.04	5.10	5.15	5.20	5.25	5.30	5.36	5.41	5.46	5.52	5.57	5.63
Plazomicin Pneumonia Confirmed CRE Penetration				5%	3%	12%	19%	25%	30%	35%	35%	35%	35%	35%	35%	40%
Plazomicin Pneumonia Confirmed CRE Patients				0.13	0.13	0.61	0.98	1.30	1.57	1.86	1.87	1.89	1.91	1.93	1.95	2.25
EU Abdominal Confirmed CRE off label (000s)	40%	28.30	14.29	14.29	28.59	28.87	29.16	29.45	29.75	30.05	30.35	30.65	30.96	31.27	31.58	31.89
Plazomicin Abdominal Confirmed CRE Penetration				4%	2%	5%	9%	14%	19%	22%	25%	25%	25%	25%	25%	30%
Plazomicin Abdominal Confirmed CRE Patients				0.57	0.57	1.44	2.62	4.12	5.65	6.61	7.59	7.66	7.74	7.82	7.89	9.57
EU UTI Confirmed CRE off label (000s)	40%	4.99	2.52	2.52	5.04	5.10	5.15	5.20	5.25	5.30	5.36	5.41	5.46	5.52	5.57	5.63
Plazomicin UTI Confirmed CRE Penetration				1%	1%	2%	3%	4%	5%	6%	7%	8%	8%	8%	8%	8%
Plazomicin UTI Confirmed CRE Patients				0.03	0.03	0.10	0.15	0.21	0.26	0.32	0.37	0.41	0.41	0.41	0.42	0.42
<b>TOTAL EU CRE Confirmed Plazomicin Patients (000s)</b>					<b>1.03</b>	<b>3.69</b>	<b>6.07</b>	<b>8.75</b>	<b>11.43</b>	<b>12.78</b>	<b>13.85</b>	<b>14.02</b>	<b>14.18</b>	<b>14.30</b>	<b>14.44</b>	<b>16.46</b>
Treatment duration in days					10	10	10	10	10	10	10	10	10	10	10	10
Cost per day	\$ 1,000				\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000
<b>TOTAL EU PLAZOMICIN CONFIRMED REVENUE (mil)</b>					<b>\$ 10.26</b>	<b>\$ 36.86</b>	<b>\$ 60.73</b>	<b>\$ 87.49</b>	<b>\$ 114.27</b>	<b>\$ 127.61</b>	<b>\$ 138.52</b>	<b>\$ 140.16</b>	<b>\$ 141.58</b>	<b>\$ 142.99</b>	<b>\$ 144.42</b>	<b>\$ 164.63</b>
EU Bloodstream Suspected CRE on label (000s)	40%	49.95	25.22	25.22	50.45	50.95	51.46	51.98	52.50	53.02	53.55	54.09	54.63	55.17	55.73	56.28
Plazomicin Bloodstream Suspected CRE Penetration				2%	2%	4%	6%	9%	12%	13%	14%	15%	15%	15%	15%	15%
Plazomicin Bloodstream Suspected CRE Patients				0.50	0.50	2.04	3.09	4.68	6.30	6.89	7.50	8.11	8.19	8.28	8.36	8.44
EU Pneumonia Suspected CRE on label (000s)	40%	33.30	16.82	16.82	33.63	33.97	34.31	34.65	35.00	35.35	35.70	36.06	36.42	36.78	37.15	37.52
Plazomicin Pneumonia Suspected CRE Penetration				0.5%	0.5%	1%	3%	4%	5%	6%	7%	8%	8%	8%	8%	8%
Plazomicin Pneumonia Suspected CRE Patients				0.08	0.08	0.34	1.03	1.39	1.75	2.12	2.50	2.70	2.73	2.76	2.79	2.81
EU Abdominal Suspected CRE off label (000s)	40%	191.05	96.48	96.48	192.97	194.90	196.84	198.81	200.80	202.81	204.84	206.89	208.95	211.04	213.15	215.29
Plazomicin Abdominal Suspected CRE Penetration				0.5%	0.5%	1%	2%	3%	4%	4%	5%	5%	5%	5%	5%	5%
Plazomicin Abdominal Suspected CRE Patients				0.48	0.48	1.95	3.94	5.96	7.03	8.11	9.22	10.34	10.45	10.55	10.66	10.76
EU UTI Suspected CRE off label (000s)	40%	33.72	17.03	17.03	34.05	34.39	34.74	35.08	35.44	35.79	36.15	36.51	36.87	37.24	37.62	37.99
Plazomicin UTI Suspected CRE Penetration				0.5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Plazomicin UTI Suspected CRE Patients				0.09	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>TOTAL EU CRE Suspected Plazomicin Patients (000s)</b>					<b>1.16</b>	<b>4.33</b>	<b>8.05</b>	<b>12.03</b>	<b>15.08</b>	<b>17.13</b>	<b>19.21</b>	<b>21.16</b>	<b>21.37</b>	<b>21.59</b>	<b>21.80</b>	<b>22.02</b>
Treatment duration in days					3	3	3	3	3	3	3	3	3	3	3	3
Cost per day	\$ 1,000				\$ 3,000	\$ 3,000	\$ 3,000	\$ 3,000	\$ 3,000	\$ 3,000	\$ 3,000	\$ 3,000	\$ 3,000	\$ 3,000	\$ 3,000	\$ 3,000
<b>TOTAL EU PLAZOMICIN SUSPECTED REVENUE (mil)</b>					<b>\$ 3.47</b>	<b>\$ 12.98</b>	<b>\$ 24.16</b>	<b>\$ 36.09</b>	<b>\$ 45.23</b>	<b>\$ 51.38</b>	<b>\$ 57.84</b>	<b>\$ 63.49</b>	<b>\$ 64.12</b>	<b>\$ 64.76</b>	<b>\$ 65.41</b>	<b>\$ 66.06</b>
<b>TOTAL EU PLAZOMICIN REVENUE (mil)</b>					<b>\$ 13.73</b>	<b>\$ 49.84</b>	<b>\$ 84.88</b>	<b>\$ 123.58</b>	<b>\$ 159.50</b>	<b>\$ 179.88</b>	<b>\$ 196.16</b>	<b>\$ 203.66</b>	<b>\$ 205.70</b>	<b>\$ 207.76</b>	<b>\$ 209.83</b>	<b>\$ 230.69</b>

Source: Cowen and Company

## Valuation Methodology And Risks

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### Valuation Methodology

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#### Biotechnology:

In calculating our 12-month target price, we employ one or more valuation methodologies, which include a discounted earnings analysis, discounted cash flow analysis, net present value analysis and/or a comparable company analysis. These analyses may or may not require the use of objective measures such as price-to-earnings or price-to-sales multiples as well as subjective measures such as discount rates.

We make investment recommendations on early stage (pre-commercial) biotechnology companies based upon an assessment of their technology, the probability of pipeline success, and the potential market opportunity in the event of success. However, because these companies lack traditional financial metrics, we do not believe there are any good methodologies for assigning a specific target price to such stocks.

### Investment Risks

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#### Biotechnology:

There are multiple risks that are inherent with an investment in the biotechnology sector. Beyond systemic risk, there is also clinical, regulatory, and commercial risk. Additionally, biotechnology companies require significant amounts of capital in order to develop their clinical programs. The capital-raising environment is always changing and there is risk that necessary capital to complete development may not be readily available.

### Risks To The Price Target

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Our price target is based on our projection that the ongoing pivotal Phase III clinical trial of plazomicin will generate positive data to support both FDA and EMA approvals. However, although Achaogen has completed a Phase II clinical trial in cUTI and data from both *in vitro* and preclinical studies suggest strong activity of plazomicin for CRE infections, there is no guarantee that the Phase III clinical trial will be successful. Moreover, any failure in management's execution will affect the product launches and market uptake even after FDA approvals. We believe plazomicin is highly differentiated from currently available antibiotics and other drug candidates in clinical development for Gram-negative pathogens. However, any new products entering the market may potentially change the competition dynamics and can negatively impact the market shares that plazomicin can garner.

# Addendum

## Stocks Mentioned In Important Disclosures

Ticker	Company Name
AKAO	Achaogen
CEMP	Cempra
ICPT	Intercept Pharmaceuticals

## Analyst Certification

Each author of this research report hereby certifies that (i) the views expressed in the research report accurately reflect his or her personal views about any and all of the subject securities or issuers, and (ii) no part of his or her compensation was, is, or will be related, directly or indirectly, to the specific recommendations or views expressed in this report.

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#### Cowen and Company Rating System effective May 25, 2013

**Outperform (1):** The stock is expected to achieve a total positive return of at least 15% over the next 12 months

**Market Perform (2):** The stock is expected to have a total return that falls between the parameters of an Outperform and Underperform over the next 12 months

**Underperform (3):** Stock is expected to achieve a total negative return of at least 10% over the next 12 months

**Assumption:** The expected total return calculation includes anticipated dividend yield

#### Cowen and Company Rating System until May 25, 2013

**Outperform (1):** Stock expected to outperform the S&P 500

**Neutral (2):** Stock expected to perform in line with the S&P 500

**Underperform (3):** Stock expected to underperform the S&P 500

**Assumptions:** Time horizon is 12 months; S&P 500 is flat over forecast period

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**Buy** – The fundamentals/valuations of the subject company are improving and the investment return is expected to be 5 to 15 percentage points higher than the general market return

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**Hold** – The fundamentals/valuations of the subject company are neither improving nor deteriorating and the investment return is expected to be in line with the general market return

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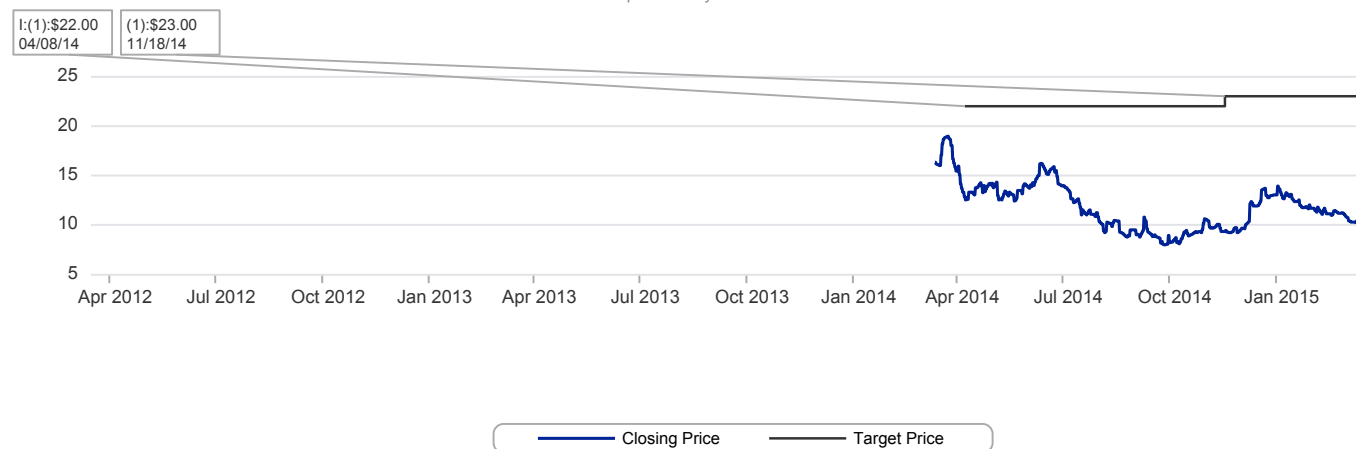
Rating	Count	Ratings Distribution	Count	IB Services/Past 12 Months
Buy (a)	461	60.50%	109	23.64%
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Sell (c)	13	1.71%	0	0.00%

(a) Corresponds to "Outperform" rated stocks as defined in Cowen and Company, LLC's rating definitions. (b) Corresponds to "Market Perform" as defined in Cowen and Company, LLC's ratings definitions. (c) Corresponds to "Underperform" as defined in Cowen and Company, LLC's ratings definitions.

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### Achaogen Rating History as of 03/16/2015

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### Intercept Pharmaceuticals Rating History as of 03/16/2015

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#### Legend for Price Chart:

I = Initiation | 1 = Outperform | 2 = Market Perform | 3 = Underperform | UR = Price Target Under Review | T = Terminated Coverage | \$xx = Price Target | NA = Not Available | S=Suspended

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