PTC Therapeutics (PTCT)

Q4:13 Update: Buyers on Weakness PTCT Remains Undervalued 2014 Catalysts Ahead - New Indications for Ataluren Underappreciated - Reiterate OUTPERFORM

- **PTCT reported full year EPS of ($5.18) and revenues of $35M. The company ended 2013 with $260M in cash and equivalents.** Current cash is est. to fund operations through 2016, we estimate a 2014 net cash burn of $76M. We our estimates to come inline with guidance.
- **The next event for PTCT is an update on conditional approval for ataluren in DMD in the EU potentially in Q2:14.** PTCT is appealing the negative opinion issued by the CHMP in Jan. We see a positive opinion as unlikely and not priced in to the stock at current levels; it also represents upside to our current valuation.
- **We estimate that the two primary value drivers coming out of a potentially positive opinion EMA include: 1) earlier than expected sales and 2) validation of ataluren's clinical benefit. However, we note that both early sales and validation are likely regardless of a conditional approval.**
- **We note that, regardless of a conditional approval decision by the EMA, it is possible that PTCT markets ataluren on a named patient/compassionate use in the EU and other territories in 2015.** Recall, that the company had recently announced the expansion of their international commercial team with Dr. Schopen, General Manager and Head of Medical Affairs in the EU.
- **PTCT intends to initiate trials for ataluren in new indications in 2014 with readouts ahead of the trial in DMD in 2015. We believe with a significant safety database and strong pre-clinical evidence of efficacy these are derisked opportunities that will warrant additional valuation.** (page 3-6). Based upon comps with molecularly targeted therapies such as EPZM (OUTPERFORM) we believe that two new indications (Aniridia and Hurler's (MPS I)) for ataluren could represent as much as $600M in MC in upside to PTCT. Published research provides promising evidence for ataluren's efficacy in Aniridia, a rare condition that severely limits the vision of ~5,000 pts the U.S (page 5).
- **Data from a Phase I trial of RG7800 in SMA by YE:14 may, in addition to safety and PK data, confirm mechanistic action through the measurement of SMN transcript levels in the blood plasma of healthy patients.**
- **Upcoming catalysts for the stock include an update on conditional approval from the EMA Q2:14, complete enrollment in the nmDMD trial, and start of enrollment in a Phase III trial for ataluren in cystic fibrosis (nmCF) in H1:14.**
- **We reiterate OUTPERFORM rating and 12-month price target of $55/share.** Our $55 price target is derived by applying an 8X multiple to estimated 2017 revenues for ataluren in nmDMD and nmCF, discounted 25% and 35% annually, respectively. New indications for ataluren and the SMA candidate remain upside.

FYE Dec	2013E	2014E			2015E		
REV	ACTUAL	CURR.	PREV.	CONS.	CURR.	PREV.	CONS.
Q1 Mar	$7.1A	$8.5E	$3.6E	$9.4E	$1.0E	--	--
Q2 Jun	6.9A	1.0E	7.5E	$9.4E	1.0E	--	--
Q3 Sep	16.3A	1.0E	7.5E	$9.4E	1.0E	--	--
Q4 Dec	4.4E	$1.0E	$7.5E	$9.4E	$1.0E	--	--
Year*	**$34.7E**	**$11.5E**	**$26.1E**	**$9.4E**	**$4.0E**	**--**	**--**
Change	--	--			--		
	2013E	**2014E**			**2015E**		
EPS	**ACTUAL**	**CURR.**	**PREV.**	**CONS.**	**CURR.**	**PREV.**	**CONS.**
Q1 Mar	($3,244.59) A	($0.49)E	($0.65)E	($0.46)E	($0.73)E	--	($0.24)E
Q2 Jun	(5.51)A	($0.70)E	($0.51)E	($0.46)E	($0.66)E	--	($0.24)E
Q3 Sep	(0.19)A	($0.71)E	($0.53)E	($0.46)E	($0.65)E	--	($0.24)E
Q4 Dec	(0.75)E	($0.73)E	($0.55)E	($0.46)E	($0.68)E	--	($0.24)E
Year*	**($5.18)E**	**($2.64)E**	**($0.55)E**	**($0.46)E**	**($2.72)E**	**--**	**($0.24)E**
P/E	--	--			--		
Change	--	--			--		

Consensus estimates are from Thomson First Call.
** Numbers may not add up due to rounding.*

March 7, 2014

Price
$30.42

Rating
OUTPERFORM

12-Month Price Target
$55

Christopher N. Marai, Ph.D.
(415) 274-6861
christopher.marai@wedbush.com

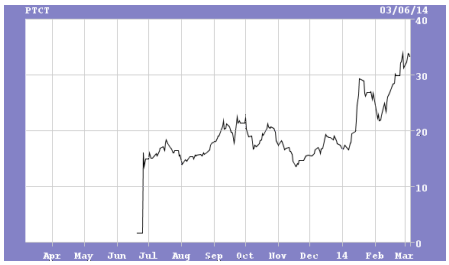
Gregory R. Wade, Ph.D.
(415) 274-6863
greg.wade@wedbush.com

David M. Nierengarten, Ph.D.
(415) 274-6862
david.nierengarten@wedbush.com

Company Information	
Shares Outst (M)	30.1
Market Cap (M)	$914.9
52-Wk Range	$13.04 - $34.65
Book Value/sh	$29.59
Cash/sh	$8.31
Enterprise Value (M)	$664.9
LT Debt/Cap %	0.0
Cash Burn (M)	$77.8
Current Cash (M)	$250.0

Company Description

PTC Therapeutics is a biopharmaceutical company focused on the development of orally administered, proprietary, small molecule drugs that target post-transcriptional control processes for orphan and orphan disorders including DMD and CF.



Source: Thomson Reuters

Risks to the attainment of our price target include 1) failure of ataluren in the clinic in DMD or CF; 2) regulatory failure of ataluren; and 3) inability to fund the development or execute on the commercializing of ataluren globally

Investment Thesis

PTC is a biotechnology company focused on the development of ataluren, a molecularly targeted, orally delivered treatment for rare and ultra-rare diseases including Duchenne muscular dystrophy and cystic fibrosis caused by nonsense mutations. Ataluren may also be effective in treating 2500 other rare diseases and certain cancers caused by nonsense mutations since its mechanism of action is broadly applicable to these molecular lesions. PTC is also developing a candidate for spinal muscle atrophy a fatal and rare disease that most severely impacts infants. We believe that ataluren will be shown to be safe and efficacious in ongoing Phase III trials in nmDMD as well as those set to begin (H1:14) in nmCF. In our opinion, the Street is overly discounting their lead Phase III program for ataluren in nnDMD, which showed mixed results overall in a Phase II trial, but positive trends and nominal statistically significant benefit in the current subgroups being evaluated in the Phase III trial. We believe that, given lessons learned from prior pioneering trials of ataluren in DMD, PTC has enriched their Phase III trial for success and that it is highly likely to show positive results in mid:2015. Final read-outs from a soon to be initiated (H1:14) trial for ataluren CF are anticipated by mid:16. PTC's SMA program, partnered with Roche, remains additional upside to our estimates. We believe that this program likely be accelerated through the clinic due to significant unmet medical need in this devastating disease and that breakthrough results in Phase I/II trials could form the basis for a registration filing as early as 2015.

Valuation Methodology

Our $55 price target is derived by applying an 8X multiple to estimated 2017 revenues for ataluren in nmDMD and nmCF, discounted 25% and 35% annually, respectively. Conditional approval of ataluren in the EU by Q1:14 remains upside to our price target and would yield a 12-month price target of $75/share. We project that approval and commercialization of ataluren could generate ~$550 million in annual worldwide revenues in 2017 (our valuation year) in nmDMD and nmCF and potential peak global sales of >$1.5 billion. Success of PTC/Roche's SMA candidate RG7800 remains upside to our estimates. Similarly we arrive at our $55 price target by applying a 15x multiple to PTC's fully taxed EPS in 2017 discounted back 20% annually.

Upcoming Milestones

March 16-19	Poster presentation at the Muscular Dystrophy Association conference, Chicago, IL
Apr 26-May 3	AAN Meeting (Philadelphia, PA), potential ataluren updates.
Apr 26-May 3	AAN Meeting (Philadelphia, PA) ISIS/BIIB updates on SMNrx Phase I results
Q2:14	Feedback from CHMP SAG meeting regarding request for reconsideration of conditional approval for ataluren for nmDMD in the EU
Q2:14	Potential MAA filing for conditional approval of ataluren for nmCF in the EU
Q2:14	Potential new opinion following a re-examination of the negative opinion regarding conditional approval of ataluren for nmDMD in the EU
Q2:14	Full enrollment in the confirmatory Phase III trial of ataluren in nmDMD
H1:14	Initiation of a Phase III trial of ataluren in nmCF
2014	Nomination of one or two new indications for ataluren (likely Aniridia and/or MPS I)
2014	Open label trial updates for ataluren as nmDMD at a scientific conference (US study safety only, EU efficacy at 0, 6,12,18 months)
H2:14	Potential data from the Phase IIb open-label extension study of ataluren in the EU
YE:14/Q1:15	Potential start of proof-of-concept Phase II trials (potentially pivotal) for ataluren in one or two indications (ahead of ataluren in nmDMD)
YE:14	Potential conditional approval of ataluren for nmCF in the EU
YE:14/Q1:15	Potential top-line data and biomarker data from Roche/PTCT's Phase I healthy volunteers study of SMA candidate RG7800
H1:15	Top-line data from the confirmatory Phase III trial of ataluren in nmDMD
2015	Potential first commercial (named patient/compassionate use) sales of ataluren nmDMD in EU (or ROW) markets
H2:15	FDA and MAA filing for full approval of ataluren for nmDMD
H2:15	Top-line data from the confirmatory Phase III trial of ataluren in nmCF
2015	Potential initiation of pivotal Phase II/III trials RG7800 in patients with SMA
H1:16	FDA and MAA filing for full approval of ataluren for nmCF
2016	First commercial sales of ataluren following potential approval on Phase III data

Additional Indications Could Expand the Market for Ataluren

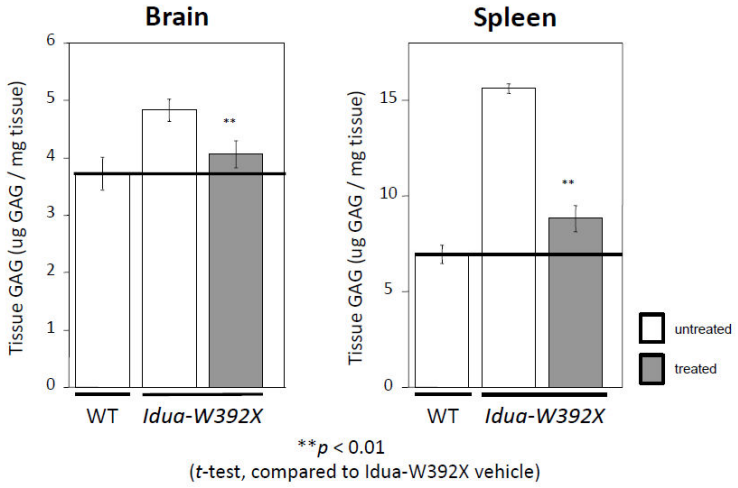
Figure 1: Additional Indications Under Study

Author	Indication
Wang (2010)	Miyoshi myopathy
Yu (2014)	Long QT syndrome
Sarker (2011)	Infantile neuronal ceroid lipofuscinosis (INCL)
Miller (2013)	(Late) infantile neuronal ceroid lipofuscinosis (INCL)
Du (2013)	Ataxia telangiectasia
Goldman (2011, 2012)	Usher syndrome (USCH1C)
Zhou (2013)	Pseudoxanthoma elasticum
Kuschal (2013)	Xeroderma pigmentosum
Moosajee (unpublished)	Choroideremia
Gregory-Evans (2014)	Aniridia
Drake (2013)	Heritable pulmonary arterial hypertension
Tan (2011)	Carnitine palmitoyltransferase 1A deficiency
Buck (2012)	Methylmalonic aciduria (MMA)
Sanchez-Alcudia (2012)	Propionic acidemia (PA)
Bartolomeo (2013)	Maroteaux-Lamy syndrome (MPS VI)
Keeling (unpublished)	Hurler's syndrome (MPS I)

Source: Company data, Wedbush Securities, Inc.

Hurler's syndrome (MPS I) is a severe disease caused by a lack of lysosomal α-L-iduronidase which helps break down glycosaminoglycans (GAG's). GAG's accumulate and cause organ damage, particularly in the heart and brain. In mouse models, ataluren inhibits the accumulation of GAG's in both the brain and the spleen.

Figure 2: Ataluren has a Promising Effect in Mouse Models of Hurler's Syndrome



Source: Company data, Wedbush Securities, Inc.

Hurler's syndrome is treated with Bone Marrow Transplants (BMT) and Aldurazyme (Genzyme/BioMarin), an IV delivered enzyme replacement therapy approved on a single 26-week pivotal trial enrolling 45 patients with endpoints of FVC and 6MWT. Naglazyme (BioMarin) is a similar IV delivered enzyme replacement therapy also approved on a small pivotal trial in MPS VI.

Figure 3: Clinical Trial's Submitted with BLA Applications for Aldurazyme (MPS I) and Naglazyme (MPS VI)

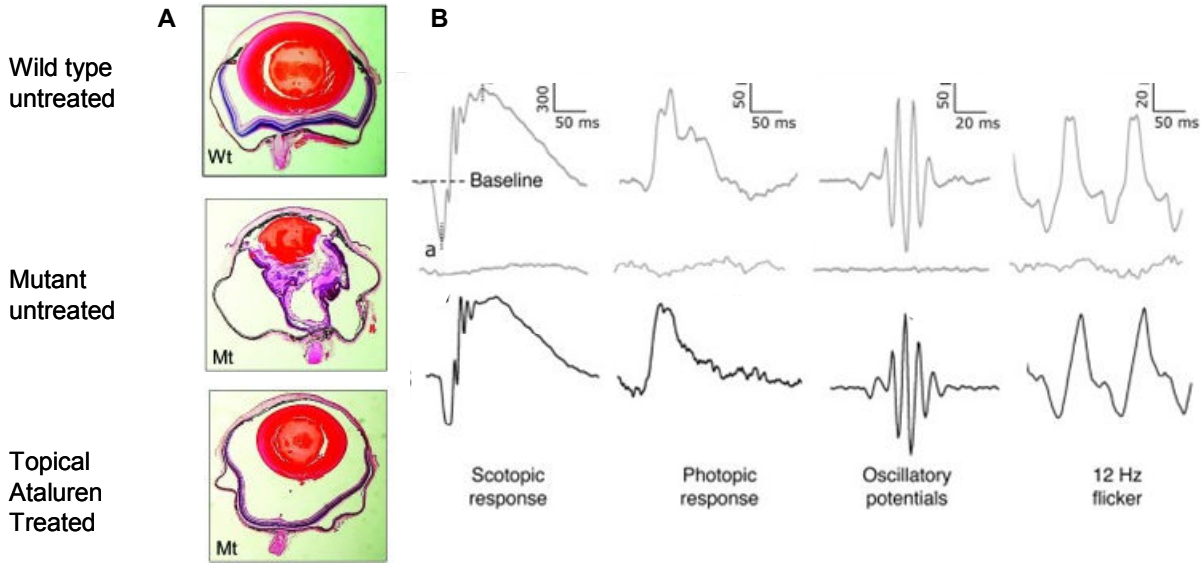
	N	Length	Primary Endpoints	Design	NCT
Aldurazyme Phase I/II	10	2 years (extended)	Urinary GAG excretion, liver and spleen size	Open-label	NCT01173016
Aldurazyme pivotal	45 (1:1)	26 weeks	FVC and 6MWT	RCT	NCT00912925
Aldurazyme long-term extension	45	24 weeks	FVC and 6MWT	Open-label	NCT00146770
Naglazyme Phase I/II	7	24 weeks	Urinary GAG secretion, 6MWT	Open-label	NCT00048620
Naglazyme Phase II	10	48 weeks	Urinary GAG secretion, 12MWT	open-label	NCT00048711
Naglazyme pivotal	39 (1:1)	24 weeks	12MWT	RCT	NCT00067470

Source: Company data, Wedbush Securities, Inc.

Aniridia is an eye disorder characterized by complete or partial absence of the iris caused by mutations in the *PAX6* gene. PAX6 protein is involved in the early development of the eyes, brain, spinal cord and pancreas. Without PAX6, patients develop involuntary eye movements and underdevelopment of the fovea, responsible for sharp central vision.

Gregory-Evans et al. (2014) investigated the use of ataluren in a mouse model with a nonsense mutation in the *PAX6* gene. Mutant mouse eyes demonstrated significant deformation and ERG abnormalities. A topical formulation of ataluren dubbed, START, was developed to increase viscosity and thus surface contact time and reduce the irritation associated with water based eye drops. START application was initiated 14 days after birth (when the eyes open), and continued until sacrifice and analysis at day 60. Ataluren treatment normalizes eye histology (Figure 4A) and nerve response as assessed by ERG after light pulse (Figure 4B) and brings the amplitude of the low-light (scotopic) and high light (photopic) responses up to levels not significantly different from wild type mice.

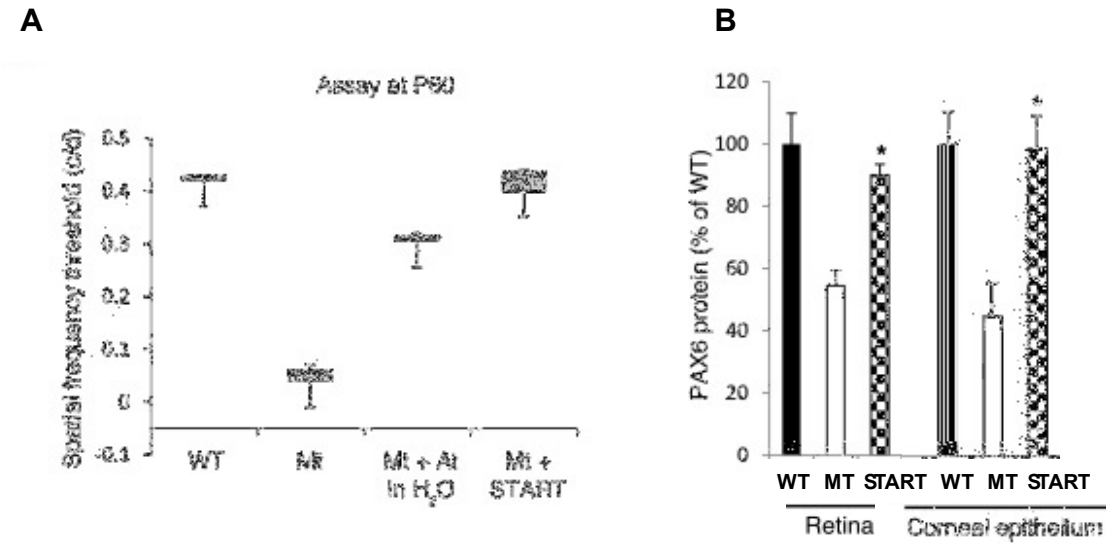
Figure 4: Ataluren Normalizes Nerve Firing in a Mouse Model of Nonsense Mutation Aniridia



Source: Gregory-Evans et al. J Clin Invest. Jan 2, 2014; 124(1): 111–116.

The researchers measured optokinetic tracking response in a virtual reality system to approximate visual acuity. Ataluren treated mice had much better tracking response than mutant (Mt) or ataluren in water treated mice (Figure 5A) and were not significantly different form responses seen in wild type animals (p = 0.42). Mice treated with Ataluren had increased levels of PAX6 protein in the retina and corneal epithelium (Figure 5B).

Figure 5: Ataluren Increased Nerve Amplitude and PAX6 Protein Expression



Source: Gregory-Evans et al. J Clin Invest. Jan 2, 2014; 124(1): 111–116.

Aniridia is a rare disease with no current treatment options. It could potentially be approved on a single pivotal trial, supported by PTC's large safety database. Although an optical formulation is technically not comparable to systemic formulation, it is reasonable to propose that an optical formulation with low systemic exposure would have a lower safety risk than a systemic administration. We highlight previous trials in rare eye disorders, though we note that Ligneous Conjunctivitis is an extremely rare disease with roughly 200 cases ever reported.

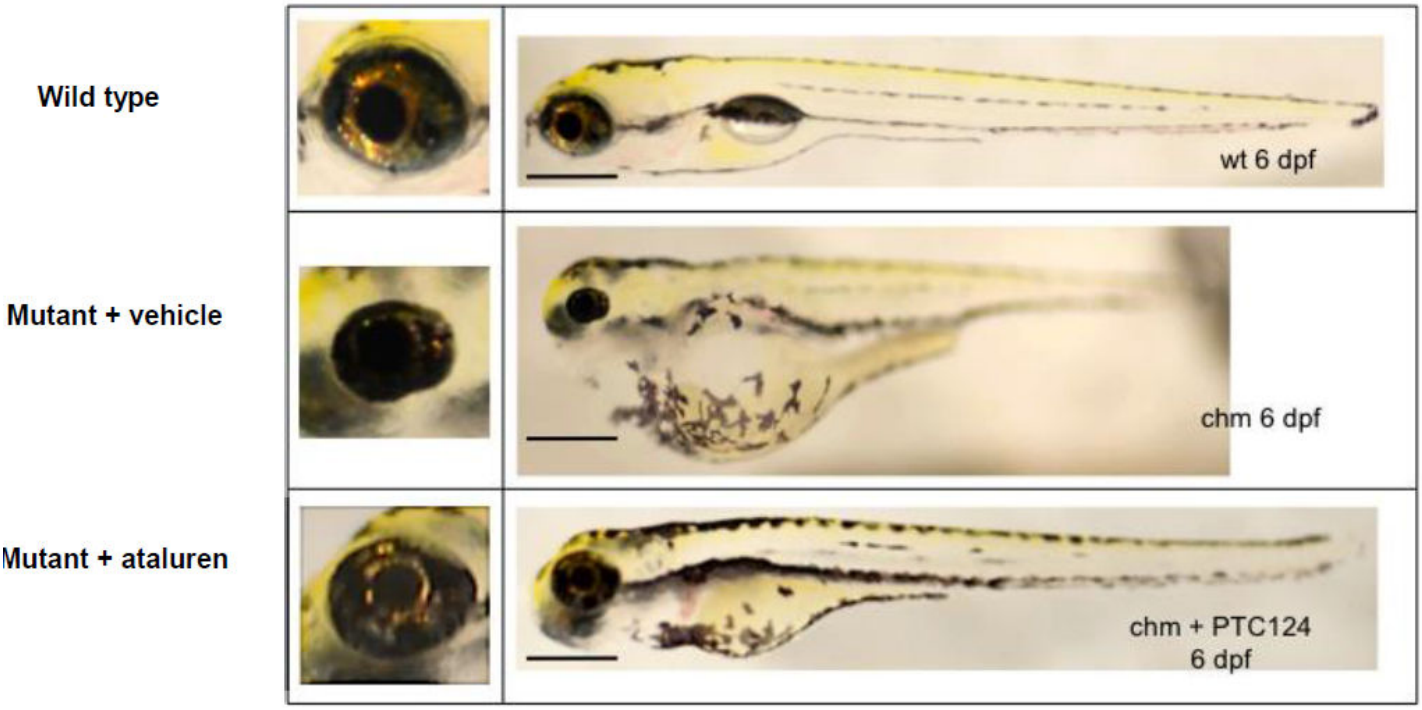
Figure 6: Current Trials in Rare Eye Disorders Highlight a Path Forward for Ataluren in Aniridia or Choroideremia

	Gene Therapy Trial in Choroideremia	Human Plasminogen in Ligneous Conjunctivitis
Phase	Phase I	Phase III
N	12	10
Efficacy Length	6 months	12 weeks
Safety Length	24 months	26 weeks
Primary Endpoint	Visual acuity	# of eyes with recurrent ligneous membranes, # of eyes with reduction of overall membrane surface area
Secondary endpoints	Microperimetry, OCT and fundus autofluorescence	Safety
Inclusion criteria	Vision 6/60 or better in the study eye, male aged ≥18 years, diagnosed with choroideraemia	Diagnosed with ligneous conjunctivitis associated with Type I plasminogen deficiency
Status	Ongoing	Ongoing
NCT	NCT02077361	NCT01554956

Source: Company data, Wedbush Securities, Inc.

Choroideremia is an X-linked disease caused by mutations in the *CHM* gene leading to progressive vision loss. Vision problems are due to an ongoing loss of cells in the retina and nearby network of blood vessels leading to complete blindness in late adulthood. Ataluren normalized eye morphology in a zebrafish model.

Figure 7: Ataluren Normalized Eye Morphology in Nonsense Mutation Choroideremia



Source: Company data, Wedbush Securities, Inc.

Financial Model

WEDBUSH
PACGROW LIFE SCIENCES

Christopher N. Marai Ph.D.

3/7/2014

PTC Therapeutics, Inc.

Annual Financial Results & Projections
($ in thousands except per share data)
Ticker: PTCT (Nasdaq)

	FY:13A	Q1:14E	Q2:14E	Q3:14E	Q4:14E	FY:14E	FY:15E	FY:16E	FY:17E	FY:18E	FY:19E
Revenue:											
Ataluren Sales US - DMD	0	0	0	0	0	0	0	49,618	216,553	313,599	335,577
Ataluren Sales EU - DMD	0	0	0	0	0	0	0	35,543	185,637	310,494	345,451
Ataluren Sales ROW - DMD	0	0	0	0	0	0	0	715	10,692	47,266	93,713
Ataluren Sales US - CF	0	0	0	0	0	0	0	0	94,984	267,911	344,683
Ataluren Sales EU - CF	0	0	0	0	0	0	0	0	37,354	185,142	367,238
Ataluren Sales ROW - CF	0	0	0	0	0	0	0	0	0	1,010	12,187
Grant and other revenues	3,370	1,000	1,000	1,000	1,000	4,000	4,000	0	0	0	0
Collaboration revenue	31,326	7,500	0	0	0	7,500	0	1,000	1,000	1,000	1,000
Total Revenues	**$34,696**	**$8,500**	**$1,000**	**$1,000**	**$1,000**	**$11,500**	**$4,000**	**$86,876**	**$546,221**	**$1,126,423**	**$1,499,849**
Cost and Expenses:											
Costs of goods sold	0	0	0	0	0	0	0	8,588	54,522	112,542	149,885
Research and Development	54,875	15,000	15,250	15,500	16,000	61,750	59,500	62,305	66,497	67,837	69,204
Sales, General and Administrative	25,219	7,500	7,500	7,500	7,500	30,000	31,500	43,000	52,000	53,313	55,478
Other	0	0	0	0	0	0	0	0	0	0	0
Total Costs and Expenses	**$80,094**	**$22,500**	**$22,750**	**$23,000**	**$23,500**	**$91,750**	**$91,000**	**$113,893**	**$173,019**	**$233,692**	**$274,566**
Operating Income (loss)	(45,398)	(14,000)	(21,750)	(22,000)	(22,500)	(80,250)	(87,000)	(27,017)	373,202	892,731	1,225,283
Net Interest Income (Expense)	(6,083)	427	740	677	613	2,458	2,061	2,610	3,867	9,802	19,221
Other income / (Expense)	(92)	0	0	0	0	0	0	0	0	0	0
Income Before Income Taxes	(51,574)	(13,573)	(21,010)	(21,323)	(21,887)	(77,792)	(84,939)	(24,407)	377,069	902,533	1,244,504
Net Income	**($51,574)**	**($13,573)**	**($21,010)**	**($21,323)**	**($21,887)**	**($77,792)**	**($84,939)**	**($24,407)**	**$351,408**	**$708,114**	**$933,378**
GAAP Net Income	**($66,432)**	**($13,573)**	**($21,010)**	**($21,323)**	**($21,887)**	**($77,792)**	**($84,939)**	**($24,407)**	**$341,408**	**$698,114**	**$923,378**
GAAP Basic EPS with sFAS123	**(5.18)**	**(0.49)**	**(0.70)**	**(0.71)**	**(0.73)**	**(2.64)**	**(2.72)**	**(0.75)**	**10.83**	**21.76**	**28.60**
GAAP Diluted EPS with sFAS123	**(5.29)**	**(0.49)**	**(0.70)**	**(0.71)**	**(0.73)**	**(2.64)**	**(2.72)**	**(0.75)**	**10.83**	**21.76**	**28.60**
Weighted shares outstanding	12,829	27,521	30,127	30,152	30,177	27,521	31,240	32,340	32,440	32,540	32,640
Fully diluted shares outstanding	12,565	27,521	30,127	30,152	30,177	29,494	31,240	32,340	32,440	32,540	32,640
Cash Burn	(51,574)	(13,573)	(21,010)	(21,323)	(21,887)	(77,792)	(84,939)	(24,407)	-	-	-
Cash Balance	142,468	246,784	225,775	204,452	182,565	182,565	181,326	241,358	576,890	1,270,218	2,196,308

Source:Wedbush Securities and PacGrow Life Sciences

Covered Companies Mentioned

Epizyme	EPZM	OUTPERFORM	$52	$26.54

Analyst Biography

Chris Marai is an Analyst covering the Biotechnology/Biopharmaceuticals/BioDefense sector. Prior to Wedbush PacGrow Life Sciences, Dr. Marai was at Morgan Stanley where he specialized in quantitative modeling; he has also consulted for structure-based drug design companies and biotechnology startups.
Dr. Marai holds a B.S. in Chemistry from Trinity College, University of Toronto and a Ph.D. in Biochemistry and Structural Biology from Stony Brook University, New York.
Christopher's Edge: Dr. Marai has a strong quantitative background and has covered a wide range of disease areas including gastrointestinal, CNS, oncology and rare diseases. His quantitative background has translated into an exceptional track record predicting binary events and assessing risk as a sell-side analyst.

Analyst Certification
I, Christopher N. Marai, Ph.D., Gregory R. Wade, Ph.D., David M. Nierengarten, Ph.D., certify that the views expressed in this report accurately reflect my personal opinion and that I have not and will not, directly or indirectly, receive compensation or other payments in connection with my specific recommendations or views contained in this report.

Disclosure information regarding historical ratings and price targets is available at http://www.wedbush.com/ResearchDisclosure/DisclosureQ413.pdf

Investment Rating System:
Outperform: Expect the total return of the stock to outperform relative to the median total return of the analyst's (or the analyst's team) coverage universe over the next 6-12 months.
Neutral: Expect the total return of the stock to perform in-line with the median total return of the analyst's (or the analyst's team) coverage universe over the next 6-12 months.
Underperform: Expect the total return of the stock to underperform relative to the median total return of the analyst's (or the analyst's team) coverage universe over the next 6-12 months.

The Investment Ratings are based on the expected performance of a stock (based on anticipated total return to price target) relative to the other stocks in the analyst's coverage universe (or the analyst's team coverage).*

Rating Distribution (as of December 31, 2013)	**Investment Banking Relationships (as of December 31, 2013)**
Outperform:54% Neutral: 43% Underperform: 3%	Outperform:18% Neutral: 2% Underperform: 0%

The Distribution of Ratings is required by FINRA rules; however, WS' stock ratings of Outperform, Neutral, and Underperform most closely conform to Buy, Hold, and Sell, respectively. Please note, however, the definitions are not the same as WS' stock ratings are on a relative basis.

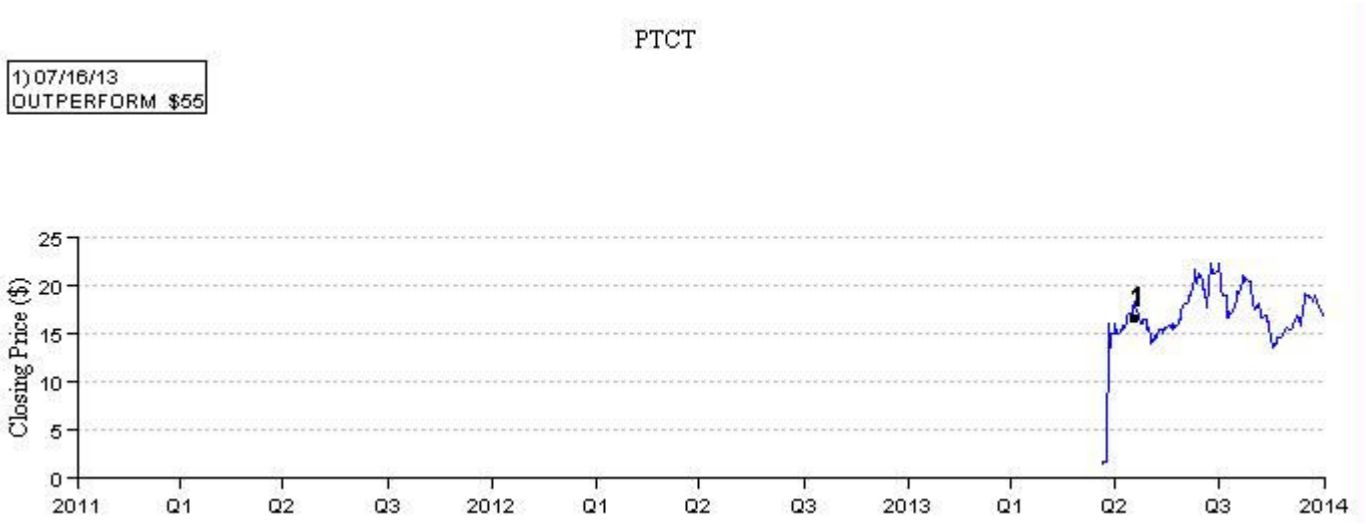
The analysts responsible for preparing research reports do not receive compensation based on specific investment banking activity. The analysts receive compensation that is based upon various factors including WS' total revenues, a portion of which are generated by WS' investment banking activities.

Wedbush Equity Research Disclosures as of March 7, 2014

Company	Disclosure
PTC Therapeutics	1,3,4,5,7

Research Disclosure Legend
1. WS makes a market in the securities of the subject company.
2. WS managed a public offering of securities within the last 12 months.
3. WS co-managed a public offering of securities within the last 12 months.
4. WS has received compensation for investment banking services within the last 12 months.
5. WS provided investment banking services within the last 12 months.
6. WS is acting as financial advisor.
7. WS expects to receive compensation for investment banking services within the next 3 months.
8. WS provided non-investment banking securities-related services within the past 12 months.
9. WS has received compensation for products and services other than investment banking services within the past 12 months.
10. The research analyst, a member of the research analyst's household, any associate of the research analyst, or any individual directly involved in the preparation of this report has a long position in the common stocks.
11. WS or one of its affiliates beneficially own 1% or more of the common equity securities.
12. The analyst maintains Contingent Value Rights that enables him/her to receive payments of cash upon the company's meeting certain clinical and regulatory milestones.

Price Charts
Wedbush disclosure price charts are updated within the first fifteen days of each new calendar quarter per FINRA regulations. Price charts for companies initiated upon in the current quarter, and rating and target price changes occurring in the current quarter, will not be displayed until the following quarter. Additional information on recommended securities is available on request.



* WS changed its rating system from (Strong Buy/Buy/Hold/Sell) to (Outperform/ Neutral/Underperform) on July 14, 2009.
Please access the attached hyperlink for WS' Coverage Universe: http://www.wedbush.com/services/cmg/equities-division/research/equity-research Applicable disclosure information is also available upon request by contacting Ellen Kang in the Research Department at (213) 688-4529, by email to ellen.kang@wedbush.com, or the Business Conduct Department at (213) 688-8090. You may also submit a written request to the following: Business Conduct Department, 1000 Wilshire Blvd., Los Angeles, CA 90017.

OTHER DISCLOSURES

RESEARCH DEPT. * (213) 688-4505 * www.wedbush.com
EQUITY TRADING Los Angeles (213) 688-4470 / (800) 421-0178 * EQUITY SALES Los Angeles (800) 444-8076
CORPORATE HEADQUARTERS (213) 688-8000

The information herein is based on sources that we consider reliable, but its accuracy is not guaranteed. The information contained herein is not a representation by this corporation, nor is any recommendation made herein based on any privileged information. This information is not intended to be nor should it be relied upon as a complete record or analysis; neither is it an offer nor a solicitation of an offer to sell or buy any security mentioned herein. This firm, Wedbush Securities, its officers, employees, and members of their families, or any one or more of them, and its discretionary and advisory accounts, may have a position in any security discussed herein or in related securities and may make, from time to time, purchases or sales thereof in the open market or otherwise. The information and expressions of opinion contained herein are subject to change without further notice. The herein mentioned securities may be sold to or bought from customers on a principal basis by this firm. Additional information with respect to the information contained herein may be obtained upon request.

WEDBUSH

EQUITY RESEARCH DEPARTMENT

(213) 688-4529

DIRECTOR OF RESEARCH
Mark D. Benson (213) 688-4435

MANAGER, RESEARCH OPERATIONS
Ellen Kang (213) 688-4529

RETAIL AND CONSUMER

Consumer Products
Rommel T. Dionisio (212) 938-9934
Kurt M. Frederick, CFA CPA (415) 274-6822
Alicia Reese (212) 938-9927

Footwear, Apparel and Accessories
Corinna Freedman (212) 668-9876

Healthy Lifestyles
Kurt M. Frederick, CFA CPA (415) 274-6822
Alicia Reese (212) 938-9927

Restaurants
Nick Setyan (213) 688-4519
Colin Radke (213) 688-6624

Specialty Retail: Hardlines
Joan L. Storms, CFA (213) 688-4537
John Garrett, CFA (213) 688-4523

Seth Basham, CFA (212) 938-9954

Specialty Retail: Softlines
Morry Brown (213) 688-4311

RETAIL/CONSUMER MARKET RESEARCH

Gabriella Santaniello (213) 688-4557

INDUSTRIAL GROWTH TECHNOLOGY

Clean Technology
Craig Irwin (212) 938-9926
Min Xu (212) 938-9925

Environmental Services / Building Products
Al Kaschalk (213) 688-4539
Taryn Kuida (213) 688-4505

Water and Renewable Energy Solutions
David Rose, CFA (213) 688-4319
James Kim (213) 688-4380

TECHNOLOGY, INTERNET, MEDIA & SOCIAL MEDIA

Communications and Application Software
Shyam Patil, CFA (213) 688-8062
Andy Cheng (213) 688-4548

Enterprise Security
Sanjit Singh (212) 938-9922
Ryan Flanagan (212) 938-9942

Computer Services: Financial Technology
Gil B. Luria (213) 688-4501
Aaron Turner (213) 688-4429

Enterprise Software
Steve Koenig (415) 274-6801
Kevin Ikeda (213) 688-4423

Entertainment: Retail
Michael Pachter (213) 688-4474
Nick McKay (213) 688-4343
Nick Citrin (213) 688-4495

Entertainment: Software
Michael Pachter (213) 688-4474
Nick McKay (213) 688-4343
Nick Citrin (213) 688-4495

Internet: Media and Gaming
Michael Pachter (213) 688-4474
Nick McKay (213) 688-4343
Nick Citrin (213) 688-4495

Internet: Social Media, Advertising & Technology
Shyam Patil, CFA (213) 688-8062
Andy Cheng (213) 688-4548

Media
James Dix, CFA (213) 688-4315

Movies and Entertainment
Michael Pachter (213) 688-4474
Nick McKay (213) 688-4343
Nick Citrin (213) 688-4495

Semiconductors
Betsy Van Hees (415) 274-6869
Ryan Jue, CFA (415) 263-6669

LIFE SCIENCES AND HEALTH CARE

Biotechnology/Biopharmaceuticals/BioDefense
Gregory R. Wade, Ph.D. (415) 274-6863
David M. Nierengarten, Ph.D. (415) 274-6862
Christopher N. Marai, Ph.D. (415) 274-6861
Dilip Joseph (415) 273-7308

Emerging Pharmaceuticals
Liana Moussatos, Ph.D. (415) 263-6626

Healthcare Services - Managed Care
Sarah James (213) 688-4503

Medical Devices
Tao Levy (212) 938-9948

Medical Diagnostics and Life Sciences Tools
Zarak Khurshid (415) 274-6823

EQUITY SALES		EQUITY TRADING	
Los Angeles	(213) 688-4470 / (800) 444-8076	Los Angeles	(213) 688-4470 / (800) 421-0178
San Francisco	(415) 274-6800	San Francisco	(415) 274-6811
New York	(212) 938-9931	New York	(212) 344-2382
Boston	(617) 832-3700	Boston	(617) 832-3700

CORPORATE HEADQUARTERS
1000 Wilshire Blvd., Los Angeles, CA 90017-2465
Tel: (213) 688-8000 www.wedbush.com