# Vitae Pharmaceuticals (VTAE)

## *Financing Extends Runway into 2017 and Funds Clinical Acceleration of VTP-43742; Reiterate OUTPERFORM and $21 PT*

- **Vitae raised approximately $38 million in a recent equity financing.** The company issued approximately 3.0 million shares of common stock plus an additional 0.45 million shares to cover over-allotments at $11.90 per share.
- **We have adjusted our model for additional share count and cash.** By including approximately 3.45 million shares from the recent financing, the dilution impacts our Q1 2015 EPS (loss), as well as full-year 2015 and years going forward. With approximately $86.4 million in estimated Q1 2015 cash & investments, we see cash runway into 2017.
- **The recent FDA approval of Novartis's IL-17A mAb Cosentyx (secukinumab) for moderate-to-severe psoriasis and that Vitae's Th17/RORγt inhibitory VTP-43742 demonstrated superior efficacy in a preclinical model reduces clinical risk and may suggest potential for best-in-class, in our view.** Cosentyx was recently approved in the US (add-on) and in the EU (front-line). We believe VTP-43742, if approved, could become the preferred treatment for psoriasis given its potential oral once-daily dosing profile and superiority to anti-IL-17A mAb in preclinical studies. We anticipate data release from the Phase 1 trial of VTP-43742 in mid:15 and results from the Phase 1 PoC trial in psoriasis patients by year-end. We believe robust reduction in serum inflammatory biomarkers, specifically IL-17A, could provide positive read-through for PoC efficacy. We consider the positive preclinical comparison to an approved product as an indicator of potential clinical success and have included VTP-43742 in our price target.
- **NEXT: Top-line Phase 2 results for VTP-34072 in diabetic patients in H1 2015.** We also anticipate data release from the multiple ascending dose Phase 1 study of VTP-37948/Alzheimer's and the release of data from the single-dose Phase 1 safety and PK trial of VTP-43742/autoimmune by mid:2015.
- **We reiterate our OUTPERFORM rating and our price target of $21.** Our 12-month PT is a 365-day projection of our current fair value estimate calculated using a sum-of-parts with each part calculated using a 30% annual discount from peak sales of each drug/disease to present day and applying a 1-10x multiple, depending on stage of development to reflect risk.

| FYE Dec | 2013A | 2014E | | | 2015E | | |
|---|---|---|---|---|---|---|---|
| REV (M) | ACTUAL | CURR. | PREV. | CONS. | CURR. | PREV. | CONS. |
| Q1 Mar | $1.0A | $1.2A | | -- | ($0.2)E | | $0.0E |
| Q2 Jun | 1.0A | 1.2A | | -- | (0.2)E | | 0.0E |
| Q3 Sep | 10.3A | 6.2A | | -- | (0.2)E | | 0.0E |
| Q4 Dec | 10.3A | 0.2E | | 0.1E | (0.2)E | | 10.0E |
| **Year*** | **$22.5A** | **$8.7E** | | **$8.6E** | **($0.9)E** | | **$10.0E** |
| Change | -- | -- | | | -- | | |
| | **2013A** | **2014E** | | | **2015E** | | |
| **EPS** | **ACTUAL** | **CURR.** | **PREV.** | **CONS.** | **CURR.** | **PREV.** | **CONS.** |
| Q1 Mar | ($0.66)A | ($0.47)A | | -- | ($0.38)E | $(0.45)E | ($0.48)E |
| Q2 Jun | (0.34)A | (0.48)A | | -- | (0.39)E | (0.46)E | (0.50)E |
| Q3 Sep | 0.26A | (1.06)A | | -- | (0.40)E | (0.47)E | (0.52)E |
| Q4 Dec | 0.46A | (0.43)E | | (0.45)E | (0.41)E | (0.48)E | (0.53)E |
| **Year*** | **$0.11A** | **($1.91)E** | | **($2.00)E** | **($1.57)E** | **$(1.87)E** | **($2.04)E** |
| P/E | -- | -- | | | -- | | |
| Change | -- | -- | | | -- | | |

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

**February 2, 2015**

**Price**
**$14.57**

**Rating**
**OUTPERFORM**

**12-Month Price Target**
**$21**

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| Company Information | |
|---|---|
| Shares Outst (M) | 21,865 |
| Market Cap (M) | $278 |
| 52-Wk Range | $5.41 - $23.35 |
| Book Value/sh | $4.01 |
| Cash/sh | $3.92 |
| Enterprise Value (M) | $393 |
| LT Debt/Cap % | 0% |

**Company Description**

Vitae is a clinical stage emerging pharmaceutical company discovering and developing small molecule drug candidates to treat large market indications with unmet medical needs.


Source: Thomson Reuters

***Wedbush Securities does and seeks to do business with companies covered in its research reports. Thus, investors should be aware that the firm may have a conflict of interest that could affect the objectivity of this report. Investors should consider this report as only a single factor in making their investment decision. Please see page 5 of this report for analyst certification and important disclosure information.***

***INVESTMENT THESIS*** *Vitae, located in Fort Washington, Pennsylvania, is a clinical-stage emerging pharmaceutical company focused on discovering and developing novel, small molecule drugs for large market diseases with significant unmet medical needs. The company's proprietary structure-based drug design platform called Contour® has provided multiple, high-quality product candidates which have attracted over $150 million in collaboration funding from big pharma. Vitae has two partnered product candidates in the clinic and several wholly-owned product candidates in preclinical development. The most advanced product candidates include VTP-34072, currently being tested in phase 2 for the treatment of type 2 diabetes and VTP-37948 which is in phase 1 for the treatment of Alzheimer's disease. Both products are being developed by Vitae's partner Boehringer Ingelheim GmbH (BI). Earlier-stage product candidates are currently unpartnered and include VTP-43742 for the treatment of autoimmune disorders, VTP-38443 for the treatment of acute coronary syndrome (ACS) and VTP-38543 for the treatment of atopic dermatitis (eczema). Vitae intends to develop and commercialize these programs and/or to strategically partner programs as appropriate. We have projected clinical development and potential regulatory approvals so that the first product could be launched in late 2019. We project the first full year of profitability in 2021 from revenues of about $119 million. With the completion of a follow-on in January of 2015, we project Vitae has $86.4MM in cash and cash equivalents, which we expect to provide cash runway covering transforming clinical data releases from multiple product candidates. We also anticipate upside potential from additional partnerships around their currently unpartnered product candidates and that Vitae's future clinical success could result in the company's acquisition.*

**Vitae raised approximately $38 million in a recent equity financing.** The company issued approximately 3.0 million shares of common stock plus an additional 0.45 million shares to cover over-allotments at $11.90 per share.

**We have adjusted our model for additional share count and cash.** By including approximately 3.45 million shares from the recent financing, the dilution impacts our Q1 2015 EPS (loss), as well as full-year 2015 and years going forward. With approximately $86.4 million in estimated Q1 2015 cash & investments, we see cash runway into 2017.

**Figure 1: UPDATE MODEL**

**Vitae, Inc. (VTAE:NASDAQ)** — **Wedbush Securities, Inc.**
**Historical and Projected Income Statement** — **Liana Moussatos, PhD**
*(In thousands except per share data)*

| | 2013A | 2014E | | | | | 2015E | 2016E | 2017E | 2018E | 2019E | 2020E | 2021E | 2022E | 2023E | 2024E | 2025E |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | FY:13A | Q1A | Q2A | Q3A | Q4E | FY:14E | FY:15E | FY:16E | FY:17E | FY:18E | FY:19E | FY:20E | FY:21E | FY:22E | FY:23E | FY:24E | FY:25E |
| **Revenues:** | - | | | | | | | | | | | | | | | | |
| **Product Sales/Royalties** | | | | | | | | | | | | | | | | | |
| VTP-34072 | - | - | - | - | - | - | - | - | - | - | 148 | 3,660 | 13,480 | 46,402 | 116,557 | 205,678 | 293,353 |
| VTP-37948 | - | - | - | - | - | - | - | - | - | - | - | 1,089 | 8,344 | 32,262 | 105,948 | 228,466 | 375,189 |
| VTP-43742 | - | - | - | - | - | - | - | - | - | - | - | 1,060 | 13,087 | 37,802 | 77,183 | 113,533 | 133,809 |
| VTP-43742 | - | - | - | - | - | - | - | - | - | - | - | 5,982 | 79,357 | 260,959 | 667,871 | 1,257,619 | 1,830,916 |
| VTP-38443 | - | - | - | - | - | - | - | - | - | - | - | - | 847 | 19,569 | 57,995 | 123,877 | 193,097 |
| VTP-38543 | - | - | - | - | - | - | - | - | - | - | - | - | 711 | 4,134 | 11,320 | 22,387 | 34,042 |
| | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Net Product Revenues** | - | - | - | - | - | - | - | - | - | - | 148 | 11,791 | 115,826 | 415,235 | 1,361,488 | 2,867,056 | 4,782,300 |
| **Collaborative Revenues** | 22,513 | 1,165 | 1,165 | 6,178 | 178 | 8,685 | (887) | (887) | (887) | (887) | (887) | (887) | (887) | (887) | (887) | (887) | (887) |
| **Total Revenues** | $ 22,513 | $ 1,165 | $ 1,165 | $ 6,178 | $ 178 | $ 8,685 | $ (887) | $ (887) | $ (887) | $ (887) | $ (739) | $ 10,904 | $ 114,939 | $ 414,347 | $ 1,360,600 | $ 2,866,169 | $ 4,781,413 |
| Total COGS | - | - | - | - | - | - | - | - | - | - | 15 | 1,179 | 11,583 | 41,523 | 136,149 | 286,706 | 478,230 |
| **Gross Margin** | $ 22,513 | $ 1,165 | $ 1,165 | $ 6,178 | $ 178 | $ 8,685 | $ (887) | $ (887) | $ (887) | $ (887) | $ (754) | $ 9,725 | $ 103,356 | $ 372,824 | $ 1,224,452 | $ 2,579,463 | $ 4,303,183 |
| **Operating Expenses:** | | | | | | | | | | | | | | | | | |
| R&D | 14,917 | 4,713 | 4,713 | 4,799 | 4,895 | 19,120 | 21,838 | 24,658 | 26,690 | 26,141 | 28,296 | 30,628 | 33,153 | 35,886 | 38,844 | 42,046 | 45,512 |
| SG&A | 5,406 | 1,315 | 1,315 | 3,096 | 3,127 | 8,853 | 12,541 | 12,877 | 13,400 | 14,948 | 29,774 | 42,141 | 43,852 | 45,633 | 47,486 | 49,414 | 51,420 |
| Acquired in-process R&D | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Operating Expenses** | $ 20,322 | $ 6,027 | $ 6,027 | $ 7,896 | $ 8,023 | $ 27,972 | $ 34,378 | $ 37,534 | $ 40,090 | $ 41,089 | $ 58,070 | $ 72,769 | $ 77,005 | $ 81,519 | $ 86,330 | $ 91,460 | $ 96,932 |
| **Operating Income (Loss)** | 2,190 | (4,863) | (4,863) | (1,718) | (7,844) | (19,287) | (35,266) | (38,422) | (40,977) | (41,976) | (58,824) | (63,045) | 26,351 | 291,305 | 1,138,122 | 2,488,003 | 4,206,250 |
| Other Income / (Expense), net | 327 | 109 | 109 | 126 | 89 | 432 | 427 | 424 | 424 | 424 | 424 | 424 | 424 | 424 | 424 | 424 | 424 |
| Interest Income | 69 | 15 | 15 | 8 | (2) | 35 | 156 | 92 | (6) | (108) | (229) | (393) | (476) | (312) | 558 | 3,009 | 7,776 |
| Interest (Expense) | (1,425) | (271) | (271) | (225) | 78 | (688) | 98 | - | - | - | - | - | - | - | - | - | - |
| Total other (expenses) income | (1,028) | (147) | (147) | (92) | 165 | (221) | 681 | 516 | 418 | 316 | 194 | 31 | (52) | 112 | 981 | 3,432 | 8,200 |
| **Income Before Income Taxes** | $ 1,162 | $ (5,010) | $ (5,010) | $ (1,809) | $ (7,680) | $ (19,508) | $ (34,585) | $ (37,905) | $ (40,559) | $ (41,660) | $ (58,630) | $ (63,014) | $ 26,298 | $ 291,417 | $ 1,139,103 | $ 2,491,436 | $ 4,214,450 |
| Deemed Dividend to preferred stockholders | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| (Provision)/benefit for Income Taxes | - | - | - | - | - | - | - | - | - | - | - | - | (8,605) | (113,653) | (444,250) | (971,660) | (1,643,636) |
| Tax Rate | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 12.3% | 39.0% | 39.0% | 39.0% | 39.0% |
| **Net Income (Loss)** | $ 1,162 | $ (5,010) | $ (5,010) | $ (1,809) | $ (7,680) | $ (19,508) | $ (34,585) | $ (37,905) | $ (40,559) | $ (41,660) | $ (58,630) | $ (63,014) | $ 17,693 | $ 177,764 | $ 694,853 | $ 1,519,776 | $ 2,570,815 |
| Stock-based compensation | 100 | 56 | 56 | 1,967 | 1,875 | 3,954 | 5,123 | 5,377 | 5,421 | 5,427 | 5,428 | 5,428 | 5,428 | 5,428 | 5,428 | 5,428 | 5,428 |
| EPS | $ 0.12 | $ (0.48) | $ (0.48) | $ (2.21) | $ (0.53) | $ (2.30) | $ (1.80) | $ (1.91) | $ (1.97) | $ (1.97) | $ (2.62) | $ (2.73) | $ 0.48 | $ 6.56 | $ 25.64 | $ 55.09 | $ 91.33 |
| **GAAP EPS** | $ 0.11 | $ (0.47) | $ (0.48) | $ (1.06) | $ (0.43) | $ (1.91) | $ (1.57) | $ (1.67) | $ (1.74) | $ (1.74) | $ (2.39) | $ (2.51) | $ 0.69 | $ 6.76 | $ 25.84 | $ 55.29 | $ 91.52 |
| Weighted Average Shares Outstanding | 10,674 | 10,578 | 10,482 | 1,712 | 18,023 | 10,199 | 22,090 | 22,690 | 23,290 | 23,890 | 24,490 | 25,090 | 25,690 | 26,290 | 26,890 | 27,490 | 28,090 |
| Cash | $32,454 | $19,264 | $18,141 | $67,807 | $57,606 | $57,606 | $55,423 | $17,695 | ($22,667) | ($64,127) | ($122,598) | ($187,919) | ($179,872) | ($33,129) | $579,694 | $1,980,103 | $4,416,433 |
| Cash Per Share | $3.04 | $1.82 | $1.73 | $39.61 | $3.20 | $5.65 | $2.51 | $0.78 | ($0.97) | ($2.68) | ($5.01) | ($7.49) | ($7.00) | ($1.26) | $21.56 | $72.03 | $157.23 |
| Net Cash | $27,650 | $14,460 | $4,470 | $53,687 | $42,435 | $42,435 | $54,580 | $17,695 | ($22,667) | ($64,127) | ($122,598) | ($187,919) | ($179,872) | ($33,129) | $579,694 | $1,980,103 | $4,416,433 |
| Net Cash Per Share | $2.59 | $1.37 | $0.43 | $31.36 | $2.35 | $4.16 | $2.47 | $0.78 | ($0.97) | ($2.68) | ($5.01) | ($7.49) | ($7.00) | ($1.26) | $21.56 | $72.03 | $157.23 |
| Cash Burn (Generation) | $28,593 | | | | | $11,649 | $38,983 | $74,528 | $77,162 | $78,260 | $95,270 | $102,122 | $28,753 | ($109,942) | ($576,024) | ($1,363,608) | ($2,399,530) |

*Source: Company data, Wedbush Securities, Inc.*

**NEXT: Top-line results from the Phase 2 proof of concept trial of VTP-34072 in diabetic patients in H1 2015.** We also anticipate data release from the multiple ascending Phase 1 study of VTP-37948/Alzheimer's and the release of data from the single dose Phase 1 safety and PK trial of VTP-43742/Autoimmune by mid:2015.

**Figure 2: MILESTONES (*our estimates; **Bloomberg estimates)**

| Timing | Milestones | Estimated Probability | Estimated Upside/Downside |
|---|---|---|---|
| H1:15 | VTP-34072/T2D-META: PHASE 2 DATA RELEASE | 60:40 | ±10-25% |
| H1:15 | VTP-37948/ALZ: COMPLETION OF ADDITIONAL PHASE 1 TRIALS | 60:40 | ±5-15% |
| H1:15 | VTP-43742/ AUTOIMMUNE: INITIATE PHASE 1 | -- | -- |

| | | | |
|---|---|---|---|
| Mid:15 | VTP-43742/ AUTOIMMUNE: PHASE 1 DATA RELEASE | 50:50 | ± 0-15% |
| H2:15* | VTP-43742/ AUTOIMMUNE: INITIATE PHASE 1 POC | -- | -- |
| YE:15 | VTP-43742/ AUTOIMMUNE: PHASE 1 POC DATA RELEASE IN PSORIASIS | 50:50 | ± 5-20% |
| YE:15* | VTP-37948/ALZ: PHASE 2 DATA RELEASE | 60:40 | ±10-30% |
| Q2:16* | VTP-38543/ADERM: PHASE 1 DATA RELEASE | 50:50 | ± 0-15% |

*Source: Company data, Wedbush Securities, Inc.*

**The recent FDA approval of Novartis's IL-17A mAb Cosentyx (secukinumab) for moderate-to-severe psoriasis and that Vitae's Th17/RORγt inhibitory VTP-43742 demonstrated superior efficacy in a preclinical model reduces clinical risk and may suggest potential for best-in-class, in our view.** Cosentyx was recently approved in the US (add-on) and in the EU (front-line). We believe VTP-43742, if approved, could become the preferred treatment for psoriasis given its potential oral once-daily dosing profile and superiority to anti-IL-17A mAb in preclinical studies. We anticipate data release from the Phase 1 trial of VTP-43742 in mid:15 and results from the Phase 1 PoC trial in psoriasis patients by year-end. We believe robust reduction in serum inflammatory biomarkers, specifically IL-17A, could provide positive read-through for PoC efficacy. We consider the positive preclinical comparison to an approved product as an indicator of potential clinical success and have included VTP-43742 in our price target.

**Figure 3 : PIPELINE VALUATION**

| Vitae Product Pipeline Valuation | | Eligible # | Pricing | Gross Sales | | Net Revs | Peak | | Estimated / Actual | Discount | Estimate | Fair Value |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Product | Indication | Patients | $/Patient | ($000) | Year | ($000) | Penetration | Multiple | Launch | Rate | Fair Value | per Share |
| VTP-34072 (WW) | Diabetes / Metabolic Syndrome | 67,152,070 | $1,952 | $2,428,129 | 2025 | $615,346 | 2% | 4 | 12/4/2019 | 30% | $236,416 | $10.81 |
| VTP-37948 (WW) | Alzheimer's Disease | 8,730,000 | $5,226 | $4,318,067 | 2026 | $910,566 | 10% | 3 | 9/4/2020 | 30% | $207,371 | $9.48 |
| VTP-43742 (WW) | Psoriasis | 609,167 | $4,978 | $369,925 | 2027 | $144,635 | 11% | 2 | 11/4/2020 | 30% | $19,439 | $0.89 |
| VTP-43742 (WW) | MS | 857,143 | $49,683 | $4,405,808 | 2025 | $1,830,916 | 8% | 2 | 11/4/2020 | 30% | $124,839 | $5.71 |
| VTP-38443 (WW) | ACS | 600,000 | $30,500 | $754,409 | 2028 | $274,449 | 4% | 1 | 12/4/2021 | 30% | $8,620 | $0.39 |
| VTP-38543 (WW) | Atopic Dermatitis | 1,235,000 | $4,978 | $148,850 | 2028 | $50,055 | 2% | 1 | 8/4/2021 | 30% | $1,664 | $0.08 |
| We use multiples to account for clinical and regulatory risk at various stages of development. | | | | | | | | | Stock | MktCap ($000) | Upside | |
| 1: in preclinical testing | 6: in Phase 3 | | | | | 12-month Price Target | | | $21.19 | $463,225 | 45% | |
| 2: passed preclinical | 7: Phase 3 data | | | | | | Total Pipeline Value | | $27.37 | $598,349 | 88% | |
| 3: IND filing/stable mature product | 8: regulatory review | | | | | | | Current Cash | $4.75 | $85,655 | | |
| 4: Phase 1 data | 9: approved | | | | | | | Current Stockprice: | $14.57 | $262,601 | | |
| 5: Phase 2 data | 10: launched | | | | | | | | | | | |

*Source: Wedbush Securities, Inc.*

**We reiterate our OUTPERFORM rating and our price target of $21.** Our 12-month PT is a 365-day projection of our current fair value estimate calculated using a sum-of-parts with each part calculated using a 30% annual discount from peak sales of each drug/disease to present day and applying a 1-10x multiple, depending on stage of development to reflect risk.

## *RISKS TO THE ATTAINMENT OF OUR 12-MONTH PRICE TARGET*

**Clinical Risks:** Despite producing high-quality product candidates and encouraging initial clinical and preclinical data, Vitae has not completed phase-3 testing with any product candidate and, in general, the majority of clinical candidates fail. Vitae with BI are also developing a treatment for Alzheimer's disease in which the vast majority of clinical candidates have failed. Vitae is also dependent on BI for the proper development of their two lead product candidates VTP-34072 and VTP-37948. Both Vitae and BI use third parties to conduct preclinical and clinical testing which we view as higher risk as we believe third parties may be less motivated to reduce execution risk. Near-term clinical risks including data releases from the two lead programs are the highest risks to our price target at this time, in our view.

**Regulatory Risks:** Despite Vitae's management having big pharma experience, Vitae has not achieved regulatory approval for any product candidate.

**Manufacturing Risks:** On one hand, we view manufacturing risk to be lower for small molecule drug candidates versus biologics and oligonucleotides; however, Vitae relies on third parties for the manufacture of their product candidates for preclinical, clinical, and potential commercial manufacture and we view third parties as less motivated, in general. Also, if Vitae succeeds at obtaining regulatory approval for a product candidate, the current purchase order supply arrangements will need to be augmented with long-term supply arrangements. Vitae intends to also work with additional manufacturers to provide active pharmaceutical ingredients (APIs) and fill-and-finish services prior to pursuing regulatory approval. BI is responsible for the manufacture of API and fill-and-finish services for both 11β-HSD1 and BACE.

**Commercial Risks: For their unpartnered programs, Vitae anticipates retaining US commercial rights in specialty markets** and establish regional partnerships to commercialize outside the United States. At this time, Vitae does not have a sales force or marketing capabilities. For the two lead programs, Vitae expects BI to commercialize these products with their sales and marketing group.
**Competition Risks: Vitae's product candidates, if approved, will compete with currently marketed treatments** and potentially with product candidates currently in development focusing on the same mechanism of action which include: 1) 11β-HSD1 competition from Bristol-Myers Squibb, Eli Lilly & Co., and Roche Holding AG which are also testing their inhibitors in clinical trials; 2) BACE competition from Merck & Co., AstraZeneca PLC and Eisai Co., Ltd. in collaboration with Biogen Idec which are studying BACE inhibitors in clinical trials; 3) RORγt competition from potentially multiple companies which are actively assessing RORγt inhibitors in preclinical studies; and 4) LXRβ competition from Bristol-Myers Squibb which is testing an LXRβ inhibitor in cardiovascular clinical trials and Alexar Therapeutics, Inc., which is developing an LXRβ inhibitor for dermatologic conditions.
**Intellectual Property Risks:** Due to the nature of Vitae's business model, we consider intellectual property risks to be low as the company discovers its own product candidates and has composition-of-matter protection to 2030 and beyond.
**Financial Risks:** Vitae is a development-stage emerging pharmaceutical company and, despite receiving substantial partnership income from Boehringer Ingelheim, they have no product sales or royalty income and are unlikely to before late 2019. In January of 2015 Vitae completed a follow-on raising ~ $38.6MM in cash and cash equivalents. With the addition of cash from the follow-on, we project the company has $86.4MM in cash, providing cash runway into Q1 2017.

***Analyst Biography***

*Ms. Moussatos is a Managing Director, Equity Research responsible for the coverage of stocks in the Emerging Pharmaceuticals sector. Liana joined Wedbush from Pacific Growth Equities where she was a Senior Research Analyst. Prior to that she came from UBS Global Asset Management where she was Director and Portfolio Manager of the UBS Global Biotech Funds for five years. Previously Liana was with Bristol-Meyers Squibb where she was a manager in University and Government Licensing External Science and Technology and she also worked with Sloan-Kettering Cancer Institute in the Office of Industrial Affairs and the National Cancer Institute in the Office of Technology Development.*

*Liana received a B.S. in Entomology and a M.S. in Zoology and Biochemistry from Clemson University and a Ph.D. in Plant Pathology from the University of California Davis and completed a postdoctoral research fellowship in Cellular and Molecular Physiology at the Yale School of Medicine.*

*Liana's Edge: Liana's industry and buy-side experience provide depth in her understanding of what investors need to know along with her 13 years' experience in following healthcare stocks. Her pipeline valuation includes all drug candidates / disease indications in active development and provides investors with a stock value for each program.*

**Analyst Certification**
I, Liana Moussatos, 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/DisclosureQ414.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, 2014)** | **Investment Banking Relationships (as of December 31, 2014)** |
|---|---|
| Outperform:58%<br>Neutral: 39%<br>Underperform: 3% | Outperform:19%<br>Neutral: 2%<br>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 February 2, 2015**

| Company | Disclosure |
|---|---|
| Vitae Pharmaceuticals | 1,3,4,5,7 |

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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.
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4. WS has received compensation for investment banking services within the last 12 months.
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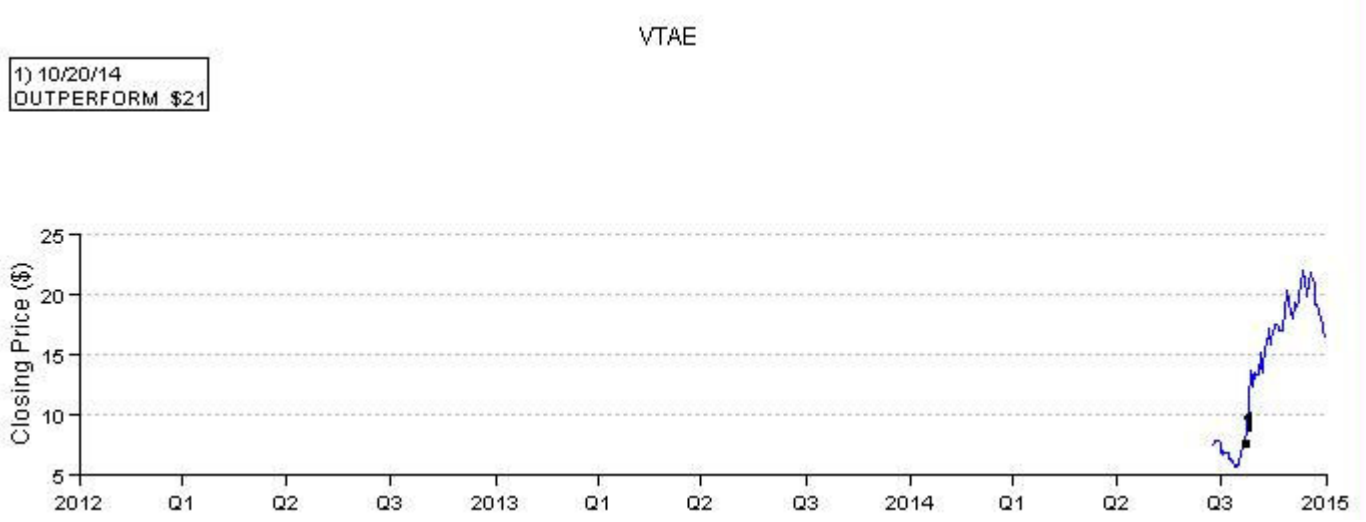


* WS changed its rating system from (Strong Buy/Buy/Hold/Sell) to (Outperform/ Neutral/Underperform) on July 14, 2009.
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