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Healthcare | U.S. Biotechnology

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Achillion Pharmaceuticals

Initiated Underweight

Could have solid data from SPARTA and ITHACA in 2H15, but the hepatitis C market has fundamentally changed. Data for ACH-3422 and 3102 have been solid to date and all-oral doublet and triplet phase 2 data are coming in 2H15. That said, in the next 12-18 months, Merck should launch (grazoprevir/elbasvir), Gilead should launch (GS-5816/Sovaldi) and AbbVie could be in late stages with a next-gen regimen (ABT-493/ABT-530). In our view, the current and upcoming hep C landscape provides little opportunity for Achillion to meaningfully differentiate. In addition, the opportunity to take share by discounting seems dramatically diminished given the current pricing environment in hep C. With these two concerns in mind, along with the concerns on durability of the overall hep C market, we don't imagine that Achillion will emerge as strategically attractive even if hep C combinations with '3422 or '3102 look viable. Accordingly, we're initiating coverage with an Underweight rating and an $8 target.

Encouraging data so far from the proxy study of ACH-3102 + Gilead's Sovaldi. Clearly, 100% cure rates at 6 and 8 weeks is impressive, but the patient numbers in this phase 2 were small and need to be further validated in the SPARTA (ACH-3422/ACH-3102 +/- sovaprevir) and ITHACA (ACH-3102/sovaprevir/Gilead's Sovaldi) trials. Notably, Gilead's Harvoni/GS-9491 combo has already shown high cure rates at 6 weeks, which could limit differentiation for Achillion and a 4-week high cure rate is a very difficult hurdle, in our view. So even with compelling data from some elements of SPARTA/ITHACA, Achillion is still meaningfully behind competitors in a hep C market that will become even more competitive in the next 1-2 years.

Risk/reward looks unattractive. Our SOTP NPV analysis yields a value of $8/sh, which implies a 2018 launch and peak US/EU sales of ~$1B. By 2018, the hep C market should look dramatically different with a much smaller eligible population (at least in the US) and even shorter, high viral cure regimens for Gilead and Merck and perhaps AbbVie. Our thesis is that Achillion is likely to get left behind even with solid clinical data; a takeout may be one of the only sources of longer-term upside potential, and one seems less likely given the current dynamics of the hep C market.

ACHN: Quarterly and Annual EPS (USD)

	2013	2014			2015			Change y/y	
FY Dec	Actual	Old	New	Cons	Old	New	Cons	2014	2015
Q1	-0.14A	-0.17A	-0.17A	-0.17A	-0.16E	-0.16E	-0.19E	-21%	6%
Q2	-0.21A	-0.16A	-0.16A	-0.16A	-0.17E	-0.17E	-0.20E	24%	-6%
Q3	-0.14A	-0.16A	-0.16A	-0.16A	-0.17E	-0.17E	-0.20E	-14%	-6%
Q4	-0.14A	-0.16E	-0.16E	-0.18E	-0.18E	-0.18E	-0.21E	-14%	-12%
Year	-0.63A	-0.64E	-0.64E	-0.66E	-0.68E	-0.68E	-0.85E	-2%	-6%
P/E	N/A		N/A			N/A			

Source: Barclays Research.
Consensus numbers are from Thomson Reuters

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PLEASE SEE ANALYST CERTIFICATION(S) AND IMPORTANT DISCLOSURES BEGINNING ON PAGE 17.

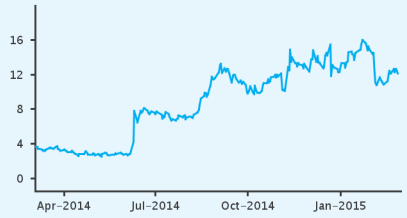
Stock Rating	UNDERWEIGHT Unchanged
Industry View	POSITIVE Unchanged
Price Target	USD 8.00 Unchanged

Price (02-Mar-2015)	USD 12.35
Potential Upside/Downside	-35%
Tickers	ACHN

Market Cap (USD mn)	1386
Shares Outstanding (mn)	112.25
Free Float (%)	99.78
52 Wk Avg Daily Volume (mn)	5.8
52 Wk Avg Daily Value (USD mn)	60.16
Dividend Yield (%)	N/A
Return on Equity TTM (%)	-42.79
Current BVPS (USD)	1.19

Source: Thomson Reuters

Price Performance	Exchange-Nasdaq
52 Week range	USD 16.87-2.45



Link to Barclays Live for interactive charting

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U.S. Biotechnology **Industry View: POSITIVE**

Achillion Pharmaceuticals (ACHN)

Stock Rating: UNDERWEIGHT

Income statement ($mn)	2013A	2014E	2015E	2016E	CAGR
Revenue	0	0	0	0	N/A
EBITDA	N/A	N/A	N/A	N/A	N/A
EBIT	-59	-64	-77	-93	N/A
Pre-tax income	-59	-63	-76	-92	N/A
Net income	-59	-63	-76	-92	N/A
EPS (reported) ($)	-0.63	-0.64	-0.68	-0.82	N/A
Diluted shares (mn)	94.0	98.0	111.1	112.8	6.3%
DPS ($)	0.00	0.00	0.00	0.00	N/A

Margin and return data					Average
EBITDA margin (%)	N/A	N/A	N/A	N/A	N/A
EBIT margin (%)	N/A	N/A	N/A	N/A	N/A
Pre-tax margin (%)	N/A	N/A	N/A	N/A	N/A
Net margin (%)	N/A	N/A	N/A	N/A	N/A
ROIC (%)	N/A	N/A	N/A	N/A	N/A
ROA (%)	N/A	N/A	N/A	N/A	N/A
ROE (%)	N/A	N/A	N/A	N/A	N/A

Balance sheet and cash flow ($mn)					CAGR
Tangible fixed assets	N/A	N/A	N/A	N/A	N/A
Intangible fixed assets	N/A	N/A	N/A	N/A	N/A
Cash and equivalents	122	164	225	132	2.8%
Total assets	162	168	229	137	-5.6%
Short and long-term debt	0	0	0	0	0.0%
Other long-term liabilities	9	9	9	9	0.0%
Total liabilities	9	9	9	9	0.0%
Net debt/(funds)	N/A	N/A	N/A	N/A	N/A
Shareholders' equity	153	159	220	127	-5.9%
Change in working capital	N/A	N/A	N/A	N/A	N/A
Cash flow from operations	-54	-63	-76	-92	N/A
Capital expenditure	0	0	0	0	N/A
Free cash flow	N/A	N/A	N/A	N/A	N/A

Valuation and leverage metrics					Average
P/E (reported) (x)	N/A	N/A	N/A	N/A	N/A
EV/EBITDA (x)	N/A	N/A	N/A	N/A	N/A
Equity FCF yield (%)	N/A	N/A	N/A	N/A	N/A
EV/sales (x)	N/A	N/A	N/A	N/A	N/A
P/BV (x)	N/A	N/A	N/A	N/A	N/A
Dividend yield (%)	0.0	0.0	0.0	0.0	0.0
Total debt/capital (%)	N/A	N/A	N/A	N/A	N/A

Selected operating metrics					Average
SG&A/sales (%)	N/A	N/A	N/A	N/A	N/A
R&D/sales (%)	N/A	N/A	N/A	N/A	N/A
R&D growth (%)	19.8	5.1	24.7	25.0	18.7
SG&A growth (%)	16.9	13.0	6.2	5.0	10.3

Source: Company data, Barclays Research
Note: FY End Dec

Price (02-Mar-2015) **USD 12.35**
Price Target **USD 8.00**

Why Underweight? Achillion may have solid phase 2 data in hep C (SPARTA/ITHACA) in 2H15 but being later to market and given the current competitive environment / pricing dynamics in hep C, the opportunity is quickly diminishing.

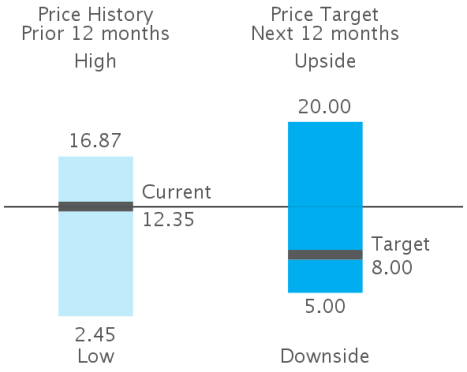
Upside case **USD 20.00**

Positive phase 2 data from the SARTA and ITHACA studies supporting advancement into phase 3.

Downside case **USD 5.00**

Delays in hep Development timelines or failure of phase 2 studies

Upside/Downside scenarios



INVESTMENT THESIS

Achillion has been active in the hep C space for a number of years and is one of the few SMid caps in hep C that has not been acquired. Indeed, over the past few years, we've witnessed the $11B acquisition of Pharmasset by Gilead, the $4B acquisition of Idenix by Merck and the $2.5B acquisition of Inhibitex by Bristol. Clearly, the hep C market is far different today with what many expect to be a peak year for treated patients in the US (or in 2016 at the latest) and with acute competition between Gilead and AbbVie which led to materially higher discounts than expected. When Merck reaches the US market in 2016, the competition for patients will be intense, which provides a particularly high hurdle for Achillion, looking to their expected launch in 2018.

Our Underweight thesis does not reflect concern on the clinical data so far for ACH-3422 or ACH-3102. Indeed, the high viral cure rates have been impressive at 6 and 8 weeks. But looking forward, these have to be validated in larger phase 2 studies in SPARTA and ITHACA. For ITHACA, we doubt that investors will attribute a lot of value to the data that is Achillion-specific, given the inclusion of Gilead's Sovaldi in the regimen and uncertainty as to which drug is driving efficacy. Clearly, the SPARTA studies, which feature Achillion's wholly-owned assets, should be the focal point when data become available in 2H15. Given the negative regulatory history with sovaprevir, we're not confident that combinations with this PI will yield clean data. Hence, the primary value driver will likely be the phase 2 data for the ACH-3422 / ACH-3102 combo, where very high viral cure rates have already been seen in shorter interval studies (6 weeks) of Gilead's Harvoni/GS-9491.

What our Underweight thesis does reflect is a fundamental shift in the hep C market, which creates a high development hurdle for Achillion as well as a high commercial hurdle. On the development side, the absence of IFN/RBV from any regimen is nearly a necessity as is a >95% viral cure rate in 12 weeks or less. In addition, there is little tolerance for any safety issues. So overall, we argue that even if data are compelling in SPARTA/ITHACA, there is still a lot of work ahead in a larger phase 3 program; and, notably, the 'big 3' (Gilead, AbbVie and Merck) are already developing next-gen regimens (pan-genotypic, shorter duration, less complexity, etc.) which should continue to move the bar higher in hep C. From a commercial standpoint, the fact that pricing has already compressed (largely due to AbbVie's willingness to discount), removes what could have been a viable strategy for Achillion, being later to market behind Gilead, AbbVie and Merck.

We do not ascribe much value to Achillion's complement-related assets, given their early stage (preclinical with phase 1 starting in 4Q15) and Alexion's meaningful competitive advantage in this market. So, short of a takeout (which is unlikely in our view) we do not see a fundamental reason to be bullish on Achillion shares. Hence, we're launching coverage with an Underweight rating and an $8 target.

RISKS TO RATING AND PRICE TARGET

Clinical Risk

Achillion's pipeline of hep C drugs is primarily in early to mid stage development. Data to date has been positive in monotherapy studies and a combination proxy study. The next step is data from wholly owned combinations in phase 2 followed by confirmation in phase 3. Despite encouraging early data, Achillion could fail to develop a competitive hep C regimen, resulting in pressure on ACHN's shares. Conversely, very encouraging data in hep C is a downside risk to our Underweight rating.

Regulatory Risk

Assuming positive phase 3 data for a double or triple combination in hep C, the next step would be regulatory filing. However, there is no guarantee that the FDA or EMA will grant approval of the combination regimen. Delays in approval or an inability to gain approval would result in significant pressure on ACHN shares.

Commercial Risk

Achillion is focused on developing treatments for hep C. However, hep C is a highly competitive market with multiple approved regimens already and others in development well ahead of Achillion. With multiple competitive regimens available ahead of Ahillion's potential regimen, gaining meaningful market share could be challenging and sales could be disappointing.

Pricing Risk

The high price of hep C drugs has recently become a target for payor pushback. Indeed, discounts have been as high as 40%+, compared to industry standards in the 15-20% range. The approval of additional regimens such as Merck's could lead to additional discounting. If pricing power continues to erode in hep C, Achillion's future revenue opportunity could be negatively impacted.

Financial Risk

Achillion ended 3Q14 with ~$127M in cash and cash equivalents and recently raised ~$135M net in February through a secondary financing. Current cash is expected to support operations into early 2017. However, the company continues to burn cash and thus may need to raise capital in the future, which could dilute shareholdings.

VALUATION

NPV Sum-of-the-Parts Primary Valuation Measure

Our price target of $8 for ACHN is based on a sum-of-the parts NPV analysis (Figure 1); a table of comparable biotechs is also provided for reference (Figure 2). We conservatively forecast U.S. sales and OUS royalties in hep C to patent expiration in 2035 and assume no terminal value. We use a discount rate of 12.5%, which we believe appropriately reflects the risk of Achillion's hep C program. We derive a value of $7/share for hep C. This combined with net cash of $1/share results in a total NPV of $8/share.

FIGURE 1

Achillion Sum-of-the Parts NPV

NPV	Total ($M)	Per Share ($)
US hep C	$604	$6
EU hep C	$149	$1
Net Cash	$150	$1
Total Value	**$904**	**$8**

Source: Barclays Research estimates

FIGURE 2

Biotech Comp Table

Company	Ticker	Rating	Share Price	Market Cap ($B)	Revenues ($B)			CAGR	EPS			CAGR	P/E	
					2014E	2015E	2016E	(14-16E)	2014E	2015E	2016E	(14-16E)	(2015E)	(2016E)
Alexion	ALXN	OW	$ 184.62	$ 37.3	$2.2	$2.6	$3.3	21%	$5.21	$5.75	$7.45	9%	32.1x	24.8x
Amgen	AMGN	EW	$ 159.63	$ 121.1	$20.1	$20.9	$21.6	4%	$8.70	$9.24	$10.45	5%	17.3x	15.3x
Biogen	BIIB	OW	$ 415.79	$ 97.6	$9.7	$11.3	$12.8	15%	$13.84	$17.20	$19.90	10%	24.2x	20.9x
Celgene	CELG	EW	$ 120.31	$ 96.3	$7.7	$9.2	$11.2	21%	$3.71	$4.85	$6.25	14%	24.8x	19.2x
Gilead	GILD	OW	$ 103.83	$ 154.6	$24.9	$29.3	$32.0	13%	$8.08	$10.00	$11.50	9%	10.4x	9.0x
Regeneron	REGN	EW	$ 418.44	$ 41.7	$2.8	$3.6	$4.4	24%	$10.00	$10.00	$11.50	4%	41.8x	36.4x
Vertex	VRTX	EW	$ 120.17	$ 29.1	$0.6	$1.1	$2.9	125%	-$2.17	-$0.55	$6.25	NA	NA	19.2x
Achillion	ACHN	UW	$ 12.35	$ 1.4	$0.0	$0.0	$0.0	NA	-$0.64	-$0.68	-$0.82	NA	NA	NA
Alnylam	ALNY	OW	$ 105.40	$ 8.8	$0.1	$0.0	$0.0	NA	-$4.85	-$3.04	-$3.75	NA	NA	NA
Chimerix	CMRX	OW	$ 40.48	$ 1.6	$0.0	$0.0	$0.1	314%	-$2.10	-$1.20	-$0.25	NA	NA	NA
Enanta	ENTA	EW	$ 35.86	$ 0.7	$0.0	$0.2	$0.2	86%	$2.18	$5.40	$4.05	17%	6.6x	8.9x
Ironwwood	IRWD	EW	$ 15.87	$ 2.0	$0.1	$0.2	$0.3	96%	-$1.39	-$0.66	$0.05	NA	NA	NA
Medivation	MDVN	OW	$ 121.05	$ 9.5	$0.7	$0.9	$1.1	24%	-$0.09	$1.95	$4.50	NA	62.1x	26.9x
Neurocrine	NBIX	OW	$ 40.43	$ 3.4	$0.0	$0.0	$0.0	NA	-$0.81	-$1.22	-$1.59	NA	NA	NA
PTC	PTCT	OW	$ 70.29	$ 2.3	$0.0	$0.0	$0.1	116%	-$2.97	-$5.92	-$5.43	NA	NA	NA
United	UTHR	EW	$ 155.42	$ 7.3	$1.3	$1.5	$1.6	12%	$6.28	$9.10	$10.75	14%	17.1x	14.5x
Average (ALXN, AMGN, BIIB, CELG, GILD, REGN)								16%				8%	25.1x	20.9x
Average (AMGN, CELG, BIIB, GILD)								**13%**				**9%**	**19.2x**	**16.1x**

Source: Barclays Research

EXECUTIVE SUMMARY

Company Overview

Achillion is focused on the discovery, development and commercialization of small molecules for infectious diseases as well as complement-related diseases (Figure 3). The most advanced compounds are those directed again hepatitis C (hep C). These include ACH-3102, sovaprevir and ACH-3422 currently in phase 2 or phase 1 development. ACH-3102 is a potent next-generation NS5A inhibitor that has demonstrated pan-genotypic activity and an enhanced resistance profile compared to first-generation NS5A inhibitors. Sovaprevir is a protease inhibitor (PI) that was previously on FDA clinical hold due to concerns related to elevations in liver enzymes. ACH-3422 is a nucleotide inhibitor (nuc) that has demonstrated potent proof-of-concept data. As such, Achillion has a wholly-owned pipeline consisting of three hep C drugs each with different mechanisms of action that can be combined in double and triple combinations.

Beyond hep C, Achillion is also developing complement factor D inhibitors for the treatment of various complement-mediated orphan diseases which are in preclinical development; these include oral agents that have the potential for use in paroxysmal nocturnal hemoglobinuria (PNH), acute hematologic uremic syndrome (aHUS), myasthenia gravis (MG), neuromyelitis optica (NMO) and multiple sclerosis (MS). A topical formulation could be used for the treatment of age related macular degeneration (AMD).

FIGURE 3
Achillion's Pipeline

Drug	Indication	Pre-clinical	Ph1	Ph2	Ph3	Approved
ACH-3102 (NS5A)	Hep C					
Sovaprevir (protease inhibitor)	Hep C					
ACH-3422 (nucleotide inhibitor)	Hep C					
ACH-CFDIS (complement Factor D inihibitors)	PNH, aHUS, MG and Dry AMD					

Source: Company reports

Upcoming Milestones

We expect continued pipeline progress in 2015 (Figure 4). Indeed, initiation of multiple phase 2 combination studies in hep C (SPARTA and ITHACA) are expected in 1H15 with interim data expected in 2H15. Specifically, SVR4 data from the double combination arm (ACH-3422 + ACH-3102) of the SPARTA study as well as the ITHACA triple combination arm (ACH-3102 + sovaprevir + sofosbuvir) for 4 weeks are expected. The SPARTA study will provide insights into the competitive profile of Achillion's wholly owned nuc/NS5A combo. The ITHACA study is using Gilead's nuc (sofosbuvir) as a substitute for ACH-3422 that will serve as a proxy for the potential of its wholly owned triple combo. Of note, a multiple dose PK study of the wholly owned triple combination (ACHN-3102 + sovaprevir + ACH-3422) is expected to begin in 2H15. Additionally, a phase 1 study for the complement factor D program is expected to begin in 4Q15.

FIGURE 4

Achillion's Upcoming Milestones

Timing	Drug	Event	Importance
1H15	ACH-3422	Presentation of phase 1 proof-of-concept study	Medium
1H15	ACH-3422 + ACH-3102	Initiation of phase 2 SPARTA double combination	Low
1H15	ACH-3102 + sovaprevir + sofosbuvir	Initiation of 4 wk phase 2 ITHACA triple combination	Low
2H15	ACH-3422 + ACH-3102	SVR4 data from phase 2 SPARTA double combination	High
2H15	ACH-3102 + sovaprevir + sofosbuvir	SVR4 data from phase 2 ITHACA triple combination	High
2H15	ACH-3102 + sovaprevir + ACH-3422	Initiation of multi dose PK study	Low
4Q15	Factor D	Initiation of phase 1 study	Low

Source: Company reports and Barclays research

KEY FUNDAMENTAL CONSIDERATIONS

Hepatitis C (Hep C)

Treatment Landscape - A Brief Review

The rapid evolution of the hep C therapeutic landscape is, in our view, without precedent. The hep C virus was discovered in the late 1980s and traditionally, the standard of care has been the combination of interferons (IFN; weekly injections) and ribavirin (RBV; 2x daily) for 24 or 48 weeks. However, this combination was poorly tolerated and resulted in cure rates of ~50% in GT1 patients.

More recently, meaningful improvements in the treatment paradigm were made with the introduction of direct acting antivirals (DAA). Indeed in 2011, Vertex's Incivek and Merck's Victrelis were approved for hep C. These agents were added to the standard of care, (IFN + RBV) improving cure rates to ~70% in GT1 patients. However, considerable room remained for further improvement as these regimens remained poorly tolerated, inconvenient and left ~30% of patients relapsing. The introduction of Gilead's Sovaldi just over a year ago was a major innovation as it reduced the treatment duration to 12 weeks from 24 weeks and improved cure rates to >90%, but was still used as an add-on to IFN + RBV in GT1 patients. This left more room for additional improvements.

Approval of Gilead's Harvoni, a single once-daily combination of Sovaldi (nuc) + ledipasvir (NS5A) provided further improvements. Indeed, Harvoni is more convenient (all oral once daily), free of IFN/RBV and reduces the treatment duration to as little as 8 weeks in some patients, while maintaining cure rates >90%. Two months later AbbVie's Viekira Pak (paritaprevir + ritonavir + ombitasvir + dasabuvir) an all-oral, IFN-free regimen that can be dosed for as low as 12 weeks with cure rates similarly >90% in GT1 hep C patients was approved.

We view Gilead's Harvoni as the regimen to beat in GT1. With respect to efficacy and safety Harvoni and Viekira Pak are largely comparable (Figure 5). However, Harvoni has some notable advantages including greater convenience (1 pill once daily vs. 4-8 pills daily), a shorter treatment duration (8-12 wks vs. 12-24 wks) without the need for RBV (vs. need for RBV except in GT1b non-cirrhotic patients). These profile differences have driven a preference for Harvoni relative to Viekira among physicians.

FIGURE 5
Key Approved Hep C Regimens

Company	Treatment	Study	Population	Regimen	Duration	SVR
AbbVie / Enanta	Viekira Pak	SAPPHIRE- I	GT1a/b naïve non-cirrhotic	paritaprevir/r + ombitasvir + dasabuvir + RBV	12 weeks	96%
		PEARL-III	GT1b naïve	paritaprevir/r + ombitasvir + dasabuvir +/- RBV	12 weeks	99%/99%
		PEARL- IV	GT1a naïve	paritaprevir/r + ombitasvir + dasabuvir +/- RBV	12 weeks	90%/97%
		SAPPHIRE- II	GT1a/b experienced cirrhotics/non-cirrhotic	paritaprevir/r + ombitasvir + dasabuvir + RBV	12 weeks	96%
		PEARL-II	GT1b experienced	paritaprevir/r + ombitasvir + dasabuvir + RBV	12 weeks	100%/97%
Gilead	Harvoni	ION-3	GT1 naïve non-cirrhotic	sofosbuvir + ledipasvir	8 weeks	94%
		ION-1	GT1 naïve cirrhotics/non-cirrhotic	sofosbuvir + ledipasvir	12 weeks	98%
		ION-2	GT1 experienced cirrhotics/non-cirrhotic	sofosbuvir + ledipasvir	12 weeks	94%
		ION-2	GT1 experienced cirrhotics/non-cirrhotic	sofosbuvir + ledipasvir	24weeks	99%

Source: Company reports

Development Strategy

As noted above, the treatment of hep C has evolved rapidly. Currently approved regimens are very robust providing SVR rates >90% with clean safety profiles and treatment durations of only 8-12 weeks. That said, one of the remaining opportunities for improvement includes shorter treatment durations. Indeed, Achillion's goal is to develop a short duration, effective, and convenient regimen. Achillion has three wholly owned DAAs in early to mid stage development consisting of a nuc (ACH-3422), NS5A (ACH-3102) and PI (sovaprevir; Figure 6). Achillion plans to explore double and triple combinations of these DAAs with focus on reduce treatment durations to 4-6 weeks, while maintaining competitive cure rates >95% and a clean safety profile.

FIGURE 6
Achillion's Hep C Pipeline and Status

	ACH3422	ACH-3102	Sovaprevir
Mechanism	Nuc	NS5A	PI
Stage of Development	1b	2	2
Patients Treated	>100	>440	>500
Results	Robust antiviral activity; 4 log10 reduction in viral load achieved	ACH-3102 + sofosbuvir for 6 wks 100% SVR12	ACH-3102 + Sovaprevir <25IU/ml by wk 2 GT1b - 100% SVR12
Maximum Length of Treatment	14 days	12 weeks	12 weeks
Clinical Safety	Well tolerated to date	Well tolerated to date	Well tolerated to date

Source: Company reports

We view the nuc (ACH-3422) as a key component of a hep C combination regimen. However, ACH-3422, only recently completed a phase 1 study and meaningful clinical risks remain. Of note, Gilead and Merck are also evaluating shorter duration regimens. As such, even if Achillion is successful its regimen may not be differentiated on treatment duration. Reaching the market with a potentially undifferentiated product and multiple competitors could limit the opportunity for Achillion in hep C.

Design of Phase 2 SPARTA and ITHACA Combo Studies

In 1H15, the ITHACA and SPARTA studies are expected to be initiated. The ITHACA study is largely an extension of the "proxy" study to test if 4 weeks is a viable treatment duration. The study will begin with a triple combination (ACH-3102 + sovaprevir) including Gilead's sofosbuvir for a duration of 4 weeks with data in 2H15. The ITHACA study will also evaluate the potential of a sofosbuvir-sparing triple combination with shorter durations of sofosbuvir treatment.

The SPARTA study is focused on both double and triple combinations of Achillion's wholly owned drugs. In 1H15, a double combination (ACH-3102 + ACH-3422) evaluating treatment durations of 6, 8 and 12 weeks is expected to begin with data in 2H15. SPARTA will also evaluate a triple combination (ACH-3102 + ACH-3422 + sovaprevir), but is not expected to begin until early 2016. Of note, starting the triple combination portion of SPARTA will be dependent on results from drug-drug interaction studies and PK results from the ITHACA study.

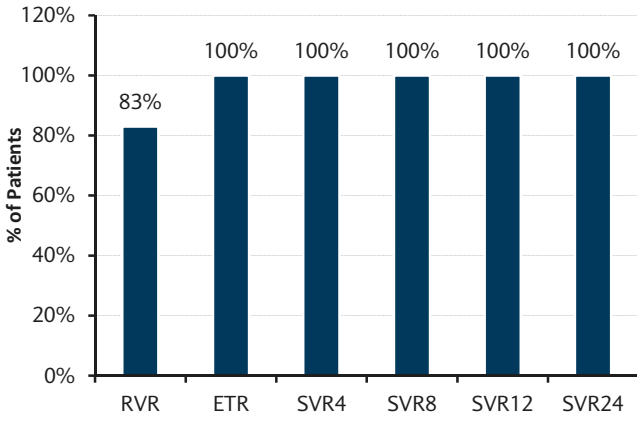
ACH-3102 (NS5A) Phase 2 Data

ACH-3102 is an NS5A inhibitor for hep C currently in a phase 2 "proxy" (Study 017) trial. The "proxy" study was designed to evaluate the potential efficacy, safety and tolerability of a NS5A/Nuc combination utilizing Gilead's nuc. Specifically, the study evaluated ACH-3102 (50mg) in combination with Gilead's sofosbuvir (400mg) in GT1 naive hep C for treatment durations of 8 week or less. Indeed, 18 patients (12 on active treatment) were enrolled into

an 8-week treatment duration arm followed by enrollment of another 18 patients (12 on active treatment) in to a shorter 6 week treatment duration arm.

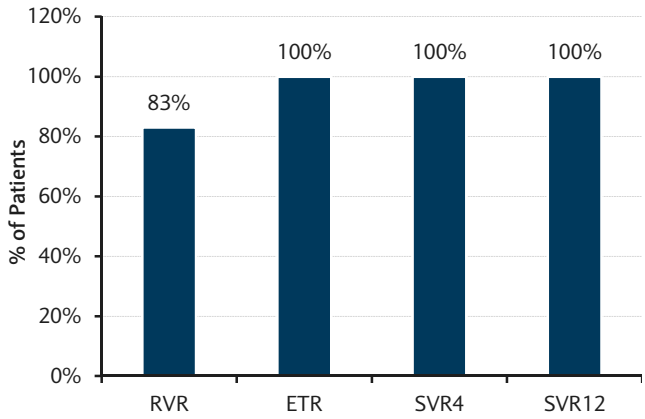
Data from the 8-week treatment arm of the "proxy" study were presented at last year's American Association of Liver Disease (AASLD) meeting in November. The combination resulted in 100% SVR12 (Figure 7). Of note, 9 of 12 patients had >6m copies/ml at baseline indicating a high viral load. This data supported enrollment of the shorter 6 week treatment duration arm. Top-line data from this study was recently updated on February 9th indicating a 100% SVR 24 for the 8 week arm and 100% SVR12 for the 6 week arm (Figure 8). Similarly patients in the 6 week group had high viral loads at baseline with 7/12 patient having >6m copies/ml. Importantly, no on treatment viral breakthroughs or post treatment viral relapses were observed. The combination was also well tolerated with no SAEs, no discontinuations due to AEs and no clinically significant laboratory or ECG abnormalities.

FIGURE 7
Phase 2 Proxy (Study -017) Data 8 Week Duration



Source: Company reports

FIGURE 8
Phase 2 Proxy (Stduy-017) Data 6 Week Duration



Source: Company reports

Overall, data from the "proxy" (Study 017) study is encouraging demonstrating 100% SVR12 with a short 6 week duration of treatment despite high viral loads at baseline. However, Achillion will need to confirm these results in the phase 2 SPARTA study of its own nuc (ACH-3422) in combination with ACH-3102 for 6 weeks expected to begin in 1H15. Recall, among currently approved hep C regimens the shortest duration of treatment is 8 weeks. That said, other companies are also investigating treatment durations below 8weeks. Indeed, Gilead's triple combination of sofosbuvir + ledipasvir + GS-9491 has demonstrated 100% SVR with only 6 weeks of treatment. A Merck study evaluating the triple combination of sofosbuvir + MK-5172 + MK-8742 resulted in only 87% SVR with 6 weeks of therapy. While multiple trials are ongoing it remains to be seen how short the duration of hep C treatment can go and multiple regimens could be available with durations below 8 weeks.

ACH-3422 (nuc) Phase 1 Data

ACH-3422 is a nucleotide pro-drug of a uridine analog for hep C expected to enter phase 2 development shortly. A phase 1b proof-of-concept study evaluated the safety, tolerability, PK and antiviral activity. Doses ranged from 50mg to 700mg of ACH-3422 in single ascending dose cohorts followed by multiple ascending dose cohorts for 14 days in GT1 naive hep C. Patients received 50mg, 150mg and 300mg for seven days or 500mg and 700mg for 14 days.

Top-line data, provided in December 2014, indicated that ACH-3422 produced a linear dose dependent reduction in viral load over the dosing period. Specifically, in the 700mg group a mean maximal viral load reduction of 4.8 log_{10} at IU/ml within 14 days with 50% (3/6) of patients undetectable. Of note, between days 7-14 and additional 1.4 log_{10} reduction in viral load was observed. Detailed data for this study could be presented at the upcoming EASL meeting (April 22-26, Vienna).

Compared to other nucs such as Gilead's sofosbuvir, the viral kinetics of ACH-3422 are somewhat unique. While the overall level of viral load reductions are comparable, the slope of the curve for ACH-3422 is flatter with continued declines over a 14 day period. Other nucs have demonstrated a steeper decline in viral load that plateaus in about half the time (6-7days). Additionally, the ACH-3422 dose is nearly 2x that of sofosbuvir (700mg vs. 400mg), However, the exposure of ACH-3422 at 700mg was 5x lower compare to 400mg of sofosbuvir. Despite the lower exposure, potent effects were observed suggesting a dose of 700mg is adequate.

All doses of ACH-3422 were well tolerated in the phase 1 study with no treatment related serious adverse events (SAE) or discontinuations due to adverse events (AEs). Importantly, no clinically significant lab abnormalities or ECG abnormalities were observed. Currently, the ACH-3422 safety data base consists of ~106 patients with maximum treatment duration of 14 days. However, a larger safety data base with a longer duration of exposure will be needed to confirm a clean safety profile.

More Hep C Competition

Competition in hep C is expected in increase over the next few years before Achillion reaches the market potentially in 2018. Indeed, by then Gilead's next generation pan-genotypic regimen (Sovaldi + GS-5816) will be available and a shorter duration triple combination regimen could also be available. Merck's double combination (grazoprevir + elbasvir) will be available and similarly a shorter duration triple combination regimen could also be available. Additionally Enanta/AbbVie's next generation double combination (ABT-493 + ABT-530) could be available.

Gilead Continues to Innovate

Gilead remains focused on improving the treatment of hep C with the goal of developing a pan-genotypic, once-daily regimen. Indeed, at the recent American Association for the Study of Liver Disease (AASLD) meeting in November 2014, encouraging phase 2 data indicated that Sovaldi (nuc 400mg) + GS-5816 (NS5A 100mg) for 12 weeks resulted in high SVR rates ranging from 88-100%. In treatment naive non-cirrhotics (Study GS-US- 342-0102) patients treated for 12 weeks >90% SVR12 was achieved in GT1-6. Of note, SVR rates were lower (88-90%) in patients treated for 8 weeks. In the ELECTRON 2 study, in naive non-cirrhotics a higher SVR rate of 96% was achieved with just 8 weeks of therapy in GT3. In treatment experienced patients treated for 12 weeks without cirrhosis 100% SVR12 was achieved in GT1 and GT3, while in cirrhotics SVR12 was 100% in GT1 and 88% in GT3. These studies also confirmed the combination of Sovaldi + GS-5816 was well tolerated.

Results from these phase 2 studies led to selection of the 100mg dose of GS-5816 (25mg dose was also tested in phase 2) and supported advancement into phase 3 trials with a co-formulated once daily regimen of Sovaldi + GS-5816 for 12 weeks. Four phase 3 trials in GT1-6 naive and experienced patients including those with cirrhosis are currently ongoing with data expected in 2H15. Data from these studies could support a simple one size fits all approach to hep C. Approval of Gilead's Sovaldi + GS-5816 regimen will be at least 1 year ahead of AbbVie/Enanta's next generation 2DAA regimen.

Gilead is also exploring the potential to reduce treatment durations below 8-12 weeks. This approach will likely require the addition of a third DAA. Indeed, data from the SYNERGY

study of Sovaldi + ledipasvir in combination with either GS-9451 (protease inhibitor) or GS-9669 (non-nuc) for 6 weeks in GT1 naive non-cirrhotics resulted in SVR12 of 100% and 95%, respectively. This study demonstrated that treatment durations as low as 6 weeks are possible. At the recent AASLD meeting, data from a separate study evaluating the same regimen of Sovaldi + ledipasvir + GS-9669 in GT1 was provided, but the duration of treatment was a longer 8 weeks and in more difficult to treat cirrhotics. Despite the longer duration, SVR12 was only 82-91%, suggesting that more potent agents may be needed to shorten the duration of therapy below 8 weeks in more difficult to treat patients. Of note, a triple combination consisting of more potent agents, Sovaldi + GS-5816 + GS-9857 (protease inhibitor) is being evaluated in a phase 2 trial with cirrhotics and non-cirrhotics for treatment durations as low as 4 and 6 weeks. In our view, reducing treatment durations to 4 weeks will be difficult, but based on prior data 6 weeks could be achievable. Shorter durations of treatment would put AbbVie/Enanta's regimens and an incremental disadvantage relative to Gilead.

Merck Emerging as Meaningful Competitor

In April 2014, Merck initiated a phase 3 program (C-EDGE) of a 2 DAA regimen consisting of grazoprevir (MK-5172, protease inhibitor) + elbasvir (MK-8742, NS5A) with and without RBV in a broad range of hep C patients. These studies are all fully enrolled with data and regulatory filings expected in 1H15. Advancement into phase 3 was supported by data from the C-WORTHY study. Indeed, this combination for 12 weeks with and without RBV resulted in SVR rates of 98% and 94%, respectively in GT1 naive, non-cirrhotics. In more difficult to treat GT1 patients with cirrhosis and prior null responders with and without RBV, SVR rates were all > 90%. At the recent AASLD meeting, updated data from the C-WORTHY study of grazoprevir + elbasvir in GT1 were provided. In HCV mono-infected patients, the combination without RBV for 12 weeks resulted in SVR12 of 98%, while the combination + RBV for 8 and 12 weeks resulted in SVR12 of 80% and 93%, respectively. In HIV/HCV co-infected patients the combination for 12 weeks resulted in SVR12 of 97% with RBV and 87% without RBV.

Merck is also developing a 3 DAA regimen with the goal of shortening treatment durations. At the recent AASLD meeting, data from C-SWIFT, a proof-of-concept study evaluating the combination of grazoprevir + elbasvir + Gilead's Sovaldi (nuc) in naive, GT1 were presented. The combination resulted in SVR4/8 of 38.7% and 86.7% in non-cirrhotics for 4 and 6 weeks, respectively. In cirrhotic patients, SVR4/8 of 80% and 94.7% was achieved when treated for 6 and 8 weeks, respectively. As such, the SVR rates of the shorter 4 and 6 week durations are not competitive. Also at the meeting, phase 1/2a data for MK-3682 (nuc, formerly IDX21437) resulted in competitive viral load reductions >4.0 log10 IU/mL following 7 days of dosing at the highest 300 mg dose tested.

Based on data from the C-SWIFT and the phase 1/2a study of MK-3682, Merck plans to initiate a phase 2 C-CREST study of two triple combination regimens consisting of grazoprevir + elbasvir + MK-3682 and grazoprevir + MK+3682 + MK-8408 (NS5A). Of note, part A of this study will evaluate a treatment duration of 8 weeks in non-cirrhotics, while part B could evaluate durations shorter than eight weeks depending on results from part A. Merck expects to initiate this study in 1Q15. Adding a nuc (MK-3682) into the combination could provide the added potency need to drive treatment durations below 8 weeks. We expect the EASL meeting later this year (April 22-26, Vienna, Austria) data from both Gilead and Merck will shed light on the viability of treatment durations below 8 weeks with their 3DAA combinations.

Enanta/AbbVie Also Working on Improvements

ABT-493 is Enanta's next generation protease inhibitor being developed under the collaboration with AbbVie. In preclinical studies, ABT-493 demonstrated an improved

virologic profile compared to that of prior generations of protease inhibitors. Additionally, ABT-493 was potent and demonstrated activity across a broad range of genotypes and key resistant PI variants (R155 and D168) as well as resistant NS5a and NS5B variants. ABT-493 also demonstrated synergistic activity when combined with ABT-530 in vitro.

At the recent American Association of Liver Disease (AASLD) meeting data from a phase 2a study of ABT-493 were presented. ABT-493 monotherapy for 3 days resulted in competitive mean maximal viral load reductions of -3.8-4.3 log10 IU/mL. The magnitude of viral load decline was similar in both non-cirrhotics and cirrhotics. AbbVie's ABT-530 resulted in mean maximal viral load reductions of -3.9-4.5 log 10 IU/mL as a monotherapy over a 3 day treatment period. Of note both ABT-493 and ABT-530 were well tolerated with few adverse events that were mostly mild in nature.

ABT-493 is currently in phase 2b trials in combination with ABT-530. The study in GT1 patients excludes RBV and is evaluating 16 week duration of treatment. The GT2/3 study is evaluating duration of 12 weeks with and without RBV. The primary endpoint for both studies is SVR 12 weeks post treatment. Enanta/AbbVie has guided to data from both these studies in 2015. According to clinicaltirals.gov data is expected in March for the GT1 study and September for the GT2/3 study.

Complement Factor D Program

Achillion is developing complement factor D inhibitors for the treatment of various complement-mediated orphan diseases. These oral inhibitors are in preclinical development. Preclinical studies have demonstrated specific inhibition of Factor D with no off target activity. In a non-human primate study, oral administration of one of the inhibitors resulted in 100% complement inhibition. These inhibitors that have the potential for use in a number of disease including, paroxysmal nocturnal hemoglobinuria (PNH), acute hematologic uremic syndrome (aHUS), myasthenia gravis (MG), neuromyelitis optica (NMO) and multiple sclerosis (MS). A topical formulation could be used for the treatment of age related macular degeneration (AMD). A phase 1 study is expected to begin in 4Q15.

FINANCIAL OUTLOOK

We assume Achillion has no sales until the launch of its hep C regimen in late 2018 (Figure 9). In hep C, we assume a modest peak penetration of 10% in GT1 patients with a price per cure of ~$40K – a 15-20% discount to price of Gilead's Harvoni. This translates into peak worldwide sales of ~$750M. We assume Achillion partners OUS and receives a 20% royalty on OUS sales.

In 2015-2017 we forecast an increase in operating expenses, driven primarily by R&D with only modest increases in SG&A. We project y/y R&D growth of 15-25% over the next three years to support advancement of the hep C program through phase 2 and phase 3. Additionally, we assume an uptick in SG&A beginning in 2017 to support the anticipated U.S. hep C launch. We project 2015-2017 GAAP EPS of -$0.68, -$0.82 and -0.95, respectively.

FIGURE 9

Achillion's Income Statement (2012A-2020E)

Barclays BioPharma > Achillion (ACHN) *Figures in $M; FY ends 12/31*	2012A	2013A	1Q14A	2Q14A	3Q14A	4Q14E	2014E	1Q15E	2Q15E	3Q15E	4Q15E	2015E	2016E	2017E	2018E	2019E	2020E
Revenue:																	
US hep C sales	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**74.3**	**319.4**	**533.7**
EU hep C sales	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**121.3**	**218.1**
Royaty on EU hep C sales	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**24.3**	**43.6**
US sales + EU royalties	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**74.3**	**343.6**	**577.3**
Other Revenue	**2.6**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**50.0**	**0.0**	**0.0**
Total Revenue	**2.6**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**124.3**	**343.6**	**577.3**
Costs & Expenses:																	
COGS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.9	31.9	53.4
R&D	**39.0**	**46.7**	**12.8**	**12.2**	**12.1**	**12.0**	**49.1**	**13.5**	**15.8**	**15.7**	**16.2**	**61.2**	**76.6**	**88.0**	**96.8**	**101.7**	**106.8**
SG&A	**10.9**	**12.7**	**3.4**	**3.6**	**3.7**	**3.7**	**14.4**	**3.7**	**3.8**	**3.9**	**3.9**	**15.3**	**16.1**	**19.3**	**38.5**	**57.8**	**69.4**
Total Operating expenses	49.9	59.5	16.2	15.8	15.8	15.8	63.5	17.2	19.6	19.6	20.1	76.5	92.6	107.3	144.3	191.4	229.5
Operating Income	**(47.3)**	**(59.5)**	**(16.2)**	**(15.8)**	**(15.8)**	**(15.8)**	**(63.5)**	**(17.2)**	**(19.6)**	**(19.6)**	**(20.1)**	**(76.5)**	**(92.6)**	**(107.3)**	**(20.0)**	**152.2**	**347.8**
Other Income (expenses), net	0.2	0.5	0.1	0.1	0.1	0.0	0.4	0.1	0.1	0.1	0.1	0.4	0.4	0.4	0.4	0.4	0.4
PreTax Income	**(47.1)**	**(58.9)**	**(16.1)**	**(15.7)**	**(15.7)**	**(15.8)**	**(63.2)**	**(17.1)**	**(19.5)**	**(19.5)**	**(20.0)**	**(76.1)**	**(92.2)**	**(106.9)**	**(19.6)**	**152.6**	**348.2**
Taxes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(17.4)
Net Income - GAAP	(47.1)	(58.9)	(16.09)	(15.7)	(15.7)	(15.8)	(63.2)	(17.1)	(19.5)	(19.5)	(20.0)	(76.1)	(92.2)	(106.9)	(19.6)	152.6	330.8
EPS - GAAP	**-0.64**	**-0.63**	**-0.17**	**-0.16**	**-0.16**	**-0.16**	**-0.64**	**-0.16**	**-0.17**	**-0.17**	**-0.18**	**-0.68**	**-0.82**	**-0.95**	**-0.17**	**1.35**	**2.93**
Diluted Shares Outstanding (million)	74.0	94.0	96.8	97.0	99.0	99.0	98.0	106.0	112.8	112.8	112.8	111.1	112.8	112.8	112.8	112.8	112.8
Margin Analysis																	
COGS (% US sales)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	12%	10%	10%
Gross Profit	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	93%	91%	91%
R&D Expenses	1496%	-	-	-	-	-	-	-	-	-	-	-	-	-	78%	30%	18%
SG&A Expenses	418%	-	-	-	-	-	-	-	-	-	-	-	-	-	31%	17%	12%
Operating Margin	-1814%	-	-	-	-	-	-	-	-	-	-	-	-	-	-16%	44%	60%
Tax Rate	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	5%
Net Margin	-1808%	-	-	-	-	-	-	-	-	-	-	-	-	-	-16%	44%	57%
Growth (Y/Y)																	
Brincidofovir WW														-	-	258%	67%
Total Sales	**955%**	**-100%**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**177%**	**68%**
R&D Expenses	10%	20%	47%	-27%	6%	19%	5%	5%	30%	30%	35%	25%	25%	15%	10%	5%	5%
SG&A Expenses	19%	17%	10%	1%	35%	10%	13%	10%	5%	5%	5%	6%	5%	20%	100%	50%	20%
Operating Profit		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-861%	128%
Net Profit		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-878%	117%
Fully-Diluted GAAP EPS		-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-878%**	**117%**

Source: Company reports and Barclays research estimates

APPENDIX

Senior Management

Milind Deshpande, Ph.D.

President and CEO

Dr. Deshpande joined Achillion in 2001 and has been President and CEO since May 2013. He joined Achillion as VP of Chemistry (September 2001), became head of Drug Discovery in April 2002, SVP and CSO in December 2004, EVP of Research and CSO in June 2007 and President of Research and development in October 2010. Prior to that Dr. Deshpande spent several years (1991-2001) at the Pharmaceutical Research Institute at Bristol-Myers Squibb as Associate Director of Lead Discovery and Early Discovery Chemistry. Prior to that he (1988-1991) he was a faculty member at the Boston University Medical School. He received a Ph.D. in Organic Chemistry from Ohio University

David Apelian, M.D.

EVP and CMO

Dr. Apleian is currently EVP and CMO. Prior to joining Achillion he was SVP of Research and Development and CMO at GlobeImmune. Prior to that Dr. Apelian was a Clinical Director in the Department of Hepatology/Gastroenterolgy at Schering Plough. He previously was also Clinical Director in the Infectious Disease Group at Bristol Myers Squibb. He received an M.D. from UMDNJ as well as a Ph.D. in Biochemistry and B.A. both from Rutgers University. He also received an MBA from Quinnipiac University.

Mary Kay Fenton

EVP and CFO

Ms. Fenton joined Achillion in October 2000 and is currently EVP and CFO. Prior to that she was a Senior Manager responsible for the life science practice in Connecticut for Price waterhouseCoopers LLP where she spent several years (1991-2000) holding various positions within the Technology Industry group. Previously, Ms. Fenton was an economic development associate in the non-profit sector. She received an MBA from the Graduate School of Business at the University of Connecticut and an AB in Economics from the College of Holy Cross.

Joseph Truitt

EVP of BD and CCO

Mr Truitt joined Achillion in January 2009 and is currently EVP of Business Development and CMO. Prior to that, he was VP of Business Development and Product Strategy at Lev. He was also VP of Sales of Operations of Johnson & Johnson's OraPharma subsidiary. He received a BS in Marketing from LaSalle University and an MBA from St. Joseph's University.

ANALYST(S) CERTIFICATION(S):

I, Geoff Meacham, Ph.D., hereby certify (1) that the views expressed in this research report accurately reflect my personal views about any or all of the subject securities or issuers referred to in this research report and (2) no part of my compensation was, is or will be directly or indirectly related to the specific recommendations or views expressed in this research report.

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Primary Stocks (Ticker, Date, Price)

Achillion Pharmaceuticals (ACHN, 02-Mar-2015, USD 12.35), Underweight/Positive, C/J

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Risk Disclosure(s)

Master limited partnerships (MLPs) are pass-through entities structured as publicly listed partnerships. For tax purposes, distributions to MLP unit holders may be treated as a return of principal. Investors should consult their own tax advisors before investing in MLP units.

Guide to the Barclays Fundamental Equity Research Rating System:

Our coverage analysts use a relative rating system in which they rate stocks as Overweight, Equal Weight or Underweight (see definitions below) relative to other companies covered by the analyst or a team of analysts that are deemed to be in the same industry (the "industry coverage universe").

In addition to the stock rating, we provide industry views which rate the outlook for the industry coverage universe as Positive, Neutral or Negative (see definitions below). A rating system using terms such as buy, hold and sell is not the equivalent of our rating system. Investors should carefully read the entire research report including the definitions of all ratings and not infer its contents from ratings alone.

Stock Rating

Overweight - The stock is expected to outperform the unweighted expected total return of the industry coverage universe over a 12-month investment horizon.

Equal Weight - The stock is expected to perform in line with the unweighted expected total return of the industry coverage universe over a 12-month investment horizon.

Underweight - The stock is expected to underperform the unweighted expected total return of the industry coverage universe over a 12-month investment horizon.

Rating Suspended - The rating and target price have been suspended temporarily due to market events that made coverage impracticable or to comply with applicable regulations and/or firm policies in certain circumstances including where the Investment Bank of Barclays Bank PLC is acting in an advisory capacity in a merger or strategic transaction involving the company.

Industry View

Positive - industry coverage universe fundamentals/valuations are improving.

Neutral - industry coverage universe fundamentals/valuations are steady, neither improving nor deteriorating.

Negative - industry coverage universe fundamentals/valuations are deteriorating.

Below is the list of companies that constitute the "industry coverage universe":

U.S. Biotechnology

Achillion Pharmaceuticals (ACHN)	Alexion Pharmaceuticals (ALXN)	Alnylam Pharmaceuticals (ALNY)
Amgen Inc. (AMGN)	Biogen Idec (BIIB)	Celgene Corp. (CELG)
Chimerix (CMRX)	Enanta Pharmaceuticals (ENTA)	Gilead Sciences (GILD)
Ironwood Pharmaceuticals (IRWD)	Medivation Inc. (MDVN)	Neurocrine Biosciences (NBIX)
PTC Therapeutics (PTCT)	Regeneron Pharmaceuticals (REGN)	United Therapeutics (UTHR)
Vertex Pharmaceuticals (VRTX)		

Distribution of Ratings:

Barclays Equity Research has 2692 companies under coverage.

43% have been assigned an Overweight rating which, for purposes of mandatory regulatory disclosures, is classified as a Buy rating; 54% of companies with this rating are investment banking clients of the Firm.

41% have been assigned an Equal Weight rating which, for purposes of mandatory regulatory disclosures, is classified as a Hold rating; 45% of companies with this rating are investment banking clients of the Firm.

14% have been assigned an Underweight rating which, for purposes of mandatory regulatory disclosures, is classified as a Sell rating; 42% of companies with this rating are investment banking clients of the Firm.

Guide to the Barclays Research Price Target:

Each analyst has a single price target on the stocks that they cover. The price target represents that analyst's expectation of where the stock will trade in the next 12 months. Upside/downside scenarios, where provided, represent potential upside/potential downside to each analyst's price target over the same 12-month period.

Top Picks:

Barclays Equity Research's "Top Picks" represent the single best alpha-generating investment idea within each industry (as defined by the relevant "industry coverage universe"), taken from among the Overweight-rated stocks within that industry. Barclays Equity Research publishes global and regional "Top Picks" reports every quarter and analysts may also publish intra-quarter changes to their Top Picks, as necessary. While analysts may highlight other Overweight-rated stocks in their published research in addition to their Top Pick, there can only be one "Top Pick" for each industry. The current list of Top Picks is available on https://live.barcap.com/go/RSL/servlets/dv.search?pubType=4526&contentType=latest.

To see a list of companies that comprise a particular industry coverage universe, please go to http://publicresearch.barclays.com.

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IMPORTANT DISCLOSURES CONTINUED

Achillion Pharmaceuticals (ACHN)

Stock Rating	Industry View
UNDERWEIGHT	**POSITIVE**

USD 12.35 (02-Mar-2015)

Rating and Price Target Chart - USD (as of 02-Mar-2015) **Currency=USD**

Date	Closing Price	Rating	Adjusted Price Target

Source: Thomson Reuters, Barclays Research

Historical stock prices and price targets may have been adjusted for stock splits and dividends.

Source: IDC, Barclays Research

Link to Barclays Live for interactive charting

C: Barclays Bank PLC and/or an affiliate is a market-maker and/or liquidity provider in equity securities issued by Achillion Pharmaceuticals or one of its affiliates.

J: Barclays Bank PLC and/or an affiliate trades regularly in the securities of Achillion Pharmaceuticals.

Valuation Methodology: Our price target of $8 for ACHN is based on a sum-of-the parts NPV analysis. We conservatively forecast U.S. sales and OUS royalties in hep C to patent expiration in 2035 and assume no terminal value. We use a discount rate of 12.5%, which we believe appropriately reflects the risk of Achillion's hep C program. We derive a value of $7/share for hep C. This combined with net cash of $1/share results in a total NPV of $8/share

Risks which May Impede the Achievement of the Barclays Research Price Target: Clinical Risk: Achillion's pipeline of hep C drugs is primarily in early to mid stage development. Data to date has been positive in monotherapy studies and a combination proxy study. The next step is data from wholly owned combinations in phase 2 followed by confirmation in phase 3. Despite encouraging early data, Achillion could fail to develop a competitive hep C regimen, resulting in pressure on ACHN's shares. Conversely, very encouraging data in hep C is a downside risk to our Underweight rating.

Regulatory Risk: Assuming positive phase 3 data for a double or triple combination in hep C the next step would be regulatory filing. However, there is no guarantee that the FDA or EMA will grant approval of the combination regimen. Delays in approval or an inability to gain approval would result in significant pressure on ACHN shares.

Commercial Risk: Achillion is focused on developing treatments for hep C. However, hep C is a highly competitive market with multiple approved regimens already and others in development well ahead of Achillion. With multiple competitive regimens available ahead of Ahillion's potential regimen, gaining meaningful market share could be challenging and sales could be disappointing.

Pricing Risk: The high price of hep C drugs has recently become a target for payor pushback. Indeed, discounts have been as high at 40%+ compared to industry standards in the 15-20% range. The approval of additional regimens such as Merck's could lead to additional discounting. If pricing power continues to erode in hep C, Achillion's future revenue opportunity could be negatively impacted.

Financial Risk: Achillion ended 3Q14 with ~$127M in cash and cash equivalents and recently raised ~$135M net in February through a secondary financing. Current cash is expected to support operations into early 2017. However, the company continues to burn cash and as such, Achillion may need to raise capital in the future, which could dilute shareholdings.

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