INITIATION **REPORT**

Merrimack Pharmaceuticals (MACK/NASDAQ)

September 27, 2012

BREAN MURRAY CARRET & CO.

Gene Mack, (212) 702-6616 Gene.Mack@bmur.com

Initiating Coverage with Buy Rating and $12 Target Price

Initiating Coverage at Buy
Target Price: $12

Investment Summary

We are initiating coverage of MACK with a Buy rating and $12 target. Our current valuation is based on MM-398 (nanoencapsulated irinotecan), which is only one of five broadly diverse clinical stage candidates MACK is currently developing. MM-398 is currently being evaluated in the pivotal Phase III trial (NAPOLI-1) as a treatment for 2nd line pancreatic cancer and is in earlier stage development for other tumor types. We expect MM-398 to launch in 2015, with global peak sales in pancreatic cancer alone reaching $800M. MACK's sophisticated Network Biology based drug development technology has led to the advancement of 5 additional drug candidates in early clincical testing. MACK has out-licensed one of these to Sanofi in a deal that we believe validates the company's proprietary development capabilities. MACK will present Phase I data for MM-121 (breast cancer) and MM-111 (advanced HER-2 positive cancer) data next week at the ESMO conference in Vienna. However, we expect investors to be mainly focused on the progress of NAPOLI-1 over the near term.

Price	$9.17
52-Week High/Low	$11.11 - 5.66
Shares Outstanding	93,719,000.00
Market Cap.	$859,403,230.00
Average Daily Volume	419,868.00

EPS	**FY11A**	**FY12E**	**FY13E**
Mar	-	$(2.14)A	-
Jun	-	$(0.22)A	-
Sep	-	$(0.24)	-
Dec	-	$(0.27)	-
FY	**$(7.67)**	**$(1.26)**	**$(0.80)**
Prior	-	-	-
Consensus	-	$(1.85)	$(0.94)
P/E	NM	NM	NM
FY Rev. (000)	$34,215	$43,407	$50,000

Source: BigCharts.com

Discussion

- MM-398 is a novel, nanotherapeutic encapsulation of irinotecan chemotherapy, which was engineered to optimize the delivery of chemotherapy by extending the half-life of the compound in the tumor microenvironment and increasing overall drug exposure. In a previous Phase II trial for MM-398, one-year survival was 25% in second line patients and median overall survival was 22.4 weeks. This activity is impressive considering the historical control for front line gemcitabine, which is associated with one-year survival ~20% and median overall survival of 6-9 months.
- In January 2012, MACK initiated the NAPOLI-1 study, a pivotal Phase 3 second-line metastatic pancreatic cancer trial in patients who have previously failed gemcitabine. NAPOLI-1 will evaluate MM-398 alone and in combination with 5-FU Leucovorin vs. 5-FU Leucovorin alone in a three arm trial (N=405) with a primary endpoint of overall survival. We believe a positive outcome would be a 2-3 month improvement in overall survival when the MM-398/5-FU Leucovorin combination is compared to 5-FU Leucovorin in second line patients. We expect MM-398 to launch in 2015, with global peak sales in pancreatic cancer alone reaching $800M.
- MACK's sophisticated Network Biology based drug development technology has led to the advancement of 5 additional drug candidates in early clincical testing. The most advanced of these compounds is MM-121, which was out-licensed to Sanofi in 2009 in a deal that could reach $530M in development and commercialization milestones plus royalties. MACK will present Phase I data for MM-121 (breast cancer) and MM-111 (advanced HER-2 positive cancer) data next week at the ESMO conference in Vienna.

Valuation

Our $12 target price for MACK shares is based on the NPV of MM-398 global revenue (discounted 20%) in pancreatic cancer alone, which we forecast will peak at $800M (see Exhibit 1). We assume orphan pricing for MM-398 peaking at $80k per course in the US with conservative peak penetration in the US (35%) and ex-U.S. (25%). MACK's early stage pipeline, which is not included in our revenue forecasts, lends significant upside to our current valuation.

Target Price Calculation and Key Risks

Our $12 target price for MACK shares is based on the NPV of MM-398 global revenue (discounted 20%) in pancreatic cancer alone, which we forecast will peak at $800M. We assume orphan pricing for MM-398 peaking at $80k per course in the US with conservative peak penetration in the US (35%) and ex-U.S. (25%). MACK's early stage pipeline, which is not included in our revenue forecasts, lends significant upside to our current valuation. Key risks to MACK shares include: (1) significant clinical failure risk of MM-398 or any of the the company's other candidates in ongoing and planned clinical trials; (2) regulatory risk stemming from FDA perception of adequate data support for approval of MM-398 in any of the indications in which it is being developed or any of the other candidates in MACK's pipeline; and (3) financial risk from disappointing outcomes to MM-121 clinical studies should Sanofi choose to end the co-development arrangement; (4) risk from failure to successfully invalidate third party patent claims in an ongoing opposition proceeding in Europe that could otherwise limit the ability of MM-121 and MM-111 to be commercialized in Europe.

Financial Review

In April 2012, MACK closed the initial public offering selling 15 million shares of common stock at a price of $7 per share. Gross proceeds from the IPO totaled $105.3 million. MACK reported a net loss of $20.1 million for 2Q12, which included collaboration revenue of $12.1 million during the quarter. The majority of this revenue related to the license and collaboration agreement with Sanofi for the development and commercialization of MM-121. Research and development expenses totaled $28.8 million during 2Q12 driven largely by the development of MACK's five clinical stage candidates. These accounted for 70% of total research and development expenses or 62% of total operating expenses for 2Q12.

As of June 30, 2012, MACK had unrestricted cash and cash equivalents and investments of $106.7M, which the company expects to be sufficient to fund operations into 2H13. Our model assumes additional capital requirement of $250M that may be partially or fully offset by the $410M in downstream milestones associated with MACK's co-development agreement with Sanofi for MM-121.

Exhibit 1: MM-398 Pancreatic Cancer DCF

	2012E	2013E	2014E	2015E	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E
U.S Pancreatic cancer prevalence		33,000	33,000	33,000	33,000	33,000	33,000	33,000	33,000	33,000	33,000	33,000	33,000	33,000
Second-line (gemcitabine failures)				29,700	29,700	29,700	29,700	29,700	29,700	29,700	29,700	29,700	29,700	29,700
				-	-	-	-	-	-	-	-	-	-	-
MM-398 penetration				**10%**	**20%**	**27%**	**33%**	**33%**	**33%**	**33%**	**33%**	**33%**	**33%**	**33%**
Patients treated				2,970	5,940	8,019	9,801	9,801	9,801	9,801	9,801	9,801	9,801	9,801
monthly cost ($000)				$ 9,000	$ 9,360	$ 9,734	$ 10,124	$ 10,529	$ 10,950	$ 11,388	$ 11,843	$ 12,317	$ 12,810	$ 13,322
avg. duration of therapy (months)				2.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
annual cost ($000) based on duration				$ 18,000	$ 37,440	$ 48,672	$ 50,619	$ 52,644	$ 54,749	$ 56,939	$ 59,217	$ 61,586	$ 64,049	$ 66,611
MM-398 US pancreatic revenue ($mil)				$ 53.46	$ 222.39	$ 390.30	$ 496.12	$ 515.96	$ 536.60	$ 558.06	$ 580.39	$ 603.60	$ 627.74	$ 652.85
				$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
MM-398 Revenue				$ 53	$ 222	$ 390	$ 496	$ 516	$ 537	$ 558	$ 580	$ 604	$ 628	$ 653
NI margin				55.0%	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%
Net income from MM-398		$ -	$ -	$ 29	$ 145	$ 254	$ 322	$ 335	$ 349	$ 363	$ 377	$ 392	$ 408	$ 424
discount	20%													
NPV	$740.85													
sharess outstanding	90													
NPV of MM-398net margin	$8													

	2012E	2013E	2014E	2015E	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E
ex-U.S Pancreatic cancer prevalence		-	33,000	33,000	33,000	33,000	33,000	33,000	33,000	33,000	33,000	33,000	33,000	33,000
Second-line (gemcitabine failures)				29,700	29,700	29,700	29,700	29,700	29,700	29,700	29,700	29,700	29,700	29,700
				-	-	-	-	-	-	-	-	-	-	-
MM-398 penetration				**5%**	**15%**	**22%**	**25%**	**25%**	**25%**	**25%**	**25%**	**25%**	**25%**	**25%**
Patients treated				1,485	4,455	6,534	7,425	7,425	7,425	7,425	7,425	7,425	7,425	7,425
monthly cost ($000)				$ 7,650	$ 7,421	$ 7,198	$ 6,982	$ 6,772	$ 6,569	$ 6,372	$ 6,181	$ 5,996	$ 5,816	$ 5,641
avg. duration of therapy (months)				2.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
annual cost ($000) based on duration				$ 15,300	$ 29,682	$ 35,989	$ 34,910	$ 33,862	$ 32,847	$ 31,861	$ 30,905	$ 29,978	$ 29,079	$ 28,206
MM-398 pancreatic revenue ($mil)				$ 22.72	$ 132.23	$ 235.15	$ 259.20	$ 251.43	$ 243.89	$ 236.57	$ 229.47	$ 222.59	$ 215.91	$ 209.43
				$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
MM-398 Revenue				$ 23	$ 132	$ 235	$ 259	$ 251	$ 244	$ 237	$ 229	$ 223	$ 216	$ 209
NI margin				55.0%	55.0%	65.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%
Net income from MM-398				$ 12	$ 73	$ 153	$ 181	$ 176	$ 171	$ 166	$ 161	$ 156	$ 151	$ 147
discount	20%													
NPV	$362.98													
sharess outstanding	90													
NPV of MM-398net margin	$4													

Source: Company reports and Brean Murray, Carret & Co

Exhibit 2: Income Statement

Merrimack Pharmaceuticals

INCOME STATEMENT

Brean Murray, Carret & Co.
Gene Mack, 212.702.6616

Fiscal Period: ends Dec. 31	2010	2011	1Q	2Q	3QE	4QE	2012E	2013E	2014E	2015E
MM-398 US sales	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 53.5
MM-398 ex-US sales	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 22.7
Total WW sales MM-398	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 76.2
				-			-			
Product sales, net	-	-	-	-	-	-	-	-	-	76.2
Collaboration revenue	20.3	34.2	11.3	12.1	10.0	10.0	43.4	50.0	55.0	60.0
Other Revenue	-	-	-	-	-	-	-	-	-	-
Total Revenue	$ 20.3	$ 34.2	$ 11.3	$ 12.1	$ 10.0	$ 10.0	$ 43.4	$ 50.0	$ 55.0	$ 136.2
Cost of product sales	-	-	-	-	-	-	-	-	-	9.1
Gross Profit	*20.3*	*34.2*	*11.3*	*12.1*	*10.0*	*10.0*	*43.4*	*50.0*	*55.0*	*127.0*
Research and development	58.3	100.6	31.7	28.8	29.0	30.6	120.0	135.0	145.0	150.0
Selling, general and administrative	11.4	14.5	3.7	3.6	3.5	4.2	15.0	22.0	17.9	41.7
Contingent consideration	(0.2)									
Amortization of intangible assets	-	-	-	-	-	-	-	-	-	-
Total operating expense (including COGS)	*69.5*	*115.1*	*35.4*	*32.4*	*32.5*	*34.8*	*135.0*	*157.0*	*162.9*	*200.8*
Operating Income	(49.2)	(80.9)	(24.0)	(20.3)	(22.5)	(24.8)	(91.6)	(107.0)	(107.9)	(64.6)
Interest Income	0.1	0.1	-	-	-	-	-	-	-	-
Interest expense	(3.7)	(0.0)	-	-	-	-	-	-	-	-
Other Income/ Expense	2.7	1.2	0.6	0.2	0.0	0.0	0.8	-	-	-
net loss (gain) from non-controlling interest	0.1	0.5	0.1	0.1	0.1	0.1	0.5	-	-	-
Net Income Before Taxes	(50.1)	(79.2)	(23.3)	(20.0)	(22.4)	(24.6)	(90.3)	(107.0)	(107.9)	(64.6)
Provision for Income Taxes	-	-	-	-	-	-	-	(27.3)	(27.0)	(16.2)
Net Income After Taxes	$ (50.1)	$ (79.2)	$ (23.3)	$ (20.0)	$ (22.4)	$ (24.6)	$ (90.3)	$ (79.7)	$ (80.9)	$ (48.5)
Basic Weighted Average Shares	11.0	11.3	11.8	90.6	91.5	92.4	71.6	99.8	100.8	101.8
Diluted Weighted Average Shares	11.0	11.3	11.8	90.6	91.5	92.4	71.6	99.8	100.8	101.8
Basic EPS as-reported (GAAP)	$ (4.56)	$ (6.98)	$ (1.97)	$ (0.22)	$ (0.24)	$ (0.27)	$ (1.26)	$ (0.80)	$ (0.80)	$ (0.48)
Diluted EPS as-reported (GAAP)	$ (5.57)	$ (7.67)	$ (2.14)	$ (0.22)	$ (0.24)	$ (0.27)	$ (1.26)	$ (0.80)	$ (0.80)	$ (0.48)
Cash and Equivalents	$ 31	$ 50		$ 106			$ 49	$ 106	$ 62	$ 50

E=Estimate

Source: Company reports and Brean Murray, Carret & Co

Exhibit 3: Balance Sheet

Merrimack Pharmaceuticals
BALANCE SHEET
Brean Murray, Carret & Co.
Gene Mack, 212.702.6616

Fiscal year ends December 31	2010	2011	2012E	2013E	2014E	2015E
All $MM unless noted						
Cash, equivalents and investments	$ 30.71	$ 50.45	$ 48.77	$ 106.08	$ 62.03	$ 50.25
Accounts receivable	3.75	7.43	8.00	7.50	8.25	20.43
Deferred financing costs	-	1.95	2.00	1.50	1.65	4.09
Other current assets	1.83	5.76	6.00	1.00	1.10	2.72
Total current assets	36.29	65.59	64.77	116.08	73.03	77.49
Restricted Cash	0.38	0.38	0.38	0.38	0.38	0.38
Property and equipment, net	7.46	6.21	8.56	9.30	10.16	11.13
Other assets	0.03	0.02	0.34	0.34	0.34	0.34
Intangible assets, net	2.81	2.49	2.49	2.49	2.49	2.49
In-process R&D	7.01	7.01	7.01	7.01	7.01	7.01
Goodwill	3.61	3.61	3.61	3.61	3.61	3.61
Total assets	$ 57.58	$ 85.30	$ 87.15	$ 139.20	$ 97.01	$ 102.44
Accounts payable	1.44	4.66	4.66	4.66	4.66	4.66
Accrued expenses	7.26	12.86	12.86	12.86	12.86	12.86
Capital lease obligations	0.44					
Deferred revenue	6.46	7.71	7.71	7.71	7.71	7.71
Deferred lease benefit	0.45	0.13	13.50	31.40	32.58	40.16
Deferred tax incentives	0.27	0.76	1.35	1.57	1.63	2.01
Accrued dividends	-	-	13.50	39.25	40.72	50.20
Total current liabilities	16.33	26.10	53.57	97.44	100.15	117.60
Capital lease obligations	0.05					
Deferred revenues	67.32	78.03	78.03	78.03	78.03	78.03
Deferred lease benefits	0.10	0.02	0.02	0.02	0.02	0.02
Deferred tax incentives	0.81	1.27	10.80	12.56	13.03	16.07
Convertible preferred stock warrants	0.65	1.52	11.56	11.56	11.56	11.56
Total liabilities	85.26	106.94	153.99	199.62	202.79	223.28
Total stockholders' equity	(27.68)	(21.64)	(66.84)	(60.42)	(105.78)	(120.84)
Total equity and liabilities	$ 57.58	$ 85.30	$ 87.15	$ 139.20	$ 97.01	$ 102.44

Source: Company reports and Brean Murray, Carret & Co

Exhibit 4: Cash Flow Statement

Merrimack Pharmaceuticals
CASHFLOW
Brean Murray, Carret & Co.
Gene Mack, 212.702.6616

Fiscal year ends Dec. 31	2010	2011	2012E	2013E	2014E	2015E
All $MM unless noted						
Net income (loss) GAAP	$ (50.16)	$ (79.68)	$ (90.30)	$ (79.72)	$ (80.91)	$ (48.47)
Noncash interest expense	$ 3.67					
loss (gain) on prf stock	$ (0.10)	$ 0.86				
loss (gain) on PP&E	$ (0.03)					
Amortizaton on defered lease	$ (0.75)	$ (0.73)				
Depreciation and amortization	4.38	5.33	3.27	3.50	3.79	4.13
Stock based compensation	4.55	6.95	-	-	-	-
Changes in oper. assets and liabilities	12.07	14.92	-	-	-	-
Net operating cash flow	$ (26.37)	$ (52.82)	$ (87.03)	$ (76.22)	$ (77.12)	$ (44.34)
Capital expenditures	$ (5.03)	$ (3.75)	$ (4.12)	$ (4.53)	$ (4.99)	$ (5.49)
Investment-related transactions	-	-	-	-	-	-
Other adjustments	0.13	0.01	-	(1.41)	(1.41)	(1.41)
Net cash from investing	$ (4.90)	$ (3.74)	$ (4.12)	$ (5.95)	$ (6.40)	$ (6.90)
Equity related transactions	$ 0.29	$ 78.69	$ 100.00	$ 150.00	$ 50.00	$ 50.00
Debt-related transactions	4.17	-	-	-	-	-
Other transactions	(0.86)	(2.39)	(10.53)	(10.53)	(10.53)	(10.53)
Net cash from financing	$ 3.60	$ 76.31	$ 89.47	$ 139.47	$ 39.47	$ 39.47
Foreign currency effect						
Net change in cash	$ (27.67)	$ 19.75	$ (1.69)	$ 57.31	$ (44.05)	$ (11.78)
Cash and equivalents, at start	$ 58.39	$ 30.71	$ 50.46	$ 48.77	$ 106.08	$ 62.03
Cash and equivalents, at end	30.71	50.46	48.77	106.08	62.03	50.25
Investments, at start	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Investments, at end	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Cash and investments, at end	$ 30.71	$ 50.46	$ 48.77	$ 106.08	$ 62.03	$ 50.25

Source: Company reports and Brean Murray, Carret & Co

Merrimack's Pipeline

Merrimack's pipeline is outlined in Exhibit 5 below:

Exhibit 5: Merrimack's Pipeline

	Candidate	Description	Target	Indication	Preclinical	Phase 1	Phase 2	Phase 3
Signaling Inhibitors	MM-121	Monoclonal antibody	ErbB3	NSCLC with erlotinib (3 indications)				
				Ovarian cancer with paclitaxel (2nd line)				
				ER/PR+ breast cancer with exemestane				
				Neo-adjuvant breast cancer with paclitaxel (2 indications)				
				Multiple regimens in advanced solid tumors				
				Advanced solid tumors with cetuximab and irinotecan				
	MM-111	Bi-specific antibody	ErbB3 & ErbB2	Advanced refractory ErbB2+ cancers				
	MM-151	Oligoclonal antibody	EGFR	Refractory advanced solid tumors				
	MM-141	Bispecific tetravalent antibody	IGF-1R & ErbB3	Cancer				
	MM-131	Multispecific antibody	Undisclosed	Cancer				
Nanotherapeutics	MM-398	Nanotherapeutic	Encapsulated irinotecan	Pancreatic cancer (2nd line)				
				Colorectal cancer (MM-398 + 5-FU/LV vs. FOLFIRI)				
				Colorectal cancer (Oxaliplatin-refractory patients)				
				Glioma				
	MM-302	Antibody targeted nanotherapeutic	ErbB2 targeted encapsulated doxorubicin	Advanced ErbB2+ breast cancer				
	MM-310	Antibody targeted nanotherapeutic	Undisclosed	Cancer				

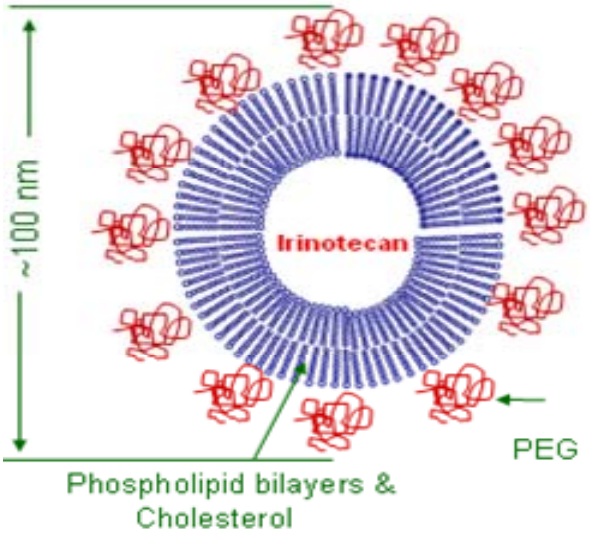
SANOFI

Source: Company reports

MM-398

MM-398 is a novel, nanotherapeutic encapsulation of irinotecan (see Exhibit 6), which is a standard chemotherapy for a number of different types of cancer, most commonly used in colorectal, lung and bone cancer). MM-398 was engineered by MACK to optimize the delivery of irinotecan by extending the time the drug is in the tumor micro environment while preferentially delivering the drug to the tumor and locally activating the drug to its active metabolite SN-38 within the tumor. In a previous Phase II trial for MM-398, one-year survival was 25% in second line patients and median overall survival was 22.4 weeks. This activity is impressive considering the historical control for front line gemcitabine, which is associated with one-year survival ~20% and median overall survival of 6-9 months.

Exhibit 6: MM-398 (nanoencapsulated irinotecan)



Source: PharmaEngine

In August 2011, FDA granted MM-398 orphan status for the treatment of pancreatic cancer. In the US, pancreatic cancer has an incidence of 33,000 and there is roughly the same number of patients in the EU. Virtually all patients will fail gemcitabine at some point, so we believe a significant number of patients would be appropriate for MM-398. Our revenue assumptions for MM-398, which are the basis of our current valuation for MACK, assume a conservative 33% penetration in the U.S. and 25% penetration in the EU. We note that single agent MM-398 was associated with a disease control rate (complete response, partial response or stable disease) of 47.5% at six weeks in a previous Phase II trial. Our model currently forecasts a 2015 launch for MM-398 with combined US/EU peak sales of $800M.

In January 2012, MACK initiated the NAPOLI-1 study (NAnoliPOsomaL Irinotecan), a pivotal Phase 3 second-line metastatic pancreatic cancer trial in patients who have previously failed gemcitabine. NAPOLI-1 was initially designed to enroll 270 patients who were to be randomized to one of two study arms comparing MM-398 versus 5-FU Leucovorin with a primary endpoint of overall survival. In June 2012, MACK included a third treatment arm that will combine MM-398 with 5-FU Leucovorin and expanded NAPOLI-1 enrollment by 135 patients, bringing total enrollment to 405 patients that will be randomized 1:1:1 to receive:

- MM-398 alone,
- MM-398 in combination with 5-FU Leucovorin, or
- 5-FU Leucovorin alone

MACK expects the MM-398 monotherapy arm to show a survival difference of approximately six-week difference compared to 5-FU Leucovorin alone and up to three month difference when the combination of MM-398 and 5-FU Leucovorin is compared to 5-FU Leucovorin alone.

MACK always intended to evaluate MM-398 in combination with 5-FU Leucovorin due to the prevalence of FOLFIRI use, of which 5-FU Leucovorin is a component. At the time of NAPOLI-1 initiation, MACK only had data for MM-398 as monotherapy. However, while NAPOLI-1 was enrolling various centers, safety data for the combination of MM-398 plus 5-FU Leucovorin became available from a Phase 2 investigator sponsored colorectal cancer study in France and was subsequently added to the protocol for NAPOLI-1. By adding the MM-398 combination arm to the NAPOLI-1 protocol, MACK believes it increases the clinical relevance of MM-398 in many oncology settings where combination treatment with standard chemotherapy is preferred. The amendment to the protocol also could provide an additional label claim

("…as monotherapy OR in combination with 5-FU Leucovorin based chemotherapy regimens") while providing additional clinical evidence to support MM-398's adoption. Finally, MACK hopes the amendment will help increase the rate of enrollment to offset any delay to the study by incorporating the change itself. MACK previously guided for NAPOLI-1 data availability in mid-2013 and the company is still evaluating how the amended protocol will impact overall timing of the study and will provide an update at a later time. We have conservatively estimated a delay of one year (mid-2014) for the Phase III trial results, which would enable a 2015 launch.

FOLFIRINOX

FOLFIRINOX is a regimen that has recently received a great amount of interest from the major academic and large medical centers following a 2011 NEJM publication of trial results from a Phase II/III trial conducted in France. A total of 342 patients with previously untreated metastatic pancreatic cancer were randomized to either FOLFIRINOX (a combination that includes: biweekly bolus plus infusional fluorouracil, leucovorin, irinotecan, and oxaliplatin) or gemcitabine monotherapy. Patients in the FOLFIRINOX treatment group benefitted from a significant and dramatic improvement in overall survival (median of 11.1 vs. 6.8 months; $P < .001$; hazard ratio for death, 0.57) and one-year survival improved to 48.4% in the FOLFIRINOX group compared to 20.6% on the gemcitabine arm.

While FOLFIRINOX achieved never-before-seen improvements in overall survival, there are other considerations that are a significant obstacle to the broad adoption of this regimen. Due to the significant toxicity of the regimen, patients enrolled onto this trial were required to have an Eastern Cooperative Oncology Group performance status of 0-1 and maximum age of 76 years. It appears that the FOLFIRINOX regimen will be limited to use in approximately 10-15% of the newly diagnosed pancreatic cancer population.

FOLFIRINOX was associated with higher rates of grade 3 and 4 toxicities than gemcitabine, including febrile neutropenia (5.4%), diarrhea (12.7%), and sensory neuropathy (9.0%). The French study also included a disproportionately low number of patients (14%) with indwelling endobiliary stents and these patients face a far greater risk of life threatening infectious complications that could be exacerbated by the significant myelosuppression caused by FOLFIRINOX.

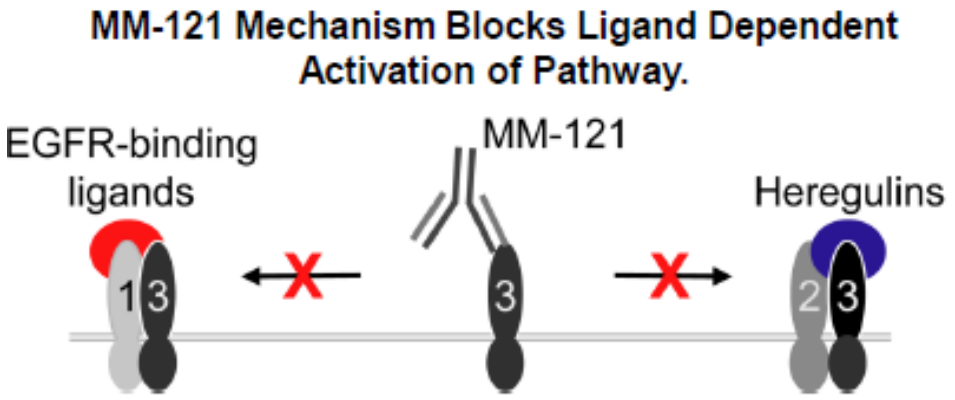
The Opportunity for Merrimack

The combination of Capecitibine (same fluoropyrimidine drug class as 5-FU) plus oxaliplatin produced a median overall survival of only 8.1 months and median progression-free survival of 4.2 months in previously untreated patients with both metastatic and locally advanced disease, which suggests that irinotecan is a critical component of the FOLFIRINOX regimen. This observation has positive implication for MACK's strategy of including a combination treatment of MM-398 (encapsulated irinotecan + 5FU-Leucovorin) that could result in similar efficacy of the FOLFIRINOX regimen with less toxicity. The data MACK currently possesses suggests that the 5-FU/MM-398 combination does not create any toxicity issues beyond traditional FOLFIRI usage.

MM-121

MM-121 is a fully human monoclonal antibody that targets the ErbB3 receptor, which is a member of the EGF receptor family. Until recently, ErbB3 was thought to lack drugable activity. However, through MACK's proprietary Network Biology modeling, ErB3 mediated tumor resistance was found to be common across different patient populations and tumor types. MM-121 is designed to inhibit cancer growth directly, restore sensitivity to drugs to which a tumor has become resistant and delay the development of resistance by a tumor to other agents.

Exhibit 7: MM-121 inhibition of Heregulin activation of ErbB3/HER-3



Source: Company reports and Brean Murray, Carret & Co

MM-121 is currently being evaluated in Phase II trials in ovarian, breast and lung cancer. Phase I data for MM-121 was presented at the 2012 annual ASCO meeting. In one study (N=32), the combination of MM-121 and Tarceva demonstrated an acceptable safety profile in heavily pretreated NSCLC patients with and without EGFR mutations. Early signs of efficacy included an overall response rate of 3% and a disease control rate (complete response, partial response, or disease stabilization) of 47%. In another Phase I study (N=23), MM-121 was combined with paclitaxel in salvage breast and ovarian cancer patients. Early signs of efficacy in this group of patients included an overall response rate of 35% and a disease control rate of 74%.

During 1H13, we expect to data from the first randomized Phase 2 trials for MM-121 that includes:

ER/PR+ HER2- metastatic breast cancer study in combination with exemestane.

The study is a double-blind, randomized Phase II trial of Exemestane +/- MM-121. The trial will enroll 130 patients and is designed to demonstrate whether MM-121 + Exemestane is more effective than Exemestane alone in ER+ and/or PR+ and Her2 negative breast cancer patients that have failed first-line anti-estrogen therapy in the locally advanced or metastatic setting and patients that have progressed during (or within 6 months of completing) adjuvant treatment with a non-steroidal aromatase inhibitor and/or tamoxifen. Patients will be treated until radiologic or clinical progression of their disease is documented. Local radiologist and/or PI assessment is accepted.

Wild type EGFR advanced non-small cell lung cancer combination with Tarceva

This Phase I/II study will enroll a total of 260 patients to evaluate the maximum tolerated dose of MM-121 in combination with Tarceva in Phase I and then in Phase II will evaluate PFS when MM-121 is combined with Tarceva.

Finally, in the second half of 2013 data for MM-121 in adjuvant breast cancer will be available and data for ovarian cancer will be available in 2014.

Sanofi Collaboration

In September 2009, MACK entered into a license and collaboration agreement with Sanofi for MM-121. In return for exclusive, worldwide, license to develop and commercialize MM-121 and an MM-121 companion diagnostic for all indications, MACK received:

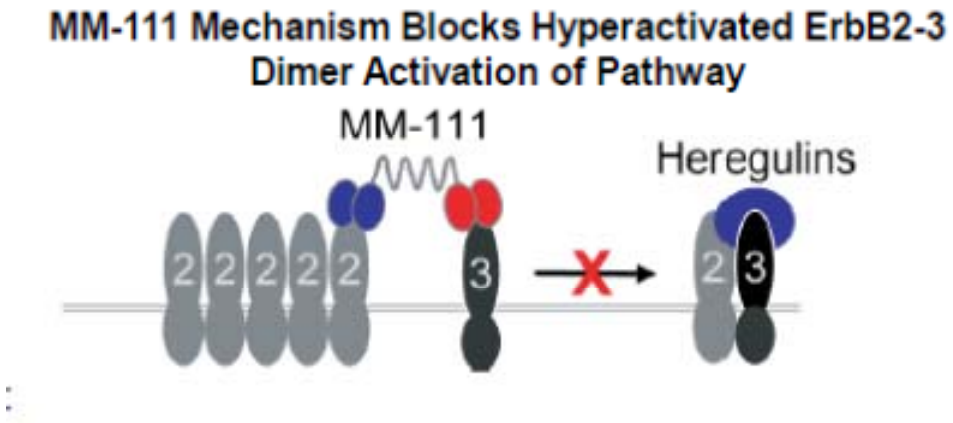
- Upfront license fee of $60 million
- Potential to receive up to $410 million from successful achievement of downstream development and regulatory milestones.
- Tiered, double-digit, escalating royalties as follows:
  - United States: Begins in sub-teen double digits based on net sales of MM-121
    - MACK has the option to co-promote in the US that would increase the initial royalty to the high-teens based on net sales
  - Ex-US: Begins in the high single digits based on net sales of MM-121
  - A higher royalty rate will be paid on any product with a companion diagnostic
- Potential to receive an additional $60 million in sales based milestones
- Right to participate in clinical development of MM-121 through Phase 2 for each indication
- Sanofi is responsible for all development and manufacturing costs

To date, MACK has received $25 million to based on achievement of three clinical milestones.

MM-111

MM-111 is a bispecific antibody designed to target the ErbB2 (HER2) and ErbB3 cell surface receptor. A bispecific antibody is a type of antibody that is able to bind simultaneously to two distinct proteins or epitopes. MACK's proprietary Network Biology modeling identified that signaling through the ErbB2 (HER2) and ErbB3 complex (see Exhibit 8) is a more powerful and widespread promoter of tumor growth and survival than previously appreciated. MM-111 is potentially applicable across a broad range of solid tumors and MACK is currently conducting multiple Phase I clinical trials of MM-111 as a single agent and in combination with standard chemotherapy. We expect to see data from combination studies at the upcoming ESMO conference in Vienna (September 28, 2012 – October 2, 2012).

Exhibit 8: MM-111 Bi-Specific affinity for ErbB2 and ErbB3



Source: Company reports and Brean Murray, Carret & Co

We expect MACK to disclose its Phase II planning for MM-111 during 3Q12. MM-302, MM-151 are also moving through their Phase 1 dose escalation studies and we anticipate by the end of this year MACK will advance MM-141 into Phase 1 clinical development.

Diagnostics

MACK is partnered with the Cancer Treatment Centers of America (CTCA) a growing network of privately held hospitals that provide a comprehensive, fully integrated and individualized cancer treatment experience. CTCA has regional hospitals in Chicago, Philadelphia, Phoenix and Tulsa and is planning to open a fifth hospital in Atlanta this year. Through this collaboration CTCA will contribute archive tumor biopsies from their extensive tumor data bank as well as prospectively collecting new samples. These samples will be analyzed using MACK's Network Biology approach. Many of CTCA's patients are advanced stage after many prior lines of therapy, which offers unique opportunity to explore how the molecular characteristics of tumors change as a result of therapy. Also through this collaboration CTCA will have the option to participate in any MACK's clinical studies.

Important Disclosures

Ratings and Target Price History

All prices are as of the market close on 9/26/12.

At the time this report was published, Brean Murray, Carret & Co., LLC made a market in the securities of Merrimack Pharmaceuticals

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Buy - Expected to appreciate by at least 10% within the next 12 months.
Hold - Fully valued, not expected to appreciate or decline materially within the next 12 months.
Sell - Expected to decline by at least 10% within the next 12 months.

	# of Securities	% of Total Securities	# of IB-Related Securities in Past 12 mos.	% of Total Securities
BUY	135	55.56%	9	6.67%
HOLD	56	23.05%	2	3.57%
SELL	4	1.65%	0	0%
NOT RATED	48	19.75%	1	2.08%
TOTAL	**243**			

Note : Stock price volatility may cause temporary non-alignment of some ratings with some target prices.

Valuation Methodology and Risks

Merrimack Pharmaceuticals (MACK): Our $12 target price for MACK shares is based on the NPV of MM-398 global revenue (discounted 20%) in pancreatic cancer alone, which we forecast will peak at $800M. We assume orphan pricing for MM-398 peaking at $80k per course in the US with conservative peak penetration in the US (35%) and ex-U.S. (25%). MACK's early stage pipeline, which is not included in our revenue forecasts, lends significant upside to our current valuation. Key risks to MACK shares include: (1) significant clinical failure risk of MM-398 or any of the the company's other candidates in ongoing and planned clinical trials; (2) regulatory risk stemming from FDA perception of adequate data support for approval of MM-398 in any of the indications in which it is being developed or any of the other candidates in MACK's pipeline; and (3) financial risk from disappointing outcomes to MM-121 clinical studies should Sanofi choose to end the co-development arrangement; (4) risk from failure to successfully invalidate third party patent claims in an ongoing opposition proceeding in Europe that could otherwise limit the ability of MM-121 and MM-111 to be commercialized in Europe.

Analyst Certification

I, Gene Mack, hereby certify that the views expressed in this research report accurately reflect my personal views about any and all of the subject securities or issuers referred to in this document. The analyst and associate analyst further certify that they have not received and will not be receiving direct or indirect compensation in exchange for expressing the recommendation contained in this publication.

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