

Sales Estimates

They're Called "Estimates" for a Reason



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Licensing Executive Society

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Royalty Pharma - Overview

- Royalty Pharma has been valuing and acquiring royalty interests in leading pharmaceutical and biotechnology products from IP holders since 1996
- We have provided up-front cash to institutions such as Memorial Sloan Kettering and Yale as well as non-dilutive financing to several companies, including Xoma, EntreMed and Ligand
- As part of our investment process, we constantly monitor 10-15 different therapeutic classes and evaluate over 30 drugs and or drug candidates (late stage clinical products) per year
- Royalty Pharma has acquired royalties in 14 products with aggregate potential royalty revenue of over \$1.5 bn

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Bottom's Up Assumptions

- Market Size & Growth
 - Viagra – more talk than action
 - Temodar – off-label indications
- Penetration of Market
 - Sepra Products – efficacy is not enough
 - Actiq – the marketer matters
- Treatment Length
 - Visudyne – not always taken as directed
 - Thalomid – survival benefit = duration benefit
- Price per Unit
 - FluMist – high price – low penetration
 - Remicade – resistance boosts dosage
- Other Issues

Market Size & Growth

- Viagra / Pfizer
 - Approved: March 1998
 - Indication: Impotence

- Erectile Dysfunction
 - New class of drug – no comparables
 - Difficult to determine patient population
 - Sensitive subject / condition
 - Much more talk than action in this category

Viagra Sales (\$mms)					
1998 Analysts' Estimate:	1998	1999	2000	2001	2002
Merrill Lynch (8/98)	\$850	\$1,503	\$2,205	\$2,778	\$3,372
Prudential (7/98)	910	1,550	2,000		
Cowen (7/98)	750	1,965	3,000	4,150	5150
CS First Boston (7/98)	1,063	1,700	2,050	2,400	2750
Morgan Stanley (7/98)	1,000	1,675	2,525	3,137	3747
1998 Median	\$910	\$1,675	\$2,205	\$2,958	\$3,560
Actual Sales	\$788	\$1,033	\$1,344	\$1,518	\$1,735
Difference \$	(\$122)	(\$642)	(\$861)	(\$1,440)	(\$1,825)
Difference %	-13%	-38%	-39%	-49%	-51%

➤ *Surveys don't always reflect reality, particularly with personal health topics*

Market Size & Growth

■ Temodar / SGP

- Approved: Q3 99 US; Q2 98 EU
- Indication: AA in US; AA, GBM in EU

■ Brain Tumors

- Narrow Indication(s), but significant off-label use
- Difficult disease – nothing is very efficacious
- Physicians are willing to use in combination with other agents

<u>1999 Analysts' Estimates</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>
Merrill Lynch (5/99)	\$15	\$35	\$57	\$88
Smith Barney (4/20/99)	10	30	60	115
ING Furman Selz (6/99)	9	20	30	40
H&Q (3/29/99)	18	40		
JP Morgan (10/15/99)	15	55	95	135
Morgan Stanley (10/14/99)	15	30	45	60
DMG (4/27/99)	25	50	75	100
Cowen (10/99)	20	40	70	125
1999 Median	\$15	\$38	\$60	\$100
Actual Sales	\$35	\$120	\$180	\$279
Difference \$	\$20	\$83	\$120	\$179
Difference %	133%	220%	200%	179%

➤ *Off-label happens; frequent in difficult, hard to treat, life threatening conditions, even if efficacy is marginal*

Penetration of Market

■ Sepra Products / Genzyme

- Approved: August 1996
- Indication: Prevention of surgical adhesions

■ Adhesions

- Significant medical problem
- Responsible for major complications associated with abdominal and gynecological surgeries
- Physicians see it as “not their problem”
- Uptake and penetration falls considerably below initial estimates

GDP LP Estimates (1989)	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>	<u>Year 6</u>
US	\$17	\$55	\$110	\$165	\$220	\$297
Non-US	0	8	45	95	120	155
Total	\$17	\$63	\$155	\$260	\$340	\$452

Actual Sales	<u>1996</u>	<u>1997</u>	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>
US	\$1	\$6	\$9	\$11	\$13	\$16
Non-US	0	1	2	3	5	4
Total	\$1	\$7	\$11	\$14	\$18	\$20

Difference (\$)						
US	(\$16)	(\$49)	(\$101)	(\$154)	(\$207)	(\$281)
Non-US	\$0	(\$7)	(\$43)	(\$92)	(\$115)	(\$150)
Total	(\$16)	(\$56)	(\$144)	(\$246)	(\$322)	(\$431)

Difference (%)						
US	-97%	-89%	-92%	-93%	-94%	-95%
Non-US	N/A	-89%	-95%	-97%	-96%	-97%
Total	-95%	-89%	-93%	-95%	-95%	-95%

➤ *Efficacy and pharmacoeconomics are not enough, especially when the prescriber doesn't see the benefits*

Penetration of Market

- Actiq / Cephalon
 - Approved: November 1998
 - Indication: Pain associated with cancer

- Breakthrough cancer pain
 - Significant unmet medical need
 - Original marketer, Anesta, focused on oncologists
 - Cephalon acquires Anesta in October 2000
 - Cephalon's sales force details pain specialists, true prescribers

Actiq Sales (\$ mms)	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>
1998 Analysts' Consensus					
Cruttenden Roth (8/14/98)	\$48	\$68	\$116	\$164	
Fahenstock (9/28/98)	15	54	76		
CS First Boston (5/8/98)	35	50	75	102	
Cowen (10/98)	65	90	110		
Median Estimate :	\$41	\$61	\$93	\$133	\$187
Actual Sales :	\$3	\$15	\$51	\$127	\$238
Difference (\$)	(\$39)	(\$46)	(\$42)	(\$6)	\$50
Difference (%)	-93%	-75%	-45%	-4%	27%

➤ *The marketer matters !*

Treatment Length

- Visudyne / Novartis & QLT
 - Approved: April 2000 US; July 2000 EU
 - Indication: Age-related macular degeneration

- Wet AMD
 - Leading cause of blindness
 - Retreatment is recommended three times per year
 - Patients are older – don't remember to go or don't realize their eyesight is regressing

1999 Analysts' Consensus	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>
Lehman Brothers (2/99)	\$20	\$50	\$50	
DLJ (4/7/99)	108	232	395	553
Berenstein (9/10/99)	100	488	743	1,138
Merrill Lynch (11/99)	83	241	391	
CS First Boston (8/12/99)	90	224	373	486
Warburg, Dillon Read (5/27/99)	92	241	471	668
Adams, Harkness & Hill (7/23/99)	60	200	400	585
CIBC Oppenheimer (8/18/99)	110	335	476	
ING Barings (10/29/99)	35	283	484	671
Deutsche Bank (8/15/00)	105	289	462	627
1999 Median	\$91	\$241	\$431	\$627
Actual Sales	\$95	\$223	\$287	\$357
Difference (\$)	\$4	(\$18)	(\$144)	(\$270)
Difference (%)	4%	-7%	-33%	-43%

➤ *Compliance matters !*

Treatment Length

■ Thalomid / Celgene

- Approved: July 1998
- Indication: ENL

■ Various cancers

- Virtually all use is off-label
- About half Rxs are for multiple myeloma
- Originally 90 days on therapy, but benefit resulted in 140 days of treatment
- Confounding variables – price increases and dose decreases

<u>2000 Analysts' Estimates</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>
Prudential (9/19, 10/26, 12/4)	\$65	\$100	\$146	\$195
Morgan Stanley (11/7/00)	65	105	160	220
US Bancorp (4/28, 8/11/00, 11/10/00)	64	107	141	205
JP Morgan (10/27/00)	65	100	125	150
Robertson Stephens (10/26/00, 12/15/00)	64	94	124	140
2000 Median	\$65	\$100	\$141	\$195
Actual Sales	\$62	\$82	\$119	\$224
Difference \$	(\$3)	(\$18)	(\$22)	\$29
Difference %	-4%	-18%	-16%	15%

➤ *Increased survival or time to relapse leads to increased treatment length and market size*

Price per Unit

- FluMist / MedImmune
 - Approved: September 2003
 - Indication: Prevent Influenza

- Intranasally delivered flu vaccine
 - MEDI initially provided indication of \$25-\$50 per dose
 - Product was finally priced at \$46 per dose
 - Consumers balked at high relative price to standard flu shot (\$10)
 - High price per unit resulted in much lower penetration and lowered sales estimates

<u>June 2003 Analysts' Consensus</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>
Merrill Lynch (6/18/03)	\$193	\$368	\$588	
Lazard Freres (6/18/03)	90	178	281	409
JP Morgan (6/18/03)	172			900
CS First Boston (6/17/03)	188	587	875	
Lehman Brothers (6/18/03)	240			
Banc of America (6/18/03)	101	179	244	348
Adams Harkness & Hill (6/18/03)	131	274	369	577
Needham (6/18/03)	139	280	407	561
GS (6/18/03)	120	225		
UBS (6/18/03)	186			
Salomon Smith Barney (6/17/03)	186	308	420	
Median Estimates	\$161	\$280	\$414	\$561

<u>Current Analysts' Consensus</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>
Merrill Lynch (7/22/04)	\$15	\$11	\$19	\$28
Lazard Freres (7/22/04)	15	10	10	10
JP Morgan (7/22/04)	15	42	50	
CSFB (7/22/04)	15	36	29	46
Banc of America (7/22/04)	15	4	7	8
Goldman Sachs (7/22/04)	15	10	13	
Solomon Smith Barney (7/22/04)	15	41	25	
Prudential Equity Group (7/22/04)	15	45		
Thomas Weisel (7/22/04)	15	37	47	83
Friedman Billings Ramsey (7/22/04)	15	14	22	39
Leerink Swann (7/22/04)	15	41	45	
Median Estimates	\$15	\$36	\$24	\$33

Difference (\$)	(\$146)	(\$244)	(\$390)	(\$528)
Difference (%)	-91%	-87%	-94%	-94%

➤ Demand hurt by high price

Price per Unit

■ Remicade / J&J

- Approved: Crohn's – 8/98 US & 8/99 EU; RA – 11/99 US & 2/01 EU
- Indication: RA, Crohn's Disease, Others

■ Rheumatoid Arthritis

- TNF-Alpha inhibitor
- Given IV once every 8 weeks
- Patients initially required lower doses, but become tolerant to therapy
- Price per unit/patient increased considerably, resulting in higher than expected sales (\$16K vs. \$8K)

2000 Analysts' Estimates	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>
Merrill Lynch (2/4/00)	\$98	\$210	\$281	\$335
JP Morgan (2/3/00)	107	252	309	
CS First Boston (2/3/00)	99	220	355	
SG Cowen & Co. (1/28/00)	118	219	301	391
Morgan Stanley (4/25/00)	102	350	500	650
2000 Median	\$102	\$220	\$309	\$391
Actual Sales	\$116	\$371	\$721	\$1,297
Difference \$	\$14	\$151	\$412	\$906
Difference %	14%	69%	133%	232%

➤ *Increased dosage has increased market size – is this sustainable?*

Other Issues

■ Supply / Production

- Prevnar (WYE) – Difficult to manufacture
- Enbrel (AMGN/IMNX) – Supply constraints
- Fluvirin (CHIR) – Plant failed inspection

■ Competition

- Zerit (BMY) – Glaxo, Gilead, Roche become bigger players
- ReoPro (LLY) – Integrilin priced @ 40% less; not as efficacious

■ Lifecycle Management

- Taxol (BMY) – Patent strategies did not pan out as expected
- Claritin/Clarinet (SGP) – Forced OTC of drug; delay of follow on

■ Withdrawal

- Baycol (BAY) – Crowded market left little tolerance for side effects
- Rezulin (GSK) – Liver damage apparent only with large number of pts
- Vioxx (MRK) – Cardiovascular events forced voluntary withdrawal