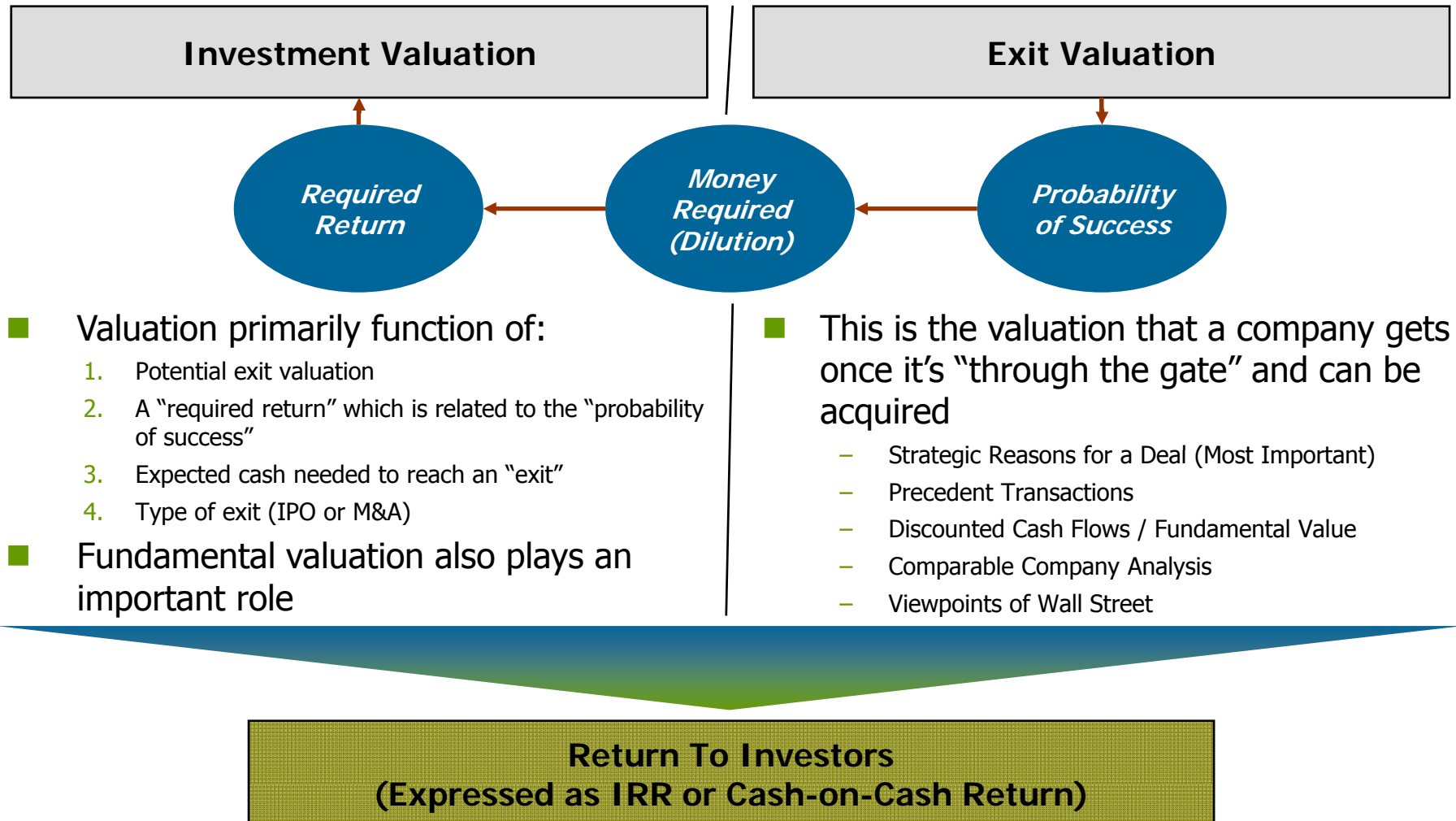


ROI In Cancer

How a Venture Capital Firm Views ROI

Srini Akkaraju, MD, PhD
Managing Director
New Leaf Venture Partners

What Influences a Venture Investor's Return on Investment? It's Just Math....



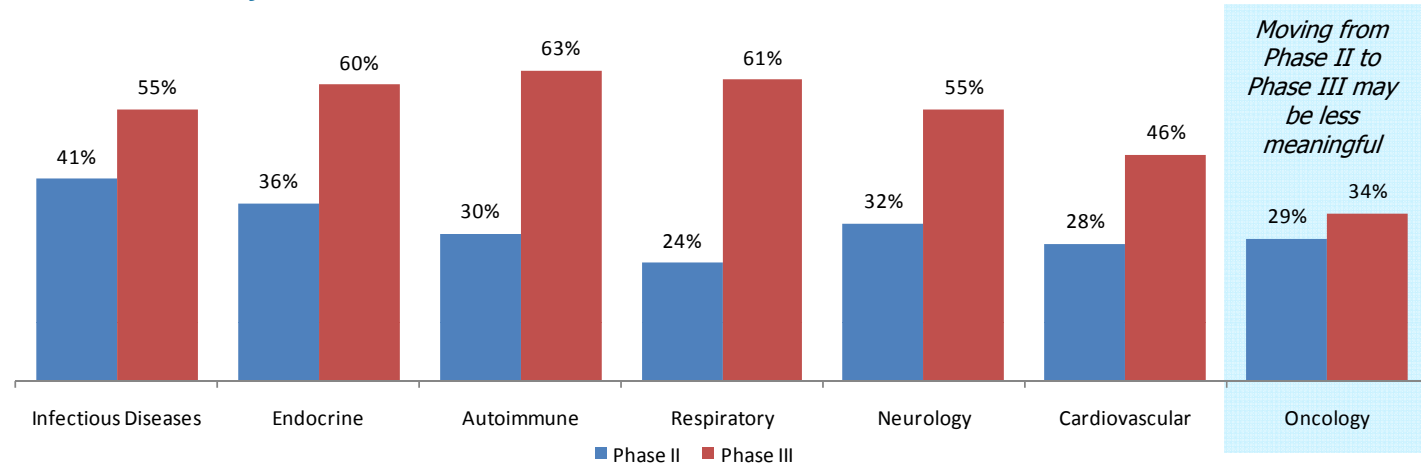
Compared to Some Therapeutic Areas, Cash to Reach an Exit Is Low for Cancer Companies

- Acquirers willing to buy cancer drugs at earlier stages in development, and as a result often require less capital to reach an exit
- Companies focused on cancer can obtain much more data from early development work than companies focused on other therapeutic areas
 - **Phase I in patients** – especially useful if Phase I is in a selected/sensitive population
 - **Clinical endpoints** such as tumor shrinkage make it relatively easier to prove efficacy at an earlier stage than longer term survival-type of endpoints
 - **Biomarkers** are more relevant, which can provide useful data on whether a drug is or is not working or which patient population is the most relevant
 - **Targeted therapies** have a greater chance of success in development because they are going after validated mechanisms of action
- Generally, less patients needed to show drug effect (so less cash is required to generate the data)
- Acquirer interest due to high unmet need generally within oncology

Probability of Success: In The Drug Development Casino, Some Games Have Better Odds...

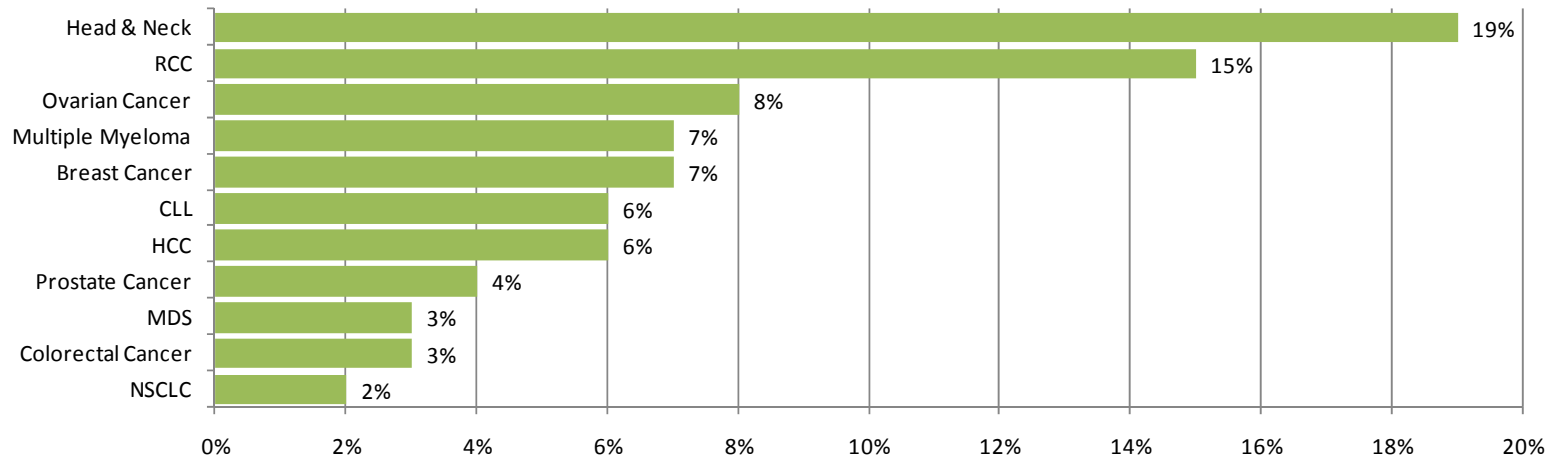
Probability of Success Across TAs

Overall Probability of Success at Phase II and Phase III



Probabilities of Success within Oncology

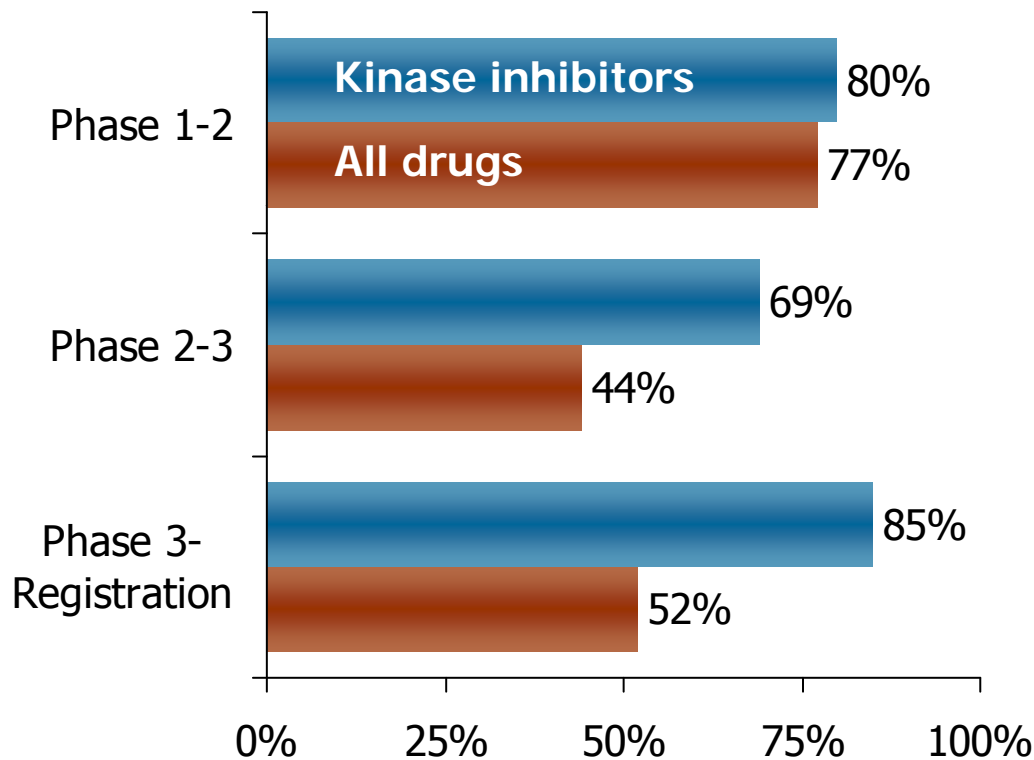
Overall Total Success Rates



Source: Overall Success Rates – BioMedTracker.

Targeted therapies have a greater chance of success in development

Phase transition probability of oncology drugs (1995-2007)



of drugs that have to enter Phase 1 to get one new drug approved

5.5 for oncology overall
vs.

2.1 for kinase inhibitors

Sample size. All drugs, n=974; Kinase inhibitors, n=137;
Source: *Nature Reviews Drug Discovery*

Rewards are High for Drug R&D Products That Can Finish the Marathon (Get Sold)

Announce	Target	Acquiror	Company Focus	Stage	Consideration		
					Upfront	Milestones	Total
Preclinical, Phase 1, and Phase 2 Oncology M&A							
1/26/2012	Avila Therapeutics	Celgene Corporation	AVL-292 - A Btk inhibitor for oncology	Phase I	\$350	\$575	\$925
1/26/2012	Micromet	Amgen Inc.	Blinatumomab - drug for leukemia / NHL	Phase I	\$1,116	\$0	\$1,116
12/20/2011	Intellikine, Inc.	Takeda America	INK128 - TORC1/2 inhibitor, PI3K selective inhibitor	Phase I	\$190	\$120	\$310
3/20/2011	Gemin X Pharma	Cephalon Inc.	GX15-070 to reinitiate apoptosis; GMX1777	Phase II	\$225	\$300	\$525
12/19/2010	Arresto Biosciences, Inc.	Gilead Sciences Inc.	AB0024 - Solid Tumors and Idiopathic Fibrosis	Phase I	\$225	ndisclosed	\$225
8/17/2010	Trubion Pharmaceuticals	Emergent BioSolutions	SCORPION technology, B-cell cancer, autoimmune	Phase I	\$97	\$39	\$136
6/23/2010	CGI Pharmaceuticals, Inc.	Gilead Sciences	Small molecule kinase inhibitors	Pre-clinical	\$120	\$0	\$120
6/30/2010	TargeGen, Inc.	Sanofi-Aventis	JAK2 Inhibitor for lymphoma, leukemia, myelofibrosis	Phase II	\$75	\$485	\$560
2/4/2010	LEAD Therapeutics, Inc.	BioMarin Pharma	LT-673 in oncology (also has MRSA product)	Pre-clinical	\$29	\$68	\$97
Mean					\$270	--	\$446
Median					\$190	--	\$310
Phase 3 Oncology M&A							
3/29/2011	Chemgenex Pharma	Cephalon Inc.	Chronic myelogenous leukemia	Phase III	\$154	\$0	\$154
2/28/2011	Plexxikon, Inc.	Daiichi Sankyo	Oncogenic BRAF mutant melanoma / solid tumors	Phase III	\$805	\$130	\$935
2/21/2011	Calistoga Pharma	Gilead Sciences	PI3K target - hematological cancers / autoimmune	Phase III	\$375	\$225	\$600
1/24/2011	BioVex, Inc.	Amgen Inc.	Virus engineered to kill cancer - melanoma \$ head & neck	Phase III	\$425	\$575	\$1,000
Mean					\$440	--	\$672
Median					\$400	--	\$768