



**VitalTransformation**

The impact of health technology made simple



# The Role of IP in Funding New Medicines *Fact & Fiction*

**EHFG**

**October 6, 2017**

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# What about this lottery ticket?

- New Lottery Ticket Costs \$5
- Odds of Success 1 in 10
- Payoff for winning ticket \$78 ... in 5 years

# What about this lottery ticket?

- New Lottery Ticket Costs \$5 mil
- Odds of Success 1 in 10
- Payoff for winning ticket \$78 mil in 5 years

Welcome to the world of Biotechnology.  
This is an 11% ROI on a \$50 mil portfolio.

# Failure is Normal. IP Makes it Possible

## Four Reasons Drugs Are Expensive, Of Which Two Are False

Jack Scannell, Forbes, Oct 13, 2015

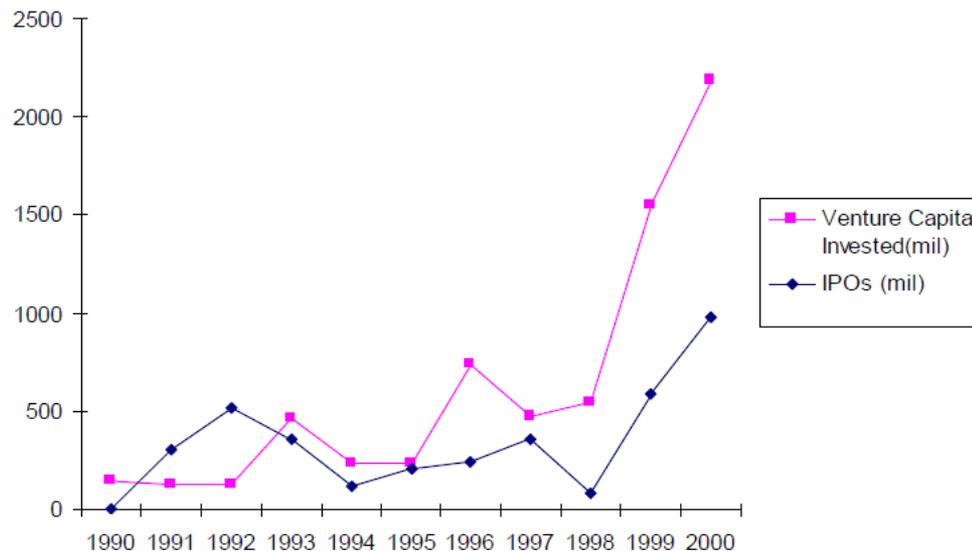
“ [Investors] need to believe there are decent odds that they **will** make a good return on investment. This is why firms have continued to invest in Alzheimer’s when . . . 244 experimental drugs were failures.”

IP is not about the winners, its about the many losers that make the winners possible

# Investing in IP – What Works?

Radu Munteanu, UCSD, 2010 The biotechnology cluster in San Diego  
 “An analysis of Initial Public Offering (IPO) activity  
 and probability of success for firms 1990- 2000”

- NIH \$449 mil, primarily at Scripts and UCSD
- IPO \$1 bil, VC \$2.4 bil = \$3.4 bil



# Size of Initial Public Offering (IPO = Listing on a Stock Market) Best Indicator of Success

Table 1. Logit estimation of the Probability of Success

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	Probability of success
IPO_amount	.0713984 (.0374142)*
# of employees	.0092208 (.0035727)**
revenues	.0170572* (.0021912)*
UCSD_spinoff	-1.119023 (1.07791)

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Note: Standard errors reported in parenthesis and an asterisk denotes significance at 5% level.

Radu Munteanu, UCSD, 2010

# IP is a Legal Monopoly?



# The PCSK9 Possibility



Harvard University

*The* GRADUATE SCHOOL *of* ARTS AND SCIENCES

## A potential new weapon against heart disease: PCSK9 inhibitors (2015)

“PCSK9 is inhibited, the liver can efficiently metabolize LDL, lowering cholesterol levels in blood.”



December 16, 2015

“PCSK9 inhibitors [are] likely to increase and lead to multi-billion dollar annual sales for this class.”



## Genetics: A gene of rare effect

A mutation that gives people rock-bottom cholesterol levels has led geneticists to what could be the next blockbuster heart drug.

# The PCSK9 Reality – IP is No Guarantee of Profit

## IN THE PIPELINE

Derek Lowe's commentary on drug discovery and the pharma industry. An editorially independent blog from the publishers of *Science Translational Medicine*. All content is Derek's own, and he does not in any way speak for his employer.

### PCSK9: Real World Data Arrives, Unfortunately

By Derek Lowe | March 17, 2017



**The Motley Fool.**

Nov 2, 2016

There's a 15% relative reduction in cardiovascular risk...but investors were looking for something more over 20%. Insurance companies [would] have been happier to see something more like 25%.

### **Sprinkling rain on the PCSK9 parade**

Analysts forecast that the PCSK9 inhibitor could reach the range of \$2 billion to \$4 billion in annual sales.

Last quarter, it brought in a meager \$27 million.

# The PCSK9 Reality – IP is No Guarantee of Profit

≡ WebMD

SIGN IN

Cholesterol & Triglycerides > News >



## Statins Help Healthy People Lower Their 'Bad' Cholesterol

Study found taking them lowered risk of heart disease, death in those with high LDL levels

Forbes / Pharma & Healthcare

FEB 13, 2014 @ 08:39 AM 1,306 

Free Webcast: Generate Income in Reti

### Now That Statins Are Cheap, More UK Patients Can Take Them



**John LaMattina**, CONTRIBUTOR

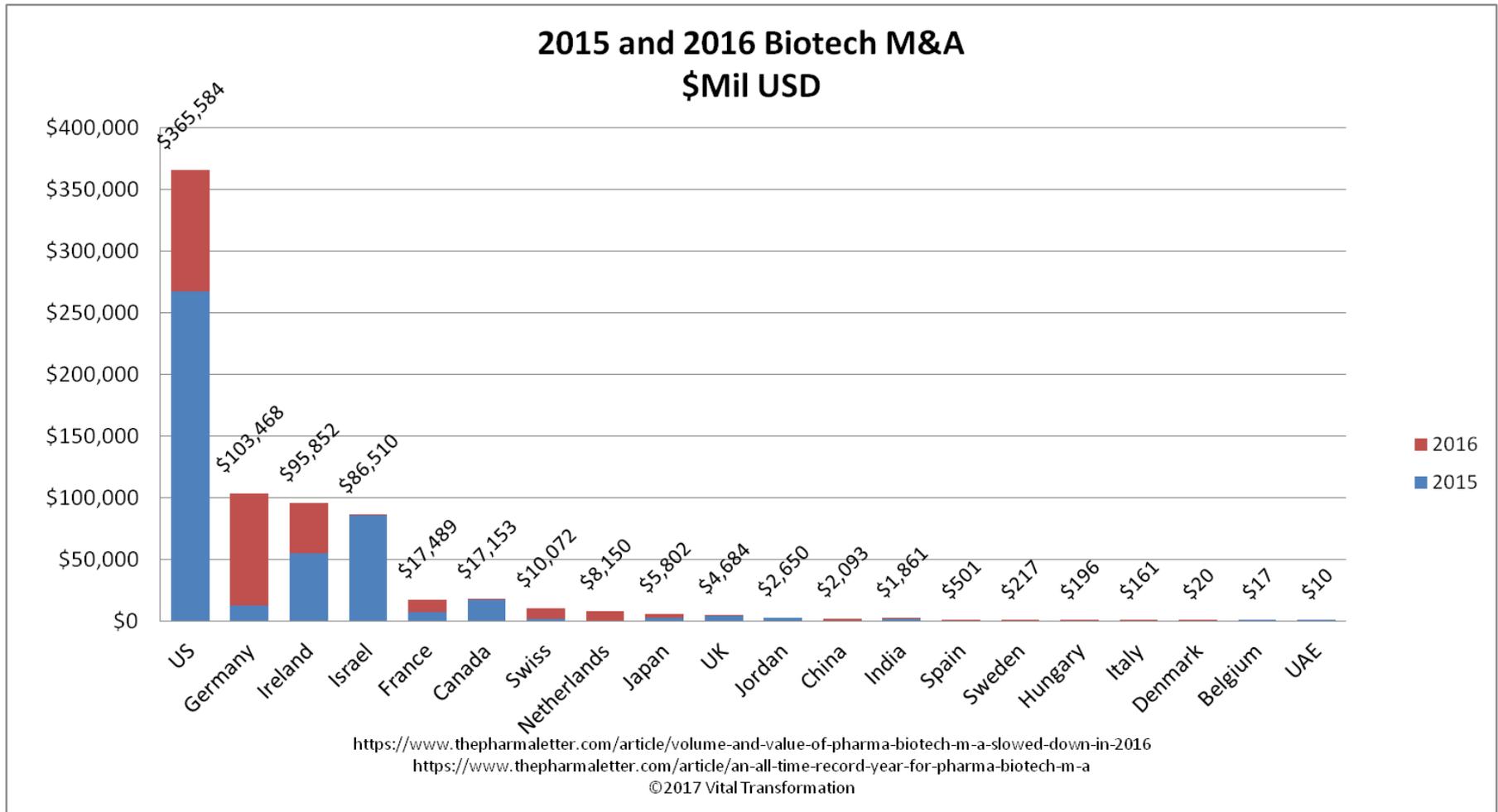
I cover news on drugs and R&D in the pharma industry [FULL BIO](#) 

Opinions expressed by Forbes Contributors are their own.

# Beating a Dead Horse - Sovaldi

1 in 5 risk of Liver Transplant (\$739,100) annuitized over 10 years (NPV 5%)	\$90,749
Adjusted Treatment cost telaprevir, plus peginterferon and ribavirin (44% success rate)	\$188,859
<b>Total Actual Cost of NOT Using Sovaldi (US)</b>	<b>\$279,608</b>

# Why Should We Care About Investors in IP?





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