Industry–academic partnerships and Start-up funding through Venture Capitalists

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Pharmaceutical industry and academic partnerships

• Pharma restructuring: shifting research away from early stage discovery and re-focusing on later-stage development.

• Pharma moving away from Blockbuster to smaller “Orphan Diseases”.

• Small Biotech and Academia filling the gap.

• Academic research: innovation, disease knowledge leading to target-based discovery.
Industry-Academic Partnership

• Academic input in drug discovery: novel targets, signaling pathways, disease expertise, human cells and tissues for target validation studies, platform technologies, novel chemistries, disease and pharmacology biomarkers.

• Industry: Target and efficacy validation, thrust the project through their clinical and marketing organizations.
Partnerships

• Government funding, charitable institutions and Pharma: shifting innovative programs to fill the Translational Gap.

• New Institutes: Broad Institute, Genomics Institute of the Novartis Research Foundation, Texas Therapeutics Initiative, etc.

• New Industry Alternative Discovery initiatives: Pfizer, J&J, GSK and Wyeth and VC funds.

• NIH grants for Business, Clinical Trials, Orphan Diseases, Protein Initiative.
New Technology development

Research
- Basic
- Applied

Technology Transfer
- Collaboration industry – research organizations
- Licensing
- Creation of NewCo

Development
- Clinical Trials

Market
Technology Development
Beyond Academic Research

• Industry and Academic collaboration:
  – Research Agreement, Service Agreement, Option Agreements, Translational Grants, etc.

• Licensing: creating interest with industrial partners.

• Start-ups: Passion, Motivation, Time, Commitment and Pragmatism.
Start-ups

• Four ingredients of a successful startup:
  – Brilliant Idea combined with strong Intellectual Property (IP) protection.
  – Good people.
  – Raise Money and Spend as little as possible.
Different Venues to Raise Capital

• Grants: Translational Research Awards, SBIR, STTR, Clinical Trials, Orphan Diseases, etc...
• Bootstrapping
• Friends and family
• Banks
• Angels
• Venture Capital
• Customers and suppliers
VC’s Impact

Economic Benefit of U.S. Venture-Backed Companies 2000-2008

Jobs (millions)

$0 $1 $1.5 $1.7 $2.6 $2.9

Revenue (trillions)


8.7 9.4 11.7 12.1

Source: The MoneyTree Report by PricewaterhouseCoopers and the National Venture Capital Association, based on data from Thomson Reuters.
Comparing returns in the 2000s
(Internal Rate of Return for VCs)

Booth et al., Nature Biotechnology, 2011
Returns in Medicine

Booth et al., Nature Biotechnology, 2011
Changing trends

Booth et al., Nature Biotechnology, 2011
Funding Cycle of Startups
Valley of death

Osawa and Miyazaki, 2006
How to start?

• Protect your IP at the right time.
• Develop a good relationship with your TTO and contact your COI early on.
• Have a vision.
• Get as much help as possible from your Institution’s resources (Med. Chemistry, Business School, Core Facilities, Clinical samples).
• Study the Market and the competition.
• Develop a Business plan.
• Incorporate into a C-corp (vs. S-corp or LLC).
Essential notions for VCs

• Five C’s in Lending: Character, Capital, Capacity, Collateral and Conditions.
• Most important: YOU (& the team)
  – show passion, commitment, experience, integrity, knowledge, skills, leadership, realism, listen.
• The first 10-20 Sec get there attention by saying what, why and how in 2-3 sentences.
• BE BRIEF: The 10/20/30 Rule.
Twitter's founding document/plan
Vital details

- Mission/vision/Statement
- Company & Team
- Technology & Product
- Value Proposition
- Overview: Market, Problem & Solution
- Competition
- Status and timeline
- Business Model, Marketing and sales
- Relationships
- Financial Projections, milestones and Use of Proceeds.
- SWOT analysis
Critical Information

• Mission statement: 1 or 2 sentences, problem you are solving, for whom and the vision, etc.
• Company and team: experience and expertise of the founder and the team. VCs invest in people first and foremost. Will your team win in the marketplace? Why?
• Technology/Product: what, how, whom, benefits, uniqueness, value proposition, solution, past failure, advantages, POC, IP, etc.
Business plan

• Market opportunity: target customers, size, crowded, established, competitive edge.
• Study the competition well, existing and future.
• Status and Timeline: honest and accurate, next steps, missing, etc.
• Business model: positioning, marketing, sales, exit strategies, return, etc.
• Partnerships: R&D, manufacturing, clinical, etc.
Finances and other

• Financial Statement, historical and forecast, grants, debt, stocks, etc.
• Provide exact numbers on how much you need and for what.
• Technical and financial Milestones and projections.
• SWOT (Strength, Weaknesses, Opportunities and Threats) Analysis.
• Summary.
The process

• Initial Presentation followed by Q&A
• Back and forth Q&A
• Always ask for feedback
• The Due Diligence Process
• Term Sheets
• Fund disbursement along the milestones.
• Do it all over again!
Examples

• Snowdon, Inc. Cancer, pain management, infectious diseases, neurological disorders.
• CellXplore, Inc. Biomarkers for breast cancer.
• Longevica Pharmaceuticals. Cancer, degenerative diseases and age-related disorders.
• Actinobac Biomedical. Bacterial toxin targeting white blood cells.
• CelVive, Inc. Stem cells for spinal chord injury.
• Durin Technologies, Inc. Diagnosis for Alzheimer’s disease (AD).
Reasons Startups Fail

- Lack of capital
- Poor Execution
- No Viable Market
- Lack of Competitive Advantages
- Niche too Small
- Too Much Leverage
- Competing with a Leader
- Undercapitalizing
- Breakup of the Founding Team
- Poor Pricing Strategy
- Growing too Fast
Q&A Panel

• **Vince A. Smeraglia**, Esq., Director, Office of Technology Transfer and Business Development, UMDNJ.

• **Joseph R. Flicek**, President of Blake Technologies.