



UC CAI

University of California Center for Accelerated Innovation

Technology Commercialization - First Steps

September 11, 2014

Stephen F. Flaim, Ph.D., FACC, FAHA

Senior Special Advisor, NHLBI Office of Translational
Alliances & Coordination

flaimsf@nhlbi.nih.gov

UC BRAID | University of California Biomedical Research, Acceleration, Integration & Development



Speaker Background

- Cardiovascular physiologist – UC Davis
- Academia – Medicine & Physiology, PSU Sch of Med
- Industry – J&J, Squibb, Alliance, Trega, Galileo
- Advisor – von Liebig Center, UCSD
- Investor – Tech Coast Angels
- Entrepreneur - CardioCreate, OncoFluor
- NHLBI – Advisor to the Office of Translational Alliances & Coordination (OTAC) & the NCAI

<http://www.nhlbi.nih.gov/about/dera/otac/index.html>

OTAC Contact Point: nhlbi_sbir@mail.gov

Agenda



1. Assessing Technology Readiness
2. Picking Technologies at the Correct Level of Readiness
3. Important Interactions
 - a. Campus Technology Transfer Offices and Others
4. License the Technology or Form a Start-up

Assessing Technology Readiness



General Criteria

- Novel technology
- Protectable (IP)
- Good team
- Attractive market to partner/investor
- Maximum \$200,000 (Fed \$) + additional \$ (Center)
- Maximum 2 years in Center
- “Exit” Center after 2 years

Technology “Exit”




Definition of “Exit” at 2 years

- License to existing commercial entity
- License to start-up formed to commercialize technology
- Attracts support for additional work (e.g. clinical trial)
- Returned to the institution

Assessing Technology Readiness

Technology Status

Degree of
Maturity

- LOW
- 
- HIGH
- Hypothesis testing
 - Basic research on the effect
 - Basic effect observed/confirmed (*in vitro* or *in vivo*)
 - Pre-clinical POC in process/complete
 - General safety assessment completed
 - IND/IDE enabling studies underway/completed
 - Clinical testing initiated
 - Clinical benefit/safety established

Assessing Technology Readiness

Intellectual Property Status

Degree of
Maturity

LOW

HIGH

- Technology presented or published
- IP plan established (no prior public disclosure)
- Disclosure filed with Tech Transfer Office (TTO)
- Provisional patent(s) filed (US)
- “Informal” freedom-to-operate (FTO) complete
- Full patent(s) filed (US)
- International patent(s) filings initiated
- Formal FTO complete
- US patent(s) issued/published
- International patent(s) issued/published

Assessing Technology Readiness

Commercial Status

Degree of
Maturity

LOW

HIGH

- Solution looking for a problem
- Multiple potential applications defined
- Platform technology with multiple applications
- Target applications being discussed
- First commercial application defined
- Customer traction obtained
- Competitive landscape defined
- Go-to-market plan in development
- Business plan in development
- Investor/licensor term-sheet in play
- Forming a start-up to acquire technology



Picking Technologies

Technology Status

Degree of
Maturity

LOW

- ~~Hypothesis testing~~
- ~~Basic research on the effect~~
- ~~Basic effect observed/confirmed (*in vitro* or *in vivo*)~~
- Pre-clinical POC in process/complete
- General safety assessment completed
- IND/IDE enabling studies underway/completed
- Clinical testing initiated
- Clinical benefit/safety established

HIGH



Picking Technologies

Intellectual Property Status

Degree of
Maturity

LOW

HIGH

- ~~• Technology presented or published~~
- IP plan established (no prior public disclosure)
- Disclosure filed with Tech Transfer Office (TTO)
- Provisional patent(s) filed (US)
- “Informal” freedom-to-operate (FTO) complete
- Full patent(s) filed (US)
- International patent(s) filings initiated
- Formal FTO complete
- US patent(s) issued/published
- International patent(s) issued/published

Picking Technologies

Commercial Status

Degree of
Maturity

LOW

HIGH

- ~~• Solution looking for a problem~~
- ~~• Multiple potential applications defined~~
- ~~• Platform technology with multiple applications~~
- Target applications being discussed
- First commercial application defined
- Customer traction obtained
- Competitive landscape defined
- Go-to-market plan in development
- Business plan in development
- ~~• Investor/licensor term sheet in play~~
- ~~• Forming a start-up to acquire technology~~

Eligible Projects

Ideal Team

- Technology lead
 - Professor/Faculty/Postdoctoral fellow
 - Graduate/Undergraduate student
- Commercial/business lead
 - Experienced entrepreneur
 - B School ex-MBA student
- Mentor/Advisor/Potential Investor
- Tech Transfer Officer

Important Interactions



Campus Tech Transfer Office (TTO)

- Meet your Tech Transfer Officer – establish rapport
- Your TT Officer is your partner
- Learn how to create/file a disclosure
- File disclosure with TTO before presenting or publishing
- Work with your TT Officer to set patent claims and scope
- Technology valuation discussion
 - Highest valuation sought by owner of the technology
 - Lowest valuation sought by licensee of the technology

Points of Discussion



Understand

- Who owns the technology?
 - Institution - Faculty, staff, postdoc, graduate student
 - Undergraduate student
- Technology valuation
 - Highest valuation sought by owner of the technology
 - Lowest valuation sought by licensee of the technology
 - Doing a start-up? You are the licensee

Important Interactions



Commercial/Business Lead

- Defining the technology is only half the battle
- Most innovator/technologists lack business skills
 - Competitive landscape
 - Target market
 - Customer base
 - Go-to-market strategy
 - Overall business plan preparation
- Investors avoid technologist-led projects
- Engage early with a commercial/business lead

Important Interactions



Mentor/Advisor/Potential Investor

- Experienced (retired?) executive
 - Been there – done that
 - Seeking to pay back
 - Looking for a way to engage/stay active
 - Angel investor interested in University technologies
- Help with team formation
- Team mentor/advisor
- Extensive support/investor network in the community
- Engage a mentor early in the project

License the Technology vs. Forming a Start-Up

Points to Consider

- Institution owns the IP
- Institution wants to license
- You are part of the Institution
- Institution will ask for your help
 - Set value of IP
 - Determine fields of application
 - Define the patent claims



License the Technology vs. Forming a Start-Up



Role of Scientist/Innovator in a Start-up

- Maintaining your academic status?
 - Cannot be company employee or officer
 - Consulting time usually allowed
 - Best role – Founder & Chair of Science Advisory Board
- Doing a start-up but no real business experience?
 - Don't try to learn on the job
 - Bring in an experienced CEO
 - Become Chief Technology Officer

License the Technology vs. Forming a Start-Up



Key Questions for the Scientist/Innovator

- Are you ready to leave academia?
 - Postdoc ready to go full-time into a start-up?
- Do you have passion for the technology?
- Is there an experienced business lead/CEO?
 - Most investors avoid start-ups led by scientist/innovator
- Do you have legal counsel?
 - Corporate law - company formation
 - Transaction law – license negotiations with the institution
 - IP law - maintenance/development of IP
- Do you have investor interest/traction?

License the Technology vs. Forming a Start-Up

Missing key components for a start-up?
License may be the correct path forward

Seek to do what's best
for the product!



UC CAI

University of California Center for Accelerated Innovation

Questions?

Stephen F. Flaim, Ph.D., FACC, FAHA

Senior Special Advisor, NHLBI Office of Translational
Alliances & Coordination

flaimsf@nhlbi.nih.gov

UC BRAID | University of California Biomedical Research, Acceleration, Integration & Development



Finding/Engaging a Business Lead



- Business School - Executive MBA program
 - Experienced scientists with full-time jobs
 - Seeking to gain business skills/become entrepreneurs
 - Night and weekend classes
- “Lab-to-Market” Class
 - Need to develop commercial aspects of a technology project
- Respect for their business expertise
 - These are not “students”
 - They add significant value to the project
 - May be your first CEO
 - Prepare to provide some incentive beyond the class work