Guide to Industry and Venture Capital Engagement

Office of Industry and Economic Partnerships
Topics

01 ABOUT - OFFICE of INDUSTRY & ECONOMIC PARTNERSHIPS

02 PARTNERING with INDUSTRY

03 WORKING with VCs and UPMC-E
The Office of Innovation and Entrepreneurship

**OIE Mission**
To create, support and sustain a culture and environment of *innovation, commercialization, entrepreneurship and collaboration* on-campus and off-campus for the benefit of the University community, its partners, the region and society.
Office of Industry and Economic Partnerships

1. Develop and facilitate industry partnerships
2. Develop and facilitate venture capital engagement
3. Advance the region’s innovation ecosystem
OIEP Develops and Manages Industry & VC Partnerships

Core Services

- Develop Strategic Industry & VC Relationships
- Help Structure & Plan the Relationship
- Develop Faculty & Department Partnering Strategies
- Help Faculty & Partners Navigate University Processes
- Identify Engagement Opportunities
- Facilitate Engagement & Provide Support Throughout
Industry Partnering Interests Library (oiep.pitt.edu)

Quick Links

- MICROBIOLOGY
- PLANT/BIOENGINEERING
- IMMUNOLOGY
- GENETICAL

- CARDIOVASCULAR & RESPIRATORY
- RARE DISEASES
- VACCINE
- NEUROSCIENCE

Monthly Newsletter

The Partnering Pulse

Industry Funding Opportunity with SPARC

Nov 18, 10 a.m.
Sun Pharma Advanced Research Company (SPARC)
In-Person & Virtual Presentation

Sun Pharma Advanced Research Company (SPARC) is seeking partnership opportunities with Pitt faculty for therapeutic development in the areas of oncology, immuno-inflammatory diseases, and neurodegenerative diseases. Selected projects will be eligible to receive up to $750,000 in research support over 3 years, plus additional in-kind services from SPARC.

We invite you to join us on Thursday, November 18 at 10:00 AM, in-person or online, for an exclusive informational session with SPARC executive Dr. Rajesh Ranganathan, Vice President, Partnerships and Portfolio Strategy. Register today!
**Industry Partnerships Profile**  
Fiscal Year 2021

**Industry Research Investment**  
$47 Million

**Active Industry Projects**  
652

**Unique Industry Partners**  
382

**Market Segments**

- Pharmaceuticals and Vaccines
- Medical Devices
- Advanced Materials (biomaterials, advanced materials in energy)
- Energy
- Circular Economy and Sustainability

**Partnership Examples**

- **Pitt and Covestro Team to Create Groundbreaking Circular Economy Program.**
- **Pitt and BridgeBio Collaborate to Identify and Advance Therapies for Genetic Diseases and Cancers.**
- **Pitt and Duquesne Light Partner for a Powerful Future.**
- **Pitt and RevBio Collaborate on Bone Experiments on the International Space Station.**
- **Pitt partners with Astellas on new eye treatment options.**
Why Partner with Industry

1. **To Drive Research Impact**
   - Provide societal benefit
   - Drive economic & environmental impact
   - Push university technology to market

2. **To Expand Research at the University**
   - Enable complimentary research
   - Diversify research funding sources
   - Enhance access to external innovation

3. **To Support Talent Development**
   - Improve student employment prospects
   - Attract leading researchers & students
   - Advance internship opportunities

4. **To Drive Regional Economic Development**
   - Attract industry to the region
   - Attract investment to the region
   - Support start-up formation
How Companies Engage at Pitt

Research, Innovation
- Sponsored Research
- Licensing
- Clinical Trials
- Grants
- Gifts

Access to Resources
- Core Facilities
- Space sharing
- University access to industry facilities

Institutes, Centers
- Advisory Boards
- Industry Affiliate Programs
- Large Grant Proposals

Student Engagement
- Career fairs
- Internships
- Capstone projects
- Scholarships / Fellowships
Both the University & Industry Benefit from Research Collaboration

<table>
<thead>
<tr>
<th>UNIVERSITY BENEFITS</th>
<th>INDUSTRY BENEFITS</th>
</tr>
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<tbody>
<tr>
<td>Research or project funding</td>
<td>Access to research and innovation</td>
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<tr>
<td>Access to industry experts, and real-world projects</td>
<td>Access to academic expertise, and cutting-edge science</td>
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<tr>
<td>Jobs and internships for students</td>
<td>Talent and workforce development</td>
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<tr>
<td>Equipment / facility fees</td>
<td>Access to specialized equipment and labs</td>
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<tr>
<td>Publication opportunities</td>
<td>New Intellectual Property</td>
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University & Industry Research Priorities

Basic research focus
- Advance scientific understanding
- Research autonomy
- IP ownership
- Time horizon driven by academic strategy
- Publication

Applied research focus
- Commercialization
- Need to guide research output
- IP exclusivity
- Time horizon driven by business need
- Confidentiality

Distinction between fundamental and applied research
Industry partnering misconceptions

- **COMPANY OWNS ALL IP**
  - Ownership follows inventorship
  - Use rights negotiated

- **CAN’T PUBLISH**
  - Publishing encouraged
  - Some timing / content restrictions

- **COMPANY CONTROLS RESEARCH**
  - SOW negotiated
  - Both parties’ needs met

- **CAN’T USE RESULTS**
  - Pitt retains research rights
  - Other use rights negotiated

- **APPOINTMENT / PROMOTION**
  - Guidelines include considerations for commercialization & licensing
4 Legal Requirements to get a Patent

01. ELIGIBILITY
   Is the Invention SUBJECT MATTER

02. NOVELTY
   Is the Invention NEW

03. Is the Invention USEFUL

04. Is the Invention UNKNOWN

Is the Invention NON-OBVIOUS
Block Buster Drugs from University - Industry Collaborations

<table>
<thead>
<tr>
<th>Drug / Compound</th>
<th>Target / Indication</th>
<th>Peak Sales¹</th>
<th>Partners</th>
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</thead>
<tbody>
<tr>
<td>Alimta</td>
<td>Non-small cell lung cancer</td>
<td>$2.8b</td>
<td>[Princeton University]</td>
</tr>
<tr>
<td>Lyrica</td>
<td>Fibromyalgia; neuro disorders</td>
<td>$3.5b</td>
<td>[Pfizer]</td>
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<tr>
<td>Yervoy</td>
<td>Melanoma</td>
<td>$1.6b</td>
<td>[Bristol Myers Squibb]</td>
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<tr>
<td>Kymriah</td>
<td>Leukemia</td>
<td>$1.0b</td>
<td>[Novartis]</td>
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<tr>
<td>Lagevrio</td>
<td>COVID-19 Oral Antiviral</td>
<td>--</td>
<td>[Eli Lilly]</td>
</tr>
<tr>
<td>Ocrevus</td>
<td>Multiple-sclerosis</td>
<td>Est $7.8b</td>
<td>[UCSF; Roche]</td>
</tr>
<tr>
<td>Herceptin</td>
<td>HER-2 metastatic BC</td>
<td>$6.0b</td>
<td>[UCLA; Roche]</td>
</tr>
<tr>
<td>Kalydeco</td>
<td>Cystic Fibrosis</td>
<td>&lt;$1.0b</td>
<td>[Vertex]</td>
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¹ Various public sources - estimates
A Few Key Partners

BridgeBio

Takeda

Bayer

Orange Grove Bio

Lubrizol

AstraZeneca

covestro

Astellas

Material Sciences Corporation

Boehringer Ingelheim

Medtronic

BlueSphere Bio

Bristol Myers Squibb™

MERCK

Pfizer

Janssen

Leidos
Keys to Research Collaboration Success

- Mutual interest in the science
- Clear expectations
- Open, transparent communication

- Mutual respect and trust
- Focus on achieving each party’s expectations
- Managing & nurturing the relationship
OIEP’s Industry Research Partnering Approach

Aligning Pitt’s strengths and capabilities to the research needs of industry partners

**BACKGROUND**
Industry sponsored research funding, licensing, purchasing, philanthropy, other

**SCIENCE**
- Research Strategy & Focus
  - External innovation needs
- Can Pitt solve important problems for Partner? Would partnership advance Pitt’s research mission?
- Pitt Partnering Assets
  - Research strengths, unique capabilities, IP

**PEOPLE**
- Connections to Pitt
  - Prior work, execs, alumni
- Is there faculty interest? New or established connections? Can our teams work well together?
- Connections to Partner
  - Faculty, administrators

**TERMS**
- Business Requirements
  - Budget, Deliverables, IP, Legal terms
- Can we align around mutually beneficial partnership terms?
- Business Requirements
  - Budget, Deliverables, IP, Legal terms

**PARTNERSHIP**

Office of Industry and Economic Partnerships
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Industry Sponsored Research Engagement Steps

1. Source Opportunity
   - Principle Investigator, OIEP

2. Frame Opportunity
   - PI & Research
   - Admin (RA)

3. Develop proposal and budget
   - PI & Company

4. Agree on Statement of Work
   - PI, RA & Company

5. Negotiate Agreements
   - Office of Sponsored Programs

6. Launch Project
   - PI & OIEP

7. Complete & Review
   - PI & OIEP

OIEP facilitates the entire process
Pitt Start-Up Profile

Past 5 years

87 Pitt start-ups formed in the past 5 years

Over $900 million invested

Unique Investors > 110

Segments

- Therapeutics
- Medical Devices
- Advanced Materials
- Platform Technologies
- Software

Start-Up Examples

- **Alung Technologies** is a leading developer of advanced respiratory devices.
- **Bluesphere Bio**'s novel TCXpress platform makes it possible to identify and clone patient-specific TCRs.
- **Forge Biologics** is a hybrid gene therapy CDMO company.
- **Oncorus** is developing a portfolio of locally and systemically administered oncolytic virus therapies.
- **LyGenesis Inc.** is an organ regeneration company enabling a patient’s own lymph nodes to be used to regrow ectopic organs.
UPMC Enterprises

Translational Sciences & Digital Solutions

Disease Areas
- Oncology
- Ophthalmology
- Immunology
- CNS

Approaches
- Precision Health
- Cell Therapy
- Transformative Platforms
- Gene Therapy
“The newly established partnership will aim to cultivate the Pittsburgh biotech landscape by increasing entrepreneurship, education, and scientific translation of promising technologies. These efforts will be focused in the areas of oncology and autoimmune and inflammatory diseases. Orange Grove Bio will provide commercialization guidance and support to the University, an internship program for the university’s Ph.D. students, and educational seminars for primary investigators and researchers at the university.”
WORKING with VCs and UPMC-E

1. OPPORTUNITY SHARING
   - PI or Innovation Institute shares opportunity; or VC / UPMC-E outreach

2. NON-CONFIDENTIAL PROPOSAL
   - Non-confidential proposal and discussions held with VC / UPMC-E

3. DUE DILIGENCE
   - VC / UPMC-E Due Diligence with Confidential Information under CDA

4. AGREE on SOW & BUDGET
   - SOW, milestones, budget and commercialization strategy reviewed and agreed.

5. SPONSORED RESEARCH
   - Sponsored Research & Option Agreement entered

6. NEWCO/LICENSING or TERMINATE
   - IP licensed and Newco formed or Project Complete

OIEP & Innovation Institute facilitate the entire process

Office of Industry and Economic Partnerships
Typical VC Consideration Criteria

- Meets VC’s investment thesis / focus
- Addresses an area of unmet need
- Convincing evidence of a significant improvement over current approaches
- Viable, defensible IP strategy
- Viable regulatory pathway
- Stage of development
- Risk reduction steps
- Technology potential to be a platform technology

Additional Health Sciences Considerations

- Demonstrated target validation via in vivo or equivalent proof of concept data
- Supported by well-established and elucidated disease pathway/receptor biology
- Ideally have biomarker strategy for measuring PK/PD in clinic and to stratify/select patients
Pitching a Technology, Project or Start-up
Important pitch deck information

**Health Sciences Technology or Project**
- Title
- Project or Technology Description
- Sector / Therapeutic Area
- Clinical Importance and Unmet Medical Need
- Degree of Innovation
- Differentiation Over Standard of Care or Current Clinical Practice
- Stage of Development / Future Development Needs & Steps
- Regulatory Pathway
- Intellectual Property Status / Protection
- Commercial Potential (patient population)

**Start-Up**
- Title
- Company Purpose
- Unmet Need / Problem Being Addressed
- Solution / Value Proposition
- Market Size
- Competition / Differentiation
- Product
- Business Model
- Team
- Financials
### Who Do I Contact and When

<table>
<thead>
<tr>
<th>Finding / Engaging with External or VC Partners</th>
<th>Scott Morley</th>
</tr>
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<tbody>
<tr>
<td>When contacted by industry or VC</td>
<td>When interested in finding a partner</td>
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<tr>
<th>Patenting, IP Protection, Licensing</th>
<th>Alex Ducruet</th>
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<tr>
<td>With questions about patent protection</td>
<td>When interested in licensing technology</td>
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<th>Start-up Formation, Support or Development</th>
<th>Paul Petrovich</th>
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<tr>
<td>When interested in forming a start-up</td>
<td>When needing start-up support</td>
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<tr>
<th>For Engagement with UPMC Enterprises</th>
<th>Colleen Cassidy</th>
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<tr>
<td>When contacted by UPMC Enterprises</td>
<td>If interested in working with UPMC-E</td>
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<th>Unsure of Who to Contact</th>
<th>Cigdem Benam</th>
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<tr>
<td>When unsure of who to contact</td>
<td>For Innovation Institute questions</td>
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Please reach out for ...

- Help with developing an industry partnering strategy or approach
- Assistance in finding an industry partner for collaborative research
- Support in engaging with venture capital firms or seeking investors
- Alliance management support for ongoing external partner collaborations
- For more information visit – oiep.pitt.edu

Contact us at: partner@pitt.edu
End