



Centers for Therapeutic Innovation
A Pfizer-supported collaboration

Translating leading science into the clinic





A Winning Team

A CTI partnership represents a significant opportunity for leading academic investigators and institutions to enable the fast, efficient translation of innovative science into clinical candidates and, eventually, approved therapeutics. The CTI is:

- A collaboration to discover and develop biologic therapeutic candidates from early research through Proof-of-Mechanism in humans
- A jointly staffed laboratory, allowing easy access to Pfizer tools and compound libraries, located on or near the campus
- An opportunity to translate research programs from the laboratory to the clinic, working collaboratively with Pfizer scientists and Pfizer-funded postdocs
- A structure that enables ongoing career advancement through research and publication, while creating significant financial opportunities through milestones and royalties

We believe that the combination of the operating model, financial resources, and scientific expertise within the CTI will bring novel programs to the clinic to benefit investigators, their institutions, and most importantly, patients.



Overview — Reinventing Partnership

The Centers for Therapeutic Innovation (CTI), a newly created, entrepreneurial research unit at Pfizer, Inc., is dedicated to the establishment of global partnerships between Academic Medical Centers (AMCs) and Pfizer to transform research and development through a focus on translational medicine.

During the first 10 years of this century, progress in biology and other fields relevant to pharmaceutical innovation has been revolutionary. Innovative science has the potential to radically change the way we treat disease, but it typically takes a long time and requires significant financial investment for novel findings to be translated into testable clinical hypotheses. The pervasiveness of the gap between early science and translation into clinical applications presents an opportunity for industry and academia to collaborate in an unprecedented manner through the CTI. The CTI focus is on biotherapeutic modalities (antibodies, peptides, and proteins) across all therapeutic areas.

The CTI is a pioneering, open-innovation partnering model that Pfizer has designed to accelerate drug discovery and development. The CTI laboratory staff will include Pfizer employees plus leading basic and translational science investigators and doctoral candidates from the AMCs. Participating AMCs and principal investigators (PIs) will be highly incentivized through milestone payments, broad publishing rights, and the ability to use all intellectual property, joint or otherwise, for research purposes.

This model offers leading investigators the resources to pursue scientific and clinical breakthroughs by providing access to select Pfizer compound libraries, proprietary screening methods, and antibody development technologies that are directly relevant to the investigators' work.

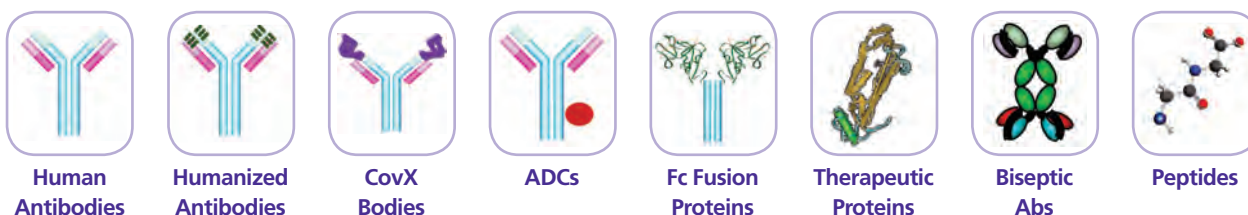
The CTI collaborative model will effectively and efficiently combine the best ideas, research, and expertise of the AMC with Pfizer's resources. The result of this integration will be better testing of clinical hypotheses, increasing the speed with which we establish Proof-of-Mechanism (PoM) and ultimately bringing truly differentiated medicines to patients in need.

The CTI Vision, Mission, and Strategy

There is one simple goal for every project funded by the CTI: Enable a principal investigator to test a novel mechanistic and/or therapeutic hypothesis that addresses unmet medical needs in human subjects.

We are seeking partnerships with principal investigators who have a passion for translational medicine and consider demonstrating the clinical application of their basic discovery the next challenge in their career.

The CTI will provide the PI with funding (eg, postdoctoral support), technical support (eg, dedicated Pfizer personnel with expertise in protein sciences and development), and infrastructure (eg, laboratory space, libraries, robots, etc). In addition, Pfizer will provide unparalleled access to specific, leading-edge technologies that will accelerate testing of the hypothesis.



Focus on Translational Medicine

An understanding of disease processes drives innovation in medicine. The successful implementation of translational research, linking preclinical data with clinical outcomes, can provide benefits to both the AMC and Pfizer. By focusing on understanding *in vitro* human systems, human disease association, and patient heterogeneity, CTI participants will translate a mechanism from preclinical work to the clinic with a much greater chance of success.

Focus on Proof-of-Mechanism

All activities in the CTI will be dedicated to developing a selective and safe clinical probe to test the hypothesis. The incentives, operating model, and goals for participating PIs and Pfizer colleagues will be designed to support achieving a positive Proof-of-Mechanism study in humans. PoM studies are small, investigator-led clinical trials that typically involve 10 to 30 human subjects and have defined mechanistic or therapeutic endpoints.

Open Innovation

The CTI is an open-innovation model. As Pfizer scientists work together in the same laboratories with academic PIs, AMCs and Pfizer scientists will share their understanding of the new target biology and their translational medicine expertise. This, in turn, increases the speed to PoM studies.



Operations: How the CTI Works

Organization — CTI Laboratories at Academic Medical Centers

The CTI laboratory will be a small, nimble, and semi-autonomous unit located in close proximity to the AMC. Laboratory staff includes both Pfizer employees dedicated to a specific function and AMC postdocs. A Pfizer colleague will lead the CTI laboratory and serve as the single point of contact and accountability. All CTI laboratory staff will actively support research efforts by providing technical guidance, project management, and other functions within the scope of their capabilities. In addition to the dedicated CTI laboratory staff, Pfizer may provide access to non-CTI-based Pfizer scientists who have specific expertise that may be of use to a program (eg, probe generation, library screening).

Pfizer colleagues assigned to the CTI will have expertise in biologics and experience and capabilities spanning multiple disciplines.

Roles and functions of Pfizer colleagues assigned to laboratories might include:

- *Antibody Engineers* — expertise in antibody libraries and antibody generation
- *Assay Biologists/Cellular Immunologists* — insight and expertise to help translate biology into high-quality, effective assays for antibody discovery or development
- *Protein Scientists* — experience in protein pharmaceutical sciences (eg, formulation, cell-line development, protein analytics)
- *Project Managers* — overall project management capability, accountable for helping to achieve goals, tracking progress, and focusing team efforts

The postdoctoral fellows sponsored by Pfizer will provide the core technical expertise for the projects. Postdocs selected for a fellowship will be highly talented and motivated to test a novel hypothesis and biologic probe in the clinic.

Governance

A Joint Steering Committee (JSC) that includes members from Pfizer and the AMC will govern the partnership and have overall accountability for program progress. The JSC will be responsible for such activities as selecting high-quality projects, monitoring timelines and milestone achievements, overseeing management of potential conflicts of interest, and ensuring that leading PIs are involved in the program. By sharing equally in the decision-making process, Pfizer and the AMC reinforce a commitment to true partnership.

Process

The process will begin with a two-step proposal: preproposal and full proposal. JSC members will select projects for funding by the CTI laboratory from the submitted proposals. Once the JSC approves a proposal, the PI and lead Pfizer scientist will submit a statement of work describing the research plan that includes critical go/no-go milestones.

PIs, postdocs, and Pfizer scientists will work jointly on research projects within the CTI laboratory and in the PIs' laboratories at the AMC. At each critical milestone, the JSC will review study findings and make go/no-go decisions. Once a project has progressed to the stage of a candidate therapeutic protein, the JSC will review the data to determine if the project should progress to preclinical development (eg, IND-enabling toxicology, production of clinical-grade material, etc). If endorsed by the JSC, the project will gain access to a broad pool of flexible funds to pay for these critical-path activities. The JSC will review the project results prior to the initiation of human clinical trials. If endorsed by the JSC, the CTI will grant the project additional funds to execute first-in-human studies with a goal of demonstrating PoM.

Pfizer has the first option to license clinical probes produced through CTI-sponsored projects. Clinical probes that are not licensed by Pfizer may be licensed by the AMC or furthered through alternative means, including out-licensing to another organization or spin-out into a separate company.



Funding and Resourcing

The structure for funding and resourcing operations of the CTI will provide maximum flexibility to investigators and postdocs in support of the creative and efficient use of funds by participants and colleagues, while remaining focused on moving the most promising programs forward.

CTI laboratories will fund and resource JSC-approved programs based on specific program needs. Support may include:

➤ *Sponsorship for postdocs/consultants.* To enable support for truly novel and innovative science, Pfizer will fund up to two postdocs per JSC-approved project for two to three years. The timing of funding and program milestones will be established on a project-by-project basis. Funding for postdocs will cover most expenses and costs, and include access to the CTI laboratory space. The postdocs working on programs selected by the JSC are expected to maintain close contact with the AMC investigators and Pfizer.

➤ *Access to Pfizer resources, including proprietary tools and technologies.* The CTI will provide unprecedented access for JSC-approved investigators and postdocs to specified proprietary antibody tools and technologies that will enable programs to move forward as quickly as possible. The world-class tools and technologies that may be available to investigators include:

- Immune Protein Libraries and Technologies
 - Human phage display libraries
 - Screening and optimization technologies
 - *In vitro* lead generation: phage display library design, generation, and screening
 - *In vivo* lead generation: rodent hybridoma, B-cell selection, Avian mAbs
 - Humanization
 - PK engineering
- Biotherapeutic Engineering and Production
 - Rapid antibody generation
 - Protein engineering to improve potency, selectivity, pharmacokinetics
 - Protein modification (eg, PEGylation, HESylation, etc)
 - Biophysics and bioanalytics (eg, BIAcore, DSC, Mass Spec, etc)
 - X-ray crystallography and NMR
 - Molecular modeling

➤ *Flexible funding to support preclinical and early clinical development activities.* Pfizer may support a certain amount of preclinical and clinical activities. If approved by the JSC, funding will be accessible in tranches related to achievement of specific program milestones. The PIs will collaborate with experts in the CTI laboratories and the AMCs to develop preclinical programs that seek out the fastest, most efficient paths to prepare the probe for human clinical testing. PIs and AMCs may seek external funding in addition to any funding provided by Pfizer as long as such arrangements are consistent with the parties' agreements and do not negatively impact the overall objectives of the project.

Incentives for partners

- Acceleration of scientific progress
 - Unprecedented access to Pfizer's world-class antibody libraries and technologies
 - Dedicated support and expertise in drug development and protein sciences
 - Potential use of Pfizer assays and high-throughput screening, biophysical and/or animal modeling, cell-line development, protein/mAb engineering, and humanization or other technologies
 - Intellectual property ownership and license rights to support continued experimentation and exploration
- Career enhancement
 - Reasonable publication rights
 - Association with a highly competitive, well-resourced program
 - Diverse training experiences for PIs and postdocs
- Financial incentives
 - Well-funded fellowships for PIs and their teams
 - Flexible funds to support the preclinical and clinical advancement of promising projects
 - Milestone payments and royalties, as appropriate, upon the advancement of programs