



**COLLABORATIONS  
PHARMACEUTICALS, INC.**

### **Collaborations Pharmaceuticals, Inc. Summer Projects 2023**

Collaborations Pharmaceuticals Inc is a local biotech developing clinical candidates for rare and neglected diseases. We currently have NIH and DOD funded projects ongoing for projects on applying software for various drug discovery and toxicology applications. Our approach uses machine learning using our software product [AssayCentral](#) to identify molecules. Students will experience how a small dynamic company can work on an array of projects that can impact human health. <http://www.collaborationspharma.com/>

Projects available include:

**1. Generative design project**

We have multiple drug discovery projects to apply our in-house generative design software too. We would ideally like a chemist /cheminformatics student who can help apply the software and work with outside consultants to make the molecules and test them. The student would obtain valuable experience of working in a pretty topical area for the industry right now.

**2. Tuberculosis antibody drug conjugate**

We aim to develop an antibody drug conjugate for tuberculosis. To date we have synthesized the drug+linker and have identified and characterized a suitable antibody. We now need to conjugate the drug+linker and antibody and perform analytical work to ensure the product is made prior to *in vitro* testing. An ideal project for a chemistry student who wants to find a therapeutic application.

**3. Rare lysosomal storage diseases**

We have several early-stage rare disease projects on lysosomal storage diseases including additional small molecule chaperone and enzyme replacement therapy projects. We would be keen to work on at least one of these and find a cell biologist / structural biologist student that could help us develop these projects further. This would be a lab based project to work on chaperone identification, enzyme assays, protein expression, purification etc.

**4. Business Development**

The company has a broad pipeline with small and large molecule assets for various rare and neglected diseases. We would be interested to identify companies that might be partners for our various assets. We would be keen to identify an MBA student who could assist us with business development opportunities. They would gain experience of assessment of the competitive space, market projects and developing pitches to companies and VCs.

#### **5. Machine learning and testing against Nuclear receptors**

We have recently developed suites of machine learning models for the Estrogen Receptor, Androgen Receptor. Besides representing important targets for endocrine disruption, they are also targets for cancer. We would like to use these models using our Assay Central software to virtually screen millions of commercial compounds, select those that score well and test internally. Our goal is to find compounds as starting points for anti-cancer projects. This would be an ideal project for a biologist / cancer researcher with an interest in machine learning. They would gain experience of how we could generate pathway models for different diseases and find molecules that could be potential therapeutics.

#### Contact

Sean Ekins, Ph.D., D.Sc.

CEO and Founder,  
Collaborations Pharmaceuticals, Inc.  
840 Main Campus Drive, Lab 3510  
Raleigh, NC 27606

sean@collaborationspharma.com

cell:215-687-1320

office: 919-515-5941