The goal of the RGC is to improve patient care by using genomic approaches that speed drug discovery and development through identifying new drug targets and validating existing programs.

**WHAT THE RGC DOES**

- As one of the world’s most comprehensive genetics databases, the RGC uses state-of-the-art automation and cloud-based informatics to sequence and analyze exomes.
- Pairs sequenced data with de-identified real-world electronic health records and other clinical datasets to make genetic and disease associations to:
  - Identify novel drug targets
  - Validate indications and screen for safety considerations in existing development programs
  - Pursue pharmacogenetics (the effect of genetics on drug response) and how to apply precision and personalized medicine approaches to treating diseases
- Allows Regeneron to potentially speed and optimize drug development by applying findings to initiate and validate clinical explorations and inform ongoing translational medicine approaches across the company.

**REAL WORLD APPLICATION**

Genetic and therapeutic antagonism of ANGPTL3 in humans and of ANGPTL3 in mice was associated with decreased levels of all three major lipid fractions and decreased odds of atherosclerotic cardiovascular disease.


**OUTCOMES TO DATE**

- Sequencing at rate of **200,000 exomes per year**, with DNA from more than **200,000 people sequenced** as of August 2017.
- Identified hundreds of **novel candidate disease genes** across range of diseases and traits.
- Predicted loss of function **variants identified for virtually all** of Regeneron’s target genes.
- Published **actionable discoveries** in peer-reviewed publications including *New England Journal of Medicine* and *Science*.

The RGC is a wholly-owned subsidiary of Regeneron Pharmaceuticals, Inc.
OUR COLLABORATION MODEL
The RGC is collaborating with leading academic institutions, government organizations and integrated medical systems. Our high-touch collaborative model is focused on working closely together to gather and analyze data, exchange expert perspectives and ultimately make discoveries that will lead to improved patient care.

COLLABORATOR RGC WORKING TOGETHER

DNA Samples → Sequencing & Informatics → Shared Genomic Dataset

De-identified Phenotypic Data

Actionable Scientific Discoveries
- Peer reviewed publications (e.g. NEJM)
- Translational medicine (e.g. new targets, functional models, biomarkers, potential new therapies)
- Return of results to collaborators

“‘The relationship with Geisinger is a cornerstone of the effort the Regeneron Genetics Center is building, which we believe can advance the goals of human genetics research and personalized medicine.’”

GEORGE D. YANCOPOLOUS, M.D., PH.D.,
President and Chief Scientific Officer,
Regeneron Pharmaceuticals

“‘For Geisinger, this relationship is about the potential to improve individualized patient care...we expect that many of our patients and their family members will directly benefit from their participation in this research.’”

DAVID H. LEDBETTER, PH.D.,
Executive Scientific Officer and Chief Scientific Officer,
Geisinger Health System

RGC COLLABORATORS

45+ Collaborators

General Population → Founder Populations → Family-based Studies → Disease Area Focus

500,000 participants to be sequenced

Geisinger → 250,000 planned; nearly 100,000 sequenced to date