

**The ACMG Foundation for Genetic and Genomic Medicine  
Next Generation Fellowship & Residency Training Award  
Available Residency and Fellowship Programs**

The ACMG Foundation for Genetic and Genomic Medicine’s Next Generation Fellowship & Residency Training Award program has long-provided the medical community with several dozen highly qualified medical geneticists and genomicists. With more than two decades of experience training the next generation of experts in the field, we are drawing upon our extensive experience as the oldest genetics training program of its kind in the nation to expand the program and increase the number of graduates we train and send into the workforce.

When funds become available to the ACMG Foundation for Genetic and Genomic Medicine through our development efforts, we screen applicants and award as many genetic and genomic scholarships as possible to qualified candidates. This Fellowship program is critical to our mission of filling workforce pipeline gaps in our increasingly called-upon specialty field of medicine.

The ACMG Foundation currently accepts applications from accredited programs sponsoring qualified applicants for placement in **three distinct Primary Specialty Certificates, one Subspecialty Certificate program**, and for a new **Non-Certificate Genetic Specialty Study program**.

Primary Specialty Certificates include:

- “Clinical Biochemical Genetics” (Laboratory Fellowship),
- “Clinical Genetics Residency” (NextGen Scholarship), and
- “Laboratory Genetics and Genomics” (LGG Fellowship).

The ACMG Foundation’s Subspecialty Certificate is the:

- Medical Biochemical Genetics Subspecialty Program.

And our new Non-Certificate Genetic Specialty Study is:

- Partner Medical Specialty one-year MD Program.

The details of each program are found below. As of 2022, institutions that apply on behalf of a PhD applicant are awarded \$65,000 annually, and those advancing MD candidates are provided an annual stipend of \$75,000.

The ACMG Foundation’s three **Primary Specialty Certificates**

1. Our “**Clinical Biochemical Genetics (Laboratory Fellowship)**” Primary Specialty Certificate equates to the ABMGG’s certificate in *Clinical Biochemical Genetics* on the [ABMGG website](#).

ACMG developed two separate tracks for this fellowship program:

- a) **For experienced MDs already licensed in genetic and genomic medicine**, a one-year track is available.

- b) **For MDs from other specialty areas, or for PhDs with a genetic and genomic background,** this specialty certificate will require two years to complete.

ABMGG's website describes this fellowship as follows:

*"A clinical biochemical geneticist demonstrates competence in directing and interpreting a wide range of specialized, laboratory biochemical genetic analyses relevant to the diagnosis and management of inherited metabolic disorders. The specialist acts as a consultant regarding laboratory diagnosis on a broad range of inborn errors of metabolism."*

This Laboratory Fellowship builds the workforce pipeline for clinical biochemical laboratory geneticists. These experts develop and implement new tests, provide ongoing assurance of the quality of routine tests, interpret test results, and communicate these results to healthcare providers. Training involves an additional 2-year (24-month) fellowship following the completion of a PhD degree, or one year of study for approved candidates with an MD in genetic or genomic medicine.

This Fellowship's academic focus is on the development, application, and interpretation of genetic and genomic laboratory tests. The program also covers the administrative requirements necessary to meet national laboratory compliance standards. Program participants gain the ability to direct a clinical laboratory by the end of their training.

Awardees must also design a clinical laboratory research project and conduct that research over the course of the Fellowship. Ideally, this project will be translational in nature and applicable to advancing clinical genetic and genomic testing. The Foundation provides awardees a platform for the dissemination (presentation and/or publication) of the awardees' work during or after the successful completion of their Fellowship.

Applicants may also request a one-year medical genetics residency fellowship for a single specialty certification. An additional year may be sought for an additional laboratory specialty.

2. The Foundation's "**Clinical Genetics Residency**" **NextGen Scholarship** is a two-year program intended for medical doctors who will ultimately treat patients.

This scholarship corresponds to the Primary Specialty Certificate found on the ABMGG website entitled "*Clinical Genetics and Genomics (MD)*." As ABMGG explains for this course of study:

*"A clinical geneticist demonstrates competence in providing comprehensive diagnostic, management, therapeutic, and counseling services for individuals and families at risk for clinical disorders with a genetic basis. The specialist is trained to evaluate individuals of all ages for hereditary conditions."*

Clinical Genetics Residencies are available to medical students who wish to pursue a two-year medical genetics residency. Clinical responsibilities of medical genetics residents include providing patient care in dysmorphology and pediatric metabolic and genetics clinics, prenatal diagnosis clinics, and adult genetic disease clinics/genomics, such as cancer risk genetics.

Applicants should have completed at least one year of initial residency training in some other area of study recognized by the Accreditation Council for Graduate Medical Education.

Applicants to this residency program can choose to pursue either a categorical residency program (i.e., awardees only trained in medical genetics) or can decide to combine their training with one other board training certificate in pediatrics, maternal fetal medicine, or internal medicine.

This program also requires applicants to design a research project and conduct that research over the course of the program. Ideally, this project will be translational in nature and applicable to advancing clinical genetic and genomic medicine. The Foundation will provide the awardees a platform for the dissemination (presentation and/or publication) of their work during or after the successful completion of the program.

3. The Foundation's last Primary Specialty Certificate program "**Laboratory Genetics and Genomics (LGG Fellowship)**" is also open to PhD and MD candidates. Our LGG Fellowship corresponds to the ABMGG's certificate of the same name and is described on the Board's website as follows:

*"A diplomate certified in Laboratory Genetics and Genomics demonstrates competence in directing and interpreting both clinical cytogenetic and molecular genetic analyses relevant to the diagnosis and management of human genetic disease. This specialist acts as a consultant in laboratory diagnoses for a broad range of molecular and chromosomal-based disorders, including both inherited and acquired conditions."*

Note: study in the subspecialties of Clinical Cytogenetics and Genomics as well as Clinical Molecular Genetics and Genomics were merged into the LGG Fellowship program in 2017.

#### The ACMG Foundation's **Subspecialty Certificate**

4. The Subspecialty Certificate available under the NextGen program is the **Medical Biochemical Genetics Subspecialty Program**.

ABMGG described the year of study as follows:

*"A medical biochemical geneticist demonstrates competence in the diagnosis, medical treatment and management of individuals with inherited metabolic conditions presenting clinically from infancy through adulthood, including via newborn screening. The subspecialist provides direct care and consultative care for individuals of all ages who are diagnosed with inborn errors of metabolism."*

This one-year residency course of study, also titled "Medical Biochemic Genetics Subspecialty" by the ABMGG, is intended for clinical geneticists who have completed a clinical genetics residency. Experts in medical biochemical genetics diagnose and manage patients who are at risk for, or have already developed, metabolic genetic diseases. This specific program seeks to increase the number of medical geneticists with interest, knowledge, and expertise in this field.

Participants in this program receive in-depth clinical or laboratory experience at a premier medical center with expertise and "significant clinical and laboratory volume" in biochemical

genetics, including lysosomal storage diseases, as well as in therapeutics and clinical trials involving patients with these and other metabolic diseases.

Institutions wishing to host applicants for this program must submit a letter to the ACMG Foundation Board describing their clinical and laboratory volume and detailing the areas of medical genetics and genomics that a prospective applicant would likely be able to study.

The ACMG Foundation's new Non-Certificate Genetic Specialty Study

5. In 2021, the ACMG Foundation launched a new **“Partner Medical Specialty one-year MD Program.”** In the spring of 2022, the ACMG Foundation had funding in-hand to place six candidates through this program, all of whom must qualify to join our Ophthalmology Specialty one-year MD Program. The Foundation intends to expand this number significantly in the future. Additional funding is needed to make this training available to candidates from other fields of medicine.

This innovative new Fellowship was first awarded to ophthalmology scholars in 2021. This is the initial year of a three-year grant that will ultimately mentor a total of six ophthalmologists, all of whom will gain clinical experience in identifying and treating genetic and genomic eye disorders and will build their understanding of other genetic-related medical conditions.

The timing of this new program is crucial. Medical advances are continually discovering new genetic links to countless conditions across nearly all other medical specialties. At the same time, few, if any, medical specialties provide in-depth genetic and genomic medical training for those in their programs.

Content for the program's year of study is reviewed and approved by the ACMG's Education and Fellowship Award Selection Committees, both of which are comprised of ACMG members. The Foundation and College also consult with experts who are trained in both disciplines to ensure that the specialty program is designed in advance and succeeds in delivering the most relevant material to participants. The Fellow must attend an accredited institution with a robust genetics and genomics medical program and study under the direction of mentors in our field of study.

Graduates of the Partner Medical Specialty Program represent a new breed of medical professionals. With the ever-expanding understanding of genetic and genomic medicine's role in a host of diseases and illnesses, graduates will be better able to aid patients with the cross training this fellowship provides. Graduates will be well situated to care for patients who may be misdiagnosed or passed over due to the workforce gaps in our field. The Foundation also believes that these cross-trained experts will be well-positioned to help lead several areas of medicine in new and exciting directions as our understanding of the human genome's impact on health continues to expand exponentially.

The Board of the ACMG Foundation and the leadership of our sister organization, ACMG, look forward to training interested medical students from other medical specialists through this

program, particularly those in the specialties of Cardiology, Gynecology, Nephrology, Neurology, Oncology, and Pediatrics, – just to mention a few.

ACMG is eager to work with other medical organizations to identify ways that this additional year of genomic medical training for non-genetics medical professionals (ophthalmologists, neurologists, cardiologists, pediatricians, and so on) might be officially recognized and supported by the medical community.

#### Final Notes and Disclosures

For each of the ACMG Foundation’s two-year NEXT GEN Programs, institutions are encouraged to recommend trainees who are in their third year of clinical genetics training.

Both the ACMG Foundation and the ACMG are committed to diversity, equity, and inclusion. Each organization’s Board of Directors directed the Fellowship Selection Committee to strongly consider awarding at least one annual award to a person from a diverse background each year. The Foundation was also directed to reach out aggressively and solicit applications from a diverse pool of applicants, including those who may aid the organization is promoting genetic and genomic medicine in underrepresented populations and communities. In 2021, three of our awardees (out of five total) were medical students from diverse backgrounds.

Selection committee members will make every effort to fund the most qualified awardees across all categories during their annual review of applications each summer. The final decisions about which applicants are funded will be determined by 1) the quality of the applications, 2) the goals and mission of the ACMG Foundation and of the ACMG, and 3) the amount of funding available in any given year. The ACMG Foundation will strive to announce the anticipated number of slots available in the second quarter of any given year.

Should additional funding become available after the needs of these programs are met, or if targeted funding becomes available, the College and the Foundation may slightly alter or amend future areas of study under the NextGen Program. Fulfilling our mission requires that we ensure the medical education demands on our field are met, and that experts are trained in all areas possible.