

## OVERVIEW OF THE LGG FELLOWSHIP TRAINING PROGRAM

The Magee Womens Hospital Clinical Genetics and Genomics Laboratory is comprised of the Clinical Cytogenetic Laboratory (PCL), the Clinical Genomics Laboratory (PCGL) and the Prenatal Screening Lab (PSL). The laboratories are accredited by the American Board of Medical Genetics and Genomics (ABMGG) for the training of fellows in the Laboratory Genetics and Genomics (LGG) program. The two-year program includes training in Clinical Cytogenetics, Molecular Genetics and Genomics. The LGG program offers extensive training in performance and interpretation of molecular genetic and cytogenetic analyses relevant to the diagnosis and management of human genetic disorders. Satisfactory completion of the LGG training will lead to board-eligibility in the Clinical Laboratory Genetics and Genomics specialty through the American Board of Medical Genetics and Genomics (ABMGG).

The **PCL** offers broad laboratory training in all areas of clinical cytogenetics, including:

- Prenatal testing on amniotic fluid, chorionic villi and products of conception;
- Postnatal and adult testing on peripheral blood and fibroblasts;
- Oncology testing on bone marrow and solid tumors.

The trainee will gain expertise in classical G-banded chromosome analysis, special staining techniques, fluorescence in situ hybridization (FISH) and whole genome and high resolution gene targeted array comparative genomic hybridization for the diagnosis of DNA copy number abnormalities and copy number neutral alterations such as uniparental isodisomy and long stretches of homozygosity in both constitutional and oncological specimens.

The **PCGL** offers trainings in the aspects of

- Molecular testing of Mendelian disorders
- Prenatal testing for cystic fibrosis
- Pharmacogenetics testing
- Preimplantation genetic screening
- Next generation sequencing

Our program also takes advantage of the close proximity of the Molecular Genetic Pathology Laboratory (MGP) to integrate the fellow's training activities and to ensure exposure training to a variety of prenatal, postnatal and oncological conditions. In 2017, the PCGL laboratory will start offering large gene panels and exome analysis using next generation sequencing (NGS). In addition to NGS, a variety of technologies are used in the lab including mass spectrometry, Sanger sequencing, electrochemical detection, whole genome amplification and automated DNA isolation.

## TRAINING OBJECTIVES

- Perform, analyze, interpret and report cytogenetic and molecular assays.
- Identify, annotate and interpret cytogenetic, sequence and copy number variations using databases and informatics pipelines.
- Communicate genetic test results to physicians and other professional staff.

## LGG FELLOWSHIP TRAINING PROGRAM

- Develop oral and written presentation skills through case conferences, seminars, abstracts and manuscripts.
- Understand clinical laboratory management including lab regulatory issues and quality control procedures.
- Understand the development and validation of new clinical assays.
- Participate in translational research projects.

### DIDACTIC TEACHING

During the two-year training program fellows will participate in the case conferences on clinical genetics, clinical microarray, and hematopathology, children’s tumor board and genetic counseling sessions. In addition the fellow is required to take four basic courses in the Department of Human Genetics at the Graduate School of Public Health at the University of Pittsburgh and expected to pass the exam. Details of those courses are outlined in the table below. In addition, fellows may include additional elective courses to enhance their knowledge in specific aspects of inherited disorders and population genetics.

#### Didactic Training –Required Courses

Course Number	Course Title	Name of Dept/Program Offering	Course Frequency and Duration	Name of Assigned Text(s) (R) = Required	Name of Instructor	Areas *	Monitoring*
HUGEN 2035	Principles of Genetic Counseling	Graduate School of Public Health	2/week 3 hours		Grubs, Robin & Lewis, Andrea	G	A,E
HUGEN 2031	Chromosomes and Human Disease	Graduate School of Public Health	2/week 4 hours	Human Chromosomes. Structure, Behavior, Effects, 4th Ed. International System for Cytogenetic Nomenclature	Susanne Gollin	C	A,E
HUGEN 2034	Biochemical and Molecular Genetics of Complex Disease	Graduate School of Public Health	2/week 3 hours	The Metabolic and Molecular Basis of Inherited Disease	Mohammad Kamboh	M	A,E
HUGEN 2040	Molecular Basis of Human Inherited Diseases	Graduate School of Public Health	2/week 3 hours	Human Molecular Genetics, 3rd Ed., The Metabolic and Molecular Bases of Inherited Disease, 8th Ed.	David Finegold, Quasar Padiath, and Zsolt Urban,	M	A,E

\*Training is provided in: C=Cytogenetics, G=Genetic Counseling, M=Molecular Genetics, \*\*Indicate how requirement is monitored:

Upon the successful completion of the two-year training program, fellows will be eligible for the LGG ABMGG certification exam and be able to direct a cytogenetic and/or molecular genetic laboratory.

## **LGG FELLOWSHIP TRAINING PROGRAM**

### **ELIGIBILITY OF CANDIDATES**

- Candidates must hold an M.D., or Ph.D. or MD/PhD degree
- Candidates with at least two years prior postdoctoral training are preferred.
- Candidates must be US citizens or permanent residents.
- Candidates with a doctoral degree earned outside of the U.S., Canada or Puerto Rico should have the ABMGG Credentials Committee to review their credentials prior to the onset of LGG training.

### **MATERIALS REQUIRED FOR APPLICATION**

- Current CV
- Three letters of reference
- A short cover letter summarizing professional work experience, motivation for LGG fellowship training and career goals.

### **LGG FELLOWSHIP (2019-2021) APPLICATION TIMELINES**

- Applications will be accepted from July 1 to October 31, 2018.
- Interviews will be held beginning on November 1, 2018
- Decisions will be made by January 31, 2019
- The new trainees will start on July 1, 2019

**Please email or send your application packet to:**

seskeyma@mwri.magee.edu

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LLG Fellowship Coordinator  
Magee-Womens Research Institute  
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Pittsburgh, PA 15213  
Pittsburgh, PA 15213

## **LGG FELLOWSHIP TRAINING PROGRAM**

### **LGG PROGRAM DIRECTOR**

#### **Aleksandar Rajkovic, MD, PhD**

- Medical Director of the Medical Genetics and Genomics Laboratories
- Director of Reproductive Genetics, Department of Obstetrics, Gynecology and Reproductive Sciences
- Program Director of the Medical Genetic Residency/Fellowship Program
- Professor of Obstetrics, Gynecology and Reproductive Sciences, Pathology and Human Genetics
- Marcus Allen Hogge Chair in Reproductive Sciences

### **LGG TRAINING DIRECTORS**

#### **Daniel Bellissimo, PhD**

- Co-Director of the Clinical Genomics Laboratory
- Associate Professor of Obstetrics, Gynecology and Reproductive Sciences and Pathology
- ABMGG Certified in Clinical Molecular Genetics

#### **Jie Hu, MD, PhD**

- Associate Director of the Cytogenetics Laboratory
- Associate Professor of OB/GYN & Reproductive Sciences
- ABMGG Certified in Clinical Cytogenetics

### **LGG TRAINING FACULTY MEMBERS**

#### **Svetlana A. Yatsenko, MD**

- Associate Professor, Department of Obstetrics, Gynecology & Reproductive Sciences, Pathology and Human Genetics
- Director of the Pittsburgh Cytogenetics Laboratory
- ABMGG Certified in Clinical Cytogenetics

#### **Alexander N. Yatsenko, MD, PhD**

- Assistant Professor, Department of Obstetrics, Gynecology & Reproductive Sciences
- Director, Pittsburgh Clinical Genomics Laboratory
- ABMGG Certified in Clinical Molecular Genetics

**Devereux Saller, MS, MD**

- Medical Director of the Pregnancy Screening Laboratory
- Professor of Obstetrics, Gynecology and Reproductive Sciences
- Director of Clinical Genetic Services
- Maternal Fetal, Medicine/Ultrasound/Genetics
- Department of Obstetrics, Gynecology and Reproductive Sciences

**Steven F. Dobrowolski, PhD**

- Training Director of the Biochemical Genetics Laboratory
- Associate Medical Director of Clinical Genetics and Genomics,
- Medical Director of the Clinical Biochemical Genetics Laboratory
- Associate Professor of Pathology
- ABMGG Certified in Clinical Biochemical Genetics and Molecular Genetics

**Somak Roy, MD**

- Assistant Professor of Pathology
- Assistant Director of the MGP Laboratory.