

*Editor's note:* The Diagnostic Laboratory Immunology (DLI) certification program has been certifying individuals for this special qualification on the basis of an examination given to individuals who qualified based upon their general training experience in DLI and relevant investigative activities. Over 150 individuals have taken the examination to date. However, in the future, individuals already certified by the American Board of Internal Medicine, American Board of Pediatrics, and/or the American Board of Allergy and Immunology, will be eligible to take the DLI certifying exam only after an additional year of training in a program approved for DLI training. The general requirements for an approved program in DLI training are listed in the following article. Institutions wishing to set up such programs are encouraged to write to Doris A. Stoll, PhD, Residency Review Committee for Allergy and Immunology ACGME, Room 7440, 515 North State St., Chicago, IL 60610, for further information about applying for approval of their training program. —Burton Zweiman, MD, *Editor*.

## Special requirements for residency training in diagnostic laboratory immunology

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### I. INTRODUCTION

#### A. Scope and duration of training

A graduate medical education program in diagnostic laboratory immunology (DLI) is designed to train individuals to become fully versed in all aspects of the direction of a diagnostic immunology laboratory. These programs must be 1 year in duration.

#### B. Sponsoring and participating institutions

The diagnostic laboratory immunology program must be conducted in institutions with accredited graduate medical education programs in allergy and immunology or in the various relevant subspecialties of internal medicine and pediatrics.

Affiliations with other institutions and existing laboratories may be necessary to ensure a full educational experience in diagnostic laboratory immunology. When the resources of two or more institutions are utilized, letters of agreement must be approved by the institutional governing boards. Affiliations should be avoided with institutions that are at such a distance from the parent institution as to make attendance at rounds and conferences difficult and/or which do not add to the educational value of the program.

#### C. Trainees

Candidates for these programs should have successfully completed an accredited residency program

in internal medicine or pediatrics and should have additional training in an immunologically related subspecialty.

The number of trainees should not exceed the educational resources available in the program. It is desirable that each program have at least one trainee at all times to keep the educational process current.

Residents must have a keen sense of personal responsibility for continuing patient care and must recognize that their obligation to patients is not automatically discharged at any given hour of the day or any particular day of the week. In no case should residents go off duty until the proper care and welfare of the patients have been assured. When hours are averaged over 4 weeks, residents should spend no more than 80 hours per week in hospital duties, should have, on the average, the opportunity to spend at least 1 full day out of 7 free of hospital duties, and should be on call no more often than every third night. It is the responsibility of the program director to ensure enforcement of reasonable policies with respect to work hours.

#### D. Objectives

A DLI training program must provide a structured educational experience that allows the trainee to become proficient in the basic science, laboratory procedures, and technical management underlying the operation of the diagnostic immunology laboratory. In addition, it must provide an appropriate clinical background that will prepare the trainee to act as a consultant in the application and interpretation of diagnostic immunology tests.

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## **II. PERSONNEL**

### **A. Program director**

The program director must be highly competent as a scientist, clinician, and teacher in the field of diagnostic laboratory immunology. This individual must be certified by the American Board of Allergy and Immunology or by a board in an immunologically related subspecialty of internal medicine or pediatrics or possess suitable equivalent qualifications. In addition, the director should have a certificate in diagnostic laboratory immunology or must demonstrate suitable equivalent qualifications. The director must possess leadership qualities and have the authority to organize the program. This individual must maintain close contact with the program participant(s), contributing sufficient time to assure adequate teaching and guidance. The director, or qualified designee, must be available to provide advice and instruction to trainee(s) on a day-by-day basis.

### **B. Teaching staff**

A sufficient number of teaching staff must be incorporated into the program to ensure implementation of the educational program. The faculty must possess special competencies in the laboratory procedures currently used in clinical immunology and be able to provide the broad educational experience necessary for the interpretation of laboratory results. The faculty should be engaged in scholarly activities, such as participation in regional or national scientific societies, participation in continuing medical education, and the conduct of research leading to presentation and publication of scientific data.

## **III. INSTITUTIONAL RESOURCES**

### **A. Facilities**

The DLI program must be supported by an adequate administrative and technical staff and have appropriate laboratory space available. In most instances, this means the presence of an ongoing and operational diagnostic immunology laboratory in which a wide variety of immunologic tests is being performed on a routine basis with state-of-the-art equipment. The laboratory should use modern record-keeping procedures to ensure timely return of laboratory results and adequate storage of data.

### **B. Clinical resources**

The program should be in a setting in which there are sufficient clinical resources to ensure a large enough pool of patients to contain the full spectrum of immunologic disorders, and these patients should be available to the trainees for teaching purposes.

## **IV. EDUCATIONAL PROGRAM**

### **A. Curriculum**

The educational goals must be defined in appropriate documents and must be available to prospective and current trainees as well as all faculty members involved in the program. Such goals must be defined, not only for broad objectives but also for individual rotations, both inside and outside of the main teaching laboratory. These goals must address the question of graded responsibility within the program, methods of trainee evaluation, and means of involving trainees in diagnostic immunology consultation.

The curriculum should include a combination of practical and didactic training that addresses a number of different areas of diagnostic laboratory immunology. The core areas forming a central part of every DLI program must involve training in the theoretical and practical aspects of quantifying immunoglobulins, immunoserologic testing, detection of autoantibodies, immunofluorescent and immunoperoxidase techniques, the study of lymphocyte phenotypes and functions, the use of monoclonal antibodies, ELISA and radioimmunoassay techniques, and the use of serologic methods for the detection of HIV infections. In addition, there must be training in assays of immune complexes and the procedures for the measurement of complement components. These core areas should be supplemented by several additional important areas that may be covered by organized conferences. These include training in methods of *in vitro* allergy testing, molecular genetic techniques as applied to immunologic diagnosis, immunohematology, procedures for the rapid diagnosis of infectious diseases, evaluation of phagocyte functions, histocompatibility testing, and the detection and quantification of tumor antigens. The trainee must gain experience in the proper selection of laboratory procedures for the most efficient evaluation of immunologic disease. Such education should include discussion of controversial immunodiagnostic techniques so that the resident will be able to make a rational determination regarding the scientific merit of such tests. In addition, the program must include education in the principles of quality control, laboratory management, and interaction with regulatory agencies.

### **B. Seminars and conferences**

Trainees must attend seminars and conferences, which are conducted on a regular basis and must be of adequate quantity and quality to ensure that there is an interchange of teaching within the various disciplines of clinical immunology. These conferences must include discussions of basic immunology, allergy, immunodeficiency disorders, and the immu-

nologic aspects of rheumatology, pulmonology, gastroenterology, nephrology, hematology-oncology, endocrinology, cardiology, neurology, and infectious diseases.

### **C. Teaching rounds/clinical and basic science/didactic teaching**

Trainees in DLI should attend appropriate clinical rounds and other didactic teaching sessions outside the DLI program itself. In addition, trainees should have access to prepared teaching materials on clinical and basic immunology.

### **D. Research**

It is expected that such a program will be devoted to scholarly activity, including participation in research.

### **V. EVALUATION**

A semiannual record of each trainee's performance should be maintained by the program director. The record should include periodic written evaluations by the program director and other attending staff members who supervise the trainee, and these should be discussed with the trainee. All records relating to the trainee's work should be preserved and made available (with the consent of the trainee) to examining boards

and other responsible agencies if this is required. In addition, there should be formal provision for evaluation of the training program by the staff and trainees.

Review of performances of past trainees on the written examination of diagnostic laboratory immunology will be used by the Residency Review Committee as one measure of the quality of the program.

Programs are required to notify the Committee of major programmatic change, that is, change in program director, addition or deletion of participating institutions, and changes in numbers of trainees. The Committee retains the prerogative to assess the impact of such change(s) on the quality of the education offered to the trainees.

### **VI. CERTIFICATION**

Residents who plan to seek certification by the American Board of Allergy and Immunology in Diagnostic Laboratory Immunology should communicate with the Executive Secretary of the Board to ascertain the full requirements.

These general requirements for DLI certification were approved by Accreditation Council for Graduate Medical Education, Feb. 13, 1990; effective date, July 1, 1990.

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