



İMMÜNOLOJİ ve DOKU TİPLEME LABORATUVARLARI GÜNCEL DURUM ve GELECEK

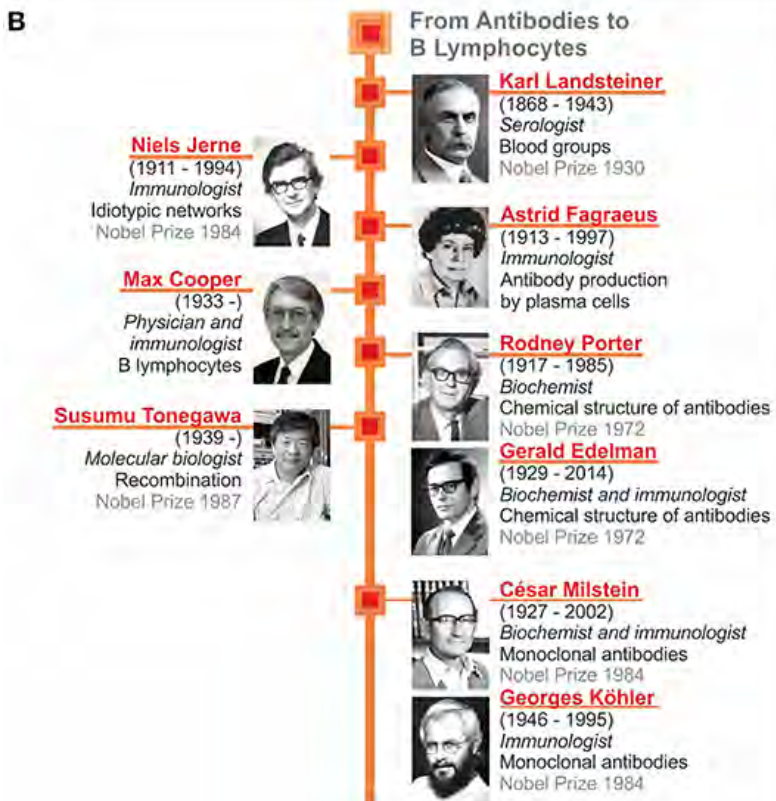
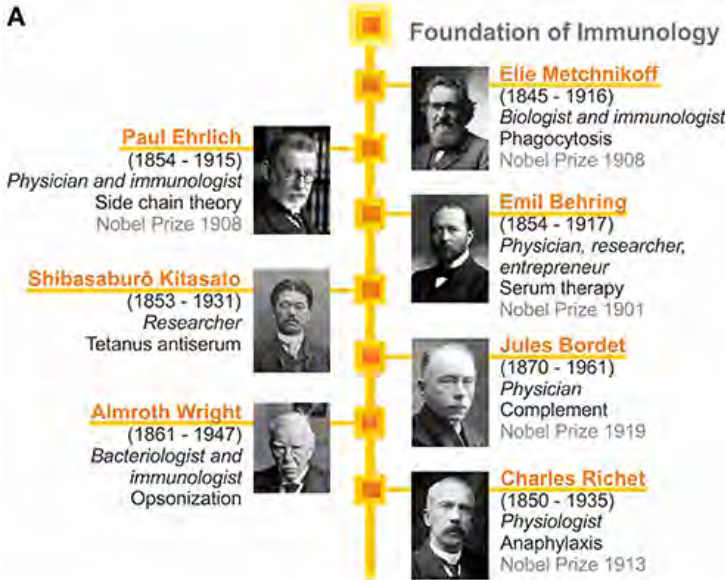
Prof. Dr. Gülderen Yanıkkaya Demirel
Yeditepe Üniversitesi Tıp Fakültesi
İmmünoloji Anabilim Dalı
HİTİD Kurucu Üye

DÜNYA SAĞLIK ÖRGÜTÜ ve IUIS İMMÜNOLOJİ TANIMI

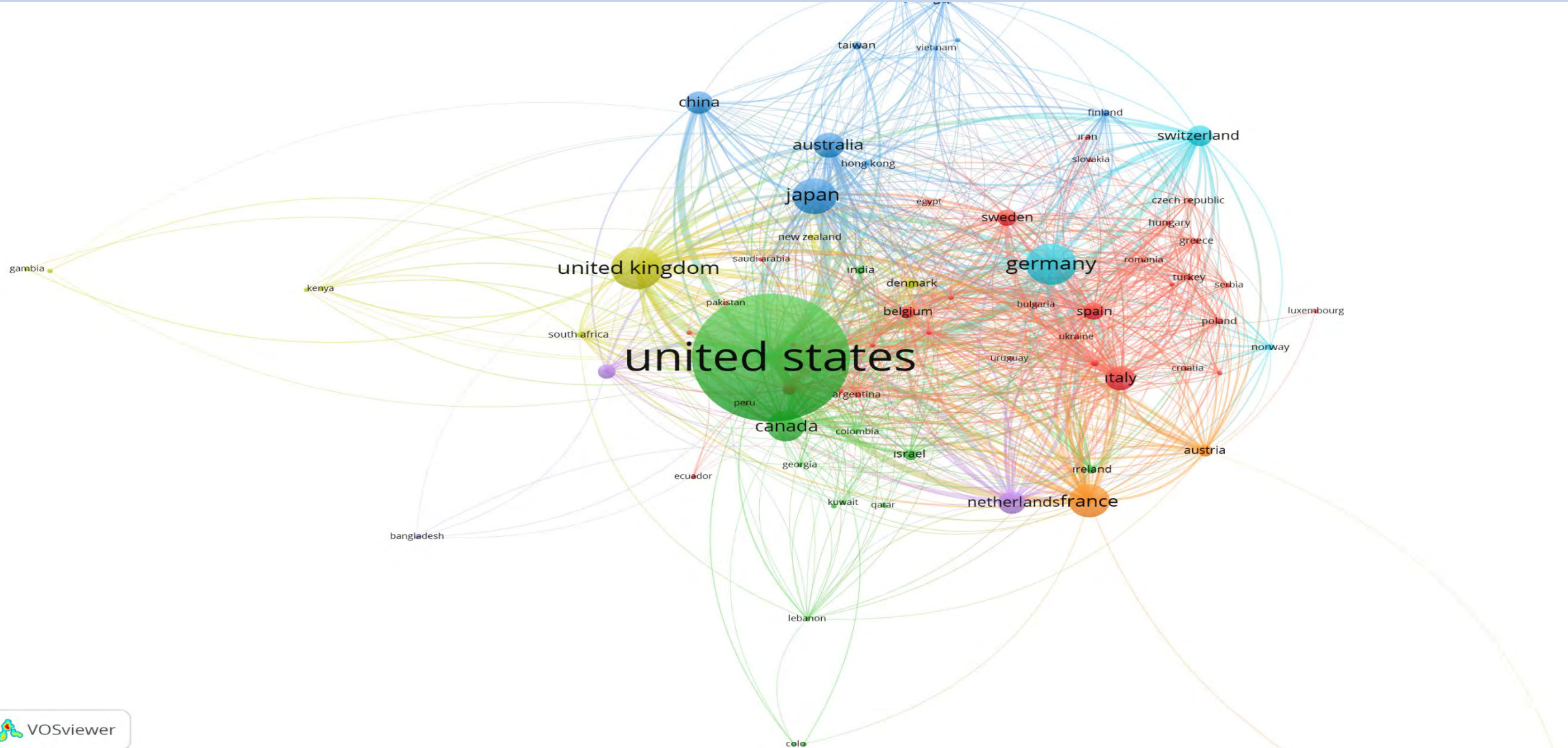
"a clinical and laboratory discipline dealing with the study, diagnosis and management of patients with diseases or disease processes resulting from disordered immunological mechanisms, and conditions in which immunological manipulation form an important part of therapy and/or prevention".

Düzensiz immünolojik mekanizmalardan kaynaklanan hastalıkları/hastalık süreçleri olan hastaların immünolojik yönetimi, tedavi ve/veya önlemenin önemli bir parçasını oluşturan durumların incelenmesi, tanısı ve yönetimi ile ilgilenen klinik ve laboratuvar disiplini

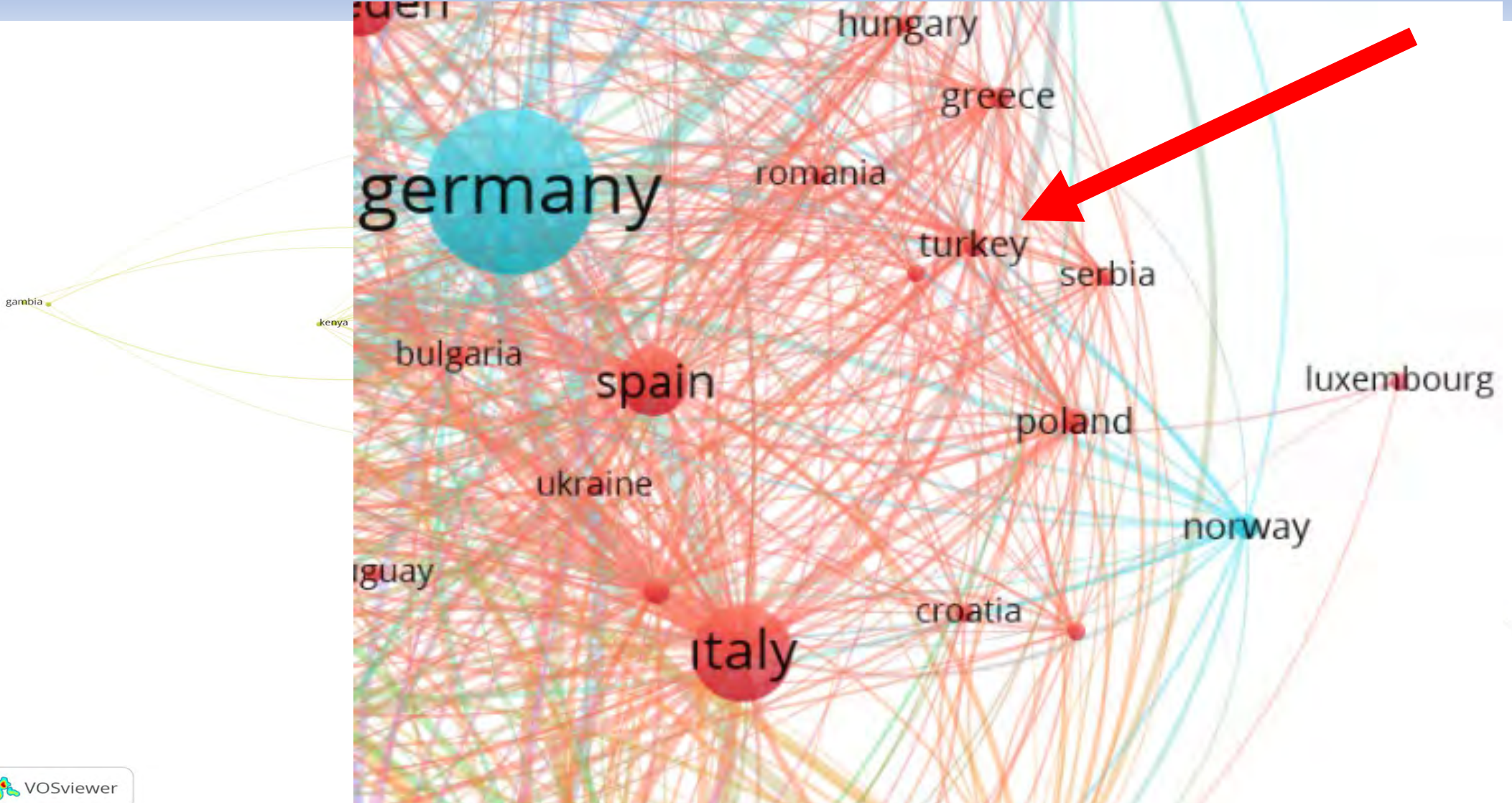
IUIS = International Union of Immunology Societies



TÜRKİYENİN YAYINLARLA İMMÜNOLOJİ DÜNYASINDA YERİ



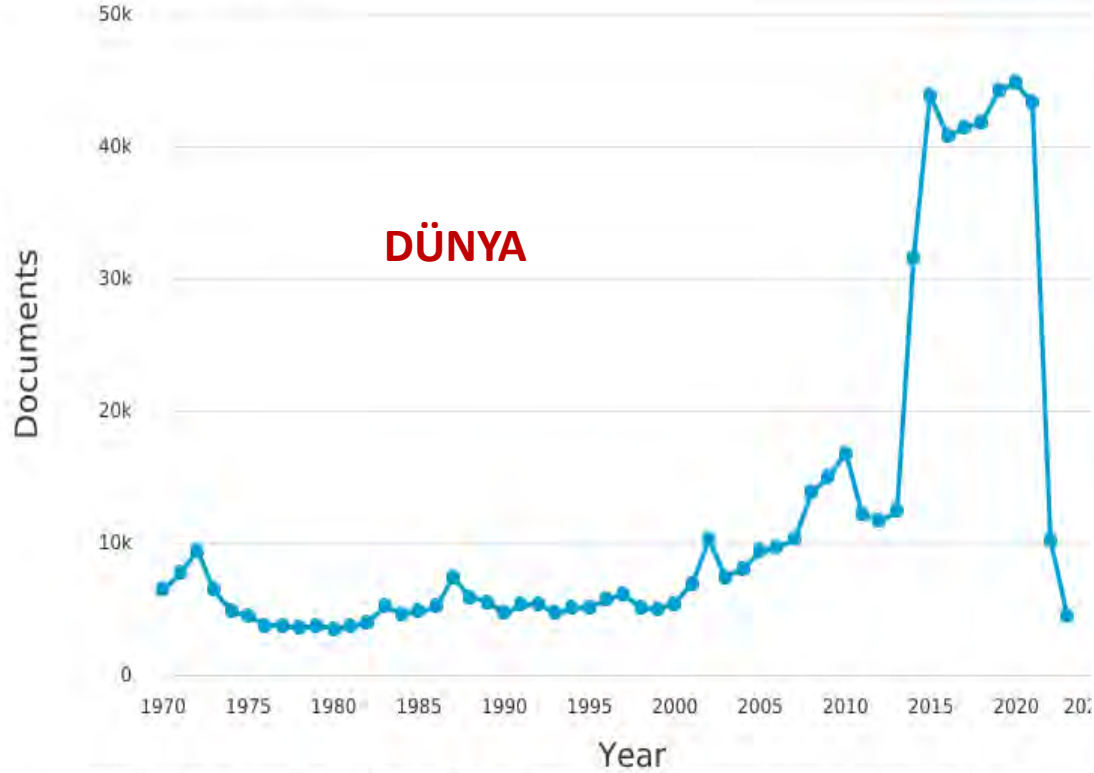
TÜRKİYENİN YAYINLARLA İMMÜNÖLOJİ DÜNYASINDA YERİ



TÜRKİYENİN YAYINLARLA İMMÜNOLOJİ DÜNYASINDA YERİ

Documents by year

Scopus



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Documents by year

Scopus



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İMMUNOLOJİ TESTLERİNİN DİĞER TESTLERDEN NE FARKI VAR?

- Hemen hepsinde bilgi ve deneyim birikimi ile yapılacak ek analizler ve yorum gerekiyor
- Mikroskop kullanımından ileri düzeyde moleküler testlere dek çok geniş bir alanda bilgi birikimi ve deneyime gereksinim var.
- Bilginin güncellenmesi/devinimi diğer laboratuvar alanlarından daha hızlı, öğrenme ve uygulamanın da aynı hızla gerçekleşmesi gerek
- Yapılan analizler, verilen raporlar hekimlerin hasta ile ilgili kararlarını diğer alanlardaki testler gibi doğrudan etkiliyor, bilgi ve deneyimi olmayan laboratuvar hekimlerinin bu testlerden sorumlu olmalarının, hasta ve hekime geri dönülmez bir etkisi var.

EIGHTH EDITION

MANUAL OF
MOLECULAR
AND CLINICAL
LABORATORY
IMMUNOLOGY



EDITORS

Barbara Detrick
John L. Schmitz
Robert G. Hamilton

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Section P Transplantation Immunology 1063

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Section Editors: *Elaine F. Reed and Qiheng Jennifer Zhang*

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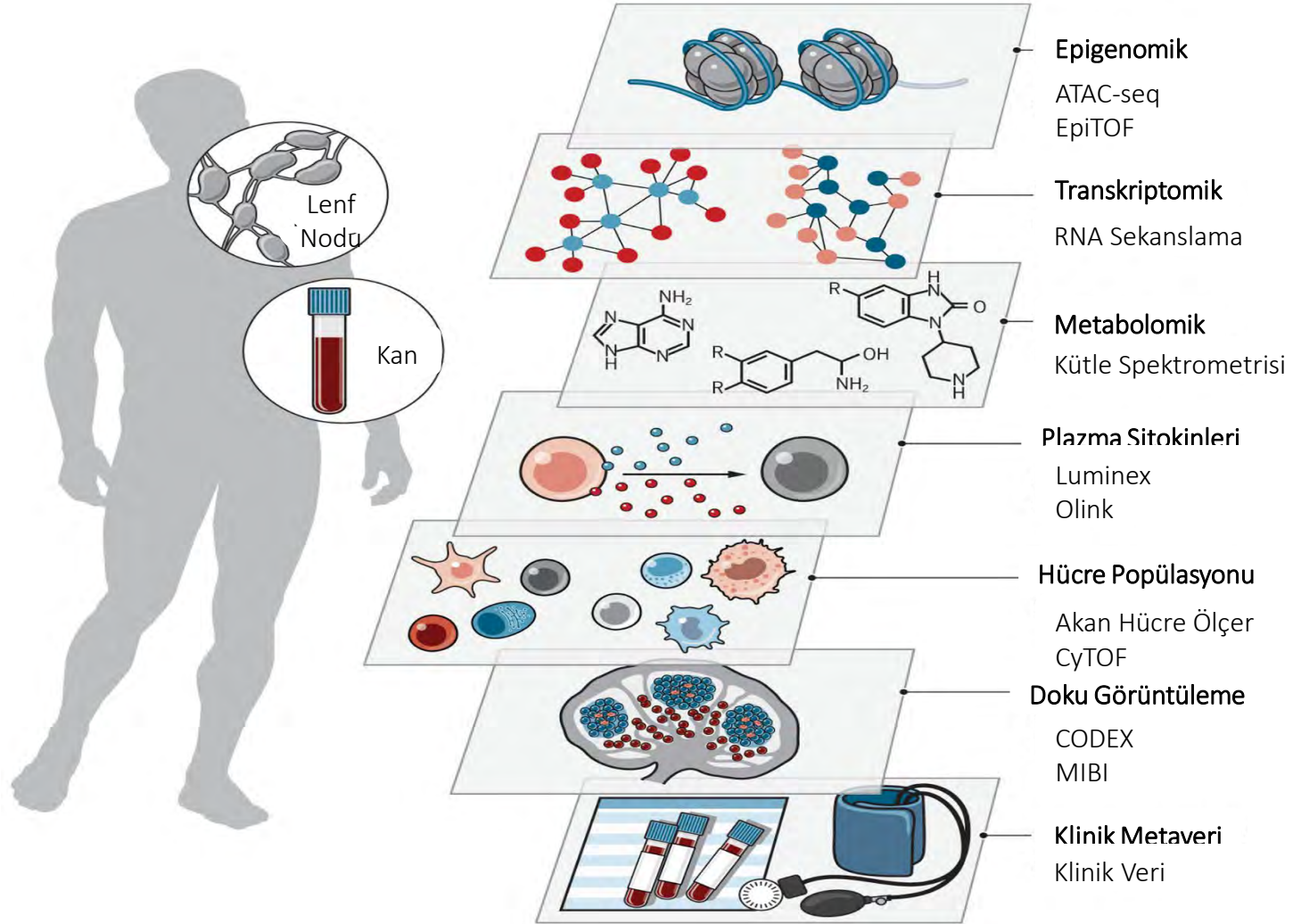
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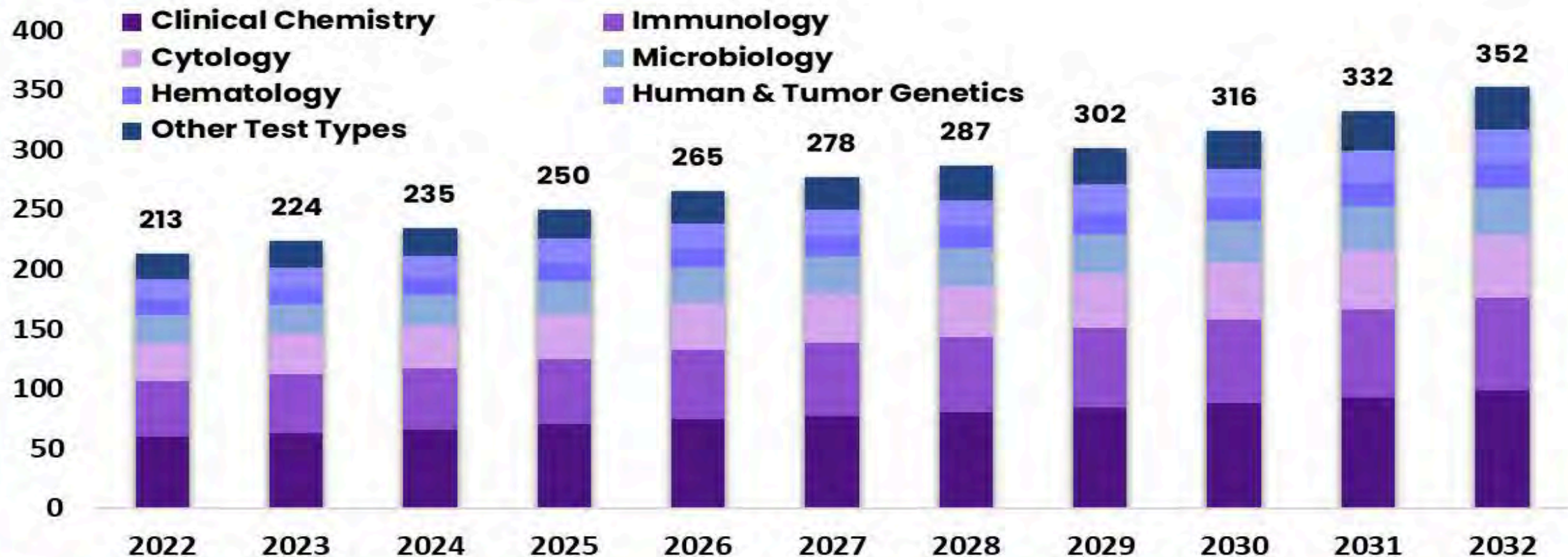
Lee Ann Baxter-Lowe

İMMÜNOLOJİDE YÖNTEMLER



Global Clinical Laboratory Services Market

Size, By Test Type, 2022-2032 (USD Billion)



The Market will Grow
At the CAGR of:

5.3%

The forecasted market
size for 2032 in USD:

\$352B

 **market.us**
ONE STOP SHOP FOR THE REPORTS

Global Immunology Drugs Market Research Report



Largest Region:
North America



Market Size:

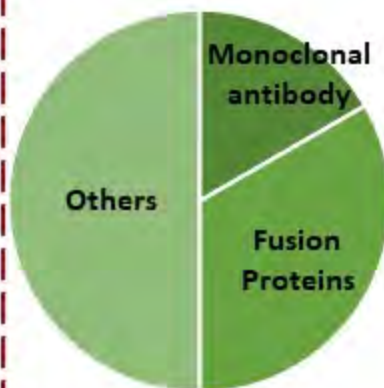
US\$ 94.3 Bn
(2022)

CAGR
(2023-2030)

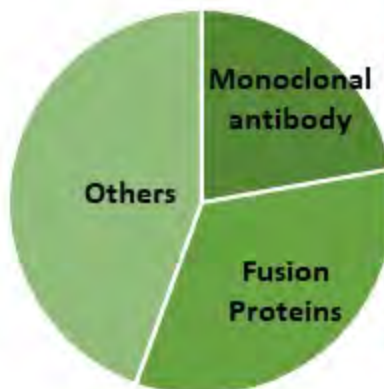
9.0%



By Drug Class:

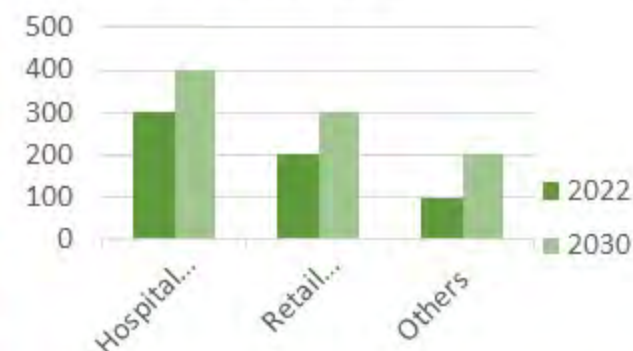


2022

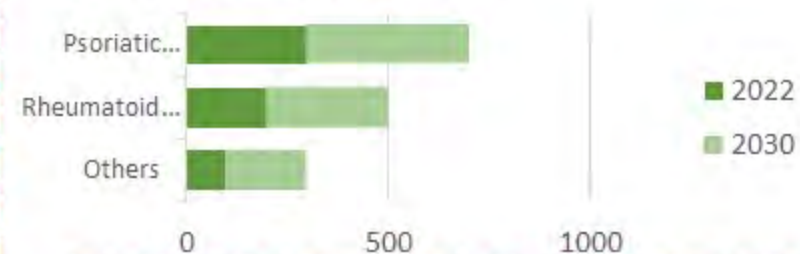


2030

By Distribution Channel:



By Disease Indications:



Key Players:



US: +1 551 226 6109

Email: info@insightaceanalytic.com

INSIGHT ACE ANALYTIC

Europe Clinical Laboratory Services Market

Growth in awareness among population for preventive health check-ups is expected to drive market growth

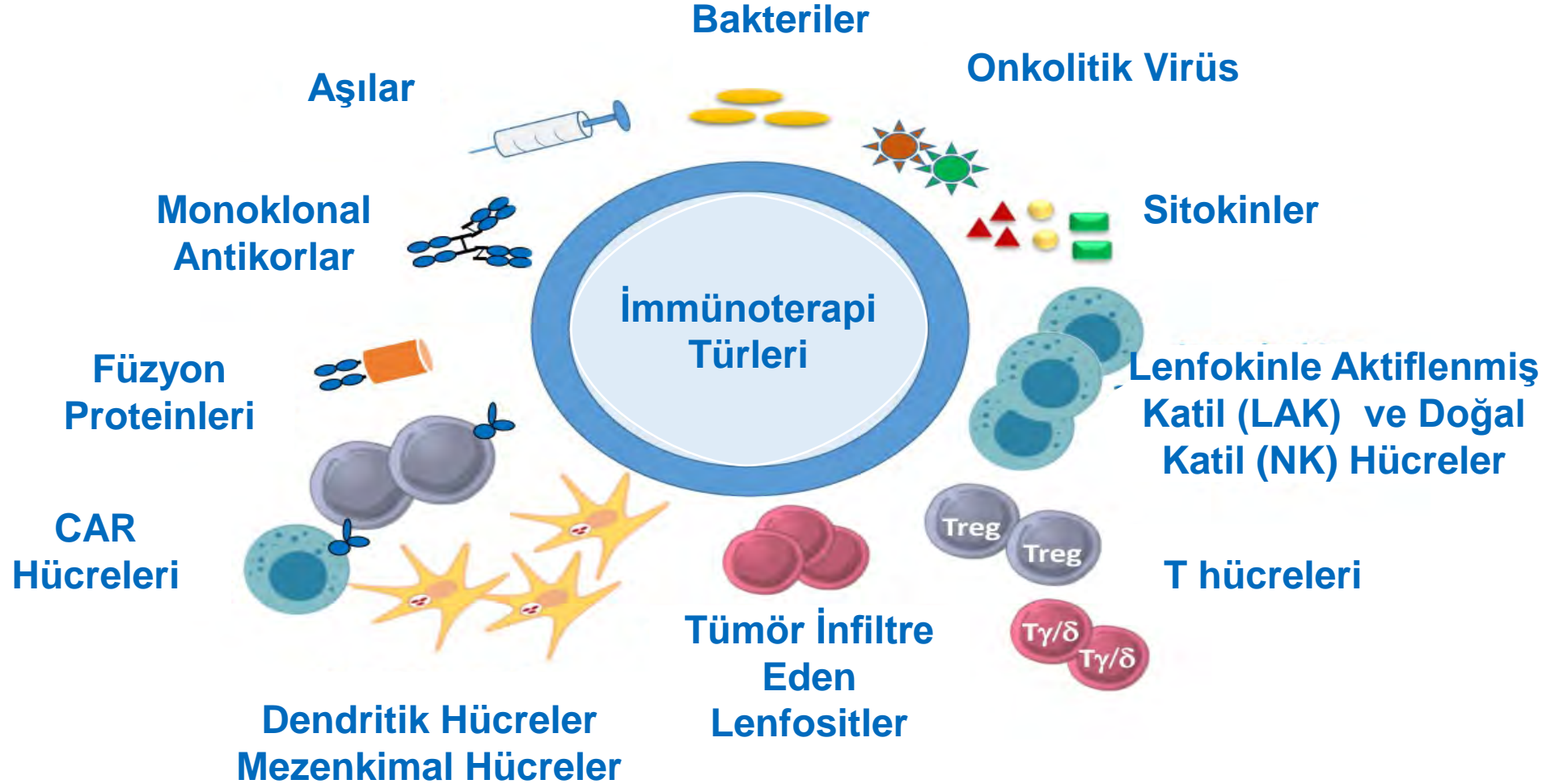


FUTURISTIC MARKET OPPORTUNITIES ←

DRUGS OF ABUSE TESTING

IMMUNOLOGY TESTING

İMMÜNO TERAPİLER GELDİ-GELİYOR-GELECEK



KUZEY AMERİKA'DA İMMÜNOLOJİ

The image is a screenshot of the Massachusetts General Hospital website. At the top, the hospital's logo and name are displayed, along with navigation links for 'The Mass General Difference', 'Conditions & Treatments', 'Patients & Visitors', and 'Research & Innovation'. A search bar is located on the right. Below this is a dark navigation bar with links for 'Our Doctors', 'Appointments & Referrals', 'Give Now', and 'Contact Us'. The main content area features the 'Allergy & Clinical Immunology' department name and a grid of links: 'About Us', 'Treatments & Services', 'Patient Resources', 'Research & Clinical Trials', 'Education & Training', and 'News & Events'. The page title is 'DEPARTMENT OF MEDICINE Clinical Immunology Laboratory'. A breadcrumb trail reads 'Home - Medicine - Allergy - Treatments & Services'. A vertical decorative bar of blue dots is on the left. Social media icons for Facebook, X, LinkedIn, and YouTube are on the right. A descriptive paragraph states: 'The Clinical Immunology Laboratory provides both diagnostic and educational services to the Mass General community.'

Massachusetts General Hospital
Founding Member, Mass General Brigham

The Mass General Difference

Conditions & Treatments

Patients & Visitors

Research & Innovation

Search

Allergy & Clinical Immunology

Our Doctors

Appointments & Referrals

Give Now

Contact Us

About Us

Treatments & Services

Patient Resources

Research & Clinical Trials

Education & Training

News & Events

Home - Medicine - Allergy - Treatments & Services

DEPARTMENT OF MEDICINE

Clinical Immunology Laboratory

The Clinical Immunology Laboratory provides both diagnostic and educational services to the Mass General community.

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Diplomate in Medical Laboratory Immunology Certification Examination: A New Chapter for Medical Laboratory Immunology

Aaruni Khanolkar, ... et. al

ImmunoHorizons (2023) 7 (8): 600–610.

<https://doi.org/10.4049/immunoHorizons.2300030>



| | |
|--|--|
| Major training areas | |
| Infectious disease serology | |
| Autoantibody testing | |
| Histocompatibility testing and transplantation immunology | |
| Innate and adaptive cellular immunology (flow cytometry, functional assays, etc.) ^d | |
| Nonmalignant and malignant hematologic flow cytometry ^d | |
| Immunodeficiency and other immune system disorders (evaluation of serum Ig levels, complement analyses, serum protein electrophoresis) | |
| Molecular biology/diagnostics | |
| Public health serology | |
| Soluble markers ^d | |
| Allergy testing | |
| Laboratory management and LIS/computer training ^d | |
| On-call responsibilities ^e | |
| Research | |

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Clinics Review Articles

Clinics in Laboratory Medicine



IMMUNOLOGY LABORATORY TESTING

EDITOR-IN-CHIEF
MILENKO JOVAN TANASIJEVIC

EDITOR
VINAY S. MAHAJAN



December 2019



Core Laboratory Technologies in Clinical Immunology

Edited by ROBERT R. RICH

AVRUPA ve İMMÜNOLOJİ

UNION EUROPÉENNE DES MÉDECINS SPÉCIALISTES EUROPEAN UNION OF MEDICAL SPECIALISTS

Association internationale sans but lucratif – International non-profit organisation



Training Requirements for the Specialty of Laboratory Medicine

European Standards of Postgraduate Medical Specialist Training

Introduction

Polyvalent Laboratory Medicine versus Monovalent Specialties

I. Training Requirements for Trainees

1. Content of training and learning outcome

Competencies required of the trainee

a. Theoretical knowledge

Haematology: theoretical knowledge

1. General haematologic methods
2. Cellular Haematology
3. Immuno-Haematology
4. Haemostasis

Clinical Chemistry: theoretical knowledge

Immunology: theoretical knowledge

Clinical Microbiology: theoretical knowledge

Laboratory Genetics: theoretical knowledge

1. Cytogenetics
2. Molecular Genetics
3. Genomic Medicine

Clinical chemistry: practical and clinical skills

1. Water, electrolyte, acid-base and blood gas disturbances
2. Laboratory markers of organ damage or states due to specific organ systems and conditions
3. Metabolic and endocrine diseases
4. Plasma proteins
5. Vitamins, trace elements, nutrition
6. Therapeutic drug monitoring (TDM) and toxicology
7. Point-of-care (POC) testing and self-monitoring
8. Laboratory Medicine related to specific organ systems and conditions

Laboratory Immunology: practical and clinical skills

1. General Immunology
2. Immune physiology
3. Immune pathophysiology
4. Immunological laboratory testing

Clinical Microbiology: practical and clinical skills

1. General Microbiology

Resources

- EU Member States
- EU Institutions and bodies
- EU Public Health
- Health Guidelines
- European Medical Associations
- [Medical Specialties in Europe](#)
- Drugs and Prescriptions in Europe
- Horizon 2020

Medical Specialties in Europe

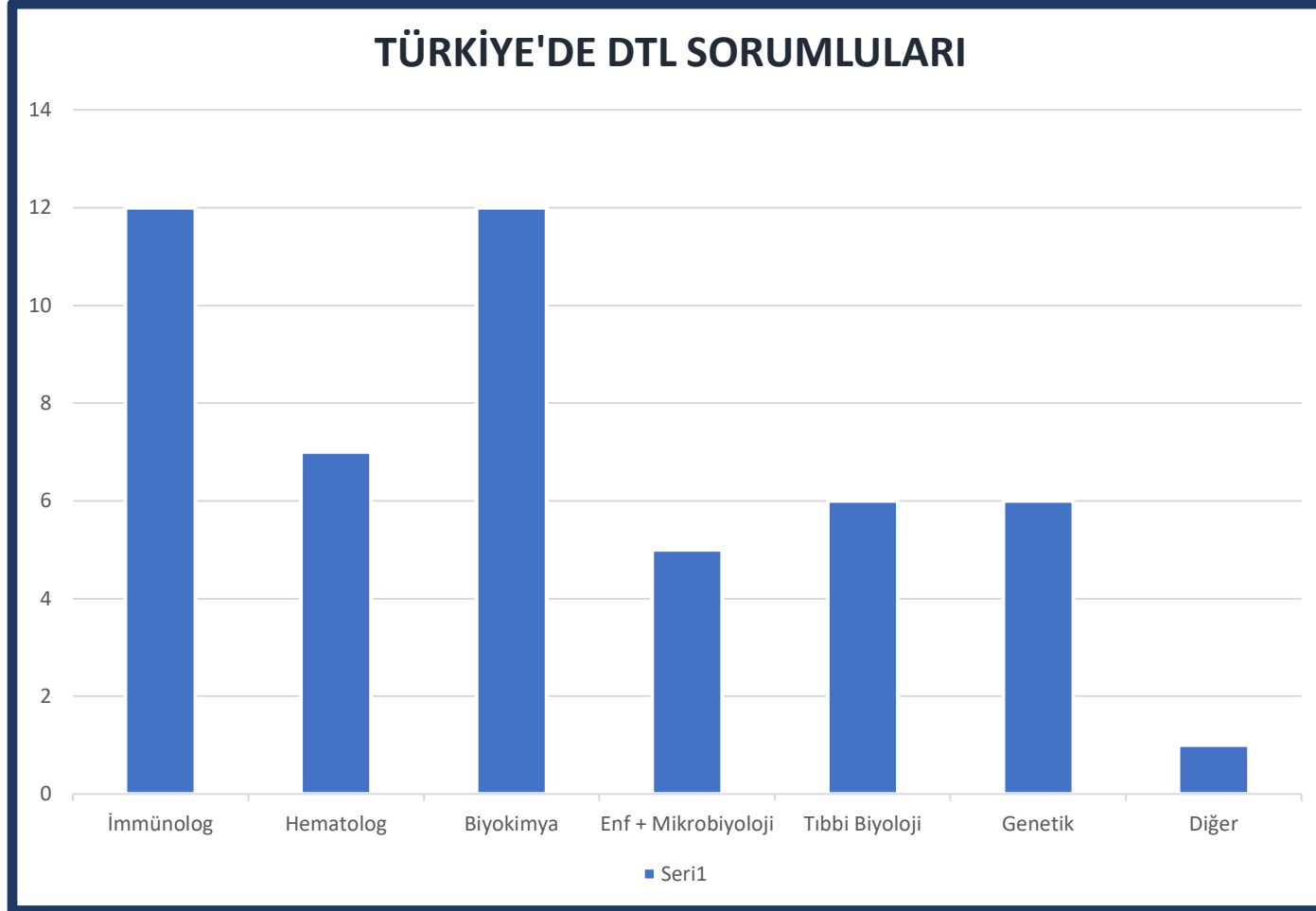
List of specialties recognized in the EU and European Economic Area

The European Union publishes a list of specialties recognized in the European Union, and by extension, the European Economic Area. Note that there is substantial overlap between some of the specialties and it is likely that for example "Clinical radiology" and "Radiology" refer to a large degree to the same pattern of practice across Europe.

- Registration form
- Registration
- Proof of your qualifications
- Membership List
- Membership List
- Registration

| | | |
|----------------------------------|---|--|
| Anaesthetics | Clinical chemistry | Tropical medicine |
| General surgery | Clinical biology | Child psychiatry |
| Neurosurgery | Immunology | Geriatrics |
| Obstetrics and gynecology | Plastic surgery | Nephrology |
| Internal medicine | Thoracic surgery | Infectious diseases |
| Ophthalmology | Paediatric surgery | Public health and Preventive Medicine |
| Otorhinolaryngology | Vascular surgery | Pharmacology |
| Paediatrics | Cardiology | Occupational medicine |
| Respiratory medicine | Gastroenterology | Allergology |
| Urology | Rheumatology | Gastro-enterologic surgery |
| Orthopaedics | General hematology | Nuclear medicine |
| Pathology | Endocrinology | Accident and emergency medicine |
| Neurology | Physical medicine and rehabilitation | Clinical neurophysiology |
| Psychiatry | Stomatology | Maxillo-facial surgery |

TÜRKİYE'DE DOKU TİPLEME LABORATUVARLARI



- Toplam 48 Doku Tipleme Laboratuvarı var
- Ayrı bir yönetmelikle yürütülüyor
- Belirli süre labda sorumlu yardımcısı olarak çalışanlar SB kurul onayı ile sorumlu olabiliyorlar

NEDEN İMMÜNOLOJİ UZMANLIĞINA GEREKSİNİM VAR?

- Tıbbi kararlar %70 oranında laboratuvar sonuçları ile belirleniyor.
- İmmünologlar sadece transplant immünolojisinde ya da enfeksiyon immunolojisinde değil, immünyetmezlik, otoimmünite, kanser, HIV vb hastalıklarda da önemli kararların alınmasını sağlıyorlar.
- ABD'de yılda 40,000 – 80,000 ölümün önlenabilir tanısal hatalar nedeni ile olduğu öngörülüyor. Türkiye'de sayı ???
- Alanında iyi yetişmiş immünologlar varken alanı ilerletmek yerine daraltmak ya da kapatmak yeni yetişen nesillere haksızlık olmaz mı?

NE ÖNERİYORUZ ??

- Diğer branşlardan bağımsız bir Klinik İmmünoloji Laboratuvarı Uzmanlığı
- İmmünoloji doçentliği (1089) YÖK tarafından kabul edilmeli ve sürdürülmeli
- Transplantasyon İmmünolojisi Laboratuvarları Klinik İmmünoloji Laboratuvarı uzmanları tarafından yürütülmeli
- Klinik İmmünoloji Laboratuvar Uzmanlığı yan dalları olmalı
 - Transplantasyon İmmünolojisi
 - Kanser İmmünolojisi
 - Enfeksiyon İmmünoloji
 - Terapötik İmmünoloji vb

NASIL BAŞLANGIÇ YAPILABİLİR ??

- Şu anda var olan İmmünoloji Anabilim Dalları bünyesinde çalışan, Doku Tipleme ve Transplantasyon İmmünolojisi Laboratuvarları Sorumluları, Sağlık Bakanlığı ve ilgili dernekler (TİD, HiTİD, Hematolojik İmmünoloji vb.) tarafından oluşturulan ortak bir kurulda oluşturulan kriterlere uygun olan öğretim üyelerine daha önce Genetik'te olduğu gibi uzman ünvanı verilmesinin irdelenmesi
- TUKMOS ile bir eğitim planı hazırlanarak ivedilikle TUS'la uzman alımına başlanması
- Yasal düzenlemelerin ivedilikle uyumlaştırılması
- Ülkemizin immünoloji alanında rekabetçi olmasını sağlayacak adımlar atılması
- Sadece uzmanlar için değil, teknik personel için de belgelendirme eğitimlerini kapsayan çok kurum katılımlı eğitimlerin yapılmasını öneriyoruz.

FUTURISTIC



İMMÜNOLOGLARIN GELECEĞİ NE OLACAK?

