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Research Areas

- ✓ Bacteriology
- ✓ Hospital infections
- ✓ Molecular mechanisms of antibiotic resistance
- ✓ Standardization of antibiotic susceptibility testing
- ✓ Clinical mycology
- ✓ Candida infections and virulence factors
- ✓ Diagnosis of fungal infections
- ✓ Antifungal Susceptibility Testing
- ✓ Antifungal drug resistance: mechanisms, epidemiology
- ✓ Clostridium difficile: pathogenesis and diagnosis
- ✓ Detection of Helicobacter pylori by Phenotypic and Genotypic Methods
- ✓ Antimicrobial susceptibility testing of Helicobacter pylori
- ✓ Fluorescence in situ hybridization method in diagnosis of H. pylori infection and determination of antimicrobial resistance
- ✓ Helicobacter pylori pathogenesis
- ✓ Helicobacter pylori infection and the antimicrobial resistance mechanisms
- ✓ Laboratory diagnostics for celiac disease
- ✓ Diagnostic Role of Anti-Nuclear Antibodies in Rheumatic Diseases
- ✓ Laboratory diagnostics for CMV
- ✓ Medical mycology
- ✓ Pathogenesis of aerob and anaerob microorganisms
- ✓ Biofilm formation and quorum sensing
- ✓ Pathogenesis of medically important mycosis

- ✓ Pathogenesis of mycobacteria
- ✓ Biofilm formation and apoptosis and necrosis relation
- ✓ Diagnosis and drug susceptibility testing of tuberculosis
- ✓ Diagnosis and drug susceptibility testing of medically important fungal infections
- ✓ Sterilization, disinfection and waste disposal
- ✓ Quality assurance, accreditation and quality control applications
- ✓ Diagnosis and drug susceptibility testing of tuberculosis
- ✓ Pathogenesis, immunology, and diagnosis of Mycobacterium tuberculosis infections
- ✓ Molecular mechanisms of antibiotic resistance in Mycobacterium tuberculosis
- ✓ Molecular techniques for clinical diagnostic virology
- ✓ Molecular detection and genotyping of viral pathogens
- ✓ Molecular mechanisms of antiviral drug resistance
- ✓ Diagnosis and epidemiology of viral agents
- ✓ Quality Control in Molecular Diagnostics
- ✓ Epidemiology and diagnosis of hantavirus infections
- ✓ Diagnosis and prevention of viral hemorrhagic fever
- ✓ Viral pathogenesis
- ✓ Monitoring of viral agents in rodent populations
- ✓ Approaches to test utilization of laboratory testing
- ✓ Sexually transmitted diseases
- ✓ Evaluation of the diagnostic value and performance of serological tests methods
- ✓ Diagnostic methods of fungal infections.
- ✓ Molds and their infections
- ✓ Antifungal susceptibility tests
- ✓ Environmental microbiology
- ✓ Pathogenesis of infectious diseases
- ✓ Biofilm related infections
- ✓ Animal Models in Infection
- ✓ 5S
- ✓ Implementation of biosafety system
- ✓ Biologic risk assesment
- ✓ Hazardous waste and disposal methods
- ✓ Effects of Subminimal antibiotic concentration on microorganisms
- ✓ Bacterial pathogenesis
- ✓ Diagnostic Role of Anti-Nuclear Antibodies in Rheumatic Diseases
- ✓ Evaluation of the diagnostic value and performance of serological tests methods

Recent Publications

- Ciccozzi M, Zehender G, Polat C, Lai A, Kayman T, Sorrentino C, Ebranati E, Cella E, Lo Presti A, Abacioglu H. Phylogenetic analysis of HCV-4d in Turkey: the curious case of Kayseri province. *J Med Virol.* 2014 Mar;86(3):454-60. doi: 10.1002/jmv.23787. PMID: 24132509
- Laabei M, Recker M, Rudkin JK, Aldeljawi M, Gulay Z, Sloan TJ, Williams P, Endres JL, Bayles KW, Fey PD, Yajjala VK, Widhelm T, Hawkins E, Lewis K, Parfett S, Scowen L, Peacock SJ, Holden M, Wilson D, Read TD, van den Elsen J, Priest NK, Feil EJ, Hurst LD, Josefsson E, Massey RC. Predicting the virulence of MRSA from its genome sequence. *Genome Res.* 2014 Apr 9. PMID: 24717264
- Sancak B, Yagci S, Gür D, Gülay Z, Ogunc D, Söyletir G, Yalcin AN, Dündar DO, Topçu

AW, Aksit F, Usluer G, Ozakin C, Akalin H, Hayran M, Korten V. Vancomycin and daptomycin minimum inhibitory concentration distribution and occurrence of heteroresistance among methicillin-resistant *Staphylococcus aureus* blood isolates in Turkey. *BMC Infect Dis.* 2013 Dec 10;13:583. doi: 10.1186/1471-2334-13-583. PMID: 24325260

- Sarı AN, Biçmen M, Gülay Z. Investigation of plasmid mediated AmpC beta-lactamases among *Escherichia coli* and *Klebsiella pneumoniae* isolated from blood cultures. *Mikrobiyol Bul.* 2013 Oct;47(4):582-91. Turkish. PMID: 24237427
- Firinci F, Soylu A, Ozturk C, Gulay Z, Demir BK, Turkmen M, Kavukcu S. Hyperbilirubinemia and urinary tract infection: the effect of indirect hyperbilirubinemia on the in vitro growth of uropathogen *Escherichia coli* in newborn urine. *Ren Fail.* 2014 Feb;36(1):55-7. doi: 10.3109/0886022X.2013.832863. Epub 2013 Sep 24. PMID: 24059809
- Sarı AN, Biçmen M, Gülay Z. The first report on the outbreak of OXA-24/40-like carbapenemase-producing *Acinetobacter baumannii* in Turkey. *Jpn J Infect Dis.* 2013;66(5):439-42. PMID: 24047747
- Avkan-Oguz V, Yapar N, Alp-Cavus S, Demir Onder K, Aktas E, Gulay Z, Cakir N. Clinical and microbiological efficacy of tigecycline for complicated skin-soft-tissue and intra-abdominal infections in a Turkish university hospital. *Int J Clin Pract.* 2013 Jun;67(6):505-11. doi: 10.1111/ijcp.12070. PMID: 23679904
- Castillo-Ramírez S, Corander J, Marttinen P, Aldeljawi M, Hanage WP, Westh H, Boye K, Gulay Z, Bentley SD, Parkhill J, Holden MT, Feil EJ. Phylogeographic variation in recombination rates within a global clone of methicillin-resistant *Staphylococcus aureus*. *Genome Biol.* 2012 Dec 27;13(12):R126. PMID: 23270620
- Cesur S, Irmak H, Simşek H, Cöplü N, Kılıç H, Arslan U, Bayramoğlu G, Baysan BO, Gülay Z, Hoşoğlu S, Berkaş M, Gencer S, Demiröz AP, Esen B, Karabiber N, Aydın F, Yalçın AN. Evaluation of antibiotic susceptibilities and VISA-VRSA rates among MRSA strains isolated from hospitalized patients in intensive care units of hospitals in seven provinces of Turkey. *Mikrobiyol Bul.* 2012 Jul;46(3):352-8. Turkish. PMID: 22951647
- Aktepe OC, Aşık G, Cetinkol Y, Biçmen M, Gülay Z. Investigation of plasmid-mediated quinolone resistance in *Escherichia coli* strains. *Mikrobiyol Bul.* 2012 Jan;46(1):9-16. Turkish. PMID: 22399166
- Leblebicioglu H, Cakir N, Celen M, Kurt H, Baris H, Laeuffer. Comparative activity of carbapenem testing (the COMPACT study) in Turkey. J; Turkish COMPACT Study Group. *BMC Infect Dis.* 2012 Feb 16;12:42. doi: 10.1186/1471-2334-12-42. PMID: 22340940

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