

1. Research and publications

The Department continues to maintain high standards of basic and applied research in different sub-disciplines of Microbiology. Currently, there are 31 funded and 26 un-funded projects that are being pursued by the academic staff. As in the past, the Department also excelled in research productivity by publishing 66 full-length research papers in peer-reviewed indexed journals, many of which have been published in quartile-one category journals. In addition, academic staff of the Department participated in a large number of International Conferences and presented their research work. The Department also contributed significantly in the 24th Annual Health Sciences Center Poster Conference (March 12 -14, 2019) by presenting 21 posters. The members of the Department actively participate in reviewing research grant proposals for funded research and manuscripts submitted for publication to national and international journals. They also serve as Chief-Editors, Editors and members of Editorials boards of scientific journals.

Research areas of faculty members:

Prof. Abu Salim Mustafa

1. Molecular characterization of bacterial pathogens with specific reference to *Brucella* and *Acinetobacter baumannii*
2. Study of cytokine responses to mycobacterial antigens in humans and animals
3. Modulation of asthma by vaccination with mycobacterial antigens

Prof. Widad Al-Nakib

1. Molecular epidemiology and pathogenesis infections caused by HIV, respiratory viruses, blood borne viruses and viruses causing gastroenteritis
2. Metagenomics for the detection of viruses in clinical samples
3. Whole-genome characterization of respiratory viruses

Prof. Vincent O. Rotimi

1. Anaerobes - *Clostridioides difficile* and *Bacteroides fragilis*
2. Infection control
3. Hospital infection, in particular *Acinetobacter baumannii* and *Enterobacteriaceae*
4. Antimicrobial susceptibility testing
5. Mechanisms of antibiotic resistance in Gram-negative bacteria

Prof. Manuel John Albert

1. Diagnosis, pathogenesis, drug-resistance and vaccination studies of enteric infections due to diarrheagenic *Escherichia coli*, *Salmonella*, *Shigella*, *Campylobacter*, *Helicobacter pylori*, vibrios etc.

Prof. Raj Raghupathy

1. Elucidation of maternal immunological effectors in general, and cytokines in particular, in pregnancy complications such as recurrent spontaneous miscarriage, preterm delivery, pre-eclampsia and intrauterine growth retardation.
2. Immunomodulation of cytokine production patterns using progestogens.
3. Roles of cytokines in the pathogenesis of rheumatoid arthritis, systemic lupus erythematosus, respiratory distress syndrome and bacterial and viral infections.

Prof. Suhail Ahmad

1. Molecular Microbiology and Microbial Physiology.
2. Diagnosis, epidemiology, pathogenesis and Systematics of susceptible- and drug-resistant mycobacterial (mainly *M. tuberculosis*) and mycotic (mainly *Candida/Aspergillus*/novel emerging) infections

Prof. Eiman Mokaddas

1. Respiratory microbiology including Mycobacterium tubercular and Streptococcus pneumoniae
2. Infections in immunocompromised patients
3. Health care associated infections including infections with multi drug resistant bacteria
4. Fungal infections especially in immunocompromised patients

Prof. Raja'a Al-Attiah

1. Studying the immunopathogenesis and the protective immune response of tuberculosis
2. Evaluation of the effects of natural and synthetic products on various human cancer cell lines

Prof. Noura Al-Sweih

1. Sexual transmitted diseases and urinary tract infections.
2. Neonatal Infections.
3. Epidemiology, diagnosis, pathogenesis and susceptibility pattern of fungal pathogens mainly *Candida spp* infections in Neonates.
4. Epidemiology and antibiotic resistance of Gram-negative bacteria in Kuwait hospitals and community for example (*Enterobacteriaceae* and *Acinetobacter spp.*).
5. Epidemiology and Antibiotic resistance and genetic distribution of MRSA and Enterococci in Kuwait.

Prof. Jamshaid Iqbal

1. Study of Tropical and Parasitic infections in Kuwait with specific focus on immunological and molecular diagnosis.
2. To determine the incidence and risk factors of common Tropical and Parasitic infections in the Kuwaiti and migrant populations, determining the high risk individuals, associated risk factors and preventive strategies.

Prof. Wafaa Jamal

1. Anaerobic infections, in particular community- and hospital-acquired *Clostridioides difficile* infections
2. Mechanisms of antibiotic resistance among Gram-negative bacteria
3. Hospital-acquired infections

Dr. Edet E Udo

1. Antimicrobial resistance in medically important bacteria
2. Transfer of antibiotic resistance determinants in Staphylococci
3. Molecular Epidemiology of Gram Positive cocci including Staphylococci, Enterococci and Group B streptococci
4. Antibacterial activity of novel compounds

Dr. Wassim Chehadeh

1. Understanding the pathogenesis and the molecular epidemiology of viral infections caused by HIV, respiratory viruses, enteroviruses, polyomaviruses and papillomaviruses

Dr. Hanady Al-Amoudy

1. Non-pathogenic mycobacterial for delivery of *M. tuberculosis*-specific antigens
2. Modulation of asthma by vaccination with *M. tuberculosis*-specific antigens

Dr. Wadha Al-Fouzan

1. Hospital acquired infection
2. Antimicrobial resistance
3. Candida Infections

Dr. Sahar Al-Essa

1. Immune responses related to viral infections this include humoral and cellular immune responses mainly cytokine responses.

Dr. Mona Al-Ahmad

1. Respiratory Allergic Diseases:
Focusing mainly on Inhalant aeroallergens effect on allergic rhinitis and allergic bronchial asthma, the study of inflammatory markers involved, and treatment outcomes. I have also special interest in patients with severe asthma phenotypes and the different biomarkers involved in pathogenesis, and targeted treatment outcomes.
2. Hypersensitivity Drug Reactions:
Focusing mainly on IgE- mediated allergic reactions to drugs, and characterizing oral provocation challenges for B-Lactams, Non-Beta lactams, NSAIDs, and other drugs.

Dr. Nada Madi

1. Studies on molecular epidemiology of viral infections, in particular, respiratory viruses and viruses causing gastroenteritis
2. Development of metagenomic approach for the detection of viruses in clinical samples
3. Whole-genome characterisation of respiratory viruses using the third-generation sequencer

Dr. Khalifa Albenwan

1. Diabetic foot infections
2. Urinary tract infections

Dr. Haya Al-Tawalrah

1. Molecular epidemiology, diagnosis and sequencing of respiratory viruses and blood borne viruses
2. Viral infections of immune compromised patients
3. Infection control

Given below is the list of research publications in the year 2018/2019.

1. Khan Z, Ahmad S, Mokaddas E, Meis JF, Joseph L, Abdullah A, Vayalil S. Development of echinocandin resistance in *Candida tropicalis* following short-term exposure to caspofungin for empiric therapy. *Antimicrob Agents Chemother.* 2018; 62: e01926-17.
2. Khan Z, Ahmad S, Al-Sweih N, Mokaddas E, Al-Banwan K, Alfouzan W, Al-Obaid I, Al-Obaid K, Asadzadeh M, Jeragh A, Joseph L, Varghese S, Vayalil S, Al-Musallam O. Changing trends in epidemiology and antifungal susceptibility patterns of six bloodstream *Candida* species isolates over a 12-year period in Kuwait. *PLoS One* 2019;14: e0216250
3. Khan ZU, Ahmad S, Benwan K, Purohit P, Al-Obaid I, Bafna R, Emara M, Mokaddas E, Abdullah AA, Al-Obaid K, Joseph L. Invasive *Candida auris* infections in Kuwait hospitals: epidemiology, antifungal treatment and outcome. *Infection.* 2018; 46: 641-650.
4. Khan Z, Ahmad S, Mokaddas E, Meis JF, Joseph L, Abdullah A, Vayalil S. Development of echinocandin resistance in *Candida tropicalis* following short-term exposure to caspofungin for empiric therapy. *Antimicrob Agents Chemother;* 2018; 62: e01926-17.
5. Arastehfar A, Fang W, Daneshnia F, S Al-Hatmi AM, Liao W, Pan W, Khan ZU, Ahmad S, Rosam K, Lackner M, Lass-Flörl C, Hagen F, Boekhout T. Novel multiplex real-time quantitative PCR detecting system approach for direct detection of *Candida auris* and its relatives in spiked serum samples. *Future Microbiol.* 2018; doi: 10.2217/fmb-2018-0227.
6. Prakash A, Randhawa HS, Khan ZU, Ahmad S, Hagen F, Meis JF, Chowdhary A. Environmental distribution of *Cryptococcus* species and some other yeast-like fungi in India. *Mycoses.* 2018; doi: 10.1111/myc.12741.
7. Al Obaid K, Faty M, El-Nahas A, Al-Terki A, Khan Z. Renal fungus ball in a patient with retroperitoneal fibrosis: unique complication in a rare disease. *Mycoses.* 2018; doi: 10.1111/myc.12745.
8. Al-Obaid K, Khan ZU. Epidemiologic characteristics of adult candidemic patients in a Secondary hospital in Kuwait: A Retrospective Study. *J Mycol Med.* 2018; pii: S1156-5233(18)30093-3.
9. Khan ZU, Ahmad S, Al-Sweih N, Alfouzan W, Joseph L, Asadzadeh M. Increasing prevalence, molecular characterization and antifungal drug susceptibility of serial *Candida aureus* isolates in Kuwait. 2018; *PLoS One.* 2018;13:e0195743.
10. Ellepola ANB, Dassanayake R, Khan ZU. Impact of brief exposure to drugs with antifungal properties on the susceptibility of oral *Candida dubliniensis* Isolates to lysozyme and lactoferrin. *Med Princ Pract.* 2018; doi: 10.1159/0004933.
11. Jeragh A, Khan ZU, Tarazi RY, Ajmi S, Joseph L, Varghese S, Vayalil S. Subcutaneous phaeohyphomycosis caused by *Amesia atrobrunnea* in Kuwait. *J Mycol Med.* 2018; pii: S1156-5233(18)30030-1.
12. Khan ZU, Ahmad S, Jeragh A, Alfouzan W, Al Foudri H, Hassan N, Asadzadeh M, Joseph L, Varghese S. First isolation of *Ascotricha chartarum* from bronchoalveolar lavage of two patients with pulmonary infections. *New Microbes New Infect.* 2018; 28:11-16.
13. Khan ZU, Ahmad S, Alfouzan W, Joseph L, Varghese S. Demonstration of Adventitious Sporulation in *Fusarium petrophilum* onychomycosis. *Mycopathologia.* 2019; doi: 10.1007/s11046-019-0318-5. [Epub ahead of print].
14. Khan ZU, Ahmad S, Al-Sweih N, Khan S, Joseph L. *Candida lusitanae* in Kuwait: Prevalence, antifungal susceptibility and role in neonatal fungemia. *PLoS One.* 2019;14:e0213532.
15. Mustafa AS. Identification of promiscuous epitopes for cellular immune responses in the major antigenic protein Rv3873 encoded by region of difference 1 of *Mycobacterium tuberculosis*. *International Journal of Medical and Health Sciences.* 2018; 12: 147-152.
16. Mustafa AS. Antibody reactivity of synthetic peptides belonging to proteins encoded by genes located in *Mycobacterium tuberculosis*-specific genomic regions of differences. *International Journal of Medical and Health Sciences* 2018; 12: 88-93.

17. Nasser K, Mustafa AS, Khan MW, Purohit P, Al-Obaid I, Dhar R, Al-Fouzan W. Draft genome sequences of six multidrug resistant clinical strains of *Acinetobacter baumannii* isolated at two tertiary-care hospitals in Kuwait. *Genome Announc.* 2018; 4:e01144-16.
18. Purohit P, Sadek SAL, Tak K, Emara M, Bafna R, Al-Obaid IA, Habibi N, Mustafa AS. *Moraxella osloensis* bacteremia in an immunocompetent child. *J Ped. Infect Dis*, 2018; doi.org/10.1055/s-0038-1639344.
19. Mustafa AS. Antigens for DNA vaccines against tuberculosis. *Mycobacterial Dis.* 2018; 8:1.
20. Mustafa AS. Plasmid DNA and mycobacteria as antigen delivery systems for *Mycobacterium tuberculosis*-specific antigens. Chapter in *Molecular Medicine: Bench to Bedside and Beyond*. 2018; pp. 244-252. Editors: SK Gupta & NK Lohiya, Publisher: Indian Society for the Study of Reproduction and Fertility, University of Rajasthan, Jaipur, India.
21. Al-Banna NA, Cyprian F, Albert MJ. Cytokine responses in campylobacteriosis: linking pathogenesis to immunity. *Cytokine and Growth Factor Reviews* 2018; 41: 75-87.
22. Albert MJ, Bulach D, Alfouzan W, Izumiya H, Carter G, Al Obaid K, Alattar F, Sheikh AR. Nontyphoid salmonella blood stream infection in Kuwait: clinical and microbiological characteristics. 2019. *PloS Negl Trop Dis* 13; <https://doi.org/10.1371/journal.pntd.0007293>.
23. Hinenoya A, Ichimura H, Yasuda N, Harada S, Yamada K, Suzuki M, Ijima Y, Nagita A, Albert MJ, Hatanaka N, Awasthi S, Yamasaki S. Development of a specific cytolethal distending toxin (cdt) gene (Eacdt)-based PCR assay for the detection of *Escherichia albertii*. *Diagn Microbiol Infect Dis.* 2019; (In press).
24. Azizieh F, Shehab D. Al Jarallah K, Mojiminiyi O, Gupta R, Raghupathy R. Circulatory pattern of cytokines, adipokines and bone markers in postmenopausal women with low BMD. *J Inflamm Res.* 2019; (In press).
25. Azizieh F, Shehab D. Al Jarallah K, Gupta R, Raghupathy R. Circulatory levels of RANKL, OPG and oxidative stress markers in postmenopausal women with normal or low bone mineral density. 2019. *J Biomarker.* 2019; (In Press).
26. Azizieh F, Raghupathy R, Shehab D, Al-Jarallah K, Gupta R. Cytokine profiles in osteoporosis suggest a proresorptive bias. *Menopause.* 2019; (In Press)
27. Al-Mutairi N, Ahmad S, Mokaddas E. Molecular screening versus phenotypic susceptibility testing of multidrug-resistant *Mycobacterium tuberculosis* isolates for streptomycin and ethambutol. *Microb. Drug Resist.* 2018; 24: 923-931.
28. Ahmad S, Mokaddas E. Recent advances in proper management of multidrug-resistant tuberculosis. *Kuw. Med. J.* 2018; 50: 146-160.
29. Ahmad S, Mokaddas E, Al-Mutairi NM. Prevalence of tuberculosis and multidrug resistant tuberculosis in the Middle East Region. *Expert Rev. Anti-Infect. Ther.* 2018; 16: 709-721.
30. Ahmad S, Mokaddas E. Diversity of nontuberculous mycobacteria in Kuwait: rapid identification and differentiation of *Mycobacterium* species by multiplex PCR, INNO-LiPA Mycobacteria v2 assay and PCR-sequencing of rDNA. *Med. Princ. Pract.* 2019; (In Press).
31. Ahmad S. Why phenotypic drug susceptibility testing of *Mycobacterium tuberculosis* to first-line drugs is not sufficient for proper management of drug-resistant and multidrug-resistant tuberculosis? *J. Bacteriol. Parasitol.* 2018. 9: 1 (Editorial).
32. Ahmad S, Joseph L, Parker JE, Asadzadeh M, Kelly SL, Meis JF, Khan ZU. *ERG6* and *ERG2* are major targets conferring reduced susceptibility to amphotericin B in clinical *Candida glabrata* isolates in Kuwait. *Antimicrob Agents Chemother.* 2018; pii: AAC.01900-18.
33. Al-Obaid K, Ahmad S, Joseph L, Khan ZU. *Lodderomyces elongisporus*: a bloodstream pathogen of greater clinical significance. *New Microbes New Infect.* 2018;26: 20-24.
34. Asadzadeh M, Ahmad S, Al-Sweih N, Khan ZU. Rapid and accurate identification of *Candida albicans* and *Candida dubliniensis* by Real-time PCR and melting curve analysis. *Med Princ Pract.* 2018; doi: 10.1159/000493426.
35. Asadzadeh, M, Ahmad, S, Al-Sweih N, Hagen F, Meis J, Khan ZU. High-resolution fingerprinting of *Candida parapsilosis* isolates suggests persistence and transmission of infections among neonatal

- intensive care unit patients in Kuwait" Scientific Reports. 2019; 9:1340. doi: 10.1038/s41598-018-37855-2.
36. Al-Mutairi NM, Ahmad S, Mokaddas E, Eldeen HS, Joseph S. Occurrence of disputed *rpoB* mutations among *Mycobacterium tuberculosis* isolates phenotypically susceptible to rifampicin in a country with a low incidence of multidrug-resistant tuberculosis. BMC Infect. Dis. 2019; 19: 3.
 37. El-Shazly S, Ahmad S, Mustafa AS, Al-Attayah R, Krajci D. Latex beads coated with mammalian cell entry (mce) 3A and mce3E proteins of *mycobacterium tuberculosis* are internalized by hela cells. J. Case Rep. Med. Images. 2019; 1: 1013.
 38. Mokaddas E, Ahmad S, Eldeen HS. GeneXpert MTB/RIF is superior to BBD Max MDR-TB for diagnosis of TB in a country with low incidence of MDR-TB. J. Clin. Microbiol. 2019; (In press).
 39. Mokaddas EM, Shibl DM, Elgonhary A, Gamil A, Elsobky M. Effect of introduction of Pneumococcal conjugate vaccines in serotype prevalence and antibiotic resistance in Kuwait and Saudi Arabia. Vaccine. 2018; 36: 6442-6448.
 40. Bahman A, Abaza MS, Khoushiash S., Al-Attayah RJ. Sequence-dependent effect of Sorafenib in combination with natural phenolic compounds on hepatic cancer cells and the possible mechanism of action. Intl Jour of Molec Med. 2018; 42: 1695-1715.
 41. Al-Haqqaan A, Al-Sweih N, Ahmad S, Khan S, Joseph L, Varghese S, Khan ZU. Azole-resistant *Candida blankii* as a newly recognized cause of bloodstream infection. New Microbes New Infect. 2018;26: 25-29.
 42. Al-Sweih N, Ahmad S, Khan S, Joseph L, Asadzadeh M, Khan ZU. *Cyberlindnera fabianii* fungaemia outbreak in preterm neonates in Kuwait and literature review. Mycoses. 2018; doi: 10.1111/myc.12846.
 43. Jamal W, Abdulkareem H, Rotimi VO. Comparative in vitro activity of ceftaroline and comparator agents against nosocomial Gram-negative and Gram-positive clinically significant bacterial isolates from patients in a teaching hospital in Kuwait. Journal of Chemotherapy. 2018; 30: 213 – 223
 44. Ulger Torpak N, A. Veloo, E. Urban, I. Wybo, U.S. Justesen, H. Jean-Peirre, T. Morris, O. Akgul, G. Kulekci, G. Soyletir and E. Nagy, on behalf of the ESCMID Study Group for Anaerobic infections (ESGI: V. Tripkovic, E. Leitner, J. Paparaskevas, W. Jamal, V.O Rotimi and H.B. Tokman). Performance of mass spectrometric identification of clinical *Prevotella* species using the VITEK MS system: A prospective multi-center study. Anaerobe. 2018; 54: 205-209.
 45. Ulger Torpak N, A.C.M. Veloo, E. Urban, I. Wybo I, U.S. Justesen, H. Jean-Peirre, T. Morris, O. Akgul, G. Kulekci, G. Kulekci, G. Soyletir and E. Nagy, on behalf of the ESCMID Study Group for Anaerobic infections (ESGI: V. Tripkovic, E. Leitner, S. Jeverica, S.C. Stingue, A.C. Rodloff, J. Paparaskevas W. Jamal, V.O Rotimi and H.B. Tokman). A multicenter survey of antimicrobial susceptibility of *Prevotella* species as determined by E test methodology. Anaerobe. 2018; 52: 9 – 15.
 46. Boswihi SS, Udo EE, Monecke S, Mathew B, Noronha B, Verghese T, Tappa SB. Emerging variants of methicillin-resistant *Staphylococcus aureus* genotypes in Kuwait hospitals. PLoS One. 2018; 13:e0195933.
 47. Boswihi SS, Udo EE. Methicillin resistant *Staphylococcus aureus*: An update on the epidemiology, treatment options and infection control. Curr Med Res Pract. 2018; 8:18-24.
 48. Monecke S, Slickers P, Gawlik D, Müller E, Reissig A, Ruppelt-Lorz A, Akpaka PE, Bandt D, Bes M, Boswihi SS, Coleman DC, Coombs GW, Dorneanu OS, Gostev VV, Ip M, Jamil B, Jatzwauk L, Narvaez M, Roberts R, Senok A, Shore AC, Sidorenko SV, Skakni L, Somily AM, Syed MA, Thürmer A, Udo EE, Vremeră T, Zurita J, Ehricht R. Molecular Typing of ST239-MRSA-III from Diverse Geographic Locations and the Evolution of the SCCmec III Element During Its Intercontinental Spread. Front Microbiol. 2018; 9: 1436. doi: 10.3389/fmicb.2018.01436.
 49. Phillips OA, Udo EE, D'silva RJ. Structure-Antibacterial Activity Relationships of N-Substituted-(d-/l-Alaninyl) 1H-1,2,3-Triazolylmethyl Oxazolidinones. Sci Pharm. 2018; 86. pii: E42. doi: 10.3390/scipharm86040042.
 50. Beidas M, Chehadeh W. Effect of human coronavirus OC43 structural and accessory proteins on the transcriptional activation of antiviral response elements. Intervirology 2018 ;61 :30-35

51. Beidas M, Chehadeh W. PCR array profiling of antiviral genes in human embryonic kidney cells expressing human coronavirus OC43 structural and accessory proteins. *Archives of Virology*. 2018; 163: 2065–2072.
52. Chehadeh W, Albaksami O, John SE, Al-Nakib W. Drug resistance-associated mutations in antiretroviral treatment-naïve and -experienced patients in Kuwait. *Acta Virologica* 2018;62:259-265.
53. Al-Turab M, Chehadeh W. Varicella infection in the Middle East: prevalence, complications, and vaccination. *Journal of Research in Medical Sciences* 2018; 23: 19.
54. Chehadeh W, Albaksami O, John SE, Al-Nakib W. Drug resistance-associated mutations in antiretroviral treatment-naïve and -experienced patients in Kuwait. *Medical Principles and Practice*, 2018. 27:152-157.
55. Chehadeh W, Al-Adwani A, John SE, Al-Dhufairi S, Al-Dousari H, Alkhaledi M, Al-Nakib W. Adenovirus types associated with severe respiratory diseases: a retrospective four-year study in Kuwait. *Journal of Medical Virology*, 2018; 90: 1033-1039.
56. Alabbad J, Abdul Raheem , Alkhalifa F, Hassan Y, Al-Banoun A, Alfouzan W. Retrospective Clinical and Microbiologic Analysis of Patients with Anorectal Abscess. *Surg. Infect (Larchmt)*. 2019;20:31-34. doi: 10.1089/sur.2018.144.
57. Dannoos S F, Al-Fouzan W, Alenezi S A, Alosaimi A, Alhusain M, Elgazzar A H. Effect of Microbiologic Characteristics of Causative Micro-Organisms on Patterns of Labeled WBCs Uptake in Osteomyelitis. *Ind J Nucl Med*. 2019; 34: 27-31.
58. Alfouzan W, Dhar R, Nicolau DP. In vitro activity of newer and conventional antimicrobial agents, including Fosfomycin and Colistin, against selected gram-negative bacilli in Kuwait. *Pathogens*. 2018; 7. pii: E75. doi: 10.3390/pathogens7030075.
59. Rabaan AA, Al-Ahmed SH, Alsuliman SA, Aldrazi FA, Alfouzan WA, Haque S. The rise of pneumonic plague in Madagascar: current plague outbreak breaks usual seasonal mould. *J Med Microbiol*. 2019; doi: 10.1099/jmm.0.000915.
60. Alfouzan W, Dhar R, Albarrag A, Al-Abdely H. The emerging pathogen *Candida auris*: A focus on the Middle-Eastern countries. *J Infect Pub. Health*. 2019; pii: S1876-0341(19)30118-2. doi: 10.1016/j.jiph.2019.03.009.
61. Al-Herz W, Essa S. Spectrum of viral infections among primary Immunodeficient children. Report from National Registry. *Front Immunol*. 2019; (In press)
62. Al-Ahmad M, Nurkic J, Maher A, Arifhodzic N, Jusufovic E. Tolerability of Omalizumab in Asthma as a Major Compliance Factor: 10-year follow up Open Access Maced J Med Sci. 2018; 6(10): 1839-1844.
63. Nurkic J, Al-Ahmad M, Maher A, Arifhodzic N, Jusufovic E. Most common real life factors affecting effectiveness of omalizumab asthma treatment: a 10-year study. *Med Glas (Zenica)*. 2019; 16: 45-52.
64. Madi N, Al-Nakib W, Mustafa AS, Habibi N. Metagenomic analysis of viral diversity in respiratory samples from patients with respiratory tract infections in Kuwait. *J Med Virol*. 2018; 90:412-420.
65. Madi N, Chehadeh W, Asadzadeh M, Al-Turab M, Al-Adwani A. Analysis of Genetic Variability of Respiratory Syncytial Virus Group A and B in Kuwait. *Archives of Virology*. 2018; 163:2405-2413.
66. Altawalrah H, Essa S, Ezzikouri S, Al-Nakib W. Hepatitis B virus, hepatitis C virus and human immunodeficiency virus infections among people who inject drugs in Kuwait: A cross-sectional study. *Scientific Reports*. 2019; 9:6292.

4. Community Services

The Department continues to offer quality laboratory diagnostic services and consultations to all teaching /training hospitals (Mubarak Al-Kabeer, Adan, Farwaniya, Sabah and Amiri Hospitals), Health Centers and Polyclinics in Kuwait. In recent years, there has been a significant expansion of these services to other hospitals which include Ibn Sina Hospital, Kuwait Cancer Control Centre, Organ Transplant Centre, Maternity Hospital, Infectious Disease Hospital, Farwaniya Hospital, Allergy Centre, Chest Disease Hospital, Jahra Hospital, Armed Forces Hospital, KOC Hospital,

Kuwait National Tuberculosis Reference Laboratory, and Kuwait National Quality Control Laboratory.

The members of the Department are serving in the Faculty of Medicine in different capacities, as given below.

Prof. Noura Al-Sweih: Vice Dean Academic and Student Affairs

Prof. Raja'a Al-Attayah: Vice Dean Research and Postgraduate Studies

Prof. Widad Al-Nakib: Chairman of Accreditation Unit and the Committee for Self Evaluation Report

Prof. Abu Salim Mustafa: Coordinator of the Committee for Self Evaluation Report

Prof. Jamshaid Iqbal: Director of Medical Education and Clinical Skills Lab

5. Physical Facilities

The teaching facilities available at the Faculty of Medicine and Health Sciences Centre are utilized by the members of the department for delivering lectures, seminars, PBLs, clinical skills, tutorials, small group teachings and practical, etc. In addition, the following physical facilities are used in the Department for teaching, research, diagnostic services and staff offices, etc.

Room	Designation	Usage
524	Dr. Edet Udo Office	Office
525	Gel room	Lab.
526-A	Meeting Room	Office/PBL
526-B	Secretary Office	Office
526-C	Chairman Office	Office
527	Gram Positive Laboratory	Lab.
528	Anaerobe/Hospital Infection Research Lab.	Lab.
528-A	Prof. Vincent Rotimi Office	Office
529	Chief Technician Office (Bacteriology Unit)	Office
530	Prof. Suhail Ahmad Office	Office
531	Mycology Lab.	Lab.
531-A	Dr. Wadha Al-Fouzan Office	Office
532	Tissue Culture lab.	Lab.
533	Clean Room (P3 lab.)	Lab.
534	Serology Lab.	Lab.
534-A	Prof. Abu Salim Mustafa Office	Office
535	Prof. Eiman Mokaddas Office	Office
536	Prof. Noura Al-Sweih Office	Office
537	Molecular Microbiology Lab.	Lab.
537-A	Dr. Hanady Amoudy Office	Office
538	Autoclave Room	Lab.
539	Enteric Microbiology Lab.	Lab.
540-A	Prof. Manuel John Albert Office	Office
540-B	Office	Office
541	Women Wash room	Room
542	Men Wash room	Room
	Cold Room 1	Room
	Cold Room 2	Room
543	Molecular Virology Lab. 1	Lab.
543-A	Dr. Wassim Chehaddeh Office	Office
544	Molecular Virology Lab. 2	Lab.
544	Mrs. Marwa Al-Khabbaz Office	Office

545	Virology DNA Sequencing Lab. 3	Lab.
545-B	Molecular Virology Lab. 4	Lab.
546	Virology Lab.	Lab.
546-A	Dr. Nada Madi Office	Office
547	Main Lab./Virology Clinical Lab.	Lab.
548	Virology Lab	Lab.
549	Virology Lab	Lab.
549-A	Dr. Sahar Essa Office	Office
550	Prof. Widad Al-Nakib Office	Office
551-A	Chief Technician Office (MOH) Office	Office
551-B	Prof. Wafaa Jamal Office	Office
552	Chief Technician Office (Immunology Unit)	Office
552	Mrs. Tahany Al-Shammari Office	Office
552	Cellular Immunology Lab.	Lab.
553	Clinical Immunology Lab.	Lab.
554	Flow cytometer Lab.	Lab.
555	Parasitology Lab.	Lab.
556	Chief Technician Office (Virology Unit)	Office
557	Post graduate Student Room	Office
558	Seminar Room	Lectures/Seminars
559	Reception Room (MOH)	Lab.
560	Prof. Jamshaid Iqbal Office	Office
561	Prof. Raj Raghupathy Office	Office
562	Prof. Raja'a Al-Attiyah Office	Office
016	Teaching Assistants/Graduate Students Offices	Office
016	Dr. Mona Al-Ahmad Office	Office
024	Dr. Khalifa Al-Benwan Office	Office