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**Professor Rabia Hussain: (Curriculum Vitae) 180822**

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**Section 1: Degrees, Professional Qualifications and Appointment History**

 **Degrees**

**1966** **B.Sc (Hon).**; Karachi University. Division 1 Position 1 (summa cum laude)

 Subjects: Microbiology, Biochemistry and Botany. (summa cum laude)

**1967** **M.Sc.**; Karachi University, Division 1, Position Subject : Microbiology

 M.Sc. Thesis Title: Cross reactions of avian and mammalian gamma globulins,

Karachi University, Pakistan

**1973** **PhD**; University of Western Ontario Canada, Subject: Immunology; Thesis Title isolation, purification and characterization of *Ascaris suum* allergens (attached)

**PROFESSIONAL QUALIFICATIONS**

1976 Clinical Fellowship: Johns Hopkins University, USA

 Subject Allergy and Immunology

 1989 MRC Path: London, UK; Subject: Immunology

 1997 : FRC Path: London, U.K. Subject: Immunology (attached)

 **Appointments**

**1968-69**

 **Assistant Lecturer,**

 Department of Microbiology,

 University of Karachi, Karachi, Pakistan

**1970-72**

 **Teaching Assistant,**

 Department of Bacteriology and Immunology

 University of Western Ontario, Canada

**1973-75**

 **Research Associate,**

 National Research Council (USA)

 Naval Medical Research Institute,

 National Naval Medical Center.

**1976-79**

 **Instructor,** Department of Medicine,John Hopkins University, USA

**1979-81**

 **Collaborative Researcher,**

 National Institutes of Health,

 National Institutes of Allergy and Infectious Diseases. USA

**1981-85**

 **Senior Staff** Fellow**,**

 National Institute of Allergy and Infectious Diseases,

 National Institutes of Health, USA.

**1985-90**

 **Associate Professor,**

 Department of Microbiology, The Aga Khan University, Karachi, Pakistan

**Jan - March 2005**

 **Acting Chairperson,**

 Department of Microbiology

 The Aga Khan University, Karachi, Pakistan

**Jan 1990- 2012**

 **Ghulamali Hirji Professor of Microbiology** (retd 2012)

 Department of Pathology & Microbiology

 The Aga Khan University, Karachi, Pakistan

**March 1996-August 1996**

 **Visiting Scientist**, Case Western Reserve University,

 Division of Infectious Diseases,

 Cleveland, Ohio, USA

**January 1, 1999-Jan 2004**

**Chairperson**

Department of Microbiology

The Aga Khan University, Karachi, Pakistan

**November 15, 2003:** Designated HEC Distinguished National Professor by The Higher Education Commission (HEC) Islamabad, Pakistan

**January 2003-2006** –

**Honorary Visiting Professor**

 AQ Khan Institute of Biotechnology and Genetic Engineering (KIBGE)

 University of Karachi

**January 24-April 24, 2005**

**Visiting Professor**

Sabbatical leave: AQ Khan Institute of Biotechnology and Genetic Engineering (KIBGE)

University of Karachi

**August 27-November 2005**

**Visiting Professor**

sabbatical leave: Division of Hematology and Oncology

University of Massachusetts, Worcestor, Ma

**November 2005** -**2012**

**Honorary Visiting Professor,**

London School of Hygiene and Tropical Medicine,

London, UK

**August 2020**

**Honorary Visiting Faculty,**

 Department of laboratory Medicine and Pathology

**January 01, 2023**

 Designated Professor Emirtus

 The Aga Khan University

**Section 2. Medals/Awards/ Honors**

1. **Merit Scholarship** for standing first B.Sc. (Hons). University of Karachi 1966-1967
2. **Gold Medal** for standing first in M.Sc. University of Karachi, 1968
3. Commonwealth Scholarship, Government of Canada, 1969-73.
4. **Associateship** National Research Council Washington, D.C. (1973-1975).
5. **Berson-Yallow Award** for developing a radio-immuno-assay techniques, Society of Nuclear Medicine, June 1980
6. **Rockefeller Biotechnology** Fellow**ship Award** (1986-1988 for 28 weeks), Sponsored by The Rockefeller Foundation, National Institutes of Health, Bethesda, MD and The Aga Khan University.
7. **IUIS Travel Award** (International union of Immunological Societies to attend 8th International Conference of Immunology (August 23-28, 1992).
8. **Tamghe-Imtiaz**: Civil Award for Research/Education in Medicine, Government of Pakistan (1999)
9. Cited in “**Outstanding people of the 20th Century**”. Compiled by the International Bibliographic Center, Cambridge, UK.
10. **Listed as Number 1 Productive Research Scientist in Biological Sciences (** Pakistan Academy of Sciences: Scientific Research in Pakistan, Publisher Pakisan Council for Science and Technology PCST Year 2000)
11. **Award in Basic Medical Sciences**, The Third World Academy of Sciences (TWAS) for the year 2000. (Trieste, Italy).
12. **HEC Distinguished National Professor**, Higher Education Commission, Islamabad, Pakistan (2003)
13. **Sitara-e-Imtiaz**: Civil Award for Research/Education in Medicine, Government of Pakistan (2005)
14. **Award in recognition for Pakistan Civil Award Sitara-e-Imtiaz** The Aga Khan University (2005)
15. **Excellence in Research Award** The Aga Khan University (2006)
16. **Elected Council Member**, International Leprosy Association ( December 2007-2012)
17. **Token of Appreciation for support and guidance**: Department of Microbiology (2008)
18. **Service Award for 20 years** The Aga Khan University (2009)
19. **CDC press release** on manuscript before its publication in EID, May 2010
20. Commentary of Medscape Medical News on manuscript published in EID , May 2010 **(http://www.medscape.com/viewarticle/721084)**
21. **Service Award** **for 25 years**, The Aga Khan University (January 2012)
22. **Life Time Achievement Award “ Societies for Pathology, Pakistan 2012**
23. **Elected Vice President (Central and South Asian region)**, The Academy of Sciences for Developing World (TWAS) (2013-2018)
24. **Guest of Honor:** Pakistan Society of Immunology and Dow University of Health Sciences, Workshop on “Cell Signalling of Innate Immune System Venue Dow University of Health Sciences, October 06, 2015, (Guest of Honor).
25. **Guest of Honor:** Pakistan Society of Immunology and SIUT, Workshop on “Molecular Tools in Immunology”; DFMC-SIUT October 10, 2015 (Guest of Honor).
26. Listed as **‘Top-20 Most Influential Women in Science in the Islamic World’**. In the category of Shapers as number 1. Muslim-Science.Com February 23, 2014. (Attached)
27. Listed as **top 4 Women Scientist** in Pakistan August 14, 2015
28. **Listed in Profiles of Women Scientists in Asia, their inspirational stories ( 2018)** published by The Association of Academies and Societies of Sciences of Asia (AASSA) and the Interacademy Panel (IAP) (WEB [www.aassa.asia](http://www.aassa.asia))**.**
29. **Award of Recognition (2019) By FPCCI**

**Section 3. Teaching, Research Supervisory and Administrative activities**

**Teaching**

**The Aga Khan University, Karachi Pakistan (1986-2012)**

**Undergraduate (MBBS 1986-2012)**

* Development of core current Immunology curriculum
* Conduct Lectures and Practicals in Immunology

**Graduate Program**

* Lectures on Immunology:
* Critical paper reading to PHD students.

**Research Supervision**

**a) International**

* Supervised Dr. David Marsh’s Laboratory during his sabbatical (1976-1977)
* Supervised Dr. Eric Ottesen’s Laboratory during his sabbatical (1984-1985)
* Recognized PhD supervisor by the Higher Education Commission Pakistan (2001)

**Summer students (NIH, BETHESDA, USA)**

* Andrew Goldstone (1981-1982)
* Elizabeth Mendez (1983)
* James Flores (1984)

**Post-doctoral** Fellow**s (National Institutes of Health, Bethesda MD, USA)**

* Dr. Nuzhat Kaushal ( 1982-1984)
* Dr. Henry Francis (1982-1983)
* Ramesh Paranjape (1983-1984)
* Dr. Celia Maxwell (1984-1985)

**b) The Aga Khan University**

**PhD students (thesis completed)**

**Principal supervisor**

* **Dr Arnawaz Kifayet**, (AKU) funded by WHO/TDR (1991-1993) (Completed 1998)
* **Ms Najeeha Talat (PhD completed 2010)**
* **Ms Ambreen Ansari** **( completed 2012)**

**Joint Supervisor**

* **Dr.** **Rumina Hasan**, Senior Instructor as (Joint Supervisor with Dr. Hazel Dockrell, London, U.K. (PhD completed 1990): (Laboratory work carried out at AKU)
* **Dr** **Sarwat Jamil** (Joint Supervisor with Dr. Neil Stoker, London, UK. ( funded by Lepra):. (Completed 2003)

 **Co- supervisor**

* **Ms Mehnaz Tanveer** (Co- Supervisor, KU registered) (PhD completed 2008)
* **Ms Ashoo Ali** (PhD Completed 2008)
* **Ms Najia Ganchi**  (PhD completed 08/11)
* **Ms Kiran Iqbal (AKU) (completed 2013)**

**Co- supervisor (FCPS students)**

* Dr Erum Khan. Title: Immuno-diagnosis of extra pulmonary tuberculosis using *Mycobacterium tuberculosis* culture filtrate antigen. (1999)
* Dr Aasim Khan. Title : Study of IgG Subclasses in Amoebic Liver Abscess.(2000)

**Workshops**

**A. ORGANIZED**

* International Workshop on “ An Update on Pathogenesis of Mycobacterial Diseases” conducted by OIC Standing Committee on Scientific Cooperation (COMSTECH) Islamabad April 25-27, 2012 (Focal point).COMSTECH WORKSHOP
* Publications in high impact Journals (organized by AKU-Clincal Epidemiology Unit, CHS in collaboration with the United Health –NHLBI, Feb 2-3, 2010). (Attendee)
* 6th IDEAL workshop on Leprosy (Beijing, China 23 to -25 August 2010). (Participant)
* International Workshop on “ An Update on Pathogenesis of Mycobacterial Diseases” conducted by OIC Standing Committee on Scientific Cooperation (COMSTECH) Islamabad April 25-27, 2012 (Organizer and Focal point).

**B. PARTICIPATED**

* 6th IDEAL workshop. (Beijing, China 23 to -25 August 2010).
* Rabia Hussain (2011) Immune biomarkers of discriminating recent infection, disease progression and active disease in tuberculosis. National Symposium on “Tuberculosis- Diagnostics and Therapeutics” School of Biological Sciences, University of the Punjab, Lahore. Thursday, 3rd November 2011 (Invited Lecture)

**C. ATTENDED**

* Workshop series: Enhancing faculty skills for Problem based Learning (PBL) at AKU. Workshop 4: Workshop for Problem-Based Learning (PBL) Tutorial Facilitation Skills. AKU, ED Hall # 2. March 12 & 15, 2004.
* Publications in high impact Journals (organized by AKU-Clincal Epidemiology Unit, CHS in collaboration with the United Health –NHLBI, Feb 2-3, 2010).

**3. Administrative activities**

**Academies / Scientific Societies/ Board of Trustees** (**Member**/Fellow)

* 1. **Member,** New York Academy of Science (1977)
	2. **Member,** American Association of Immunology (1978)
	3. **Member,** Academy of Allergy and Immunology (1980)
	4. **Member**American Society of Tropical Medicine and Hygiene (1981)
	5. **Member**, Pakistan Medical Research Council, Pakistan (1995-1996)
	6. **Fellow** Third World Academy of Women Scientists, Trieste Italy (2001-current)
	7. **Council Member** International Leprosy Association (2003-2012)
	8. **Member** TWAS Young Affiliates Advisory Committee, Italy ( 2009)
	9. **Fellow** Pakistan Association of Medical Sciences (2000)
	10. **Fellow** Pakistan Academy of Sciences (2006)
	11. **Elected Council Member**, TWAS ( December 2017-2018) (see attached)
	12. **Fellow** Islamic World Academy of Sciences (2008)
	13. **Board of Trustees Member** Pakistan Science Foundation ( February 2009-2012
	14. **Elected Patron** Pakistan Society of Immunology, (2012-2017)
	15. **Vice President**, The academy of sciences for developing world (TWAS) (2013-2016)
	16. **Board Member**, Governing Body, Marie Adelaide Leprosy Center Karchi Pakistan (1990-2016) (see attabhed)
	17. **Board Member**, International Basic Sciences Programme (IBSP) UNESCO ( 2015-2018)

**Steering Committees : International**

Immunogenetics Panel: Academy of Allergy and Immunology, USA (1976-1979).

Allergen Standardization Committee Academy of Allergy and Immunology, USA (1977-1979).

**Member**, Council for International Society for Infectious Diseases, Boston, USA (1996-2000).

Global TB research Initiative World Health Organization , Geneva, Switzerland (1998)

TB diagnostic Initiative World Health organization, Geneva, Switzerland. (September 1999)

Presentation to the Joint coordinating Board on behalf of TDR, Title: Diagnostic issues of tuberculosis in the developing world (Geneva Switzerland; June26, 2000)

Tuberculosis diagnostics: Countdown to New Tools consultation, Geneva, Switzerland, (June 28-30, 2000).

Steering Committee of International Consortium on Elimination of Leprosy (Elected **Member**, October 2004-2008)

**Steering Committees National**

Pakistan Medical Research Council: Convener, Steering Committee on Infectious Diseases (1994-1995).

Expert Committee on Biological Drugs, Government of Pakistan (**Member** 2004-2008)

**Member**, Board of Governors of Centre of Excellence in Molecular Biology, University of Lahore (2005-2010).

**Member**, Evaluation of Multidisciplinary Science Journal, Higher Education Commission (2006)

**Member**, Working Group on Emerging Technologies, Science & Technologies, Higher Education Commission (2007)

**Member**, US-Pakistan Joint S & T Committee, Higher Education Commission (2007)

**Member**, HEC committee for Civil Awards (2008)

**Steering Committees : The Aga Khan University**

* **Member** Medical College Faculty Council
* **Member** Students Admissions Committee Panel1994
* **Member** Curriculum Review Group,
* **Chair** Research Committee
* **Chair** Academic Pathway for Instructors
* **Member** Search Committees for Chairs (Physiology),
* **Member** Graduate Studies Committee,(1990-2001)
* **Chair** Library Committee (1991)
* **Chair** FHS Research Committee ( 1997-2005)
* **Member** Graduate Program Committee, 1997
* **Member** Commissioning of CHS and Juma Research Building, (1997-1998)
* **Member** Research Themes (1997)
* **Chair** Annual National Symposium, AKU, 1999
* **Co-Chair** Molecular biology workshop AKU 1999
* **Member** University Research Council - 2000
* **Member** Research Space Allocation –1997
* **Member** Research Building Users committee, 1995-1999
* **Member** Basic Health Sciences working Group Committee, 1999
* **Member** Search Committee for Chair for Biological & Biomedical Sciences 1999-2001
* **Member** Grant Review Committee –, Jan 2000-2006
* **Member**, 2000 National Symposium Organizing Committee, 2000
* **Member**,Curriculum Renewal – 2001
* **Member**,Task Force – Year 1 and Year 2 committee March 2002
* **Member**,PHD Committee - February 2002-2005
* **Member**, Clinical Epidemiology Unit – March 2002
* **Member**,FHS Research Committee –May 2002-2006
* **Chair** Seed Money Grant and Research Development Support –, May 2002-2005
* **Member** Subgroup of Health Sciences Centre Committee- November 2002-August 2003
* **Member** Search Committee for Dean – December 2002 – April 2003
* **Member** Search Committee for Pathology & Microbiology Chair, – 2003
* **Member** Task force on Integrated Residency/Fellowship Clinical Effectiveness Program – Feb 2004
* **Chair** Subcommittee for evaluating PhD core courses June 2004
* **Chair** Focus Group for PhD for Clinicians – July 2004
* **Chair** Review of Core Curriculum for PhD student. 2007
* **Chair** Masters in Clinical Research Review committee 2009
* **Member,** FHS- PhD Programs Committee – April 2008
* **Member,** MBBS students Interview panel (1990)
* **Member,** PGME mini Interview panel (2011)

**Section 4. Editorial and Reviewer responsibilities.**

**EDITORIAL BOARD**

Editor, Mycobacterial Diseases OMICS Publishing Group (07/11)

Editor, Medical Journal of Islamic World Academy of Sciences (IAS) (2011-current)

**Associate Editor:**

Journal of Immunology (1984-1986)

 **Co-Editor**

A University’s Linkages for Health and Education in the developing world. Proceedings: International Seminar, 17-18 November 1994 at the Aga Khan University, Karachi, Pakistan.

**REVIEWER, INTERNATIONAL JOURNALS**

 American Journal of Tropical Medicine and Hygiene, Acta Tropica

Journal of Immunology, International Journal of Leprosy, Infection and Immunity, International Journal of Tuberculosis and Lung Diseases, Clinical Experimental Immunology, Biomednet Central, Tuberculosis, Journal of Immunological Methods, Immunology, Future Microbiology, (2011) FEMSIM, Afr J Biotech J, Cytokine, Plos One, EICMID, ARCHMED, Plos Neglected Tropical Diseases, JCMR, PlosOne

**REVIEWER, INTERNATIONAL RESEARCH GRANTS**

* + **Member** Grants review: Ad hoc committee for Immuno-parasitology National Institutes of Health, USA (1984).
	+ **Member** Agency for International Development (USAID) Parasitology Grants, Review, Chaired by Dr. Wayne Hockmeyer, Walter Reed Hospital, Washington, DC, U.S.A. (1988)
	+ Invited Ad hoc **Member**: WHO Steering Committee on Immunology of Leprosy and Tuberculosis (Geneva: April 25-28, 1990)
	+ **Member**: WHO Steering Committee on Immunology of Leprosy and Tuberculosis (1992-1998)
	+ **Member**, Focal Point (Infectious Diseases) of National Research Program for Universities (NRPU) (2005-2007)
	+ **Reviewer** panel for “Alessandro Liberati Programme” for Young Investigators (2012-current)
	+ **Reviewer** for Grants ( Foundation Wellcome Trust, Peer Review 2019)

**Section 5. Research grants funded**

1. **Isolation and purification of *Schistosomo mansoni* allergens**. National Research Council. Washington, D.C. Fellowship grant (1973-1975). **Principal Investigator** Dr Rabia Hussain
2. **Preparation and standardization of hyperimmune Serum to rye Grass Pollen Allergen Extracts**. Funding Agency: National Institutes of Health Extramural Contracts Bethesda, MD $ 20,000 (1977-1978).  **Principal Investigator** Dr Rabia Hussain
3. **Role of IgG subclasses in blocking IgE-mediated histamine release in filariasis and allergy**, sponsored by The Rockefeller Foundation, National Institutes of Health,Bethesda, MD and The Aga Khan University. **Principal Investigator** Dr Rabia Hussain$28000 (1986-1988 28 weeks),
4. **Imported filariasis in Pakistan: Assessment of clinical disease and parameters associated with transmission.** Collaborating Unit: Laboratory of Parasitic Disease, NIAID NIH, Bethesda M.D. **Principal Investigator** Dr Rabia Hussain Funding Agency, Fogarty International Centre, NIH, Bethesda, MD $ 52,000 PL 480 funds (1987-1991) Project # 08025-N.
5. **Molecular markers for prediction of reactions in leprosy**. Collaborating Units: London School of Hygiene and Tropical Medicine (LSHTM) and Marie Adelaide Leprosy Centre (MALC). Funding agency, Rockefeller Foundation **Principal Investigator** Dr Rabia Hussain (1987-1989)$ 120,000.
6. **Response to macrophages and polymorpho-nuclear cells to antigens and antibodies in leprosy**. PI: Dr. Rumina Hasan, AKU $ 7000 (1987-1988). **Co-PI Dr Rabia Hussain**
7. **Prediction of the need to aspirate an amoebic liver abscess**. PI: Dr. Mushtaq Ahmed. AKU. Rs. 42,000 (1987-1988). **Co-PI Dr Rabia Hussain**

8. **Immunocompetency in the malnourished pediatric child.** PI: Dr. Fouzia Qureshi AKU. Rs, 44, 180/- (1987-1988). **Collaborator Dr Rabia Hussain**

9. **Immunological evaluation of purified recombinant and synthetic *M. leprae* antigens** UNDP/World Bank/WHO/TDR. Institutional Strengthening Grant: Investigator Initiated Program Based Grant **Principal Investigator** Dr Rabia Hussain Co PI: Dr. Rumina Hasan (AKU)and Dr. Hazel Dockrell (LSHTM)(1989-1993) $ 250,426.

10. **Early Leprosy in Family Contacts; International Development Research Centre: A pilot study**: (1990) $ 7000 CAD. **Principal Investigator** Dr Rabia Hussain

1. Immuno-regulation of tuberculosis UNDP/World Bank/WHO/TDR/ IMMTUB: Programme for vaccine development. **Principal Investigator** Dr Rabia Hussain (1991-1993) $60,000
2. **Diagnosis and epidemiology of tuberculosis by DNA probes. Economic Commission of the European Communities. Principal Investigator** Dr Rabia Hussain (Co PI: Dr. Jan van Embden, National Institute of Public Health and Environment Protection, Bilthoven, The Netherlands). (1991-1992). ECU 70000
3. **The use of polymerase chain reaction in leprosy diagnosis and management** **Principal Investigator** Dr Rabia Hussain(Co- PI: Dr. Neil Stoker, University of London).
4. **DNA typing of *M. tuberculosis* epidemiology and evaluation of chemotherapy:** European Economic Commission **Principal Investigator** Dr Rabia HussainCo PI: Dr. Jan van Embden, National Institute of Public Health and Environment Protection, Bilthoven, The Netherlands (Period: (1992-1995). ECU 61,129.
5. **T cell recognition of *M. leprae* antigens in leprosy contact patients.** PI: Dr. Hazel Dockrell**. Co PI:** Dr Rabia Hussain, Medical Research Council, (1992-1995) UK £ 7,1040.
6. **Immunosuppressive Cytokines in tuberculosis** UNDP/World Bank/WHO Programme for Vaccine Development **Principal Investigator** Dr Rabia Hussain (1994-1996). $ 58,000
7. **Dissection of T and B cell responses to the *M. leprae* 10kDa antigen.** UNDP/World Bank/WHO Programme for Vaccine Development **Principal Investigator** Dr Rabia Hussain Co PI: Dr. Thomas Chiang and Dr. Hazel Dockrell (LSHTM) (1994-1996) $ 73,000.
8. **Development of new peptide-based skin test reagents for Leprosy**: UNDP/World Bank/WHO. Program for Vaccine Development IMMYC Steering Committee Initiative **Principal Investigator** Dr Rabia Hussain & Dr. Hazel Dockrell (1996-1998). $ 35,000.
9. **Monocyte activating *M. tuberculosis* proteins in TB pathogenesis: Serological evaluation of the *M. tuberculosis* proteins 58kDa antigen in patients with tuberculosis. Functional assessment of IgG anti-58kDa subclasses antibodies in cytokine production**. National Institutes of Health RO1#A1-35240; **Principal Investigator** Dr Rabia Hussain Supplemental grant for sabbatical in 1996 at Case Western Reserve University, Cleveland, Ohio, U.S.A. $ 15000
10. **Macrophage signaling and cytokine expression in leprosy patients with lepromatous disease.** PI Dr Zahra Hasan **Co**-**Principal Investigator** Dr Rabia Hussain & Dr. Bukthiar Shah . Re-Entry Grant, Special Programme for Research and Training in Tropical Diseases (TDR), WHO, Switzerland. funded $ 40,000 (1999-2001)
11. **Cytokine responses in patients with pulmonary, extra-pulmonary and lymphadenopathic tuberculosis-profiles of disease severity.** PI Dr. Zahra Hasan **Co-Principal Investigator** Dr Rabia Hussain Funded by AKU Seed Money Grant (1999-2001) $ 10,000
12. **Does IL10 play a role in the up regulation of IgG1 antibodies responses in leprosy?** Wellcome Trust, UK. £ 14694 (funding period: January 1999-2002). Travel grant to Drs Dockrell and Hussain for exchange visits to develop a proposal for the above listed project.
13. **Regulation and modulation of IgG1 subclass by cytokines in leprosy.** **Principal Investigator** Dr Rabia Hussain PI: Co:PI Dr. Hazel Dockrell, Dr. Arnawaz Kifayet, Dr. Sarwat Jamil AKU, University Research Council, (2000-2002) $24350
14. **Development of a simple bedside applicable tool for diagnosis of severe malaria** PI: Irfan-ul-Hasan Zaidi, **Co-PI**: Dr. Asim Beg & Dr Rabia Hussain. $ 8500 (2003-2004) Seed Money Grant and Research Developmental Support.
15. ***Mycobacterium tuberculosis*-induced apoptosis in human macrophages: manipulation of a host cell defense mechanism** PI: Mr. Ali Tayyebi **Co-PI**: Dr. Rabia Hussain & Dr. Zahra Hasan $ 10,000 (2003-2004) Seed Money Grant and Research Developmental Support.
16. **Laboratory Markers of Risk for Clinical Disease in Household Contacts of Tuberculosis Patient with active disease**” Ministry of Science and Technology. Government of Pakistan **Principal Investigator** Dr Rabia Hussain. Rs. 3.39 million (Aug 2004-July 2006).
17. **Characterization of *M. tuberculosis* Beijing strains in Pakistan using molecular and immunological techniques.** PI: Dr. Rumina Hasan **Co Investigator** Dr. Rabia Hussain & Dr. Zahra Hasan funded byAKU University Research Council (2003-2006) $ 36,250.
18. ***Mycobacterium tuberculosis* - induced host cellular activation: effect on cytokine expression and signaling** PI:Abdul Kareem Khan. **Co-Investigator** Dr. Rabia Hussain AKU University Research Council, (2003-2006) $ 24,700.
19. **Association of genetic diversity with virulence and antimicrobial resistance in M.TB isolates at AKUH**. PI: Ashoo Ali Supervisor Dr. Rumina Hasan **Co-Supervisor:** Dr. Rabia Hussain & Dr. Zahra Hasan. Funded by AKU University Research Council, (2004-2006)$ 39500
20. **Chemokines as immunopathological markers in tuberculosis infections – pulmonary and extra-pulmonary** PI: Dr. Zahra Hasan, **Co-PI** Dr. Rabia Hussain and Dr. Rumina Hasan. Applied Pathogenesis and Genomics Committee, Special Program for Research in Tropical Diseases, WHO. World Health Organization. (June 2004-August 2007) $ 70,000
21. **Towards unraveling the molecular and genetic architectures of sepsis in a Pakistani population** PI: Dr. Shehla Siddiqui**, Co-PI**: Dr. Bushra Jamil, Dr. Fouzia Khan, Dr. Phillipe Frossard and **Dr. Rabia** Hussain. University Research Council (2005-2007) $ 26500.
22. **Initiative for Diagnosis and Epidemiological Assays for Leprosy (IDEAL**) Funded by Heiser Foundation. ( 1/6 partners **Principal Investigator** Dr. Rabia Hussain AKU, Dr. Hazel Dockrell, PI, LSHTM) $ 600,000.) LSHTM/AKU share for year 1 $42,000 (Starting 2006)
23. **IFNγ mediated regulation of host innate immunity to tuberculosis: molecular mechanisms of chemokine activation in tuberculosis infections.** $ 7,000 Dr. Zahra Hasan (PI) Dr. Rabia Hussain (**Unit Leader**) funded by TWAS Grants for equipment (August 2006)
24. **Prevalence of *Mycobacterium tuberculosis* strain types in Karachi and their association with drug resistance**. Dr. Rumina Hasan (PI) Dr. Zahra Hasan (Co-PI) Dr. Rabia Hussain **(Collaborator)** £ 40,000/- Funded by Bennenden Society, London. (2006-2008)
25. **Antimicrobial resistance in Pakistan; A program to develop and strengthen capacity for surveillance, containment and diagnosis through public-private sector partnership”** $575,000 Rumina Hasan (PI ) Dr. Rabia Hussain (**Co-Investigator**) funded by HEC - US and Pakistan Science Technology Cooperative Program, Pakistan (2006-2009)
26. **Travel Grant to R Hussain** to attend the 3rd International Immunology Al-Ain Meeting, UAE. March 17-29, 2008, HEC Travel Grant. (Rs. 71,400)
27. **Relationship of IgG subclasses, pro-inflammatory cytokines IFNγ , TNFα and IL6 and down regulatory cytokines and IL10 with disease progression and severity in tuberculosis in BCG vaccinated and highly endemic TB transmission area**. Funded by HEC International Research Support Initiative Program (IRSIP) Najeeha Talat PhD student, Dr. Rabia Hussain (**PI, Supervisor**) Dec 2008
28. ***H. pylori* infection and the outcome of household TB exposure** (2009-2010) (**Investigators**: Julie Parsonnet, Sharon Perry Stanford University, Rabia Hussain and NajeehaTalat . The Aga Khan University (Bill and Melinda Gates Foundation (US $ 100000).
29. **Identification of biomarkers indicating risk of disease development in exposed household contacts of tuberculosis patients**. **Principal Investigator** Dr. Rabia Hussain Dr Tashmeem Razzaki (Co-PI) Funded by HEC (2007-10/ex 12/2011) Rs1403549
30. **Frequency and Association of IFN γ Single Nucleotide Polymorphisms (SNP’s) in tuberculosis.** Funded by AKU University Research Council PhD student research award to Ambreen Ansari Funds US$8695 (2009-2010) (**Principal Investigator**, Supervisor : Dr Rabia Hussain)
31. **Do Single Nucleotide Polymorphisms (SNPs) in the CC-Chemokine (CCL2 and CCL1) determine the severity and /or susceptibility of tuberculosis in Pakistan?**” (04-2010-07-2012) Pakistan Academy of Sciences. (Funded Rs 1.8 million). **Principal Investigator Prof. Rabia Hussain**
32. **Effect of 1,25-dihyroxyvitamin D3 on antimicrobial peptides and cytokine secretion in tuberculosis patients**. (Investigators: PI NajeehaTalat; **: Co- Principal Investigator** Rabia Hussain, Bushra Jamil, Romaina Iqbal; The Aga Khan University, Sharon Perry Stanford University AKU, University Research Council Funds Approved Rs 1657282**)** (2011-2012)
33. **In vitro drug sensitivities and single nucleotide polymorphism in determining antimalarial resistance in Plasmodium falciparum isolates**. PI Dr Najia Ganji PSF requested Rs 19,63,296 (2012-2013) Role: **Collaborator. Dr Rabia Hussain**
34. Clinical and experimental studies on the role of **“Suppressor of Cytokine Signaling” proteins in Tuberculosis** PI Dr Zahra Hasan requested $15000 (2012-2013). **Co-Investigator**
35. **Effect of 1, 25-dihyroxyvitamin D3 on Cathelicidin (LL37) and cytokine secretion in tuberculosis patients.** University Research Council (URC)(US$ 19,497/-) 2010-2012 Role: PI Dr Najeeha Talat. This is a multicenter collaboration between investigators of Pakistan (Najeeha Talat Iqbal, Farah Naz Qamar and **Rabia Hussain ;**  United States (Tania Thomas) and UK (Jonathan Swann).
36. **Nonspecific immune surveillance of mycobacterium BCG on innate and adaptive immunity.**

Funding: Seed Money, (PKR. 1,494,589/-) 2014-2017. Role: PI Dr Najeeha Talat, **Collaborator Dr Rabia Hussain**

1. **Title: Exploration of TB Biomarkers in Pakistani Children : Funding: Higher Education Commission** Pakistan (PKR. 355696/-) 2017-2020. Role: PI Dr Najeeha Talat, **Prof. Rabia Hussain (Collaborator)**

**Section 6. Publications and Preprints,**

**PUBLICATIONS (\* Corresponding Author)**

1. **Hussain, R**. \*, Strejan, G.H and Campbell, D.H.(1972). Hypersensitivity to Ascaris suum allergens. VII. Isolation and partial characterization of an Allergen. J. Immunol. 109(3): 638-647.
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1. [Kiran Iqbal Masood](https://pubmed.ncbi.nlm.nih.gov/?term=Masood%20KI%5BAuthor%5D), [Maliha Yameen](https://pubmed.ncbi.nlm.nih.gov/?term=Yameen%20M%5BAuthor%5D), [Javeria Ashraf](https://pubmed.ncbi.nlm.nih.gov/?term=Ashraf%20J%5BAuthor%5D), [Saba Shahid](https://pubmed.ncbi.nlm.nih.gov/?term=Shahid%20S%5BAuthor%5D), [Syed Faisal Mahmood](https://pubmed.ncbi.nlm.nih.gov/?term=Mahmood%20SF%5BAuthor%5D), [Asghar Nasir](https://pubmed.ncbi.nlm.nih.gov/?term=Nasir%20A%5BAuthor%5D), [Nosheen Nasir](https://pubmed.ncbi.nlm.nih.gov/?term=Nasir%20N%5BAuthor%5D), [Bushra Jamil](https://pubmed.ncbi.nlm.nih.gov/?term=Jamil%20B%5BAuthor%5D), [Najia Karim Ghanchi](https://pubmed.ncbi.nlm.nih.gov/?term=Ghanchi%20NK%5BAuthor%5D), [Iffat Khanum](https://pubmed.ncbi.nlm.nih.gov/?term=Khanum%20I%5BAuthor%5D), [Safina Abdul Razzak](https://pubmed.ncbi.nlm.nih.gov/?term=Razzak%20SA%5BAuthor%5D),[Akbar Kanji](https://pubmed.ncbi.nlm.nih.gov/?term=Kanji%20A%5BAuthor%5D), [**Rabia Hussain**](https://pubmed.ncbi.nlm.nih.gov/?term=Hussain%20R%5BAuthor%5D), [Martin E. Rottenberg](https://pubmed.ncbi.nlm.nih.gov/?term=E.%20Rottenberg%20M%5BAuthor%5D)**,**and [Zahra Hasan](https://pubmed.ncbi.nlm.nih.gov/?term=Hasan%20Z%5BAuthor%5D)  Upregulated type I interferon responses in asymptomatic COVID-19 infection are associated with improved clinical outcome. *Scientific reports*, *11*(1), pp.1-14 pages={1--14}, year={2021}, publisher={Nature Publishing Group}

**Preprints**

1. [Masood, Kiran Iqbal, Qaiser, Shama, Abidi, Syed, Khan, Erum, Mahmood, Syed Faisal, Hussain, areeba, Ghous, Zara, Imtiaz, Kehkashan, Ali, Natasha, Hayat, Hassan, Memon, Haris Ali, Yameen, Maliha, Ali, Shiza, Lakhani, Gulzar, Baloch, Sadaf, Alves, Paula, Iqbal, Najeeha Talat, Ahmed, Kumail, Mehmood, Junaid, Bhutta, Zulfiqar A.](https://pesquisa.bvsalud.org/global-literature-on-novel-coronavirus-2019-ncov/?lang=pt&q=au:%22Masood,%20Kiran%20Iqbal,%20Qaiser,%20Shama,%20Abidi,%20Syed,%20Khan,%20Erum,%20Mahmood,%20Syed%20Faisal,%20Hussain,%20areeba,%20Ghous,%20Zara,%20Imtiaz,%20Kehkashan,%20Ali,%20Natasha,%20Hayat,%20Hassan,%20Memon,%20Haris%20Ali,%20Yameen,%20Maliha,%20Ali,%20Shiza,%20Lakhani,%20Gulzar,%20Baloch,%20Sadaf,%20Alves,%20Paula,%20Iqbal,%20Najeeha%20Talat,%20Ahmed,%20Kumail,%20Mehmood,%20Junaid,%20Bhutta,%20Zulfiqar%20A.%22); [Hussain, Rabia, Rottenberg, Martin, Simas, J. Pedro, Veldhoen, Marc, Ghias, Kulsoom, Hasan, Zahra, Qaiser, Shama, Abidi, Syed, Khan, Erum, Mahmood, Syed Faisal, Hussain, areeba, Ghous, Zara, Imtiaz, Kehkashan, Ali, Natasha, Hayat, Hassan, Memon, Haris Ali, Yameen, Maliha, Ali, Shiza, Lakhani, Gulzar, Baloch, Sadaf, Alves, Paula, Iqbal, Najeeha Talat, Ahmed, Kumail, Mehmood, Junaid, Bhutta, Zulfiqar A.](https://pesquisa.bvsalud.org/global-literature-on-novel-coronavirus-2019-ncov/?lang=pt&q=au:%22Hussain,%20Rabia,%20Rottenberg,%20Martin,%20Simas,%20J.%20Pedro,%20Veldhoen,%20Marc,%20Ghias,%20Kulsoom,%20Hasan,%20Zahra,%20Qaiser,%20Shama,%20Abidi,%20Syed,%20Khan,%20Erum,%20Mahmood,%20Syed%20Faisal,%20Hussain,%20areeba,%20Ghous,%20Zara,%20Imtiaz,%20Kehkashan,%20Ali,%20Natasha,%20Hayat,%20Hassan,%20Memon,%20Haris%20Ali,%20Yameen,%20Maliha,%20Ali,%20Shiza,%20Lakhani,%20Gulzar,%20Baloch,%20Sadaf,%20Alves,%20Paula,%20Iqbal,%20Najeeha%20Talat,%20Ahmed,%20Kumail,%20Mehmood,%20Junaid,%20Bhutta,%20Zulfiqar%20A.%22); **[Hussain, Rabia](https://pesquisa.bvsalud.org/global-literature-on-novel-coronavirus-2019-ncov/?lang=pt&q=au:%22Hussain,%20Rabia,%20Rottenberg,%20Martin,%20Simas,%20J.%20Pedro,%20Veldhoen,%20Marc,%20Ghias,%20Kulsoom,%20Hasan,%20Zahra%22)**[, Rottenberg, Martin, Simas, J. Pedro, Veldhoen, Marc, Ghias, Kulsoom, Hasan,](https://pesquisa.bvsalud.org/global-literature-on-novel-coronavirus-2019-ncov/?lang=pt&q=au:%22Hussain,%20Rabia,%20Rottenberg,%20Martin,%20Simas,%20J.%20Pedro,%20Veldhoen,%20Marc,%20Ghias,%20Kulsoom,%20Hasan,%20Zahra%22) **[Dynamics of IgG Antibody Responses to SARS-CoV-2 Reveals Insight into Immunity During the Early Pandemic Period in Pakistan](https://pesquisa.bvsalud.org/global-literature-on-novel-coronavirus-2019-ncov/?lang=pt&q=au:%22Hussain,%20Rabia,%20Rottenberg,%20Martin,%20Simas,%20J.%20Pedro,%20Veldhoen,%20Marc,%20Ghias,%20Kulsoom,%20Hasan,%20Zahra%22)** [(preprint)}, SSRN; 2022. Preprint em Inglês | SSRN | ID: ppcovidwho-330021](https://pesquisa.bvsalud.org/global-literature-on-novel-coronavirus-2019-ncov/?lang=pt&q=au:%22Hussain,%20Rabia,%20Rottenberg,%20Martin,%20Simas,%20J.%20Pedro,%20Veldhoen,%20Marc,%20Ghias,%20Kulsoom,%20Hasan,%20Zahra%22)
2. Zahra Hasan, Kiran Iqbal Masood, Shama Qaiser, Erum Khan, Areeba Hussain, Zara Ghous, Unab Khan, Imran Hassan, Maliha Yameen, Haris Ali Memon, Shiza Ali, Sadaf Balouch, Muhammad Imran Nasir, Muhammad Farrukh Qazi, Marc Veldhoen, J Pedro Simas, Zulfiqar A Bhutta, Syed Faisal Mahmood, **Rabia Hussain**, Kulsoom Ghias [**Effect of age and prior COVID-19 on BBIBP-CorV (Sinopharm) vaccination-induced antibody responses in a region with high seroprevalence**](https://scholar.google.com.pk/scholar?oi=bibs&cluster=15175015590761409189&btnI=1&hl=en) Research Square 2022/6/21
3. Ahmed, Kumail and Sattar, Tehniat and Aziz, Fatima and **Hussain, Rabia** and T Iqbal, Najeeha}, {2022**} Does BCG vaccine induced trained immunity provide cross-protection against COVID-19?** (preprint)

**Publication Metrics** http://scholar.google.com.pk/citations?hl=en&user=rKocRegAAAAJ****

**Sections 7. Conferences: Sessions Chaired/Co-chaired; Invited lectures, Oral and Poster Presentations**

SCIENTIFIC SESSION CHAIRED/CO-CHAIRED:

1. American Society of Tropical Medicine and Hygiene, Filariasis session, *Am. Soc.Trop. Med. Hyg*. 1993 (Published)Chair: Filariasis session, American Society of Tropical Medicine and Hygiene,*Am. Soc. Trop. Med. Soc*. 1984 (Published)
2. Chair : Immunodiagnostic Approaches Session:. First Vaccilep workshop on the Immunology of Leprosy (March 29-31, 1989) Proceedings published in International Journal of Leprosy.
3. Co-Chair of the session on Immunology and Infections at 5th Joint Congress of the Sexually Transmitted Diseases and Infectious Societies of Southern Africa, 20-24 May 1995.
4. Co-Chair of the session on Infectious diseases ( Mycobacteria) at the Second National Symposium on “Basic and applied research in Health care and social development” September 23-24, 1995.
5. Co-Chair Sesssion III on Autoimmunity – Immunological Diseases - Second Al Ain International Immunology Meeting (March 11-14, 2002) Al-Ain, UAE
6. Chair: 8th International Symposium on “Protein Structure Function Relationship, HEJ International Chemistry Center, Karachi, Pakistan ( Jan 2005)
7. Chair: 4th annual Conference on Infectious Diseases Can Immune markers define disease severity /dissemination in pulmonary and extrapulmonary tuberculosis? . Liaquat National Hospital, Karachi Pakistan (17-19 March 2006).
8. Chaired, Session 17th International Leprosy Congress, January 30-February 3, 2008, Hyderabad, India.
9. Appointed Judge for poster Session at the 17th International Leprosy Congress, January 30-February 3, 2008, Hyderabad, India.
10. 21st General Meeting of TWAS Hyderabad, India, (19-22 October 2010)
11. IUATLD (November 11-15 2010), Session 2, Symposium: Tuberculosis)
12. 3rd International Symposium-cum Training Course on Molecular Medicine and Drug Research (MMDR-3; Jan 03-06,2011) International Center for Molecular Medicine and Drug Research Karachi University, Karachi Pakistan
13. Chaired session 1; Symposium :Tuberculosis –Epidemiology ,Diagnsotics and Therapeutics (November 03,2011), Institute of Biochemistry and Biotechnology, University of Punjab, Lahore-Pakistan
14. Chaired Immunology session: Pakistan Association of Pathologist, Marriot Hotel Karachi Pakistan (December 17th-18, 2011).
15. Chaired COVID-19: 2020 and Beyond ; Session 1

Saturday, September 5, 2020, Organized by Pakistan Academy (PAS) of Sciences (Sindh Chapter) and LEJ National Science information Center, ICCBS, University of Karachi

1. Session 1 Chair. COVID-19: 2020 and Beyond ; Webinar: Saturday, September 5, 2020, Organized by Pakistan Academy (PAS) of Sciences (Sindh Chapter) and LEJ National Science information Center, ICCBS, University of Karachi

**Invited/ key note Speaker in Conferences**

1. **Hussain, R**. (1978) “Importance of vaccines for Health purposes” Maryland Academy of Sciences. Speaker to ninth and tenth graders. Two top students from all Baltimore Schools (1978).
2. **Hussain, R**., Kaushal, N.A. and Ottesen, E.A: Quantitation of total and parasite specific IgE in Bancroftian filariasis. First Symposium on Immunoparasitology, Lincoln, Nebraska, (June 17-19, 1981).
3. **Hussain, R**. Immunoglobulin E responses in human filariasis: Quantitative and qualitative aspects. Working paper for the WHO/TDR Scientific Working Group on "Lymphatic Filariasis- Diagnosis of Infection and Evaluation of Control". Columbo, Sri Lanka. (October 12-16, 1981).
4. **Hussain, R**., Goldstone, A., Hofstetter N., Poindexter, R.W. and Ottesen, E.A.: Development of a solid phase radio-immunoyassay for quantitation of IgE in schistosomiasis: Correlation with skin tests and histamine release. Helminthlogical Society of Greater Washington, D.C. USA (January 1982).
5. **Hussain, R**: Regulation of IgE responses in parasitic diseases Gordon Research Conference, Rochester, USA (August 1983).
6. **Hussain, R**., and Ottesen, E.A: Parallel recognition of filarial antigen by IgE and IgG4 antibodies. International Symposium on Clinical Immunology. Sponsored by: Division of Rheumatology, Allergy and Clinical Immunology, Department of Internal Medicine and the Office of Continuing Medical Education, School of Medicine, University of California, Davis. (June 6-7, 1986).
7. **Hussain, R**. Quantitative Elisa antibody assays in leprosy patients contacts. First Vaccilep workshop on the Immunology of Leprosy, Kathmandu, Nepal (March 29-31, 1989)
8. **Hussain, R**, Jamil, S., Kifayet, A. and Hasan, R. Quantitation of IgM antibodies to the M. leprae synthetic dissachharide can predict early bacterial multiplication in leprosy, 2nd Faculty Student Seminar, The Aga Khan University, Karachi, Pakistan (November 8, 1989)
9. Hussain , R., Sturm, A.W. Minai, A. Dawood, G. and Ellner, J. Clinical and Immunological spectrum of tuberculosis in an endemic area in Karachi, Pakistan. XIII International Congress of tropical Medicine and Malaria, Joteim, Pattaya, Thailand. (November 29-Dec 4, 1992)
10. **Hussain, R**. Human antibody responses to the 18KDa protein of M.leprae in lepromatous leprosy. Immunology workshop programme, 14th International Leprosy Congress Orlando, Florida, USA (August 29, 1993 to September 4, 1993).
11. **Hussain, R**. "Major Advances in the Immunology of tuberculosis" 5th Joint Congress of the Sexually Transmitted Diseases and Infectious Diseases Societies of Southern Africa, (May 20-24, 1995).
12. **Hussain, R**., Hasan, R., Dawood, G., and Ellner, J.J. Major Advances in immunology tuberculosis. Proc. 2nd Nat.Symp. on Hlt care & Soc. Dev. AKU. Karachi. 1-9. (September 23-24, 1995)
13. **Hussain, R**. and Pfau, R. Leprosy in Pakistan: Epidemiology and Immunology of reactional complications. Golden Jubilee, Dow Medical College & Century Celebration, Civil Hospital, Karachi, Pakistan (December 28 - January 1, 1997).
14. **Hussain, R**. Value of BCG vaccination and interpretation of PPD test in TB endemic areas. A focus on awareness and management of Tuberculosis and Leprosy for General Practitioners and Health Care Workers” A Continuing Medical Programme The Aga Khan University Hospital, Karachi, Pakistan (July 15-17, 1997)
15. **Hussain, R**., Dockrell, H., and Chiang TJ. Leprosy patients with lepromatous disease recognize cross reactive T cell epitopes in the M. leprae 10 kDa antigen. 10th International Congress of Immunology, New Delhi, India (November 1-6, 1998).
16. Current Issues. Symposium on Update on infection: Current strategies in diagnosis and management, (Invited Plenary lecture on Tuberculosis) Sind Institute of Urology and transplantation, Karachi, Pakistan (August 14-15, 1999).
17. **Hussain, R**. “Immunological studies of Leprosy in Pakistan” 5th International Conference on Emerging Infectious Diseases in the Pacific Rim Chennai, India. (Jan 7-9, 2000.)
18. **Hussain, R**. “Mapping of T & B cells epitopes in leprosy. Department of Biotechnology, All India Institute of Medical Sciences, India.(February 1, 2000).
19. **Hussain, R**. “Antibody influence on cytokine expression in human tuberculosis” Department of Biotechnology, All India Institute of Medical Sciences, India. (February 2, 2000.)
20. **Hussain, R**. “Diagnostic issues of tuberculosis in the developing world” 23rd Joint Coordinating Board (JCB) meeting, World Health Organization, Geneva, Switzerland (June 27,2000)
21. **Hussain, R**. “IgG Subclasses as diagnostic markers in mycobacterial diseases”. AKU CME Seminar on Diagnostic Dilemmas in Tuberculosis.( September 27, 2000).
22. **Hussain, R**. Assessment of correlates of protection in tuberculosis by whole blood assay. Can this be used for evaluation of vaccine efficacy? One day National Symposium Tuberculosis – Current status Armed Forces Institute of Pakistan, Rawalpindi, Pakistan (April 28, 2001).
23. **Hussain, R**. Opsonizing antibodies to Mycobacterial antigens in TB patients up-regulate monocyte cytokines TNF- and IL-6 but not IL-10. Second Al-Ain Immunology Meeting, Al-Ain, UAE. (March 11-14, 2002).
24. **Hussain, R**. : Role of IgG subclasses in parasitic and mycobacterial infections with respect to pathogenesis and protection. TWAS 8th International Conference, New Delhi, India (Oct 2331, 2002).
25. **Hussain, R**. : Fundamental aspects of immune pathogenesis in infectious diseases. Role of IgG subclasses in parasitic and mycobacterial infections with respect to pathogenesis and protection. 1st International Congress on Infectious Diseases, Liaquat General Hospital, Karachi Pakistan (March 28-30, 2003).
26. **Hussain, R**. Immunological Principles of vaccine development (Workshop on vaccine production (AKU August 8, 2003). Karachi, Pakistan
27. Hussain , R. The scientific foundations for vaccine related R and D: How do we measure? (Vaccine development, Production and Utilization in Developing World, Issues, Prospects and Implications for Pakistan development (Workshop on Vaccine Production (AKU August 09, 2003)
28. **Hussain, R**., Zafar, S., and Dockrell, H. . Immune dissection of Mycobacterium leprae heat shock protien 10K(Groes) using synthetic overlapping peptides. 8th International symposium “ Protein structure functional relationship, HEJ International Center for Chemistry, Karachi University ( 7-10 January, 2005)
29. **Hussain, R**. Immune Dissection of Mycobacterium Leprae Heat Shock Protien 10k( Groes) Using Synthetic overlapping peptides The Aga Khan University, Health Sciences Research Assembly, Karachi (March 15-17, 2005).
30. **Hussain, R**. Identification of molecular markers for disease diagnosis, pathogenesis and vaccine development. AKU Multi- disciplinary Research Seminar on Tuberculosis (August 26, 2005).
31. **Hussain, R**. Mirza, N. and Jamil, B. Can immune markers define disease severity/dissemination in pulmonary and extra-pulmonary tuberculosis? 4th Annual Conference on Infectious Diseases, Infectious Diseases Society of Pakistan. Liaquat National Hospital. Karachi. (March 17-19, 2006)
32. **Hussain, R**., Shahid, F., Talat, N., Ansari, A., Hasan, Z., Razzaki, T. & Dawood, G. Laboratory Markers of Risk for Clinical Disease in Household Contacts of Tuberculosis Patients with active disease. National Symposium on “Biotechnolgoy for Economic Prosperity” July 24-26, 2006, Nathiagali, Pakistan.
33. **Hussain, R**. “Challenges for developing a bench-based research program in Pakistan” AKU Health Sciences Research Assembly, April 25, 2007 The Aga Khan University, Karachi.
34. **Hussain, R**., Talat, N., Shahid, F., Nasir, A., Dojki,M., and Dawood, G (2008). Association of IFNγ/IL-10 with disease development after acute exposure to Mycobacterium tuberculosis in house hold contacts. 3rd Al-Ain International Immunology Meeting (March 17-20) Al-Ain, UAE.
35. **Hussain, R** (2008). Immunological basis of Immunization (Course on vaccinology in Developing Countries: Sponsored by NIH Fogarty International Center, USA) (Nov 08, The Aga Khan University, Karachi, Pakistan.
36. **Hussain, R** (2008). Correlates of protection in tuberculosis in a high transmission pocket in Pakistan. International Symposium of Royal Society of Tropical Medicine and Hygiene (Nov 10-13, 2008), The Aga Khan University, Karachi, Pakistan.
37. **Hussain, R**., Talat, N., Shahid, F., Nasir, A., Dojki,M., and Dawood, G (2008). Biomarker profiles for new TB vaccine evaluation. 2nd National Conference on Health Biotechnology (27-28 May)
38. **Hussain, R**. (2009) The Karachi Cohort. TB Latent infection profile. University of California at UC Davis, USA. (January 05).
39. **Hussain, R**. (2009) Immunologic Correlates of latent Tuberculosis infection Stanford University, California USA. (January 09)
40. **Hussain, R**. (2009) Role of translational research in PGME: benefits for clinical practice. XIV annual PGME Conference on “Research: Going Beyond Clinical Competence. AKUFHS, Karachi, Pakistan (April 24)
41. **Hussain, R**. (2009) Overcoming barriers for research in clinical practice: Is it possible? Research Retreat, Dept. of Anaesthesia, The Aga Khan University, Karachi, Pakistan. (April 18, 2009)
42. **Hussain, R** R. (2010) Cytometric Bead Array (CBA) and its utility in Pathology and Microbiology Research”, Department of Pathology and Microbiology Faculty Forum 12 June 2010
43. **Hussain, R**: (2010) Biomarkers of progressive tuberculosis in a high burden TB endemic area with low HIV prevalence International Union against Lung and Tuberculosis (IUATLD, Berlin, Germany, November 11-15, 2010)
44. **Hussain, R**., (2011) Najeeha Talat, Ambreen Ansari Firdaus Shahid Zahra Hasan and Ghaffar Dawood. Phenotypic and genotypic biomarkers of disease infection and progression in tuberculosis MMDR-3, ICGBS, Karachi University, (Jan 04, 2011)
45. **Hussain, R**. (2011) Immunological markers of disease progression in tuberculosis: A longitudinal Cohort Study. Juma Research Group (June 15, 2011)
46. **Hussain, R**. (2011) Immune biomarkers of discriminating recent infection, disease progression and active disease in tuberculosis. National Symposium on “Tuberculosis- Diagnostics and Therapeutics” School of Biological Sciences, University of the Punjab, Lahore. (November 3, 2011)
47. **Hussain, R** (2012). Patho-Physiology and the clinical spectrum of Tuberculosis. Comstech International Workshop on “ An Update on Pathogenesis of Mycobacterial Diseases” April 25-27 2012, Islamabad
48. **Hussain, R** (2012). Genotypic and Phenotypic biomarkers of tuberculosis disease severity. Do these have clinical relevance? AKU Continuing Medical Education, The Aga Khan University (July 18, 2012)
49. **Hussain, R** (2012) Correlates of protection in mycobacterial diseases. Comstech International Workshop on “ An Update on Pathogenesis of Mycobacterial Diseases” April 25-27 2012, Islamabad
50. **Hussain, R**. (2012). Immune biomarkers of tuberculosis disease susceptibility and severity. Pakistan Association of Pathology, Islamabad (Dec 12, 2012)
51. **Hussain, R**.( 2013) “Biomarker of Tuberculosis Disease Susceptibility and Severity : 4th International Symposium –cum-Training Course on Molecular Medicine and Drug Research Punjwani Center, University of Karachi, Karachi, Pakistan (Jan 07-09, 2013)
52. **Hussain, R**.: (2015) Immuno-pathogenesis of Tuberculosis, 38th PAP/3rd PSI joint conference of societies, Pearl continental hotel, Lahore Date: Invited Plenary Lecture 6th-8th Nov 2015
53. **Hussain, R**. (2015) Emerging Infectious Diseases: The Researchers Guide. The 20th Conference : Symposium Title: Science, Technology and Innovation: Building Humanities Common Future; Islamic World Academy of Sciences, Persian Azadi Hotel, Tehran, Iran , (26-27 December 2015).
54. **Hussain, R**. (2016) Leprosy Research in Pakistan: Leprosy Day Seminar organized by Marie Adelaide Leprosy Center, Karachi , Pakistan American Cultural Center, Pakistan ( 30 Jan 2016) Invited Key Note Speaker
55. **Hussain, R** (2016) IESCO Women in Science, Islamabad, Pakistan, Development of a Research Program in infectious diseases in Pakistan, Islamabad, Pakistan (March 3, 2016). Invited Key Note Speaker
56. **Hussain, R** (2017)Development of A Research Program in Infectious Diseases in Pakistan, AKU Faculty Forum : The Aga Khan University Karachi. (April 12, 2017)
57. **Invited Key Note Speaker** (2019) Future Role of Women Scientist in the Global Village ICCBS University of Karachi , 2019 **(Key Note Speaker and panel participant**), Karachi Pakistan.
58. **Hussain, R** Hussain R World Allergy Day Symposium (2019) : Natural regulation of IgE mediated allergic responses Pakistan Association of Pathology and Pakistan Society of Immunology, Indus Hospital , Karachi Pakistan
59. **Hussain, R** (2019). Generic and Specific Challenges for a Career Women Scientist : NED Women Conference (20-21st December 2019) (**Hussain, R** and panel participant), Karachi Pakistan)
60. **Hussain, R**. (2020). Immune suppression in mycobacterial diseases: 5th Biennial Conference Building Bridges for Better Health Care: Indus Hospital Icon 2020 (January 18th 2020, Marriot Hotel, Karachi Pakistan)
61. **Hussain, R**. (2020) Serology of Covid-19. Utility and Limitations. Webinar on “Why test for COVI-19? Are we misinterpreting the results? Organized by The Microbiology and Infectious Disease Society of Pakistan. (2 30-500 PM October 28, 2020)
62. **Hussain, R**. Title “Serology for COVID19: its utility and limitations”. Webinar on “Why test for COVID -19? Are we misinterpreting the results?” Wednesday 28, October 2020 ( 3:5PM +5GMT). Organized by MMISD, Sponsored by Sami Pharmaceuticals (Pvt) LTD ), Karachi Pakistan.
63. **Hussain, R**: Uses and abuses of antibody tests in Covid-19; Department of Pathology and Microbiology: Microbiology Forum, Aga Khan University (March 4, 2021, 8-9 AM +5GMT) , Karachi Pakistan.
64. **Hussain, R**: How do we interpret antibody tests in Covid-19? Marie Adelaide Leprosy Center (March 27, 2021, 11-12+5GMT), Karachi Pakistan
65. **Hussain, R**: Understanding Covid-19 antibody tests: Webinar on “COVID 19 Pandemic and Role of Microbiologist” Organized American Society for Microbiology, 19th May 2021, 11-12 Noon V)
66. **Hussain, R** “Role and Challenges for Women Scientists: Past, Present and Future. Webinar on Women Scientists Through Journey of Challenges/Success”. A Virtual Lecture Series, Organized by OWSD-Pakistan National Chapter, Thursday June 24, 2021 (11:00 AM, +5GMT)

**Oral and Poster Presentations**

ORAL/POSTER PRESENTATION

1. Hussain, R. and Strejan, G.H: Isolation and characterisation of an Ascaris suum allergen. Proc. Can. Fed. Biol. Sci. 14: 36, 1972. [Oral]
2. Hussain, R., Strejan, G.H. and Campbell, D.H.: A dialyzable Ascaris suum fraction with allergenic activity. Fed. Proc. 31: 751, 1972. . [Oral]
3. Vannier, W.E. and Murrell, K.D.: Hypersensitivity to Schistosoma mansoni allergens. Fed. Proc. 34: 983, 1975. [Oral]
4. Hussain, R. The role of reagins in antibody mediated protective response to Schistosoma mansoni infection. U.S.-Japan Conference on Parasitic Diseases. Bethesda MD, USA. October 1975. . [Oral]
5. Hussain, R., Marsh, D.G. and Balner, H: RhLA and immune response to highly purified allergens in monkey families. J. Supramol. Struct. p. 182, 6th Annual ICN-UCLA SYMPOSIA, Molec. Cell. Biol., March 1977. . [Oral]
6. Hussain, R., Marsh, D.G. and Norman, P.S.: Rapidly released ragweed allergens. American Congress of Allergy and Immunology , New York, March, 1977 (abstract # 44). . [Oral]
7. Hussain, R., Marsh, D.G. and Balner, H.: RhLA and immune response to highly purified antigens in monkey families. Fed. Proc. 37. 1475, 1978. . [Oral]
8. Marsh, D.G., Bias, W.B., Meyer, D.A., Freidhoff, L.R., Hussain, R., and Chase, G.A: Epidemiology and genetics of human allergic response. Asthma and Allergic Disease Centres Workshop, Nov. 30 - Dec. 1, 1978. [Oral].
9. Hussain, R., and Marsh, D.G.: Allergenic activity of a rapidly released basic component of short ragweed, Ra6. American Academy of Allergy, March 1979. . [Oral]
10. Friedhoff, L.R., Chase, G.A., Meyers, D.A., Hussain, R., Hsu, S. and Marsh, D.G.: A genetic epidemiology study of immune responsiveness. American Academy of Allergy March 1979. . [Oral]
11. Hussain, R., and Marsh, D.G: Characterization and allergenic activity of ragweed allergens Ra6, Ra7 and Ra8. American Academy of Allergy, March 1980. . [Oral]
12. Marsh, D.G., Freidhoff, L.R., Meyers, D.A., Hussain, R. and Lowenstein, H.: Association of atopic allergy with HLA-B8. American Academy of Allergy March 1980. [Oral]
13. Hussain, R. and Marsh, D.G: Purification, Characterization and allergenic activity of a rapidly released ragweed allergen-Ra6. Fed. Proc. 39: 1980. . [Oral]
14. Marsh, D.G., Meyers, D.A., Freidhoff, L.R., Hussain, R., Hsu, S.H. and Bias, W.B.: Association of HLA phenotypes Al, B8, DW3 and A3, B7, DW2 with allergy, Fed. Proc. 39: 1980.[Oral]
15. Marsh, D.G.,, Freidhoff, L.R., Meyers, D.A., Hussain, R., Hsu, S.H. and Bias, W.B.: Associations of HLA phenotypes Al, B8, DW3 and A3, DW2 with generalized IgE responsiveness. Fourth International Congress of Immunology, 1980. . [Oral]
16. Hussain, R., Hamilton, R.G., Ottesen, W.A. and Adkinson, N.F.: Quantitation of parasitespecific human immunoglobulins: Comparison of RIA and ELISA methods. Am. Soc. Trop. Med. Hyg. 1980. [Oral]
17. Ottesen, E.A., Hussain, R. and Poindexter, R.W.: A non-immunologic degranulator of human basophils isolated from eggs of Schistosoma mansoni. Am. Soc. Trop. Med. Hyg., 1981. . [Oral]
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