

SYED M. JAMAL

Ph. D (Microbiology)

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Interests:

I have experience of working in the area of both classical and molecular epidemiology of trans-boundary and zoonotic diseases, diagnosis and vaccinology.

Degrees:

Ph. D. in Microbiology from Quaid-i-Azam University, Islamabad

Research Title: Epidemiology of foot-and-mouth disease in Pakistan and Afghanistan

M. S. in Epidemiology from Utrecht University, the Netherlands

Research Title: Foot-and-mouth disease vaccine potency testing; the influence of method fractionation, serotype, type of adjuvant valency and virus culture on the dose-response curve

M. Phil in Microbiology from Quaid-i-Azam University, Islamabad

Research Title: Production of *Brucella abortus* S19 vaccine and its immune response in buffalo calves

DVM from College of Veterinary Sciences, Lahore

Current position: (May 2013 onwards) **Associate Professor (BPS-20)**, Department of Biotechnology, and **Chairman of the Department** since August, 2013 till September 2017 (two tenures)

and previously as Assistant Animal Husbandry Commissioner (BPS-18) within the Ministry of National Food Security & Research/Ministry of Commerce and as Scientific Officer (BPS-17) in the National Veterinary Laboratory, Islamabad. I was also involved in teaching and demonstrating practicals to MSc students, Department of Biological Sciences, Quaid-i-Azam University, Islamabad.

I have also been associated with the Food and Agriculture Organization of the United Nations (FAO) on transboundary animal disease diagnosis, surveillance and control under its projects for Pakistan and some Central Asian countries. I acted as **Consultant** with FAO for re-establishment of ELISA facility for sero-surveillance of Rinderpest, diagnosis of PPR and diagnosis of FMD plus characterization of FMDV. I also worked as FMD Expert/Consultant for FAO on developing risk-based control strategies for FMD in Khyber Pakhtunkhwa, Pakistan.

Working in the area of transboundary animal diseases with financial support from FAO (and European Union) resulted in:

1. Declaration of freedom of Pakistan from Rinderpest by the World Organization for Animal Health (OIE), Paris, France in 2007.
2. Moving forward of Pakistan from stage 0 to stage 2 on the OIE/EuFMD/FAO Progressive Control Pathway for Foot-and-mouth disease (FMD-PCP).
3. Selection of appropriate vaccine strains for incorporation in vaccine against Foot-and-mouth disease.

Principal research areas:

- Diagnosis, surveillance and control of infectious diseases including Foot-and-mouth disease (FMD), Peste des petits ruminants (PPR) and Rinderpest
- Vaccine development for bovine brucellosis
- Vaccine quality testing and evaluation of foot-and-mouth disease
- Classical and molecular epidemiology of foot-and-mouth disease, dengue
- Development and application of novel methods (diagnostics)
- Working on zoonotic diseases (brucellosis, toxoplasmosis, CCHF)

Key tasks:

- Teaching to students in BS, M. Phil and PhD programs of the Department
- Supervision of scientific staff and BS/M. Phil/PhD students. Twenty-two M. Phil and two PhD studies have successfully been supervised who have completed their degrees. Two PhD scholars and six M. Phil students are currently (as of May 2023) in supervision.
- Preparation of papers, grant applications and reports, etc.

Research projects awarded

- Rapid, on site, diagnosis of FMD and safe and cost-effective shipment of samples using lateral flow devices for laboratory diagnostic. Euros 75940/= European Commission for the control of FMD (EuFMD, Food and Agriculture Organization of the United Nations).
- Epidemiology of bluetongue in small and large ruminants in Khyber Pakhtunkhwa, Pakistan. Rs. 5.33 million, Higher Education Commission, Pakistan
- Wool characteristics of sheep breeds in Malakand Division, Pakistan. Rs. 4.89 million, Higher Education Commission, Pakistan
- Study on zoonosis. Rs. 0.5 million. Relief International
- Development of laboratory-based test for differentiation of meat originated from slaughtered and un-slaughtered animals. Rs. 0.3 million. Directorate of Science & technology, Government of Khyber Pakhtunkhwa

Achievements:

- More than 300 nucleotide sequences submitted to GenBank
- Published more than 30 papers in peer reviewed scientific journals (listed below) with a total impact factor of more than 80.

International Collaborations

I have been in research collaboration with the following researchers/organizations.

- Prof. Dr. Graham J Belsham, Department of Veterinary and Animal Sciences, University of Copenhagen, Denmark. E-mail: grbe@sund.ku.dk
- Dr Aldo Dekker, Senior Scientist, Wageningen Bio-veterinary Research, Wageningen University Research, Lelystad, the Netherlands. E-mail: aldo.dekker@wur.nl
- Dr. Labib Bakkali Kassimi, Head, FAO Reference Laboratory for foot-and-mouth disease, French Agency for Food, Environmental and Occupational Health & Safety (ANSES), France. Email: labib.bakkali-kassimi@anses.fr

Publications:

1. Ishaq M, Shah SAA, Khan N, **Jamal SM**. Prevalence and associated risk factors of bluetongue virus infection in small and large ruminants maintained on Government farms/research stations in North-western Pakistan. *Research in Veterinary Sciences* (in revision).
2. Ishaq M, **Jamal SM**, Shah SAA, Rahman H, ----, Savini G. Detection and serotyping of bluetongue virus in apparently healthy ruminants in endemic settings (in preparation)
3. Romey A, Ularanu HG, Bulut AN, **Jamal SM**, Khan S, Ishaq M, Eschbaumer M, Belsham GJ, Bernelin-Cottet C, Relmy A, Gondard M, Benfrid S, Wungak YS, Hamers C, Hudelet P, Zientara S, Bakkali KL, Blaise-Boisseau S. Field evaluation of a safe, easy and low-cost protocol for shipment of samples from suspected cases of foot-and-mouth disease to diagnostic laboratories. *Transboundary and Emerging Diseases* (in revision).
4. **Jamal SM**, Khan S, Knowles NK, Wadsworth J, Hicks HM, Mioulet V, Bin-Tarif A, Ludi AB, Shah SSA, Abubakar M, Manzoor S, Afzal M, Eschbaumer M, King DP, Belsham JG. Foot-and-mouth disease viruses of the O/ME-SA/Ind-2001e sublineage in Pakistan. *Transboundary and Emerging Diseases*. 2021. 68(6):3126-3135. DOI: 10.1111/tbed.14134
5. **Jamal SM**, Nazem Shirazi M, Ozyoruk F, Parlak U, Normann P, Belsham GJ. Evidence for multiple recombination events within foot-and-mouth disease viruses circulating in West Eurasia. *Transboundary and Emerging Diseases*. 2020; 57, 979-993.
6. Khan S, Shah SAA, **Jamal SM**. Evaluation of enzyme linked immunosorbent assay and conventional reverse transcription polymerase chain reaction for the diagnosis of foot-and-mouth disease. *Intervirology* 2021; 64:209–214 DOI: 10.1159/000517003
7. N Ahmad, T Khan, **SM Jamal**. A Comprehensive Study of Dengue Epidemics and Persistence of Anti-Dengue Virus Antibodies in District Swat, Pakistan. *Intervirology* 2020; 63: (1-6), 46-56.
- 8.

9. J Khan, N Basharat, S Khan, **Jamal SM**, AA Shah, S Khan, R Ali, SN Khan, ... Prevalence and Molecular Characterization of Cystic Echinococcosis in Livestock Population of the Malakand Division, Khyber Pakhtunkhwa, Pakistan. *Frontiers in Veterinary Science*, 2021, 8, 757800. <https://doi.org/10.3389/fvets.2021.757800>
10. Khan T, **Jamal SM**. SARS-CoV-2 Nomenclature: Viruses, Variants, and Vaccines need a standardized naming system. *Future Virology*, 2021; 16(12), 777–779.
11. Ullah F, **Jamal SM**, Zhou H, Hickford JGH. Variation in ovine *KRTAP8-2* and its association with wool characteristics in Pakistani sheep. *Small Ruminants Research*, 2022, [207](#), 106598. DOI 10.1016/j.smallrumres.2021.106598
12. Ullah F, **Jamal SM**, Zhou H, Hickford JGH. Variation in ovine *KRTAP8-1* affects mean staple length and opacity of wool fiber. *Animal Biotechnology*. 2021, DOI: 10.1080/10495398.2021.1990078.
13. Ullah F, **Jamal SM**, Ekegbu UJ, Haruna IL, Zhou H, Hickford JG. Polymorphism in the ovine keratin associated protein gene *KRTAP7-1* and its association with wool characteristics. *Journal of Animal Sciences*. 2020; 1-7. doi:10.1093/jas/skz381
14. Ullah F, **Jamal SM**, Zhou H, Hickford JG. Variation in the *KRTAP6-3* gene and its association with wool characteristics in Pakistani sheep breeds and breed-crosses. *Tropical Animal Health and Production*. 2020; 52(6):3035-3043.
15. Ullah F, Khan MFU, Khan MH, **Jamal SM**. Factors Affecting Mean Fiber Diameter in Selected Pakistani Sheep Breeds/Crosses. *Journal of Natural Fibers*. 2021; 2021; 18 (6): 877-887. <https://doi.org/10.1080/15440478.2019.1658259>.
16. **Jamal SM**, Belsham GJ. Molecular epidemiology, evolution and phylogeny of foot-and-mouth disease virus Infection, *Genetics and Evolution*, 2018; 59, 84-98.
17. Ullah A, **Jamal SM**, Romey A, Gorna K, Kakar MA, Abbas F, Ahmad J, Zientara S, Bakkali Kassimi L. Genetic Characterization of Serotypes A and Asia-1 Foot-and-mouth Disease Viruses in Balochistan, Pakistan, in 2011. *Transboundary and Emerging Diseases*, 2017; 64(5):1569-1578.
18. **Jamal SM**, Belsham GJ. Development and Characterization of Probe-Based Real Time Quantitative RT-PCR Assays for Detection and Serotyping of Foot-And-Mouth Disease Viruses Circulating in West Eurasia. *PLoS One*, 2015, 10(8): e0135559.
19. Ali S, Ali Q, Melzer F, Khan I, Akhter S, Neubauer H, **Jamal SM**. Isolation and identification of bovine *Brucella* isolates from Pakistan by biochemical tests and PCR. *Tropical Animal Health & Production*, 2014, 46:73-78.
20. **Jamal SM**, Shah SI, Ali Q, Mehmood A, Afzal M, Afzal M, Dekker A. Proper quality control of formulated foot-and-mouth disease vaccines in countries with prophylactic vaccination is necessary. *Transboundary and Emerging Diseases*, 2014, 61 (6):483-489.
21. Brito BP, Perez AM, **Jamal SM**, Belsham GJ, Pauszek SJ , Ahmed Z, Rodriguez L. Foot-and-mouth disease virus serotype O phylodynamics: genetic variability associated to epidemiological factors in Pakistan. *Transboundary and Emerging Diseases*, 2013, 60:516-524.
22. **Jamal SM**, Belsham GJ. Foot-and-mouth disease: past, present and future. *Veterinary Research*, 2013, 44:116.
23. **Jamal SM**, Ferrari G, Hussain M, Nawroz AH, Aslami AA, Khan E, Murvatulloev S, Ahmed S, Belsham GJ. Detection and genetic characterization of foot-and-mouth disease

- viruses in samples from clinically healthy animals in endemic settings. *Transboundary and Emerging Diseases*, 2012, 59: 429-440.
24. **Jamal SM**, Ferrari G, Ahmed S, Normann P, Belsham GJ. Molecular characterization of serotype Asia-1 foot-and-mouth disease viruses in Pakistan and Afghanistan; emergence of a new genetic Group and evidence for a novel recombinant virus. *Infection, Genetics and Evolution*, 2011, 11: 2049-2062.
 25. **Jamal SM**, Ferrari G, S. Ahmed, Normann P, Curry S, Belsham GJ. Evolutionary analysis of serotype A foot-and-mouth disease viruses circulating in Pakistan and Afghanistan during 2002-2009. *Journal of General Virology*, 2011, 92: 2849-2864.
 26. **Jamal SM**, Ferrari G, Ahmed S, Normann P, Belsham GJ. Genetic diversity of foot-and-mouth disease serotype O viruses from Pakistan and Afghanistan, 1997-2009. *Infection, Genetics and Evolution*, 2011, 11: 1229–1238.
 27. Belsham GJ, **Jamal SM**, Tjørnehøj K, Bøtner A. Rescue of pathogenic foot-and-mouth disease virus from preserved viral RNA samples. *PLoS ONE* 6(1): e14621.
 28. **Jamal SM**. Ahmed S, Hussain M, Ali Q. Status of Foot-and-mouth disease in Pakistan. *Archives of Virology*, 2010, 155 (9):1487-1491.
 29. Ullah W, Abubakar M, Arshed MJ, **Jamal SM**, Ayub N, Ali Q. Differentiation of closely related Vaccinal Strains of *Pasteurella multocida* using Polymerase Chain Reaction (PCR). *Online Veterinary Journal*. 2009, 4 (1) 36.
 30. Abubakar M, **Jamal SM**, Khan MA and Ali Q. Pest des petits ruminants outbreak in small ruminants of Northern area of Pakistan. *Research Journal of Veterinary Sciences*. 2008, 1 (1): 56-61.
 31. Abubakar M, **Jamal SM**, Arshed MJ, Hussain M, Ali Q. Peste des petits ruminants virus (PPRV) infection; Its association with species, seasonal variations and geography. *Tropical Animal Health & Production*. 2009 41(7):1197-1202.
 32. **Jamal SM**, Bouma A, van den Broek J, Stegeman A, Chenard G and Dekker A. Foot-and-mouth disease vaccine potency testing: The influence of method of fractionation, serotype, type of adjuvant, valency and type of virus culture on the dose-response curve in cattle. *Vaccine*, 2008, 26: 6317–6321.
 33. Hassan MJ, Chishti MS, **Jamal SM**, Tariq M, Ahmad W. A syndromic form of autosomal recessive microcephaly (Jawad Syndrome) maps to chromosome 18 p^{11.22}-q^{11.2}. *Human Genetics* .2008, 123:77–82.
 34. Abubakar M, **Jamal SM**, Hussain M, Ali Q. Incidence of Peste des petits ruminants (PPR) virus in sheep and goats as detected by immunocapture ELISA (icELISA). *Small Ruminant Research*, 2008, 75: 256-259.
 35. Ahmad K, **Jamal SM**, Ali Q and Hussain M. An outbreak of Peste des petits ruminants (PPR) in a goat flock in Okara, Pakistan. *Pakistan Veterinary Journal*, 2005, 25 (3): 146-148.
 36. **Jamal SM**, Afzal M and Ahmed S. The immune response of guinea pigs and buffalo calves to the locally prepared *Brucella abortus* strain 19 vaccine. *Revue Scientifique et Techniques Office Internationale des Epizooties*, 2003, 22 (3): 893-897.
 37. Rafique MA, Ansar M, **Jamal SM**, Malik S, Sohail M, Faiyaz-Ul-Haque M, Haque S, Leal SM and Ahmad W. A locus for hereditary hypotrychosis localized to human chromosome 18q21.1 *European Journal of Human Genetics*, 2003, 11 (8): 623-628).

38. Ansar M, Ramzan M, Pham TL, Yan K, **Jamal SM**, Haque S, Ahmad W and Leal SM. Localization of a novel autosomal recessive non-syndromic hearing impairment locus (DFNB38) to 6q26-q-27 in a consanguineous kindred from Pakistan. *Human Heredity*, 2003, 55: 71-74.
39. **Jamal SM**, Ahmad W, Haque S, Malik S and Ahmad H. Brothers no longer sisters: Case study of pseudohermaphrodites. *The Sciences*, 2001, 1(2): 55-57.