ORCID

JITENDRA KUMAR BISWAL
Scientist
ICAR-International Centre for foot-and-mouth disease (ICFMD), DFMD
Arugul, Jatni, Odisha-752050, India
E-mails: jkubiswal@gmail.com; Jitendra.Biswal@icar.gov.in

Biography and Research Interests

Dr Jitendra Kumar Biswal has been working as a scientist at Indian Council of Agricultural Research (ICAR)-Directorate of foot-and-mouth disease (DFMD), India since April 2011. He was awarded with prestigious Commonwealth Scholarship, U.K. for his doctoral studies in Molecular Virology at the Pirbright Institute, Surrey, UK during the year 2007-2011. During the PhD studies Dr Biswal is recognized for the development of mucosal antibody-based assay for detection of persistently foot-and-mouth disease virus (FMDV) infected ruminant species. At ICAR-DFMD, India Dr Biswal has been working on the development of new-generation vaccines and diagnostic against FMDV. Some of the achievements of Dr Biswal are development of reverse genetics techniques for Indian FMD viruses, chimeric vaccine candidate, DIVA-compatible FMD vaccine candidates and thermostable FMD vaccine candidate. Furthermore, he has also developed several recombinant protein based assays for FMD serosurveillance and seromonitoring purpose. Dr Biswal has also been involved in the development of working-SOPs for the state-of-the-art BSL3+Ag facility at ICFMD in the additional capacity of Assistant Bio-safety Officer. Dr Biswal's long-term goal is to develop heat stable, live-attenuated vaccines against FMD virus through the combined use of viral reverse genetics and nano-technology.

Education

PhD (2011) — **Laboratory:** The Pirbright Institute, Surrey, United Kingdom
University: Royal Veterinary College, University of London

Master of Veterinary Science (M.V.Sc) (2006) — **Institute**: National Dairy Research Institute, Karnal, Haryana, India

B.V.Sc & A.H (2004) **University:** Odisha University of Agriculture and Technology, Odisha, India

Award/ Honour details

S.No	Name of Award	Awarding Agency	Year
1	Prof P.K. Uppal promising young scientist award in infectious disease	Indian Association of Veterinary Microbiologists, Immunologists and Specialists in Infectious Diseases	2020
2.	Best Oral Presentation in the Scientific Meeting of GFRA at Incheon, South Korea, 25th-27th Oct 2017	Global FMD Research Alliance (GFRA)	2017
3.	Best Poster Presentation award at Indian Association of Veterinary Pathologists Annual Conference	Indian Association of Veterinary Pathologists Annual Conference	9th-11th November 2017
4.	*Indo-Australian Carrier Boosting Gold Fellowship*	Department of Biotechnology, GoI	2014-15
5	Dr B.S. Rajya Award-2015 for the Best Short/Rapid Communication in the Journal "Indian Journal of Veterinary Pathology".	Indian Journal of Veterinary Pathology, Indian Association of Veterinary Pathologists.	2015
6	Best Oral Presentation Award in the International Conference on "Challenges and Opportunities in Animal Health at the Face of Globalization and Climate Change" 30th October- 2nd November 2014	Indian Association of Veterinary Microbiology, Immunology and Specialists in Infectious Diseases (IAVMI)	2014
7	Commonwealth Scholarship Award for Doctoral Studies in the United Kingdom	Commonwealth Scholarship and Fellowship Award	2007

Publications

List of Publication in the peer review Journal of impact factor 1 and above

S.No.	Author(s)	Title	Name of Journal	Volume	Page	Year

1	Saravanan S., **Jitendra K Biswal**, Jajati K Mohapatra, Sagar A Khulape, M Madhanmohan, Raj Kumar Singh	Emergence of foot-and-mouth disease virus serotype Asia1 group IX in India	Archives of Virology	Nov;165(11)	2619-2625	2020
2	Dhanesh VV, Hosamani M, Basagoudanavar SH, Saravanan P, **Biswal JK**, Tamil Selvan RP, Madhavan A, Sehrish K, Sanyal A, Sreenivasa BP.	Immunogenicity and protective efficacy of 3A truncated negative marker foot-and-mouth disease virus serotype A vaccine.	Appl Microbiol Biotechnol.	104(6)	2589-2602	2020
3	**Biswal JK**, Subramaniam S, Ranjan R, VanderWaal K, Sanyal A, Pattnaik B, Singh RK	Differential antibody responses to the major antigenic sites of FMD virus serotype O after primo-vaccination, multiply-vaccination and after natural exposure.	Infection, Genetics and Evolution	Nov 6	doi: 10.1016	2019
4	Bertram MR, Palinski RM, Pauszek SJ, Hartwig EJ, Smoliga GR, **Biswal JK**, Ranjan R, Subramaniam S, Mohapatra JK, Das B, Fish IH, Pattnaik B, Rodriguez LL, Arzt J.	Genome Sequences of Seven Foot-and-Mouth Disease Virus Isolates Reveal Diversity in the O/ME-SA/Ind2001 Lineage in India between 1997 and 2009.	Microbiol Resour Announc.	Apr 16;9(16)		2020
5	**Biswal JK**, Ranjan R, Subramaniam S, Mohapatra JK, Patidar S, Sharma MK, Bertram MR, Brito B, Rodriguez LL, Pattnaik B, Arzt J.	Genetic and antigenic variation of foot-and-mouth disease virus during persistent infection in naturally infected cattle and Asian buffalo in India.	PLOS One	Jun 21;14(6): e0214832.		2019
6	Deepak PR, Saravanan P, **Biswal JK**, Basagoudanavar SH, DechammaHJ, Umapathi V, Sreenivasa BP, Tamilselvan RP, Krishnaswamy	Generation of acid resistant virus like particles of vaccine strains of foot-and-mouth disease virus (FMDV)	Biologicals	*In Press*	*In Press*	2019

	N, Zaffer I, Sanyal A					
7	Vishweshwar Kumar Ganji, **Jitendra K. Biswal,** H. Lalzampuia, S. H. Basagoudanavar, P. Saravanan, R. P. Tamil Selvan, V. Umapathi, G. R. Reddy, Aniket Sanyal, H. J. Dechamma	Mutation in the VP2 gene of P1-2A capsid protein increases the thermostability of virus-like particles of foot-and-mouth disease virus serotype O.	Applied Microbiology and Biotechnology	102 (20)	8883-8893	2018
8	Ranjan R, **Biswal J** Subramaniam S Dash B Singh K Arzt J Rodriguez L Pattnaik B	Evidence of subclinical foot-and-mouth disease virus infection in young calves born from clinically recovered cow under natural condition	Tropical Animal Health and Production	50(5)	1167-1170	2018
9	Hayer SS, VanderWaal K, Ranjan R, **Biswal JK**, Subramaniam S, Mohapatra JK, Sharma GK, Rout M, Dash BB, Das B, Prusty BR, Sharma AK, Stenfeldt C, Perez A, Delgado AH, Sharma MK, Rodriguez LL, Pattnaik B, Arzt J.	Foot-and-mouth disease virus transmission dynamics and persistence in a herd of vaccinated dairy cattle in India.	Transbound. Emerg. Dis.	65(2)	404-415	2018
10	**Biswal JK**, Subramaniam S, Ranjan R, Pattnaik B	Uncleaved 2A-peptide of foot-and-mouth disease virus can display foreign epitope-tag at the virion surface.	Infection Genetics & Evolution	Oct;54	324-329	2017
11	Subramaniam S, Das B, **Biswal JK**, Ranjan	Antigenic variability of foot-and-mouth disease virus serotype O during serial cytolytic passage	Virus Genes	53(6)	931-934	2017

	R, Pattnaik B.					
12	Hayer S, Ranjan R, **Biswal J** Subramaniam S, Mohapatra J, Sharma G, Rout M, Dash B, Das B, Prusty B, Sharma A, Stenfeldt C, Perez A, Rodriguez L, Pattnaik B, Vanderwaal K, Arzt J.	Quantitative characteristics of the foot-and-mouth disease carrier state under natural conditions in India	Transboud. and Emerging Diseases	65(1)	253-260	2018
13	Ranjan R, **Biswal JK**, Subramaniam S, Singh KP, Stenfeldt C, Rodriguez LL, Pattnaik B*, Arzt J*.	Foot-and-Mouth Disease Virus-Associated Abortion and Vertical Transmission following Acute Infection in Cattle under Natural Conditions.	PLoS One.	Dec 15;11(12): e0167163		2016
14	**Biswal JK***, Subramaniam S, Ranjan R, Pattnaik B	Evaluation of FTA(®) card for the rescue of infectious foot-and-mouth disease virus by chemical transfection of extracted RNA in cultured cells.	Mol Cell Probes.	Aug;30(4):	225-30	2016
15	**Biswal JK***, Subramaniam S, Ranjan R, Pattnaik B	Partial deletion of stem-loop 2 in the 3' untranslated region of foot-and-mouth disease virus identifies a region that is dispensable for virus replication.	Archives of Virolology.	Aug;161(8):	2285-90	2016
16	**Biswal JK***, Ranjan R, Pattnaik B	Chimeric foot-and-mouth disease virus serotype O displaying a serotype Asia1 antigenic epitope at the surface.	Biotechnol Lett	38(9):	1509-17	2016
17	**Biswal JK***, Ranjan R, Pattnaik B	Diagnostic application of recombinant non-structural protein 3A to detect antibodies induced by foot-and-mouth disease virus infection.	Biologicals	44(3):	157-62	2016

18	**Biswal JK***, Das B, Sharma GK, Khulape SA, Pattnaik B*.	Role of a single amino acid substitution of VP3 H142D for increased acid resistance of foot-and-mouth disease virus serotype A.	Virus Genes	52(2)	235-43	2016
19	Gaurav K Sharma*, Sonalika Mahajan, Rakesh Matura, **Jitendra K Biswal**, Rajeev Ranjan, Saravanan Subramaniam, Jyoti Misri, Rajendra G Bambal, BramhadevPattnaik*	Herd Immunity Against Foot-and-Mouth Disease Under Different Vaccination Practices in India.	Transboundary and Emerging Diseases			2016
20	**Biswal JK**, Bisht P, Subramaniam S, Ranjan R, Sharma GK, Pattnaik B	Engineering foot-and-mouth disease virus serotype O IND R2/1975 for one-step purification by immobilized metal affinity chromatography.	Biologicals	Jun 26	S1045-1056	2015
21	**Biswal JK**, Subramaniam S, Ranjan R, Sharma GK, Misri, J. Pattnaik B	Marker vaccine potential of foot-and-mouth disease virus with large deletion in the non-structural proteins 3A and 3B.	Biologicals	43	504-511	2015
22	**Biswal JK**, Subramaniam S, Ranjan R, Sharma GK, Misri, J. Pattnaik B	Megaprimer-mediated capsid swapping for the construction of custom-engineered chimeric foot-and-mouth disease virus.	Virus Genes	51	225–233.	2015
23	**Biswal JK**, Bisht P, Mohapatra JK, Ranjan R, Sanyal A, Pattnaik B	Application of a recombinant capsid polyprotein (P1) expressed in a prokaryotic system to detect antibodies against foot-and-mouth disease virus serotype O.	Journal Virological Methods	Apr;215-216	45-51	2015
24	**Biswal JK**, Mohapatra JK, Bisht P, Subramaniam S, Sanyal A, Pattnaik B	A positively charged lysine residue at VP2 131 position allows for the enhanced adaptability of foot-and-mouth disease virus serotype A in BHK-21 cells.	Biologicals,	43	71-78	2014
25	**Biswal JK**, Jena S, Mohapatra JK, Bisht P, Pattnaik B	Detection of antibodies specific for foot-and-mouth disease virus infection using indirect ELISA based on recombinant	Archives of Virology	159(7)	1641-50	2014

		nonstructural protein 2B.				
26	Subramaniam S, Mohapatra JK, Sharma GK**, Biswal JK**, Ranjan R, Rout M, Das B, Dash BB, Sanyal A, Pattnaik B	Evolutionary dynamics of foot-and-mouth disease virus O/ME-SA/Ind2001 lineage.	Veterinary Microbiology	5;178(3-4):.	181-9	2015
27	Subramaniam. S, Mohapatra JK, Das B, Sharma GK, **Biswal JK**, Mahajan S, Misri J, Dash BB, Pattnaik B	Capsid coding region diversity of re-emerging lineage C foot-and-mouth disease virus serotype Asia1 from India.	Archives of Virology	Jul;160(7)	1751-9	2015
28	Bisht P, Mohapatra JK, Subramaniam S, Das B, Pande V, **Biswal JK**, Sharma GK, Rout M, Ranjan R, Dash BB, Sanyal A, Pattnaik B	Efficient rescue of foot-and-mouth disease virus in cultured cells transfected with RNA extracted from clinical samples.	Journal of Virological Methods	Feb;196	65-70	2014
29	Subramaniam S, Sanyal A, Mohapatra JK, Sharma GK, **Biswal JK**, Ranjan R, Rout M, Das B, Bisht P, Mathapati BS, Dash BB, Pattnaik B	Emergence of a novel lineage genetically divergent from the predominant Ind2001 lineage of serotype O foot-and-mouth disease virus in India.	Infection Genetics and Evolution.	Aug;18	1-7.	2013