Brief Profile

Name	Rajnikant Dixit
Current Designation	Scientist-E
Research Discipline	Mosquito: Molecular Physiology and Functional Genomics
Department / Division	Vector Genomics
Date of joining the current post	01.09.2021
Date of joining ICMR	01.07.2010
Official E-mail ID	rkdixit@icmr.gov.in
Educational Qualification	M.Sc.; Ph.D.
Research experience (in years):	26 years

Research Interest/Thrust Areas

-Mosquito behavioral Physiology
-Vector-parasite interaction and Immunity
-Gut Microbiome and Neuro-Regulation
-Genetic variation and evolution

Number of projects handled as:

Principal Investigator - 12

Co-Principal Investigator - 04

Number of doctorate / post-doc students mentored

As Guide - 14

As Co-guide - 02

List of significant publications (Please give the details of the publications in APA format)

- Das De T, Sharma P, Tevatiya S, Chauhan C, Kumari S, Yadav P, Singla D, Srivastava V, Rani J, Hasija Y, Pandey KC, Kajla M, Dixit R. Bidirectional Microbiome-Gut-Brain-Axis Communication Influences Metabolic Switch-Associated Responses in the Mosquito *Anopheles culicifacies*. Cells. 2022 May 31;11(11):1798. doi: 10.3390/cells11111798.

- Kumari S, De TD, Chauhan C, Rani J, Tevatiya S, Sharma P, Pande V, Dixit R. Salivary *AsHPX12* influences pre-blood meal associated behavioral properties in *Anopheles stephensi*. J Vector Borne Dis. 2022 Jul-Sep;59(3):206-215. doi: 10.4103/0972-9062.328814.

- Rani J, De TD, Chauhan C, Kumari S, Sharma P, Tevatiya S, Chakraborti S, Pandey KC, Singh N, Dixit R. Functional disruption of transferrin expression alters reproductive physiology in Anopheles culicifacies. PLoS One. 2022 Mar 4;17(3):e0264523. doi: 10.1371/journal.pone.0264523.

- Kumari S, Tevatiya S, Rani J, Das De T, Chauhan C, Sharma P, Sah R, Singh S, Pandey KC, Pande V, Dixit R. A testis-expressing heme peroxidase HPX12 regulates male fertility in the mosquito Anopheles stephensi. Sci Rep. 2022 Feb 16;12(1):2597. doi: 10.1038/s41598-022-06531-x.

- Rani J, Chauhan C, Das De T, Kumari S, Sharma P, Tevatiya S, Patel K, Mishra AK, Pandey KC, Singh N, Dixit R. Hemocyte RNA-Seq analysis of Indian malarial vectors Anopheles stephensi and Anopheles culicifacies: From similarities to differences. Gene. 2021 Sep 25;798:145810. doi: 10.1016/j.gene.2021.145810

- Kumari S, Chauhan C, Tevatiya S, Singla D, De TD, Sharma P, Thomas T, Rani J, Savargaonkar D, Pandey KC, Pande V, Dixit R. Genetic changes of *Plasmodium vivax* tempers host tissue-specific responses in *Anopheles stephensi*. Curr Res Immunol. 2021 Feb 20;2:12-22. doi: 10.1016/j.crimmu.2021.02.002.

- Tevatiya S, Kumari S, Sharma P, Rani J, Chauhan C, Das De T, Pandey KC, Pande V, Dixit R. Molecular and Functional Characterization of Trehalase in the Mosquito *Anopheles stephensi*. Front Physiol. 2020 Nov 19;11:575718. doi: 10.3389/fphys.2020.575718.

- Chauhan C, Das De T, Kumari S, Rani J, Sharma P, Tevatiya S, Pandey KC, Pande V, Dixit R. Hemocyte-specific FREP13 abrogates the exogenous bacterial population in the hemolymph and promotes midgut endosymbionts in Anopheles stephensi. Immunol Cell Biol. 2020 Oct;98(9):757-769. doi: 10.1111/imcb.12374.

- Das De T, Thomas T, Verma S, Singla D, Chauhan C, Srivastava V, Sharma P, Kumari S, Tevatiya S, Rani J, Hasija Y, Pandey KC, Dixit R. A Synergistic Transcriptional Regulation of Olfactory Genes Drives Blood-Feeding Associated Complex Behavioral Responses in the Mosquito *Anopheles culicifacies*. Front Physiol. 2018 May 23;9:577. doi: 10.3389/fphys.2018.00577.

- Das De T, Sharma P, Rawal C, Kumari S, Tavetiya S, Yadav J, Hasija Y, Dixit R. Sex specific molecular responses of quick-to-court protein in Indian malarial vector *Anopheles culicifacies*: conflict of mating versus blood feeding behaviour. Heliyon. 2017 Jul 20;3(7):e00361. doi: 10.1016/j.heliyon.2017.e00361.

- Das De T, Hasija Y, Dixit R. Transcriptional responses of *attractin* gene in the mosquito *Anopheles culicifacies:* A synergistic neuro-olfactory regulation. J Vector Borne Dis. 2018 Apr-Jun;55(2):89-97. doi: 10.4103/0972-9062

- Das De T, Sharma P, Thomas T, Singla D, Tevatiya S, Kumari S, Chauhan C, Rani J, Srivastava V, Kaur R, Pandey KC, Dixit R. Interorgan Molecular Communication Strategies of "Local" and "Systemic" Innate Immune Responses in Mosquito *Anopheles stephensi*. Front Immunol. 2018 Feb 20;9:148. doi: 10.3389/fimmu.2018.00148.

- Thomas T, De TD, Sharma P, Lata S, Saraswat P, Pandey KC, Dixit R. Hemocytome: deep sequencing analysis of mosquito blood cells in Indian malarial vector Anopheles stephensi. Gene. 2016 Jul 10;585(2):177-90. doi: 10.1016/j.gene.2016.02.031.

- Sharma P, Das De T, Sharma S, Kumar Mishra A, Thomas T, Verma S, Kumari V, Lata S, Singh N, Valecha N, Chand Pandey K, Dixit R. Deep sequencing revealed molecular signature of horizontal gene transfer of plant like transcripts in the mosquito Anopheles culicifacies: an evolutionary puzzle. F1000Res. 2015 Dec 30;4:1523. doi: 10.12688/f1000research.7534.1.

- Sharma P, Sharma S, Mishra AK, Thomas T, Das De T, Rohilla SL, Singh N, Pandey KC, Valecha N, Dixit R. Unraveling dual feeding associated molecular complexity of salivary glands in the mosquito Anopheles culicifacies. Biol Open. 2015 Jul 10;4(8):1002-15. doi: 10.1242/bio.012294.

- Sharma P, Sharma S, Maurya RK, Das De T, Thomas T, Lata S, Singh N, Pandey KC, Valecha N, Dixit R. Salivary glands harbor more diverse microbial communities than gut in Anopheles culicifacies. Parasit Vectors. 2014 May 20;7:235. doi: 10.1186/1756-3305-7-235.

- Dixit R, Rawat M, Kumar S, Pandey KC, Adak T, Sharma A. Salivary gland transcriptome analysis in response to sugar feeding in malaria vector Anopheles stephensi. J Insect Physiol. 2011 Oct;57(10):1399-406. doi: 10.1016/j.jinsphys.2011.07.007.

- Dixit R, Patole MS, Shouche YS. Identification of putative innate immune-related genes from a cell line of the mosquito Aedes albopictus following bacterial challenge. Innate Immun. 2011 Feb;17(1):106-17. doi: 10.1177/1753425909350484.

- Rodrigues J, Brayner FA, Alves LC, Dixit R, Barillas-Mury C. Hemocyte differentiation mediates innate immune memory in Anopheles gambiae mosquitoes. Science. 2010 Sep 10;329(5997):1353-5. doi: 10.1126/science.1190689.

Signature