

Curriculum Vitae for Rohit K. Jangra, PhD

CURRENT POSITION (June 2017 onwards):

Research Assistant Professor
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EDUCATION:

- 1996 - 2002 ***Bachelor of Veterinary Science and Animal Husbandry (BVSc & AH) - (equivalent to DVM)***, College of Veterinary Sciences, CCS Haryana Agricultural University, Hisar, Haryana, India
- 2002 - 2004 ***Master in Veterinary Science (MVSc) in Veterinary Virology***, Division of Virology, Indian Veterinary Research Institute, Izatnagar, UP, India
Mentor: Chakradhar Tosh, BVSc & AH, MVSc & PhD
- 2004 - 2010 ***PhD***, Department of Microbiology and Immunology, The University of Texas Medical Branch at Galveston, TX
Mentor: Stanley M. Lemon, MD

POST-GRADUATE TRAINING:

- Feb 2010 – May 2012 ***Postdoctoral Fellow***, Department of Microbiology, Mount Sinai School of Medicine, New York, NY
Mentor: Benjamin R tenOever, PhD
- June 2012 – May 2017 ***Postdoctoral Fellow***, Department of Microbiology & Immunology, Albert Einstein College of Medicine, Bronx, NY
Mentor: Kartik Chandran, PhD

Current Research interests:

In Kartik Chandran's lab at the Albert Einstein College of Medicine, I pioneered the development of recombinant vesicular stomatitis virus (rVSV)-based systems for multiple species of hantaviruses. Using **genome-wide genetic screens**, I revealed a profound and direct requirement of host cell membrane cholesterol for hantavirus entry and fusion of viral and host membranes (Kleinfelter*, **Jangra*** & Jae* et al [mBio 2015](#), ***co-first authors**). I also unveiled a human asthma-associated gene, protocadherin-1 (PCDH1), as a 1) critical determinant of entry and infection of New World hantaviruses (NWH), 2) major contributor to in vivo

NWH pathogenicity (**Jangra***, Herbert*, Li* & Jae* et al., [Nature 2018](#), ***co-first authors**), and 3) a key determinant of cellular host range of NWH. In addition, I have been pursuing my own independent research projects on developing targeted mAb-based therapeutics against hantaviruses and respiratory syncytial virus (RSV); developing and characterizing rVSV-based systems for hard-to-rescue Old World hantaviruses such as Hantaan and Dobrava-Belgrade virus (Slough, Chandran† & **Jangra†**, [mBio 2019](#), **†co-senior authors**); developing rVSV-based systems expressing alphavirus (Chickungunya and equine encephalitis viruses) glycoproteins for isolating and characterizing therapeutic mAbs; and characterizing the entry and infection of Bombali virus, a novel ebolavirus, using the rVSV-based system.

ORIGINAL PEER-REVIEWED PUBLICATIONS: 23 ([Bibliography](#))

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2. Wec AZ, Bornholdt ZA, He S, Herbert AS, Goodwin E, Wirchnianski AS, Gunn BM, Zhang Z, Zhu W, Liu G, Abelson DM, Moyer CL, **Jangra RK**, James RM, Bakken RR, Bohorova N, Bohorov O, Kim DM, Pauly MH, Velasco J, Bortz III RH, Whaley KJ, Goldstein T, Anthony SJ, Alter G, Walker LM, Dye JM, Larry Zeitlin, Qiu X, Chandran K. Human antibody cocktail deploys multiple functions to confer pan-ebolavirus protection. **Cell Host and Microbes**. 2019. 2019 Jan 9;25(1):39-48. [PMID: 30629917](#)
3. Slough MM, Chandran K†, **Jangra RK†**. Two point mutations in Old World hantavirus glycoproteins afford the generation of highly infectious recombinant vesicular stomatitis virus vectors. **MBio**. 2019 Jan 8;10(1). pii: e02372-18. [PMID: 30622188](#) [**†KC & RKJ are co-senior authors**].
4. **Jangra RK***, Herbert AS*, Li R*, Jae LT*, Kleinfelter LM, Slough MM, Barker SL, Guardado-Calvo P, Román-Sosa G, Dieterle ME, Kuehne AI, Muenz NA, Wirchnianski AS, Nyakatura EK, Fels JM, Ng M, Mittler E, Pan J, Bharran S, Wec AZ, Lai JR, Sidhu SS, Tischler ND, Rey FA, Moffat J, Brummelkamp TR, Wang Z, Dye JM, Chandran K. Protocadherin-1 is critical for cell entry by New-World hantaviruses. **Nature**. 2018 Nov;563(7732):559-563. [PMID: 30464266](#) [***RKJ, ASH, RL & LTJ contributed equally**]. **Recommended by F1000Prime**
5. Gizzi AS, Grove TL, Arnold JJ, Jose J, **Jangra RK**, Garforth SJ, Du Q, Cahill SM, Dulyaninova NG, Love JD, Chandran K, Bresnick AR, Cameron CE, Almo SC. A naturally occurring antiviral ribonucleotide encoded by the human genome. **Nature**. 2018 Jun;558(7711):610-614. [PMID: 29925952](#). **Recommended by F1000Prime**
6. Goldstein T, Anthony SJ, Gbakima A, Bird BH, Bangura J, Tremereau-Bravard A, Belagahanalli MN, Wells HL, Dhanota JK, Liang E, Grodus M, **Jangra RK**, DeJesus VA, Lasso G, Smith BR, Jambai A, Kamara BO, Kamara S, Bangura W, Monagin C, Shapira S, Johnson CK, Saylor K, Rubin EM,

- Chandran K, Lipkin WI, Mazet JAK. The discovery of Bombali virus adds further support for bats as hosts of ebolaviruses. **Nat Microbiol**. 2018 Oct;3(10):1084-1089. [PMID: 30150734](#).
7. Wec AZ, Herbert AS, Murin CD, Nyakatura EK, Abelson DM, Fels JM, He S, James RM, de La Vega MA, Bakken RR, Goodwin E, Turner HL, **Jangra RK**, Qiu X, Lai JR, Walker LM, Ward AB, Dye JM, Chandran K, Bornholdt ZA. 2017. Antibodies from a human survivor define sites of vulnerability for broad protection against ebolaviruses. **Cell**. 2017 May 18; 169:878-890. [PMID: 28525755](#).
 8. Wec AZ, Nyakatura EK, Herbert AS, Howell KA, Holtsberg FW, Bakken RR, Mittler E, Christin JR, Shulenin S, **Jangra RK**, Bharrhan S, Kuehne AI, Bornholdt ZA, Flyak AI, Sapphire EO, Crowe JE Jr, Aman MJ, Dye JM, Lai JR, Chandran K. A "Trojan horse" bispecific antibody strategy for broad protection against ebolaviruses. **Science**. 2016 Sep 8. pii: aag3267. [PMID: 27608667](#).
 9. Maier KE, **Jangra RK**, Shieh KR, Cureton DK, Xiao H, Snapp EL, Whelan SP, Chandran K, Levy M. A new transferrin receptor aptamer inhibits New World hemorrhagic fever Mammarenavirus entry. **Mol Ther Nucleic Acids**. 2016 May 24;5:e321. [PMID: 27219515](#).
 10. Spence JS, Krause TB, Mittler E, **Jangra RK**, Chandran K. Direct Visualization of Ebola Virus Fusion Triggering in the Endocytic Pathway. **MBio**. 2016 Feb 9;7(1):e01857-15. [PMID: 26861015](#).
 11. Ng M, Ndungo E, Kaczmarek ME, Herbert AS, Binger T, Kuehne AI, **Jangra RK**, Hawkins JA, Gifford RJ, Biswas R, Demogines A, James RM, Yu M, Brummelkamp TR, Drosten C, Wang LF, Kuhn JH, Müller MA, Dye JM, Sawyer SL, Chandran K. Filovirus receptor NPC1 contributes to species-specific patterns of ebolavirus susceptibility in bats. **Elife**. 2015 Dec 23;4. pii: e11785. [PMID: 26698106](#).
 12. Kleinfelter LM*, **Jangra RK***, Jae LT*, Herbert AS, Mittler E, Stiles KM, Wirchnianski AS, Kielian M, Brummelkamp TR, Dye JM, Chandran K. Haploid genetic screen reveals a profound and direct dependence on cholesterol for hantavirus membrane fusion. **MBio**. 2015 Jun 30;6(4):e00801. [PMID: 26126854](#). [**KLM, RKJ & LJT contributed equally*].
 13. Ng M, Ndungo E, **Jangra RK**, Cai Y, Postnikova E, Radoshitzky SR, Dye JM, Ramírez de Arellano E, Negredo A, Palacios G, Kuhn JH, Chandran K. Cell entry by a novel European filovirus requires host endosomal cysteine proteases and Niemann-Pick C1. **Virology**. 2014 Nov;468-470:637-46. [PMID: 25310500](#).
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 15. Shimakami T*, Yamane D*, **Jangra RK***, Kempf BJ, Spaniel C, Barton DJ, Lemon SM. Stabilization of hepatitis C virus RNA by an Ago2-miR-122 complex. **Proc Natl Acad Sci U S A**. 2012 Jan 17;109(3):941-6. [PMID: 22215596](#). [**TS, DY & RKJ contributed equally*]. **Recommended by F1000Prime**

16. Helbig KJ, Eyre NS, Yip E, Narayana S, Li K, Fiches G, McCartney EM, **Jangra RK**, Lemon SM, Beard MR. The antiviral protein viperin inhibits hepatitis C virus replication via interaction with nonstructural protein 5A. **Hepatology**. 2011 Nov;54(5):1506-17. [PMID: 22045669](#).
17. Gal-Tanamy M, Zemel R, Bachmatov L, **Jangra RK**, Shapira A, Villanueva RA, Yi M, Lemon SM, Benhar I, Tur-Kaspa R. Inhibition of protease-inhibitor-resistant hepatitis C virus replicons and infectious virus by intracellular intrabodies. **Antiviral Res**. 2010 Oct;88(1):95-106. [PMID: 20705106](#).
18. Villanueva RA, **Jangra RK**, Yi M, Pyles R, Bourne N, Lemon SM. miR-122 does not modulate the elongation phase of hepatitis C virus RNA synthesis in isolated replicase complexes. **Antiviral Res**. 2010 Oct;88(1):119-23. [PMID: 20637242](#).
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23. **Jangra RK**, Tosh C, Sanyal A, Hemadri D, Bandyopadhyay SK. Antigenic and genetic analyses of foot-and-mouth disease virus type A isolates for selection of candidate vaccine strain reveals emergence of a variant virus that is responsible for most recent outbreaks in India. **Virus Res**. 2005 Sep;112(1-2):52-9. [PMID: 16022900](#).

BOOK CHAPTERS & REVIEW ARTICLES: 2

1. **Jangra, RK***, Mittler E*, Chandran K. 2015. Filovirus entry into susceptible cells. In *"Biology and Pathogenesis of Rhabdo- and filoviruses"* Edited by MA Whitt & AK Pattnaik. World Scientific Publishing Company, USA. [**RKJ & EM contributed equally*].
2. Liang J, **Jangra, RK**, Bollinger L, Wada J, Radoshitzky SR, Chandran K, Jahrling PB, Kuhn JH, Jensen KS. 2017. Candidate medical countermeasures targeting Ebola virus cell entry. **Future Virology**. DOI: [10.2217/fvl-2016-0113](#).

Patent

Methods and assays for treating hantavirus infections. Inventors: Chandran K, Brummelkamp TR, **Jangra RK**, Jae L. US10105433B2. Granted on October 23, 2018.