

# LOK RAJ JOSHI

I am Lok Raj Joshi, PhD candidate in [Diel Lab](#), Department of Population Medicine and Diagnostic Science, Cornell University.

**Research interests:** Virus pathogenesis, Vaccine development, Diagnostic assay development, Reverse genetics, Viral bioinformatics

2020  
|  
2017

## EDUCATION

- **PhD. Candidate (Molecular Virology)**  
Cornell University 📍 Ithaca, NY
  - Working on developing poxvirus based vectored vaccines for swine influenza
  - Using viral transcriptomics to understand temporal gene regulation of poxvirus
  - Developing monoclonal antibody against SARS-CoV-2 for therapeutic and diagnostic use
  
- **MS in Biological Science**  
South Dakota State University 📍 Brookings, SD
  - Molecular epidemiology and pathogenesis of emerging picornavirus Senecavirus A
  - Orf virus based vectored vaccine development against porcine epidemic diarrhea virus
  - Viral metagenomics and virus genome sequencing
  
- **Bachelor of Veterinary Science (DVM)**  
Tribhuvan University 📍 Nepal
  - Internship research: Prevalence of methicillin resistant staphylococcus aureus (MRSA) in dairy farms of Pokhara valley.

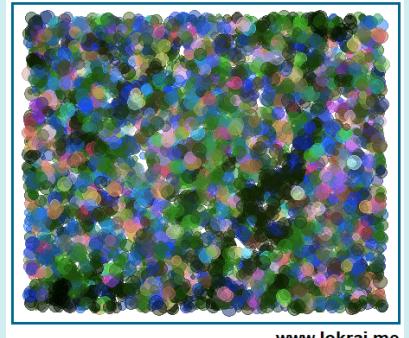
2017  
|  
2015

2013  
|  
2008

## RESEARCH EXPERIENCE

on going  
|  
2019

- **Graduate Research Assistant**  
Diel Lab (Cornell University ) 📍 Ithaca, NY
  - Developing orf virus based vectored vaccine against swine influenza
  - Genetic diversity and evolution of Senecavirus A
  - Poxvirus transcriptome analysis
  - Pathogenesis of SARS-CoV-2
  - Monoclonal antibody development for SARS-CoV-2



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## CONTACT

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2018  
|  
2015

- **Graduate Research Assistant**  
Diel Lab (South Dakota State University) 📍 Brookings, SD
  - Pathogenesis of re-emerging Senecavirus A
  - Virus genome sequencing
  - Viral metagenomics on clinical sample submitted to veterinary diagnostic lab
  
- **Research Intern**  
Regional Veterinary Diagnostic Lab 📍 Nepal
  - Worked on the research project related to identification and prevalence of methicillin resistant staphylococcus aureus (MRSA) in milk samples taken from dairy farms.

2013  
|  
2012

## ☰ RESEARCH PROJECTS

- **Pathogenesis of emerging viruses**  
Conducted several pathogenesis studies in pig models to understand pathogenesis of Senecavirus A, encephalomyocarditis virus (EMCV). Recently, working on the study aimed at developing small animal models for SARS-CoV-2.
- **Developing vectored-vaccine against porcine epidemic diarrhea virus**  
Developed orf virus based vectored vaccine against coronavirus of pigs, porcine epidemic diarrhoea virus (PEDV)
- **Developing vectored-vaccine against swine influenza virus**  
Developed orf virus based vectored vaccine against swine influenza virus
- **Monoclonal and polyclonal antibody development**  
Developing monoclonal and polyclonal antibodies against emerging coronavirus SADS-CoV and SARS-CoV-2.
- **Viral Metagenomics**  
Using clinical samples submitted to veterinary diagnostic lab to identify viral infections
- **Viral Transcriptomics**  
Using RNA Seq to understand temporal gene regulation of orthopoxvirus Orf virus
- **Genetic evolution of Senecavirus A**  
Using next generation sequencing to understand genetic evolution of picornavirus Senecavirus A
- **Epitope mapping and diagnostic assay development**  
Worked on the epitope mapping of spike protein of porcine epidemic diarrhea virus.



## PEER-REVIEWED ARTICLES

- 2020 ● **Poxvirus Vectors. In: Vanniasinkam T., Tikoo S.K., Samal S.K. (eds) Viral Vectors in Veterinary Vaccine Development**  
Lok R Joshi, Diego G Diel  
📍 Viral Vectors in Veterinary Vaccine Development
- 2019 ● **Detection of Fowlpox virus carrying distinct genome segments of Reticuloendotheliosis virus**  
Lok R Joshi, Fernando V Bauermann, Kyle S Hain, Gerald F Kutish, Anibal G Armin, Chad P Lehman, Regg Neiger, Claudio L Afonso, Deoki N Tripathy, Diego G Diel  
📍 Virus Research
- 2019 ● **Identification and genetic characterization of a porcine hepe-astrovirus (bastrovirus) in the United States**  
Fernando V Bauermann, Ben Hause, Alaine R Buysse, Lok R Joshi, Diego G Diel  
📍 Archives of Virology
- 2019 ● **Genetic diversity and evolution of the emerging picornavirus Senecavirus A**  
Lok R Joshi, Kristin A Mohr, Danielle Gava, Gerald Kutish, Alaire S Buysse, Fabio A Vannucci, Pablo E Pieyro, Beate M Crossley, John J Schiltz, Melinda Jenkins-Moore, Leo Koster, Rachel Tell, Rejane Schaefer, Douglas Marthaler, Diego G Diel  
📍 Journal of General Virology
- 2019 ● **Persistent infection and transmission of Senecavirus A from carrier sows to contact piglets**  
Mayara F Maggioli, Maureen HV Fernandes, Lok R Joshi, Bishwas Sharma, Megan M Tweet, Jessica CG Noll, Fernando V Bauermann, Diego G Diel  
📍 Journal of Virology
- 2019 ● **Deletion of the thymidine kinase gene attenuates Caprine alphaherpesvirus in goats**  
Jessica Caroline Gomes Noll, Lok Raj Joshi, Gabriela Mansano do Nascimento, Maureen Hoch Vieira Fernandes, Bishwas Sharma, Eduardo Furtado Flores, Diego Gustavo Diel  
📍 Veterinary Microbiology
- 2019 ● **A novel live attenuated vaccine candidate protects against heterologous Senecavirus A challenge**  
Bishwas Sharma, Maureen HV Fernandes, Marcelo De Lima, Lok R Joshi, Steve Lawson, Diego G Diel  
📍 Frontiers in Immunology
- 2019 ● **Senecavirus A 3C protease mediates host cell apoptosis late in infection**  
Maureen HV Fernandes, Mayara F Maggioli, Jaelin Otta, Lok R Joshi, Steve Lawson, Diego G Diel  
📍 Frontiers in Immunology
- 2018 ● **Adaptive immune responses following Senecavirus A infection in pigs**  
Mayara F Maggioli, Steve Lawson, Marcelo de Lima, Lok R Joshi, Tatiane C Faccin, Fernando V Bauermann, Diego G Diel  
📍 Journal of Virology

- 2018 ● **Pathogenicity and cross-reactive immune responses of a historical and a contemporary Senecavirus A strains in pigs**  
Maureen HV Fernandes, Mayara F Maggioli, **Lok R Joshi**, Travis Clement, Tatiane C Faccin, Rolf Rauh, Fernando V Bauermann, Diego G Diel  
📍 Virology
- 2018 ● **Passive immunity to porcine epidemic diarrhea virus following immunization of pregnant gilts with a recombinant orf virus vector expressing the spike protein**  
**Lok R Joshi**, Faten A Okda, Aaron Singrey, Mayara F Maggioli, Tatiane C Faccin, Maureen HV Fernandes, Kyle S Hain, Scott Dee, Fernando V Bauermann, Eric A Nelson, Diego G Diel  
📍 Archives of Virology
- 2017 ● **The S2 glycoprotein subunit of porcine epidemic diarrhea virus contains immunodominant neutralizing epitopes**  
Faten A Okda, Steven Lawson, Aaron Singrey, Julie Nelson, Kyle S Hain, **Lok R Joshi**, Jane Christopher-Hennings, Eric A Nelson, Diego G Diel  
📍 Virology
- 2017 ● **A novel bovine papillomavirus type in the genus Dyokappapapillomavirus**  
Fernando V Bauermann, **Lok R Joshi**, Kristin A Mohr, Gerald F Kutish, Petra Meier, Christopher Chase, Jane Christopher-Hennings, Diego G Diel  
📍 Archives of Virology
- 2017 ● **Immunogenicity of ORFV-based vectors expressing the rabies virus glycoprotein in livestock species**  
Mathias Martins, **Lok R Joshi**, Fernando S Rodrigues, Deniz Anziliero, Rafael Frandoloso, Gerald F Kutish, Daniel L Rock, Rudi Weiblen, Eduardo F Flores, Diego G Diel  
📍 Virology
- 2016 ● **Pathogenesis of Senecavirus A infection in finishing pigs**  
**Lok R Joshi**, Maureen HV Fernandes, Travis Clement, Steven Lawson, Angela Pillatzki, Talita P Resende, Fabio A Vannucci, Gerald F Kutish, Eric A Nelson, Diego G Diel  
📍 Journal of General Virology
- 2016 ● **Detection of the emerging picornavirus Senecavirus A in pigs, mice, and houseflies**  
**Lok R Joshi**, Kristin A Mohr, Travis Clement, Kyle S Hain, Bryan Myers, Joseph Yaros, Eric A Nelson, Jane Christopher-Hennings, Danielle Gava, Rejane Schaefer, Luizinho Caron, Scott Dee, Diego G Diel  
📍 Journal of Clinical Microbiology
- 2016 ● **Immunogenicity of a Recombinant Parapoxvirus Expressing the Spike Protein of Porcine Epidemic Diarrhea Virus.**  
Diel DG Hain KS, **Joshi LR**, Okda F, Nelson J, Singrey A, Lawson S, Martins M, Pillatzki A, Kutish G, Nelson EA, Flores EF  
📍 Journal of General Virology

- 2016 ● **Genetic characterization and phylogenetic analysis of senecavirus A circulating in the US and in Brazil.**  
 D Gava, LR Joshi, KA Mohr, V Haach, L Caron, R Schaefer, DG Diel  
 ↗ Embrapa Sunos e Aves-Resumo em anais de congresso (ALICE)
- 2016 ● **Neonatal pig mortality associated with senecavirus A.**  
 D Gava, MP Lorenzett, V Haach, D Driemeier, LR Joshi, KA Mohr, DG Diel, L Caron, N Mores, MAZ Mores, R Schaefer  
 ↗ Embrapa Sunos e Aves-Resumo em anais de congresso (ALICE)
- 2015 ● **Senecavirus A: A Newly Emerging Picornavirus of Swine**  
 Lok R Joshi, Diego G Diel ↗ EC Microbiology
- 2014 ● **Prevalence of methicillin-resistant *Staphylococcus aureus* (MRSA) in dairy farms of Pokhara, Nepal.**  
 LR Joshi, A Tiwari, SP Devkota, S Khatiwada, S Paudyal, KR Pande  
 ↗ International Journal of Veterinary Science
- 2014 ● **Prevalence of Vancomycin Resistant Enterococci Species in Minced Buffalo Meat of Chitwan, Nepal**  
 Sudeep Ghimire, Hom Bahadur Basnet, Lok Raj Joshi, Maheshwar Sapkota  
 ↗ International Journal of Applied Sciences and Biotechnology
- 2014 ● **Methicillin-Resistant *Staphylococcus Aureus* (MRSA) in Cattle: Epidemiology and Zoonotic Implications**  
 Lok Raj Joshi, Shiva Prasad Devkota  
 ↗ International Journal of Applied Sciences and Biotechnology
- 2013 ● **Study on the prevalence of Cryptosporidium in calves and HIV infected humans in the periphery of river basins of Kathmandu valley**  
 S Paudyal, SR Karna, SJ Khatiwada, LR Joshi, A Tiwari, SP Shrestha  
 ↗ International Journal of Infection and Microbiology

## ORAL AND POSTER PRESENTATIONS

- 2019 ● **Orf virus based vectored vaccine induces protective immunity to swine influenza virus**  
 Lok Raj Joshi, Bishwas Sharma, Maureen Fernandez, Jessica Noll, Gabriela Mansano, Leonardo Caserta, Renukaradhya Gaurapura, Diego Diel  
 ↗ CRWAD, Chicago (Oral Presentation)
- 2018 ● **Co-infection with fowlpox virus strains carrying variable sequences of reticuloendotheliosis virus**  
 Tripathy, D.N., Joshi L.R., Hain K.S., Kutish G.F., Armien A.G., Lehman, P.C., Leslie-Steen, P., Neiger, R., Diel, DG  
 ↗ American Association of Avian Pathologists Annual Meeting (Abstract)
- 2017 ● **Passive immunity to porcine epidemic diarrhea virus following immunization of pregnant gilts with a recombinant orf virus vector expressing the spike protein.**  
 Joshi, Lok R., Faten A. Okda, Aaron Singrey, Mayara F. Maggioli, Tatiane C. Faccin, Maureen HV Fernandes, Kyle S. Hain, Diego G Diel  
 ↗ CRWAD, Chicago (Oral Presentation)

- 2016 ● **Pathogenesis and infection dynamics of Senecavirus A in pigs.**  
**Joshi, L.R., Fernandes, M.V.H., Clement, T., Lawson, S., Resende, T.P., Vannucci, F.A., Nelson, E.A., Diel D.G**  
📍 CRWAD, Chicago (Oral Presentation)
- 2016 ● **Evaluation of immunodominant B- and T-cell epitopes as inducers of protective immunity against porcine reproductive and respiratory syndrome virus**  
**Fernandes, MHV., Okda, F., Joshi, LR., Hain, KS., Nelson, EA., Christopher-Hennings, J., Osorio, FA., Vu, H., Diel, DG**  
📍 PRRSV Symposium, Chicago (Poster)
- 2016 ● **Genetic characterization and phylogenetic analysis of Senecavirus A. North American PRRSV and other emerging viruses Symposium**  
**Joshi, L.R., Mohr, K.A., Gava, D., Kutish, G., Pineyro, P., Zhang, J., Caron, L., Schaefer, R., Diel, DG**  
📍 PRRSV Symposium, Chicago (Poster)



## AWARDS AND SCHOLARSHIPS

- 2020 ● **Travel Award**  
 Travel award to attend Systems Biology of Infectious Disease Workshop (2020)  
📍 Center for Viral Systems Biology, Scripps Institute
- 2019 ● **Diversity scholarship**  
 Travel grant to attend rstudio::conf(2019)  
📍 R Studio
- 2018 ● **Best Paper Award**  
 Best PhD paper award  
📍 SDSU Sigma XI
- 2018 ● **Bioimaging Contest**  
 Third Position  
📍 SDSU Dept of Microbiology
- 2016 ● **Best Oral Presentation Award**  
 Best student oral presentation given at CRWAD meeting  
📍 American College of Veterinary Microbiologists
- 2016 ● **Sigma XI Paper Competition**  
 Second Position  
📍 SDSU Sigma XI
- 2015 ● **Sigma XI Proposal Competition**  
 Second Position  
📍 SDSU Sigma XI
- 2010 ● **Diligent Student Scholarship**  
 Given to meritorious student pursuing career in STEM in Nepal  
📍 Nepali Government
- 2009 ● **National Level Story Writing Competition**  
 First Award  
📍 USAID Nepal

2008

- **Merit Scholarship**  
Schloarship to study B.V.Sc at Institute of Agriculture and Animal Science  
📍 Tribhuvan University Nepal

2006

- **Essay Writing Competition**  
First Award  
📍 NIST College
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