

Viral Immunology and Molecular Virology Laboratory



Assistant Professor

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Qualifications and Experiences

Postdoctoral fellow: National Institutes of Health, USA

PhD: University of Nebraska Lincoln, USA

MVSc Tamil Nadu Veterinary and Animal Sciences University, India

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Research Interests

Viral Nanotechnology Vesicular stomatitis virus glycoprotein based virus-like particle (VLP) platform for targeted drug delivery

Viral vector vaccines Recombinant VSV (rVSV) based multivalent vaccine development

Emerging neurotropic viruses: Encephalitis and meningitis caused by emerging neurotropic viruses (CHIKV, DENV, EV-71)

Publications

Swanson II, P.A., Hart G.T., Russo M.V., **Nayak D.**, Miller L.H, Pierce S.k., and McGavern D.B. CD8 T cells induce fatal brainstem pathology during cerebral malaria via luminal antigen-specific engagement of brain vasculature. *PloS Pathogens*. 2016 (*in press*)

Das A., Adhikari C., **Nayak D.** and Chakraborty A. First evidence of the liposome mediated deintercalation of an anticancer drug doxorubicin from drug-DNA complex: a spectroscopic approach. *Langmuir*. 2016.12:32(1):159-70.

Navarathna DH, Stein EV, Lessey-Morillon EC, **Nayak D**, Martin-Manso G, Roberts DD. CD47 Promotes Protective Innate and Adaptive Immunity in a Mouse Model of Disseminated Candidiasis. 2015. *PLOS One*, 10.1371.

Gossa, S., **Nayak, D***, Zinselmeyer, B.H., and McGavern, D.B. 2014. Development of an Immunologically Tolerated Combination of Fluorescent Proteins for *In vivo* Two-photon Imaging. *Scientific Reports*. 2014. 4 : 6664. * *Equal contributing authors*

Nayak, D., Roth, T.L., and McGavern, D.B. Microglia development and function. *Ann Rev Immunol*. 2014. 32:367-402.

Roth, T.L., **Nayak, D.**, Atanasijevic, T., Koretsky A.P., Latour L.L., and McGavern, D.B. Transcranial amelioration of inflammation and cell death following brain injury. *Nature*. 2014; 505:223-228

Nayak, D., Johnson, K., Heydari S., Roth, T.L., Zinselmeyer, B.H., and McGavern, D.B. Type I Interferon programs innate myeloid dynamics and gene expression in the virally infected nervous system. *PLoS Pathogens*. 2013. 9(5):e1003395. Recommended on Faculty of 1000.

Navarathna D.H., Munasinghe, J., Lizak, M.J, **Nayak, D.**, McGavern, D.B., and Roberts, D.D. MRI confirms loss of blood-brain barrier integrity in a mouse model of disseminated candidiasis. *NMR in Biomed*. 2013. 26(9):1125-34.

Zinselmeyer, B.H., Heydari S., Sacristán C., **Nayak, D.**, Cammer M., Herz J., Cheng X., Davis S.J., Dustin, M.L., and McGavern, D.B. PD-1 promotes immune exhaustion by inducing antiviral T cell motility paralysis. 2013. *J Exp Med*. 210(4):757-74.

Nayak, D., Zinselmeyer, B.H, Corps, K., and McGavern, D.B. In vivo dynamics of innate immune sentinels in the CNS. 2012. *Intravital*. 1(2): 95-106.

Panda, D., Das, A., Dinh P.X., Subramaniam, S., **Nayak, D.**, Barrows, N.J., Pearson, J.L., Thompson, J., Kelly, D.L., Ladunga, I., and Pattnaik, A.K. RNAi screening reveals requirement for host cell secretory pathway in infection by diverse families of negative-strand RNA viruses. *Proc Natl Acad Sci U S A*. 2011. 108:19036-19041.

Kang, S.S., Herz, J. , Kim, J.V., **Nayak, D.**, Stewart-Hutchinson, P., Dustin, M.L., and McGavern, D.B. Migration of cytotoxic lymphocytes in cell cycle permits local MHC I-dependent control of division at sites of viral infection. *J Exp Med*. 2011. 208:747-759.

Nayak D., Panda D., Das, S.C., Lou M., and Pattnaik A.K. Single-amino-acid alterations in a highly conserved central region of vesicular stomatitis virus N protein differentially affect the viral nucleocapsid template functions. 2009. *J Virol*. 83(11):5525-34.

Das, S.C., Panda, D., **Nayak, D.**, and Pattnaik, A.K. Biarsenical labeling of vesicular stomatitis virus encoding tetracysteine-tagged m protein allows dynamic imaging of m protein and virus uncoating in infected cells. *J Virol*. 2009. 83(6):2611-22.

Das, S.C., **Nayak, D.**, Zhou, J.Y. and Pattnaik, A.K., 2006. Visualization of intracellular transport of vesicular stomatitis virus nucleocapsids in living cells. *J. Virol*. 2006. 6368-6377.