

Chaturvedi Sonali, Ph.D.

Assistant Professor of Virology | University of California-Riverside

I am interested in discovering and harnessing genetic circuits to design therapeutic interventions with a high barrier to the evolution of resistance.

Personal Statement I am an Early-Stage Investigator and tenure-track Assistant Professor of Virology at the University of California-Riverside, focusing on the development of innovative therapies to address unmet medical needs in infectious diseases. My background in virology, systems biology, bioengineering, and quantitative biology has guided my research in pioneering new categories of therapies resistant to viral escape mechanisms (Chaturvedi et al. *Cell* 2022; Chaturvedi et al. *PNAS* 2022; Chaturvedi et al. *Cell* 2021; Chaturvedi et al. *PNAS* 2020). Beyond research, I have actively contributed to the biomedical sciences community, including serving as an invited member of the NIH HIVD Study Section (ad hoc), proposing and organizing the Systems Biology Symposium at NIH Headquarters, participating as an invited panelist for the NIH OAR listening session for early-career investigators in HIV research, and organizing Bay Area Virology Symposium.

Education

Institution	Position/Degree	Dates
J. David Gladstone Institutes UCSF	Postdoctoral Fellow	2014-2021
University of California, Riverside	Ph.D.	2009-2014
Sardar Patel University, India	M.Sc. (Microbiology)	2005-2007
Sardar Patel University, India	B.Sc. (Industrial Micro)	2002-2005

Employment

Institution	Title	Dates
University of California, Riverside	Assistant Professor of Virology	2024-Present
J. David Gladstone Institutes UCSF	Research Investigator	2021-2023
Sardar Patel University, India	Research Associate	2008-2009
Hyderabad Central University, India	Research Associate	2006-2008

Publications

1. **Chaturvedi*** et al. (2022). Disrupting autorepression circuitry generates "open-loop lethality" to yield escape-resistant antiviral agents. *Cell*. PMID: 35561685. **co-corresponding authors*

Research Highlight: Balázs G (2022). New antivirals exploit viral feedback tricks for a cure without resistance. Cell. PMID: 35750032

2. **Chaturvedi** et al. (2022). A single-administration therapeutic interfering particle reduces SARS-CoV-2 viral shedding and pathogenesis in hamsters. *PNAS*. PMID: 36074824

3. **Chaturvedi*** et al. (2021). Identification of a Therapeutic Interfering Particle — a single-administration SARS-CoV-2 antiviral with a high barrier to the evolution of resistance. *Cell*. PMID: 34838159. **co-corresponding authors*

Research Highlight: Villanueva MT (2021). Interfering viral-like particle inhibit SARS-CoV-2 replication. Nature Reviews Drug Discovery. PMID: 34873320

4. Desai RV, Chen X, Martin B, **Chaturvedi S** et al. (2021). A DNA repair pathway can regulate transcriptional noise to promote cell fate transitions. *Science*. PMID: 34301855

5. **Chaturvedi** et al. (2020). A molecular mechanism for probabilistic bet hedging and its role in viral latency. *PNAS*. PMID: 32632017

6. **Chaturvedi** et al. (2020). The HSV-1 ICP4 Transcriptional Auto-Repression Circuit Functions as a Transcriptional "Accelerator" Circuit. *Frontiers in Cellular and Infection Microbiology*. PMID: 32670890

7. **Chaturvedi** et al. (2019). Studying RNA-Protein Interaction using Riboproteomics. *Methods in Molecular Biology: RNA Analysis*. PMID: 32797461

8. Vardi N, **Chaturvedi** et al. (2018). Feedback-mediated signal conversion promotes viral fitness. *PNAS*. PMID: 30150412
9. **Chaturvedi** et al. (2018). Molecular and biological factors regulating the genome packaging in single-strand positive-sense tripartite RNA plant viruses. *Current Opinion in Virology*. PMID: 30165268
10. **Chaturvedi** et al. (2017). Riboproteomics: A versatile approach for the identification of host protein interaction network in noncoding RNAs. *PLoS One*. PMID: 2907327611
11. **Chaturvedi** et al. (2016). Functionality of host proteins in Cucumber mosaic virus replication: GAPDH is obligatory to promote interaction between replication-associated proteins. *Virology*. PMID: 27077230
12. **Chaturvedi** et al. (2016). A shift in plant proteome profile for Bromodomain containing RNA binding Protein (BRP1) in plants infected with Cucumber mosaic virus and its satellite RNA. *Journal of Proteomics*. PMID: 26463137
13. **Chaturvedi** et al. (2014). Live cell imaging of interactions between replicase and capsid protein of Brome Mosaic Virus using bimolecular fluorescence complementation: Implications for replication and genome packaging. *Virology*. PMID: 25046269
14. Rao ALN, **Chaturvedi S** and Garmann R (2014). Integration of replication and assembly of infectious virions in plant RNA viruses. *Current opinion in Virology*. PMID: 25308094
15. Kwon SJ, **Chaturvedi S** and Rao ALN (2014). Repair of the 3' proximal and internal deletions of a satellite RNA associated with Cucumber mosaic virus is directed toward restoring structural integrity. *Virology*. PMID: 24503085
 * Sun-Jung Kwon and **Chaturvedi S** contributed equally to the work.
16. **Chaturvedi** et al. (2014). A bromodomain containing host protein mediates the nuclear import of a satellite RNA of cucumber mosaic virus. *Journal of Virology*. PMID: 24284314
 * Selected by the editors of the *Journal of Virology* for inclusion in "Spotlight".
17. Bamunusinghe, D, **Chaturvedi S**, Seo JK and Rao ALN (2013). Mutations in the capsid protein of brome mosaic virus affecting encapsidation eliminate vesicle induction in planta: implications for virus cell-to-cell spread. *Journal of Virology*. PMID: 23741003
18. Seo JK, Kwon SJ, **Chaturvedi S** and Rao ALN (2013). Functional significance of a hepta nucleotide motif present at the junction of cucumber mosaic virus satellite RNA multimers in helper-virus-xdependent replication. *Virology*. PMID: 23146208
19. **Chaturvedi** et al. (2012). A simple and robust in vivo and in vitro approach for studying assembly in RNA viruses. *Journal of Visualization Experiment*. PMID: 22410612
20. de Wispelaere, M, **Chaturvedi S**, Wilkens S and Rao ALN (2011). Packaging and structural phenotype of brome mosaic virus capsid protein with altered N terminal β -hexamer structure. *Virology*. PMID: 21864876
 * Featured on cover page of the journal (*Volume 419, Issue 1*).

Invited talks

1. Guest Lecture, University of Illinois, Urbana-Champaign (September 2020).
2. Invited talk by Charles Rice's group at the Rockefeller University, and Pardis Sabeti's group at the Broad Institute of MIT and Harvard (October 2020).
3. Grand Rounds, Ophthalmology Department, UCSF (July 2020).

Selected Awards and Fellowships

1. **Distinguished Achievement in Scientific Leadership** (2023). The J. David Gladstone Institutes.
2. **Distinguished Achievement in Science Award** (2021). The J. David Gladstone Institutes.
3. **Best Poster Award** (2019). The J. David Gladstone Institutes Retreat.
4. **Best Abstract Award** (2019). International Conference on Antiviral Research, Baltimore.
5. **Best Poster Award** (2018). Bay Area Virology Symposium.

Patents

1. Compositions for herpesvirus transcriptional feedback circuit disruption and uses thereof. International patent application number: PCT/US2019/036841.
2. SARS-CoV-2 Therapeutic Interfering Particle (TIP). International patent application number: PCT/US2021/028809