Dr. Ravi Kant

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Area of research: Autoimmune diseases, T cell biology, Immunology

Ravi Kant received his Master's in medical biotechnology from the All India Institute of Medical Science (New Delhi) and his Ph.D. in Immunology from the National Institute of Immunology (New Delhi). As part of his Ph.D. thesis project, he developed novel peptide analogs of the myelin basic protein (MBP) 85-99. He tested their therapeutic activities in vitro and in experimental mice with autoimmune encephalomyelitis, a model for multiple sclerosis.

He further expanded his research expertise in autoimmune diseases through postdoctoral training at internationally recognized institutions, including the Scripps Research Institute (San Diego) and the Technische Universität München (Germany). His work during this period focused on dissecting immunological and vascular changes within the central nervous system of EAE mice.

Currently, as an independent faculty member at the University of Hyderabad, his research focuses on understanding the roles of distinct T and B cell subsets in the pathogenesis of autoimmune diseases and their interactions with target tissues, with a particular emphasis on developing novel therapeutics.

Ph.D. : National Institute of Immunology, New Delhi (JNU).

Postdoctoral training: Indian Institute of Science (Bangalore)

Scripps Research Institute (San Diego, USA)

Technische Universität München (Germany).

Scholarships/Fellowships: Senior research fellowship, CSIR, Govt. of India (2010-13).

Junior research fellowship, CSIR, Govt. of India (2008-10).

PG fellowship, Department of Biotechnology, Govt. of India (2006-08).

National Scholarship Scheme, Govt. of Himachal Pradesh (2000-02).

Students And Project Trainees: M.Sc. dissertations – 3 (complete)

Ph.D. (2 ongoing)

Publications:

16. Chen, H-H., Tyystjärvi, S., Navarro, D. R., **Kant, R.**, Groll, T., Wagner, I., Moreno, H.D., Bonafonte-Pardàs, I., Öllinger, R., Afzali, A. M., Heink, S., Richter, L.C., Sie, C., Lepennetier, G., Seeholzer, L., Steiger, K., Merkler, D., Rad, R., Schotta, G., Schubert, B., Muschaweckh, A., and Korn, T.* CD38 endows local antigen-specific Treg cells with stress resilience for control of compartmentalized CNS inflammation. ***Nat. Immunol.*** (2026) (IF – 31.3)

15. Yadav, S., Singh, A., **Kant, R.,** and Surolia, A.* TLR4 activation by lysozyme induces pain without inflammation. ***Front. Immunol.*** 14:1065226, (2023). (IF – 7.3).

14. Sie, C.#, **Kant, R.#**, Peter, C., Muschaweckh, A., Pfaller, M., Nirschl, L., Moreno, H.D., Chadimova, T., Lepennetier, G., Kuhlmann, T., Ollinger, R., Engleitner, T., Rad, R., and Korn, T.* IL-24 intrinsically regulates Th17 cell pathogenicity in mice. ***J. Exp. Med.*** 219, (2022). (#equal first author) (IF – 17.6)

13. Gupta, B., Sadaria, D., Warrier, V.U., Kirtonia, A., **Kant, R.**, Awasthi, A., Baligar, P., Pal, J.K., Yuba, E., Sethi, G., Garg, M. and Gupta, R.K.* Plant lectins and their usage in preparing targeted nanovaccines for cancer immunotherapy. ***Semin. Cancer Biol.*** 80, 87–106 (2022). (current IF – 17.0)

12. Hiltensperger, M., Beltrán, E., **Kant, R**., Tyystjärvi, S., Lepennetier, G., Moreno, H.D., Bauer, I.J., Grassmann, S., Jarosch, S., Schober, K., Buchholz, V.R., Kenet, S., Gasperi, C., Öllinger, R., Rad, R., Muschaweckh, A., Sie, C., Aly, L., Knier, B., Garg, G., Afzali, A.M., Gerdes, L.A., Kümpfel, T., Franzenburg, S., Kawakami, N., Hemmer, B., Busch, D.H., Misgeld, T., Dornmair, K., and Korn, T.* Skin and gut imprinted helper T cell subsets exhibit distinct functional phenotypes in central nervous system autoimmunity. ***Nat. Immunol.*** 22, 880–892 (2021). (IF – 31.3)

11. **Kant, R.**, Halder, S. K., Fernández, J. A., Griffin, J. H., and Milner, R.* Activated Protein C Attenuates Experimental Autoimmune Encephalomyelitis Progression by Enhancing Vascular Integrity and Suppressing Microglial Activation. ***Front. Neurosci.*** 14, 1–13 (2020). (IF – 4.3)

10. Warrier, V. U., Makandar, A.I., Garg, M., Sethi, G., **Kant, R.**, Pal, J.K., Yuba, E., and Gupta, R.K.* Engineering anti-cancer nanovaccine based on antigen cross-presentation. ***Biosci. Rep.*** 39, 1–20 (2019). (current IF – 3.0)

9. **Kant, R.**, Halder, S. K., Bix, G. J., and Milner, R.* Absence of endothelial α5β1 integrin triggers early onset of experimental autoimmune encephalomyelitis due to reduced vascular remodeling and compromised vascular integrity. ***Acta Neuropathol. Commun.*** 7, 11 (2019). (IF – 7.6)

8. Halder, S. K., **Kant, R.**, and Milner, R.* Hypoxic pre-conditioning suppresses experimental autoimmune encephalomyelitis by modifying multiple properties of blood vessels. ***Acta Neuropathol. Commun.*** 6, 86 (2018). (IF – 7.6)

7. Halder, S. K., **Kant, R.**, and Milner, R.* Chronic mild hypoxia increases expression of laminins 111 and 411 and the laminin receptor α6β1 integrin at the blood-brain barrier. ***Brain Res.*** 1700, 78–85 (2018). (IF – 3.6)

6. Halder, S. K., **Kant, R.**, and Milner, R.* Chronic mild hypoxia promotes profound vascular remodeling in spinal cord blood vessels, preferentially in white matter, via an α5β1 integrin-mediated mechanism. ***Angiogenesis*** 21, 251–266 (2018). (IF – 9.8)

5. Kant, R., Pasi, S., and Surolia, A.* Auto-reactive Th17-cells trigger obsessive-compulsive disorder like behavior in mice with experimental autoimmune encephalomyelitis. ***Front. Immunol.*** 9, 1–12 (2018). (IF – 7.3)

4. Welser, J. V., Halder, S. K., **Kant, R.**, Boroujerdi, A., and Milner, R.* Endothelial α6β4 integrin protects during experimental autoimmune encephalomyelitis-induced neuroinflammation by maintaining vascular integrity and tight junction protein expression. ***J. Neuroinflammation*** 14, 1–12 (2017). (IF – 9.6)

3. Pasi, S.#, **Kant, R.**, and Surolia, A.* Toll/Interleukin-1 receptor domain derived from TcpC (TIR-TcpC) ameliorates experimental autoimmune arthritis by down-modulating Th17 cell response. ***J. Biol. Chem.*** 291, 12358–12369 (2016). (#equal first author) (IF – 5.5)

2. Pasi, S., **Kant, R.**, Gupta, S., and Surolia, A.* Novel multimeric IL-1 receptor antagonist for the treatment of rheumatoid arthritis. ***Biomaterials*** 42, 121–133 (2015). (IF – 14)

1. **Kant, R.**, Pasi, S., and Surolia, A.* Homo-β-amino acid containing MBP(85-99) analogs alleviate experimental autoimmune encephalomyelitis. Sci. Rep. 5, (2015). (IF – 5.0)

Patent:

Surolia, A., Kant, R., Dwivedi, V.K. and Gupta, S. Synthetic peptides and random copolymers for the treatment of autoimmune disorders. Indian Patent no. 328267, Nov. 2019. (Granted).

Projects

2. Startup Research Grant – ANRF, DST (2023-25); Role: PI; Sanctioned amount: 31.6 lac; Title of the project: “Protein multimerization- a strategy to enhance antigen presentation and immunogenicity of vaccine candidate antigens.”

1. Startup Research Grant – IoE-UoH, DST (2024-25); Role: PI; Sanctioned amount: 20 lac; Title of the project: “Effect of modified IL-24 on development of Th17 cells”