Curriculum Vitae (CV)

Name: Dr. Mohan Ramchandra Wani

Nationality: Indian

Date of Birth: 1st January, 1965

Address for correspondence

Scientist G (Professor)
National Centre for Cell Science
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Educational Qualifications

Ph.D. (Medicine)	2000	St. George's Hospital Medical School, University of London, England
M.V.Sc. (Surgery)	1989	Post Graduate Institute, PKV, Akola (MS)
B.V.Sc. & A. H.	1986	Nagpur Veterinary College, Nagpur

Present position: Scientist G (Professor)

Awards

- **FAMS,** Fellow, National Academy of Medical Sciences **(NAMS),** India.
- **FNA,** Fellow, Indian National Science Academy **(INSA)**.
- **FNASc**, Fellow, The National Academy of Sciences, India **(NASI)**.
- **Tata Innovation Fellowship** 2018 by Department of Biotechnology (DBT), Govt. of India, New Delhi.

- "**National Bioscience Award** for Career Development 2009" by DBT, Govt. of India, New Delhi.

- "**B. M. Birla Award 2004**" for outstanding research contributions in the field of Bone Remodeling and Medicine. This award was given by the B. M. Birla Science Centre, Hyderabad.

- **Prof. B. K. Bachhawat International Award** for Young Scientists for the year 2006 by Christian Medical College (CMC), Vellore, India.

- BD Biosciences Research Award, 2011.

- Elected Member of Guha Research Conference (**GRC**), 2010.

- Member, Molecular Immunology Forum (**MIF**), 2004.

- DBT Overseas Associate-ship Award 2005-2006 by DBT, Govt. of India, New Delhi.

- **Commonwealth Fellowship Award** by Association of Commonwealth Universities, England (1996-1999).

- Gold Medal for securing First Rank in the University in M.V.Sc. degree (1989).

- ICAR Merit Scholarship during B.V.Sc.& A.H. (1982-1986).

Honors

- **Nominated by President, Govt. of India** for attending South Asian Association for Regional Cooperation (SAARC) meeting/training at University of Karachi, Karachi, Pakistan, Oct. 10, 2003-Oct 15, 2003.

- **Chancellor Nominee as an Executive Council (Senate) Member,** Maharashtra Animal and Fisheries Sciences University, Nagpur for 5 years, 2009-2014.

- Advisor, National Academy of Sciences (NASI), Pune Chapter, 2019-2021.

Professional/Research Experience: 30 years.

Biomedical and translational research in the area of disease biology of musculoskeletal and autoimmune diseases, stem cell biology, animal models and regenerative medicine.

Mentorship provided to *Ph.D. and M.D.S/M.V.Sc. students and postdocs*

Guided 14 PhD, 2 MDS and 4 M.V.Sc students and mentored 3 postdoctoral fellows. Currently guiding 8 PhD students and mentoring 3 postdocs.

Major R&D projects/ programmes implemented

- *"*Regulation of development of pathogenic T-helper 17 cells in collagen-induced arthritis" funded by Science and Engineering Research Board (SERB), DST, New Delhi, 2018-2021.
- National Facility for Laboratory Model Organisms (a collaborative initiative between DBT-IISER-NCCS, Pune and University of Alabama, USA) funded by DBT, New Delhi, March 2016- Feb. 2021.
- Relationship between obesity and cancer, ramifications in cancer progression and chemotherapy funded by DST, New Delhi, 2013-2016.
- "Studies on understanding the role of IL-3 in regulation of human osteoclast and osteoblast differentiation" *funded* by DBT, New Delhi, from July 2010 to June 2013.
- "Studies on in vitro differentiation of osteoblasts from human adult stem cells" funded by DBT, New Delhi from March 2005 to February 2009.
- "Cellular and molecular mechanism(s) of action of IL-3 on osteoclast differentiation and activation" funded by DBT, New Delhi from September 2004 to August 2007.
- "Isolation, purification and characterization of anti-osteoporotic factor in Indian green Mussel (Perena viridis)" funded by CSIR, New Delhi, 2002 to 2005.

Conferences organized

- Convener, Molecular Immunology Forum (MIF), Matheran, 2012.
- Convener, Retreat for NCCS Scientists, PhD students and post-doctoral fellows, Fort Jadhavgarh, Saswad, Pune, 2012.
- Convener, Guha Research Conference-2014, Khajuraho, Mandhya Pradesh, December, 6-10, 2014.
- Convener, Molecular Immunology Forum (MIF), Diveagar, Raigadh, January 14-16, 2018.

Member of international and national professional bodies

- Member, The American Society for Bone and Mineral Research, USA.
- Member, The American Association of Immunologists, USA
- Member, International Chinese Hard Tissue Society, China.
- Life Member, Indian Society of Cell Biology, India.
- Member, Indian Society for Veterinary Surgery.

- Executive Committee Member, Indian Society of Cell Biology April 2007-March 2009.
- Life member, Laboratory Animal Association of India.

Administrative, Research Management and Technical experience

Administrative experience

- Chancellor Nominee as Executive Council (Governing Body) Member, Maharashtra Animal and Fisheries Sciences University (MAFSU), Nagpur (2009-2014).
- President, NCCS Staff Welfare Society (2008-2019).
- Member, Store and Purchase Committee-II (SPC-II) (2009-2011).
- Scientist in-charge Central Sterilization Facility (2008 till date).
- Scientist in-charge Guest-House (2009-2018).
- Scientist In-charge Image Analysis Facility (March, 2001-December, 2004).
- Member of Building and Finance Committee of MAFSU, Nagpur (2009-2014).

Research Management Experience

- Task Force Member, Stem Cell and Regenerative Medicine, Department of Biotechnology, New Delhi, 2014-2017 and second term from 2018- till date.
- Task Force Member, Stem Cell and Regenerative Medicine, Indian Council of Medical research, New Delhi, 2018-2021.
- Member, Peer Review Committee of Maharashtra Animal and Fisheries Sciences University (MAFSU), Nagpur (2009-2014).
- Member of Doctoral Committees of various national research institutes, veterinary/pharmacy colleges and Universities.
- Special Invitee for Research Council of Maharashtra Animal and Fisheries Sciences University, Nagpur (2009-2010)
- Special Invitee for 46th Meeting of Research Council of Institute of Genomics and Integrative Biology (IGIB), New Delhi.

Member of Technical Committees

- DBT nominee for Institutional Bio-safety Committee (IBSC) of S. P. Pune University, Agharakar Research Institute, Prado Pvt. Ltd., iSERA Pvt. Ltd Pune, Parbhani and Shirwal Veterinary Colleges etc.

- Member of Institutional Committee for Stem Cell Research and Therapy (IC-SCRT) of Stempeutics Research Private Ltd., Bangalore, Krishna Institute of Medical Sciences, Karad, Yenepoya Medical University, Karnataka and NCCS, Pune.

- Nominee of the "Committee for the Purpose of Control and Supervision on Experiments on Animals (CPCSEA)" for Institutional Animal Ethics Committee (IAEC) of various National Institutes, pharmacy colleges and Universities.

- Member, Committee for approval of new colleges of University of Pune, 2011-12.

Publications, Patents and Technology Transfer, Book Chapter

Publications

- Vikrant Piprode, Kanupriya Singh, Anil Kumar, Snehal R. Joshi and **Mohan R. Wani** (2021). IL-3 inhibits rat osteoclast differentiation induced by TNF-α and other pro-osteoclastogenic cytokines. ***J. Biosci. 46:63:1-12***

- Anil Kumar, Lekha Rani, Suhas T. Mhaske, Satish T. Pote, Shubhanath Behera, Gyan C. Mishra and **Mohan R. Wani** (2020). IL-3 receptor expression on activated human Th cells is regulated by IL-4; and IL-3 synergies with IL-4 to enhance Th2 cell differentiation. **The Journal of Immunology 204:819-831.**

- Rahul Kumar Agrawal, Vaibhav Pandey, Amruta Barhanpurkar - Naik, **Mohan R. Wani**, Kausik Chattopadhyay, Vakil Singh. (2020). Effect of ultrasonic shot peening duration on microstructure, corrosion behavior and cell response of cp-Ti. ***Ultrasonics 104:106110.***

- Parul Dutta, Srinadh Choppara, Pallabi Sengupta, Anil Kumar, Avinash Kumar, **Mohan R Wani**, Subhrangsu Chatterjee, and Manas Kumar Santra (2019). Tumor suppressor FBXO31 preserves genomic integrity by regulating DNA replication and segregation through precise control of cyclin A expression. **Journal of Biological Chemistry 294: 14879-14895.**

- *Gavali S, Gupta MK, Daswani B,* ***Wani MR****, Sirdeshmukh R, Khatkhatay MI (2019).* Estrogen enhances human osteoblast survival and function via promotion of autophagy. ***Biochim Biophys Acta Mol Basis Dis. 1866(:1498-1507.***

- *Gavali S, Gupta MK, Daswani B,* ***Wani MR****, Sirdeshmukh R, Khatkhatay MI. (2019) LYN, a key mediator in estrogen-dependent suppression of osteoclast differentiation, survival and function.* ***Biochim Biophys Acta Mol Basis Dis. 1865:547-557.***

- *Sneha M. Pinto, Y. Subbannayya, DAB Rex, R. Raju, O. Chatterjee, J. Advani, A. Radhakrishnan, TS Keshava Prasad,* ***Mohan R. Wani****, Akhilesh Pandey (2018) A network map of IL-33 signaling pathway.* ***J Cell Commun Signal. 12:615-624***

- *Kanupriya Singh, Vikrant Piprode, Suhas T. Mhaske, Amruta Barhanpukar-Naik,* ***Mohan R. Wani*** *(2017) IL-3 differentially regulates membrane and soluble RANKL in osteoblasts through metalloproteases and JAK2/STAT5 pathway, and improves RANKL/OPG ratio in adult mice.* ***The Journal of Immunology 200:595-606.***

- *Jyoti V. Kumbhar, Sachin H. Jadhav, Dhananjay S. Bodas, Amruta Barhanpurkar-Naik,* ***Mohan R. Wani****, Kishor M. Paknikar, Jyutika M. Rajwade (2017). In vitro and in vivo studies of a novel bacterial cellulose-based acellular bilayer nanocomposite scaffold for the repair of osteochondral defects.* ***Int. J. Nanomedicine. 12:6437-6459.***

- *Amruta Barhanpurkar-Naik, Suhas T. Mhaske, Satish T. Pote, Kanupriya Singh and* ***Mohan R. Wani*** *(2017) Interleukin-3 enhances the migration of human mesenchymal stem cells by regulating expression of CXCR4.* ***Stem Cell Research and Therapy 8:168:1-15.***

- Supinder Kour, Manasa G. Garimella, Divya A. Shiroor, Suhas T Mhaske, Snehal R. Joshi, Kanupriya Singh, S. Pal, M. Mittal, B. Harikrishnan, N. Chattopadhyay, Anil H. Ulemale and **Mohan R. Wani (2016)** IL-3 decreases cartilage degeneration by down-regulating matrix metalloproteinases and reduces joint destruction in osteoarthritic mice. ***The Journal of Immunology 196:5024-35.***
  (Featured in Research Highlight Section* of July 2016 issue of Nature Reviews Rheumatology).** Collison J (2016) Protective role for IL-3 in mouse osteoarthritis. ***Nature Reviews Rheumatology 12:374-375*.*

- Manasa G. Garimella, Supinder Kour, Vikrant Piprode, Monika Mittal, Anil Kumar, Satish Pote, G. Mishra, N. Chattopadhyay and **Mohan R. Wani** (2015). Adipose-derived mesenchymal stem cells prevent pathological bone loss and promote immune tolerance in mouse collagen-induced arthritis**.** ***The Journal of Immunology 195:5136-5148.***

- T. Ahmad, S. Mukherjee, B. Pattnaik, M. Kumar, S. Singh, M. Kumar, R. Rehman, B. K. Tiwari, K. A. Jha, Amruta P. Barhanpurkar, **Mohan R. Wani**, S. S, Roy, U. Mabalirajan, Balram Ghosh and Anurag Agrawal (2014) Miro1 regulates intercellular mitochondrial transport and enhances mesenchymal stem cell rescue efficacy. **EMBO J. 33:994-1010**.

- Shitu Jindal, Rajesh Bansal, B. P. Singh, Rajiv Pandey, TSN ShankarNarayanan, **Mohan R. Wani** and Vakil Singh (2014) Enhanced osteoblast proliferation and corrosion resistance of commercially pure titanium through surface nanostructuring by ultrasonic shot peening and stress relieving. **J Oral Implantol. 40:347-55.**

- Parmanand Malvi, Vikrant Piprode, B. Chaube, S. T. Pote, M. Mittal, N. Chattopadhyay, **Mohan R. Wani** and Bhat MK (2014) High fat diet promote achievement of peak bone mass in young rats. **Biochem. Biophys. Res. Commun. 455:133-138**.

- Barhanpurkar AP, Gupta N, Srivastava RK, Tomar GB, Naik SP, Joshi SR, Pote ST, Mishra GC, **Wani MR** (2012). IL-3 promotes osteoblast differentiation and bone formation in human mesenchymal stem cells. ***Biochem Biophys Res Commun. 418:669-75.***

- R. Raju, L. Balakrishnan, V. Nanjappa, M. Bhattacharjee, D. Genet, B. Muthusamy, J. K. Thomas, J. Sharma, B. A. Rahiman, H. C. Harsha, S. Shankar, T.S.K. Prasad, S. S. Mohan, G. D. Bader, **M. R. Wani**, and A. Pandey. A comprehensive manually curated reaction map of RANKL/RANK signaling pathway. ***Database (Oxford). 2011:1-9.***

- Rupesh K. Srivastava, Geetanjali B. Tomar, Amruta P Barhanpurkar, Navita Gupta, Satish T. Pote, Gyan C. Mishra and **Mohan R. Wani** (2011). IL-3 attenuates collagen-induced arthritis by modulating the development of Foxp3$^+$ regulatory T cells. ***The Journal of Immunology 186:2262-2272.***

- Rupesh K. Srivastava, Gyan C. Mishra and **Mohan R. Wani** (2011). *Response to Comment on* "IL-3 attenuates collagen-induced arthritis by modulating the development of Foxp3$^+$ regulatory T cells". ***The Journal of Immunology 187:1071-1072.***

- Shruti M. Khapli, Geetanjali B. Tomar, Amruta P. Barhanpurkar, Navita Gupta, S. D. Yogesha, Satish T. Pote and **Mohan R. Wani** (2010) Irreversible inhibition of RANK expression as a possible mechanism for IL-3 inhibition of RANKL-induced osteoclastogenesis. **Biochem. Biophys. Res. Commun. 399: 688-693.**

- Navita Gupta, Amruta P Barhanpurkar, Geetanjali B. Tomar, Rupesh K. Srivastava, Satish T. Pote, Gyan C. Mishra and **Mohan R. Wani** (2010). IL-3 inhibits human osteoclastogenesis and bone resorption through down-regulation of c-Fms, and diverts the cells to dendritic cell lineage. ***The Journal of Immunology 185:2261-2272.***

- Hiral M. Jhaveri, Mahesh S. Chavan, Geetanjali B. Tomar, Vijay L. Deshmukh, **Mohan R. Wani** and Preston D. Miller Jr. (2010). Acellular dermal matrix seeded with autologous gingival fibroblasts for the treatment of gingival recession: A proof-of-concept study. **J Periodontol. 81:616-625.**

- Geetanjali B. Tomar, Rupesh K. Srivastava, Navita Gupta, Amruta P Barhanpurkar, Satish T. Pote, Hiral M. Jhaveri, Gyan C. Mishra and **Mohan R. Wani** (2010). Human gingiva-derived mesenchymal stem cells are superior to bone marrow-derived mesenchymal stem cells for cell therapy in regenerative medicine. **Biochem. Biophys. Res. Commun. 393: 377-383.**

- S. D. Yogesha, Shruti M. Khapli, Rupesh K. Srivastava, Latha S. Mangashetti, Satish T. Pote, Gyan C. Mishra and **Mohan R. Wani** (2009). IL-3 inhibits TNF-α-induced bone resorption, and prevents inflammatory arthritis. ***The Journal of Immunology 182: 361-370*****.**

  (Featured in Research Highlight Section of Nature Reviews Rheumatology). **Nature Reviews Rheumatology, 2009, 5:180.**

- **Mohan R. Wani** (2007). Bone remodeling by osteoclasts and osteoblasts. ***Cell Biology Newsletter 27:3-7*** *(Invited General Review Article for Indian students and scientists).*

- Latha S. Mangashetti, Shruti M. Khapli, and **Mohan R. Wani** (2005). IL-4 inhibits bone-resorbing activity of mature osteoclasts by affecting NF-κB and Ca^{2+} signaling. ***The Journal of Immunology*** **175:917-925.**

- S. D. Yogesha, Shruti M. Khapli, and **Mohan R. Wani** (2005). Interleukin-3 and granulocyte-macrophage colony-stimulating factor inhibits TNF-α-induced osteoclast differentiation by down-regulation of expression of TNF receptors 1 and 2. ***Journal of Biological Chemistry*** **280:11759-11769**.

- Shruti M. Khapli, Latha S. Mangashetti, Yogesha S.D. and **Mohan R. Wani** (2003) IL-3 acts directly on osteoclast precursors and irreversibly inhibits receptor activator of NF-κB ligand-induced osteoclast differentiation by diverting the cells to macrophage lineage. ***The Journal of Immunology*** **171:142-151**.

- Lean, J. M., Matsuo, K., Fox, S. W., Fuller, K., Gibson, F. M., Draycott, G., **Wani, Mohan R.,** Bayley, K. E., Wong, B., Choi, Y., Wagner, E. F. and Chambers, T. J. (2000). Osteoclast lineage commitment of bone marrow precursors through expression of membrane-bound TRANCE. ***Bone*** *27(1) 29-40*.

- Fuller, K., Lean, J. M., **Wani, Mohan R.** and Chambers, T. J. (2000). A role for TGFβ in osteoclast differentiation and activation. ***Journal of Cell Science*** *113(13) 2445-2453*.

- **Wani, Mohan R.,** Fuller, K., Kim, N.S., Choi, Y. and Chambers, T. (1999). Prostaglandin E_2 co-operates with TRANCE in osteoclast induction from hemopoietic precursors: Synergistic activation of differentiation, cell spreading and fusion. ***Endocrinology*** *140(4)1927-1935*.

- **Wani, Mohan R.,** Bayley, K. E., Fuller, K. and Chambers, T. J. (1999). Residronate suppresses osteoclast differentiation and function through an effect on the osteoclast lineage that can be reversed by mevalonic acid. ***Journal of Bone and Mineral Research*** *14 (S1) 219*.

- **Wani, Mohan R.** and Kulkarni, P.E. (1996). Prepucial sarcoid in a horse. ***Ind. J. Vet. Surg.*** *17(1) 56-56*.

- **Wani, Mohan R.** and Kulkarni, P.E. (1995). Evaluation of autogenous free full thickness, split thickness and pinch skin grafts in dogs. ***Ind. J. Vet. Surg.*** *16(2) 107-110*.

- **Wani, Mohan R.** and Kulkarni, P.E. (1995). Harvesting of free skin grafts in dogs. ***Ind. J. Vet. Surg.*** *16(2) 125-126*.

- Gokhale, B. B; Tawade, Y.V., Bharatia, P.R., Parakh, A.P. Mojamdar, M., Bhonde, R.R. and **Wani, Mohan R.** (1991). Use of organ cultured foetal skin as allograft in treatment of resistant vitiligo. ***Ind. J. Dermatology, Venerology, Leprology*** *57:272-275*.

Patents

- ***Wani, M.*** **R;** Parab, P. B; Chatterji, A (2003). Pharmaceutical composition useful for inhibition of osteoclast formation and a process for the extraction of mussel hydrolysate from Indian green mussel. ***US Patent #*** **6,905,710** ***(Granted on June 14, 2005).***

- Rao, K. V. S; ***Wani, M.*** **R;** Manivel, V. S; Parameswaran P; Singh, V. K; Anand, R. V; Desa, E; Mishra, G. C; Chatterji, A (2005). Method and composition for treating osteoporosis. ***US Patent # 7,335,686 (Granted on February 26, 2008).***

- Rao, K. V. S; ***Wani, M.*** **R**; Manivel, V. S; Parameswaran P; Singh, V. K; Anand, R. V; Desa, E; Mishra, G. C; Chatterji, A. Novel molecules to develop drug for the treatment of osteoporosis **(Patent filed 0412NF2005 India, 10/747,671 US, PCT/INO3/00431).**

- Kanupriya Singh and **Mohan R. Wani (2018)**. Method to regulate pathological bone remodeling in musculoskeletal diseases **(Indian Patent Application 201721041260)**.

- Kanupriya Singh and **Mohan R. Wani (2018)**.. A novel therapeutic intervention for osteoporosis (**US Patent Application No. 166/US211/DCG/CA).**

- Lekha Rani, Anil Kumar, G. C. Mishra and **Mohan R. Wani** (2018). Preventive and therapeutic role of IL-3 in rheumatoid arthritis ***(Patent in preparation)***.

Book Chapter

- Mohan R. Wani (2017). Human gingiva: A promising source of mesenchymal stem cells for cell therapy and regenerative medicine. In Regenerative Medicine: Laboratory to Clinic. A. Mukhopadhyay (ed). Springer Nature Singapore, p. 113-122.

Manuscripts in the pipeline

- Lekha Rani, Anil Kumar, Juilee Karhade, Garima Pandey, Gyan C. Mishra and Mohan R. Wani. IL-3 inhibits the development of pathogenic Th17 cells in IL-2-dependent manner and ameliorates collagen-induced arthritis (Manuscript under review).

- Suhas T. Mhaske, Anil Kumar and Mohan R. Wani. IL-3 inhibits osteoclastogenesis by up-regulating cytoprotective enzymes and diverts the cells towards M2 macrophages (Manuscript submitted).

Our papers are cited by leading journals including J. of Clinical Investigations, J. Exp. Med., J Immunol, JBC, Nature Genetics, Nature Reviews Rheumatology, Blood, Endocrine Reviews, Nature Rev. Drug Discovery, Mol. Cell., PNAS, New England J. of Medicine and many other reputed journals.

Technology Transfer

- *Developed and transferred cultured skin epithelia technology to Sion Hospital, Mumbai (5th June, 1998. This was in collaboration with Dr. M. V. Mojamdar, Ex Senior Scientist of NCCS).*

- Developed animal models of diseases such as rheumatoid arthritis, osteoarthritis and osteoporosis. Researchers from other institutes are trained for developing animal models of human diseases.

Contribution as a reviewer

Reviewed research papers for National and International Journals, and reviewed many research grant proposal for National (DBT, DST and ICMR) and International (BBSRC and Dutch-Review) funding agencies. Also participated in setting up of question papers for DBT's recruitment of medical scientists and PhD students.

Foreign assignments/international experience

- Oct. 1996-March, 2000- University of London, London, England for Higher Studies (PhD)

- Dec., 1996-Feb., 1997-University of Oxford, England to complete Training Course on "Laboratory Animal Module 1-3 and Module 4".

- May, 1997-University College of London for Training on "Good Laboratory Practices in the use of and Handling of Unsealed Radioactive Sources".

- Sept. 30, 1999-Oct. 4, 1999- 21stAnnual Meeting of the American Society for Bone and Mineral Research, St. Louis, USA for presentation of research paper.

- Sept.19, 2003-Sept. 23, 2003-25th Annual Meeting of the American Society for Bone and Mineral Research, Minneapolis, USA for presentation of research paper.

- Sept. 20, 2003, Completed Continuing Medical Education (CME) progromme organized by St. John Hospital and Medical Center, at Minneapolis, USA.

- Oct. 10, 2003-Oct 15, 2003- Nominated by President, Govt. of India for attending SAARC meeting/training at University of Karachi, Karachi, Pakistan.

- Presented a research paper in Annual Meeting of American Society for Bone and Mineral Research (ASBMR), SanDiego, USA, September 16-20, 2011.

- I co-ordinated the Discussion Meeting of Department of Biotechnology (DBT), New Delhi on "Transgenic Animal Facility" with University of Alabama, Birmingham, USA, August 5-8, 2015.

- Sep.28, 2018-Oct. 1, 2018, Annual Meeting of the American Society for Bone and Mineral Research, Montreal, Canada for presentation of research paper.

Invited talk delivered: 57

Other activities: Popularizing science at pre-degree and degree levels in various colleges (including rural areas) on biotechnology and regenerative medicine.