1) **Professor NEERAJ SINHA**
Director
Centre of Biomedical Research (CBMR)
(An autonomous center of the Department of Medical Education, Government of Uttar Pradesh)
SGPGIMS Campus, Raebareli Road
Lucknow – 226014 (U.P.) India

2) Male

3) Date of Birth: 21 June 1974

4) Father's Name: Anil Kumar Sinha

5) Present Address of Residence: C1 – 502, Akash Enclave, Vrindavan Yojana Sector 6A, Lucknow – 226029.

6) Permanent Address: 1/758, Namak Bazaar, Ramnagar, Varanasi – 221008.

7) Mobile Number: +91 – 9451984389, Email: neeraj.sinha@cbmr.res.in neerajcbmr@gmail.com

8) Marital Status: Married
9) Educational Qualifications and Research Experiences

S. No.	Name of Examination	Course Name	Institutions/Board/University	Year	Subject
1	UG	B.Sc. (Hons)	Banaras Hindu University, Varanasi	1995	Physics (Hons), Chemistry, Mathematics
2	PG	M.Sc.	School of Physical Sciences, Jawaharlal Nehru University, New Delhi	1997	Physics
3	PHD	Ph.D.	Department of Physics, Indian Institute of Science, Bangalore	2003	Physics (NMR)

(a) Postdoctoral Fellow (2003 – 2004) Iowa State University, Ames IA, USA

(b) Postdoctoral Research Associate (2004 – 2007) University of California, San Diego CA, USA

10) Service details at CBMR

Duration	Post
9th July 2007 – 8th July 2010	Assistant Professor at CBMR, Lucknow
9th July 2010 – 8th July 2013	Associate Professor at CBMR, Lucknow
9th July 2013 – 8th July 2017	Additional Professor (Professor Junior Grade) at CBMR Lucknow
9th July 2017 – till now	Professor at CBMR, Lucknow

11) Administrative Experience at CBMR

Duration	Post
19 Feb 2021 – 18 Feb 2024	Dean at CBMR Lucknow
30 July 2024 – till now	Dean at CBMR Lucknow
6 December 2025 – till now	Director (additional charge) at CBMR Lucknow

12) Research Experiences: 26 years of research experience in the area of Nuclear Magnetic Resonance (NMR) and Magnetic Resonance Imaging (MRI) for the biomedical systems.

13) Extramural Research Grants:

(a) I was instrumental in getting grant for the establishment of 600 MHz solid-state NMR facility for biomedical studies. The funding of approximately 5.0 crore was sanctioned by U. P. government for the establishment of this facility at CBMR.
(b) Title: Structure Determination of Insoluble Proteins by Solid State NMR Spectroscopy PI: Dr. Neeraj Sinha: Amount: Rs 54,58,000: Funding agency: Department of Biotechnology, India: Duration: 03 Years (2011-2014)

(c) Title: Application of NMR based metabolomics for the detection and characterization of disease markers associated with acute respiratory distress syndrome (ARDS), PI: Dr. Neeraj Sinha: Amount Rs. 54,90,070/- Funding Agency: Department of Science and Technology, India, Duration 03 years (2016 – 2019)
(d) Title: **"**Targeting multiple pathways by a single molecule as a therapeutic strategy in Huntington's disease", Co-PI: Dr. Neeraj Sinha, Amount: Rs. 30,00,000/- Funding Agency: Indian Council of Medical Research, Duration: 03 years (2017 – 2020)
(e) Title. "NMR based metabolomics approach to improve clinical managements in patients with respiratory failure" PI: Professor Neeraj Sinha, Funding Agency: Life Science Research Board, Defense Research and Development Organization (DRDO) India, Amount: Rs. 36,67,888/-, Duration = 3 years.
(f) Title: "Upgradation of 800MHz solution state NMR spectrometer" PI: Neeraj Sinha, Funding Agency: Department of Science and Technology (DST) SUPREME, India Amount: 3.5 Cr. Duration 2024 – 2027.

14) Research Publications details: Total research publications in peer reviewed journals = 132

Complete list on google scholar

https://scholar.google.com/citations?user=k9mPppgAAAAJ&hl=en

15) Major research accomplishments

Professor Neeraj Sinha is currently working as Director of the Centre of Biomedical Research, Lucknow, India. His research interests are utilizing both solution and solid-state NMR to address critical biomedical challenges. Some of his key contributions include:

a) Quantification of metabolites from one-dimensional NMR spectra of complex biofluids is challenging due to severe spectral overlap. He developed an innovative method using two-dimensional $^{1}H–^{13}C$ HSQC NMR combined with correction factors derived from Bloch equation solutions, significantly improving metabolite quantification. (https://doi.org/10.1021/ac902405z citation: 93)) This approach was later enhanced through integration with non-linear sampling for faster data acquisition (https://doi.org/10.1021/ac302457s citation: 50).

b) He advanced solid-state NMR techniques for structural studies of bones and cartilage—materials that are difficult to analyze using conventional spectroscopy. His work enabled probing of the organic–inorganic interface in bone, a critical indicator of diseases such as osteoporosis (https://doi.org/10.1021/jp2025768 citation: 101). This research also contributed to validating the effectiveness of the drug Raloxifene in reducing bone loss in patients with chronic kidney disease (https://doi.org/10.1016/j.bone.2024.117089).

c) He contributed to the understanding of acute respiratory distress syndrome (ARDS) through NMR-based metabolomics. Notably, his group conducted the first NMR study of mini-bronchoalveolar lavage fluid (mBALF), providing insights into ARDS-related metabolic profiles (reference: https://doi.org/10.1007/s11306-012-0472-y citation: 50).

d) His research group was the first to apply Dynamic Nuclear Polarization (DNP)-enhanced solid-state NMR to bones and cartilage. This work revealed key structural interactions, including CH–π interactions, citrate–collagen interactions, and glycosaminoglycan (GAG)–collagen interactions (references: https://doi.org/10.1021/jz502081j citation:44, https://doi.org/10.1021/acs.jpcb.1c01431 and https://doi.org/10.1021/jacs.4c05539).

e) He has also published a series of studies investigating the role of water in bones and cartilage, elucidating structural changes associated with diseases such as osteoporosis and osteoarthritis.

f) He has published first solid state NMR structural studies of protein supramolecular complex to understand water mediated protein – DNA interactions of bacteriophage pf1. (reference: https://doi.org/10.1021/jp310921n).

16) Future Vision and Mission for CBMR

I have been associated with the Centre of Biomedical Research (CBMR) since 2007 and, since assuming the responsibility of Director in December 2025, I have had the privilege of witnessing and contributing to the remarkable evolution of the Centre. This journey—from a modest beginning in 2005 with a small group of faculty members and limited laboratory facilities to a globally recognized centre of excellence—has been both inspiring and transformative.

Today, CBMR stands at an exciting juncture in its journey. The Centre has established a distinctive identity at the interface of basic science, clinical research, and translational medicine, creating an ecosystem that encourages interdisciplinary research, innovation, and entrepreneurship. We take pride in being the only dedicated

centre of its kind in India and among a select few centres worldwide committed to advancing biomedical research through this integrated approach.

Our scientific pursuits span several emerging and high-impact areas, including NMR-based clinical metabolomics, cognitive sciences, sustainable green chemistry, and other frontiers of biomedical research. These endeavours reflect our belief that the most challenging problems in human health can be addressed only when diverse disciplines, technologies, and perspectives converge.

Looking ahead, our vision is to transform CBMR into a globally leading hub for discovery-driven, patient-centric, and technology-enabled biomedical research. We aspire to build powerful bridges between the laboratory and the clinic, translating fundamental discoveries into new diagnostic approaches, therapeutic strategies, prognostic tools, and personalized healthcare solutions. By integrating advanced analytical technologies, artificial intelligence, computational approaches, and clinical sciences, we aim to accelerate the journey from scientific discovery to tangible benefits for patients.

Our future roadmap is guided by three overarching priorities: excellence in science, impact on human health, and global collaboration. We will continue to strengthen our research infrastructure, nurture interdisciplinary programmes, develop new platforms and technologies, and foster collaborations with leading national and international institutions. At the same time, we are committed to creating an environment in which young scientists, researchers, students, and innovators are empowered to pursue bold ideas and transform them into meaningful scientific and societal outcomes.

We envision CBMR not merely as a centre of research, but as a catalyst for biomedical innovation—a place where ideas converge, discoveries emerge, technologies are developed, and scientific knowledge is translated into solutions for human health. Our aspiration is to position CBMR among the internationally recognized centres shaping the future of biomedical science and precision healthcare.

The challenges before us are immense, but so are the opportunities. With a strong foundation built over two decades, a talented and committed scientific community, and an unwavering focus on human health, I am confident that CBMR is poised to enter a new era of growth and global impact.

Together, we look forward to building a future where science serves society, innovation reaches the patient, and discoveries made at CBMR contribute to better health and a better world.