CURRICULUM VITAE

1. **NAME: Prof. Tapas K. Kundu**

2. **DATE OF BIRTH:** 2nd January 1962

3. **PRESENT POSITION /DESIGNATION:**

Professor
Molecular Biology and Genetics Unit.
Associate faculty, Neuroscience Unit
Transcription and Disease Laboratory
JNCASR, JakkurP.O., Bangalore- 560 064.
Email: tapas@jncasr.ac.in
Tel: 080-22082840,

Former Director (Aug 8, 2018, - Jan 31 st, 2022,)
CSIR-Central Drug Research Institute
Sector 10, Jankipuram Extension, Sitapur Road,
Lucknow, Uttar Pradesh 226031, INDIA.

Mobile: 09449456334

4. **ACADEMIC QUALIFICATIONS**:

- 1986: B.Sc. (Ag) Hons.from Bidhan Chandra Agricultural University, Nadia, West Bengal, India

- 1987-1989: M.Sc. (Biochemistry) from the Department of Biochemistry, University of Agricultural Sciences, GKVK, Bangalore (Gold medallist).

- 1990-1995: Ph.D. (Biochemistry/Molecular Biology) from the Department of Biochemistry, Indian Institute of Sciences, Bangalore (Best Thesis Awardee).

5. **POSITIONS HELD** (In chronological order):

- 1995-1996: Visiting Foreign Research Associate in the Department of Molecular Genetics, National Institute of Genetics, Mishima, Japan.

- 1996-1999: Post-Doctoral Fellow in the Laboratory of Biochemistry and Molecular Biology, The Rockefeller University, New York, USA.

- 1999-2004: Faculty Fellow (Assistant Professor) in Transcription & Disease Laboratory, Molecular Biology and Genetics Unit, JNCASR, Jakkur, Bangalore-64. INDIA

- 2004-2009: Associate Professor in Transcription & Disease Laboratory, Molecular Biology and Genetics Unit, JNCASR, Jakkur, Bangalore-64. INDIA

- 2009-Present: Professor in Transcription & Disease Laboratory, Molecular Biology and Genetics Unit, JNCASR, Jakkur, Bangalore-64. INDIA

- 2015-2016: Silver Jubilee Professor of JNCASR, Jakkur, Bangalore-64. INDIA.

- 2018- Jan 2022: Director, CSIR- Central Drug Research Institute, Lucknow, UP, INDIA (On lien from JNCASR)

- Feb 2022-present: Professor in Transcription & Disease Laboratory, Molecular Biology and Genetics Unit, JNCASR, Jakkur, Bangalore-64. INDIA
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6 SUMMARY OF THE RESEARCH CONTRIBUTION:

Prof. Kundu's research is truly multidisciplinary in nature, ranging from fundamental epigenetics and gene regulation to Chemical Biology. The focus of his group is to understand the different aspects of functional chromatin dynamics responsible for gene regulation and its link to cellular physiology, differentiation, and pathobiology. Apart from cell cycle regulation, muscle differentiation, and neuroglial differentiation, they are investigating disease biology of different diseases in this context, namely cancer (oral cancer and breast cancer), AIDS (Epigenetic regulation of Latency), obesity, and neurological disorders. In the course, the group has elegantly discovered several small molecule modulators of Epigenetic enzymes. In brief, he has discovered that multifunctional human transcriptional coactivator, PC4 is a bonafide non-histone component of chromatin which is essential for the integrity/homeostasis of the nucleus, chromatin organization as well as the epigenetic state of the human cell. Recently, the role of PC4 has been linked

to the regulation of Autophagy, metastatic breast cancer, memory extinction function, and B cell differentiation. The nucleolar protein NPM1 was shown to be a potent histone chaperone (for both core and linker histones) and thereby activates the RNA polymerase II-driven transcription in nucleoplasm upon acetylation by p300. Most significantly, they have discovered that NPM1 is a bonafide inducing factor of p300 auto-acetylation. These fundamental findings in NPM1 encouraged him to investigate the role of NPM1 and its acetylation related function in oral cancer, the most predominant type of cancer in the Indian subcontinent. NPM1 gets overexpressed as the cancer progresses and gets hyperacetylated in patients with concomitant hyper-autoacetylation of p300. Recently, they have found that the tumor suppressor p53 is also an inducer of the autoacetylation of the master epigenetic enzyme, p300, establishing the role of the tumor suppressor in the regulation of the Epigenetic landscape. To elucidate the mechanisms of p53-mediated enhancement of p300 autoacetylation they solve the structure of p300-p53 complex by cryo-electronmicroscopy. These findings are being exploited as a diagnostic marker as well as therapeutic targets.

They have discovered several molecular modulators of chromatin modifying (Epigenetic) enzymes. These include the first reported natural inhibitor of lysine acetyltransferases, Anacardic acid from cashew nut shell liquid. At present, these inhibitors are being used all over the world as a valuable research tool. Furthermore, the discovery of Anacardic acid as a KAT/HAT inhibitor has brought a new perspective to salicylic acid-based drugs, such as aspirin. However, using Anacardic acid as synthon, they have also synthesized the first known small molecule activator of p300/CBP, CTBP. A large number of companies are also marketing this molecule as an epigenetic research tool. Upon conjugating this class of activators with glucose-based carbon nanosphere, they could activate the KAT activity of p300/CBP in the mice brain which leads to enhanced neurogenesis and thereby long-term memory. By employing this system, they could almost completely recover the memory deficiency in the Alzheimer's mice model, which could be the answer for long long-awaited unmated therapeutic need for neurodegenerative disorders like Alzheimer’s disease. Remarkably, this system was also shown to be highly effective for the repairing of spinal cord injury in a rodent model. Their discovery of carbon nanosphere (CSP), which is capable of delivering drug-like molecules in the brain, has now been explored for drug delivery in the brain, especially for infectious diseases and brain cancer.

7. EXPERIENCES IN GOVERNANCE AND LEADERSHIP

As Director of CSIR-Central Drug Research Institute (CSIR-CDRI):

Prof. Tapas K. Kundu served as director of CSIR-CDRI from **Aug 8, 2018, -Jan 31 st, 2022**. Soon after joining as Director, of CSIR-CDRI in August 2018, he initiated multipronged activities to create a conducive environment for fundamental research-driven biomedical innovation in the disease areas of National importance. Priority was given to augmenting the academic culture, setting up collaboration with academia, and industry as well as renovation and setting of newer facilities, recruitment of scientific human resources in specialized areas, and administrative reforms. Some important accomplishments include: (1) Fast tracking the development of promising leads and candidate drugs - Filed IND for Antithrombotic lead and getting ready for filing IND for Fracture Healing lead; (2) Enriching of academic culture with initiation of popular health talk by eminent clinicians, distinguished scientist lecture series, Nobel symposium led by research students and faculty colloquium; (3) Setting-up of academic collaboration with IITs of Guwahati, Bombay, Indore, Kanpur, Madras and also other private institution of relevance; (4) Collaborating with CIPLA, a leading global pharma industry for development of Levo-ormeloxifene for various indication like Contraceptive, anticancer etc; (5) Initiation for setting up of facilities including DSIR Facility- R&D Hub for Pharmaceutical MSME, Phase wise improvement of Laboratory Animal Facility and New BSL-3 facility; (6) Impetus to societal activities through Jigyasa, Skill Development and Health Awareness Programs; (7) Re-organizing the R&D divisions for sustained R&D programs at par with global benchmarks and creation two new R&D Divisions (i) Cancer Biology & (ii) Neuroscience & Ageing Biology to undertake cutting edge biomedical research with a futuristic vision in Indian context.

Under the visionary leadership of Prof. Kundu, CSIR-CDRI is poised to deliver fundamental research-driven biomedical innovations in the Indian context with a global benchmark.

As Professor of JNCASR, Bangalore:

Prof. Kundu is serving as a faculty of the Molecular Biology and Genetics Unit, as well as associate faculty of the Neuroscience Unit, JNCASR, Bangalore over the past two decades. During this period, he had not only established himself as an excellent scientist and teacher but also performed several administrative duties as a member of the IPR committee, Security committee member, In-charge of the central instrumentation facility, MBGU, JNCASR. (for three years), In-charge of Radioactivity, MBGU, JNCASR (for 4 years), In-charge: Integrated Ph.D. Student Admission (Twice), In-charge: Ph.D. Student Admission (Twice), Coordinator of Integrated Biological course, JNCASR. Besides his institution, he also performed (and performing) several other academic administrations as a faculty recruitment committee member of IITs, IISERs, and CSIR institutions. He also served as a task force member/ research grant committee member of DBT, Govt. of India Task Force, Drug from Sea program: Ministry of Earth Sciences, Govt. of India, and also as a sectional committee member of Indian National Science Academy (INSA), New Delhi and Indian Academy of Sciences, Bangalore.

Co-Ordinator and PI of Virtual National Oral Cancer Institute:

Over the years, Prof. Kundu has developed several collaborative interdisciplinary research projects within JNCASR, Nationally and also Internationally. All these projects were highly successful. In this way, he has proven his leadership quality immensely. Recently, he has successfully completed the *Virtual National Oral Cancer Institute research* program,

funded by DBT, Govt. of India. Scientists from across the country were the investigators of this program, which includes, IISc., Bangalore; NEHU, Silong; KIIT, Bhubaneswar; AIIMS, Bhubaneswar; NIBMG, Kalyani; Kidwai Memorial Hospital, Bangalore; Sri Devaraj Urs Academy of Higher Education and Research (Kolar Medical College), Kolar and JNCASR.

A selected List of national committees in which Prof. Kundu served/serving as a member:

1) Member, Drugs Technical Advisory Board, CDSCO, DGHS, Ministry of Health & Family Welfare
2) Member , Technical Expert Committee on Nanobiotechnology, DBT
3) Member, RAP-SAC, Centre for DNA Fingerprinting and Diagnostics, Hyderabad
4) Member, RAP-SAC, National Centre for Cell Science, Pune
5) Member, Jury for Sun Pharma Science Scholar Award
6) Member, Advisory Committee for BioTERM 2019, IIT Kanpur
7) Member, Scientific Advisory Committee (SAC), NIBMG, Kalyani, West Bengal
8) Inter-ministerial Expert Committee for the finalization of Guidelines for Evaluation of Nanopharmaceuticals in India
9) Member, Nanoscience Domain Expert Committee, MHRD STARS
10) Member, Drug Review Committee, Directorate of Medical & Health, Uttar Pradesh
11) Chairperson, Committee to determine eligibility and qualifications for CSIR-UGC Net Exam, CSIR
12) Member, Technical Advisory Group on National Virtual Centre for Clinical Pharmacology, ICMR

13) Member, Expert Committee Meeting to Evaluate the Proposal of Centre for Chemical Biology & Therapeutics (CCBT), DBT

14) Member, Committee for implementation of Roof Top Solar system in CSIR labs

15) Member, Expert Committee, Nanoscience Domain, MHRD – STARS Initiative

16) Member, Board of Governors, NIPER, Hajipur

17) Member of Project Screening Committee (PSC-II) relating to Research and Development (R&D) under the Central Sector Scheme on Conservation, Development and Sustainable Management of Medicinal Plants of NMPB.

18) Member, Steering Committee Meeting of the “Drugs from Sea” Pr

19) Member, Scientific Advisory Committee, Institute of Liver & Biliary Sciences, New Delhi

20) Member, Academic Council, Jawaharlal Nehru University, Delhi.

21) **Member of the Governing Body of THSTI**, India (2020)

22) Member of the Board of Governors (BoG) of AcSIR (2020)

23) Member of the Management Council of CSIR-NEIST, Jorhat from 01.01.2020 to 31.12.2021

24) Member of the **Management Council of CSIR-IICB**, Kolkata from 01.01.2020 to 31.12.2021

25) Member of the Task Force for Cryo-Electron microscopy (cryo-EM)

26) Member, Research Council, CSIR-Indian Institute of Toxicology Research (CSIR-IITR) for a period of 3 years (1st September 2020- 31st August, 2023)

27) Member, Standing committee for equivalence of educational qualifications for recruitment/assessment promotions of Scientific & Technical staff of CSIR

28)Member of the department advisory board of the IIT, Jodhpur (Nov 2020)

29)Member of the Management Committee of CSIR-NBRI (w.e.f. 06.01.2021 to 31.12.2021)

30) Member, DBT-Technical Expert Committee on Drug Development Program (w.e.f. 03.02.2021 to 02.02.2024)

31.Member, of the Management Committee of CSIR-CIMAP (w.e.f. 12.02.2021 to 31.12.2021)

31)Member of the National Advisory Board of the 41st IACR, 2022

32) Member, National Academic Advisory Committee of XLIV Indian Social Science Congress March 15-21, 2021, Vidisha, MP

33)Technical Expert Committee (TEC) for Vaccine Research and Development and New Drug Development, DBT, Govt. of India (2022 onwards)

34) Chairperson, Institutional Biosafety Committee (IBSC), JNCASR, Bangalore (2022 onwards)

35) Chair, Research Council, CSIR-IICB, Kolkata (2023- Present).

8. MEMBERSHIPS OF ACADEMIES, SCIENTIFIC SOCIETIES AND PROFESSIONAL BODIES.

1) The life member of the Society of Biological Chemists, India
2) The member of the Society of Biological Chemists, India, Executive Committee (2007 onwards)
3) Fellow of the UICC (International Union Against Cancer) (2001 onwards)
4) The Nominated member of the American Society for Biochemistry and Molecular Biology (ASBMB) (2003 onwards)
5) The elected member of the Guha Research Conference (GRC).
6) The **elected "Fellow of The National Academy of Sciences (FNASc),"India** (2005)

7) A member of the American Society for Microbiology (ASM)

8) The **elected "Fellow of Indian Academy of Sciences (FASc),"**2008

9) Invited (by Editor-in-Chief) member of "Nature" reader panel, 2009

10) The **elected "Fellow of Indian National Science Academy (FNA),"**2009

11) Visiting Professor at **ENS De Lyon, France**, between 2009-2012.

12) Editorial board member of the **Journal of Biological Chemistry** from June 2011-September 2016.

13) The founder member of the Chemical Biology Society, India (2013 onwards).

14) Secretary of the Chemical Biology Society, India (2013 to 2017).

15) Adjunct Faculty in the Special Centre for Molecular Medicine, Jawaharlal Nehru University, New Delhi (2015-Present).

16) Member of **The Indian Society of Cell Biology.**

17) The elected Vice President of **"The Society of Biological Chemists(India)"** (2015-2016).

18) Distinguished Visiting Professor, **Sri Devaraj URS Academy** of Higher Education and Research, Karnataka, 2015-present

19) Scientific Advisory Board Member, **BIONIVID (A Genome IT Company)** (2015-2017)

20) Steering **Committee Member of Ministry of Earth Sciences,**Drug from Sea Program (2014-2018)

21) Advisory board member of the Pharmaceutical Chemistry Department, Acharya and B. M. Reddy College of Pharmacy, Bangalore (2015)

22) Lifetime **Distinguished Professor**, conferred by the University of Mysore, Mysore, Karnataka. (2016 onwards)

23) President**, Chemical Biology Society, India** (2017- 2023)

24) **Elected Fellow of "The National Academy of Medical Sciences (India)",** 2021

25) eLife's Board of Reviewing Editors 2023-

26) Series editor of "***Subcellular Biochemistry*"** book series, Springer Nature (2024-)

27) Visiting Professor at **Tohoku University, Japan** (01/10/2024-)

28) Adjunct Professor at Manipal School of Life Sciences (MSLS), Manipal Academy of Higher Education (MAHE) (20/06/2025-20/06/2027)

29) Consultant- Health Science Research at Manipal School of Life Sciences (MSLS), Manipal Academy of Higher Education (MAHE) (01/10/2025-30/09/2026)

9. HONOURS & AWARDS:

1. 1990, Gold Medal for securing first position in M.Sc., G.K.V.K, Bangalore, India

2. 1993, International Council of Scientific Union Award, India: Travel fellowship to deliver a talk at Asagiri Symposium on Transcription Regulation, in Japan. The award was based on part of Ph. D. thesis work

3. 1995, GIRI MEMORIAL AWARD for best thesis in Biochemistry, IISc. India

4. 1996, COE Visiting Scientist fellowship from MONBUSHO, Government of Japan

5. 2001, International Union against Cancer, Fellowship, Switzerland: Based on the project proposal, the fellowship was used to perform collaborative research work at Cancer Research, London. UK

6. 2001, Human Frontier Science Program Organization, Fellowship, France: Based on the project proposal, to perform collaborative research

7. 2005, International Union against Cancer, Fellowship, Switzerland: Based on the project proposal, the fellowship was used to perform collaborative research work at Kyoto University, Japan

8. **National Bioscience Award** for career development, DBT, Govt. of India, 2004-05: As per the citation, “National Bioscience Award for career development was conferred on outstanding contribution towards understanding the regulation of eukaryotic (human) transcription from chromatin template”

9. **Shanti Swarup Bhatnagar prize from Council of Scientific and Industrial Research. Govt. of India: 2005**

   As per the citation, “The Shanti Swarup Bhatnagar Prize for the year 2005 in Biological Sciences has been awarded to Dr. Tapas Kumar Kundu of the Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore. Dr. Kundu has done outstanding research in the area of chromatin transcription. He has identified PC4 as a functional component of chromatin and as a unique activator of p53. He has established the role of acetylation in chromatin transcription and histone chaperone activity, besides using this process for identifying new drug candidates”

10. India-France ARCUS-INDIA grant for collaborative research Fellowship (2005-08)

11. **National Academy of Science, India- Reliance Industries Platinum Jubilee Award, 2008**, has been awarded for the outstanding contribution in the area of regulation of human gene expression (transcription) and its link to disease and therapeutics

12. **Tohoku Medical Society, Tohoku University, Japan, Lecture Medal,** 2010

13. **Sir J C Bose National Fellowship**, Department of Science and Technology, Govt. of India, 2010

14. **GD Birla Award for Scientific Research for 2011.**

As per the citation: **"**Kundu's contributions are outstanding in the area of regulation of human gene expression (transcription) and its link to disease and therapeutics which is also being used to design new generation cancer diagnostics, as well as therapeutics for cancer, AIDS and diabetes. Kundu has also identified PC4 as a functional component of chromatin and as a unique activator of p53.

15. **Ranbaxy Research Award** for the year 2011 in the field of "Medical Sciences – Basic Research.

As per the citation: "His research work has made significant contribution in the area of epigenetic and gene regulation with special emphasis on disease. His work for the first time established the causal relationship of histone and non-histone protein hyperacetylation in the manifestation of oral cancer and Bovine mastitis. He has also developed a nano device to induce acetylation of histones in the mice brain which could be highly useful for the treatment of neurodegenerative diseases."

16. First place in the **India Innovation Award 2012 given by Merck Millipore,** awarded to Prof Tapas K Kundu and team, based on their US patent on Site -specific HMTase inhibitors.

As per the citation: "Tapas K Kundu, and three of his previous group members, SelviRuthrothaBharathaVikru (PhD student), Hari Kishore Annavarapu (R&D assistant), MantelinguKempegowda (Research Associate) of Transcription and Disease Laboratory, MBGU, JNCASR, have received the first prize of India Innovation Award given by Merck Millipore company on 29th October 2012, based on one of their US patents, entitled, "Site-Specific Inhibitors of Histone Methyltransferase (Hmtase) and Process of Preparation Thereof"

17. **JB Prize for 2013 instituted by The Japanese Biochemical Society.**

As per the citation: “His publication *Vasudevarao M D et al; J.Biochem 2012; 152(5):453* were chosen as the winning paper among all the papers published in the Journal of Biochemistry in the year 2012”

18. **Silver Jubilee Professorship of JNCASR for the academic year 2015-2016**, Awarded by the C.N.R. Rao Education Foundation. Silver Jubilee Professorship of JNCASR for the academic year 2015-2016, Awarded by the C.N.R. Rao Education Foundation

19. **Dr. Nitya Anand endowment lecture award** by Indian National Science Academy, 2015.

    As per the citation: “His publication Shandilya J et al; J Biochem. 2014;156(4):221-7 was chosen as the winning paper among all the papers published in the Journal of Biochemistry in the year 2014”

20. **G.P. Chatterjee Memorial Award for 2015-2016, awarded by the Indian Science Congress** Association, Ministry of Science and Technology, Govt. of India. Presented at the 103rd Indian Science Congress, January 2016.

21. **Degree of D.Sc. Honoris Causa** from **Uttar Banga Krishi Viswavidyalay, Govt. of West Bengal, India,** in the year 2018.

22. **Shri Om Prakash Bhasin Award for the year 2019 in** the field of Health **and Medical Sciences by the Shri Om Prakash Bhasin Foundation, New Delhi.**

23. **U N Brahmachari 2nd Oration Award 2021** by Chemical Biology Society, Kolkata

24. **ICBS-2022 Global Lectureship Award by** International Chemical Biology Society (ICBS), 2022

25. **Sir M. Visvesvaraya Senior Scientist State Award for the year 2021**, by Govt. of Karnataka, Dept. of Electronics, IT, BT & S&T, instituted by Karnataka State Council for Science & Technology, **2023** (For lifetime achievement)

10. PUBLICATIONS

- Number of research papers Published: 137
- Number of Scientific Reviews: 25
- Number of Patents taken/applied: 12
- Number of Commercialized Products: 3
- Citations (Source: Google Scholar Citation) 12329
- h-index (Google Scholar Citation) 58
- Number of books authored/edited 4

11. HUMAN RESOURCE TRAINING

- Number of students who received Ph.D.: 23
- Number of Ph.D. Students presently working: 10
- Number of M.S Students who completed their thesis: 7
- Number of Post-doctoral fellows trained: 18
- Number of Post-doctoral fellows presently working: 0

12. DETAILS OF PUBLICATIONS, PATENTS AND HUMAN RESOURCE TRAINING

PUBLISHED PAPERS

1) Agrawal, A., Sikder, S., Singh, S., Sharma, R. K., Pallaprolu, N., Mitra, K., Mondal, S., Mukhopadhyay, R., Sarkar, J., Peraman, R., Ravichandiran, V., & **Kundu, T. K*o***.. (2025). KAT5-mediated acetylation of PC4 facilitates DNA repair by promoting chromatin reorganization. ***Nucleic Acids Res***, 53(18), gkaf974
2) Singh, A. K., Joshi, I., Reddy, N. M. N., Purushotham, S. S., Eswaramoorthy, M., Vasudevan, M., Banerjee, S., Clement, J. P*o*., & **Kundu, T. K*o***. (2025). Epigenetic modulation rescues neurodevelopmental deficits in Syngap1$^{+/-}$ mice. ***Aging cell,*** *24*(3), e14408. (***Cover page article***)

3) A S, S., Singh, A. K., P R, J. L., Bhatt, R., Mishra, P., Eswaramoorthy, M., Banerjee, S., **Kundu, T. K*o*** (2024). p300/CBP KATs Are Critical for Maturation and Differentiation of Adult Neural Progenitors. ***ACS Chem Biol***, 19(11), 2345–2358.

4) Ansari, A., Bhattacharyya, T., Das, P., Chandra, Y., **Kundu, T. K.,** Banerjee, R*o*. (2024). Lipid-Conjugated Reduced Haloperidol in Association with Glucose-Based Nanospheres: A Strategy for Glioma Treatment. ***Mol Pharm***, *21*(10), 5053–5070.

5) Singh, A. K., Rai, A., Joshi, I., Reddy, D. N., Guha, R., Alka, K., Shukla, S., Rath, S. K., Nazir, A., Clement, J. P., **Kundu, T. K*o*** (2024). Oral Administration of a Specific p300/CBP Lysine Acetyltransferase Activator Induces Synaptic Plasticity and Repairs Spinal Cord Injury. ***ACS Chem Neurosci.*** 2024;15(15):2741-2755. doi:10.1021/acschemneuro.4c00124

6) Paiva, I., Seguin, J., Grgurina, I., Singh, A. K., Cosquer, B., Plassard, D., Tzeplaeff, L., Le Gras, S., Cotellessa, L., Decraene, C., Gambi, J., Alcala-Vida, R., Eswaramoorthy, M., Buée, L., Cassel, J. C., Giacobini, P., Blum, D., Merienne, K., **Kundu, T. K.,** Boutillier, A. L***o***. (2024). Dysregulated expression

of cholesterol biosynthetic genes in Alzheimer's disease alters epigenomic signatures of hippocampal neurons. ***Neurobiol Dis,*** 198, 106538.

7) Mondal, P., Roy, K. S., Bhagat, S. V., Singh, S., Chattopadhyay, A., Ghosh, D. D., **Kundu, T. K.**, Roychoudhury, S., Roy, S***º***. (2024). Disrupting the interaction between a p53 gain-of-function mutant and the transcriptional co-activator PC4 reverses drug resistance in cancer cells. ***FEBS Lett,*** 598(12), 1532–1542
8) Nakayama, T***º***., Singh, A. K., Fukutomi, T., Uchida, N., Terao, Y., Hamada, H., Muraoka, T., Muthusamy, E., **Kundu, T. K.**, Akagawa, K. (2024). Activator of KAT3 histone acetyltransferase family ameliorates a neurodevelopmental disorder phenotype in the syntaxin 1A ablated mouse model. ***Cell Rep***., 43(4), 114101.

9) Basu, M., Bhatt, R., Sharma, A., Boopathi, R., Das, S., & **Kundu, T. K*º*** (2023). The Largest Subunit of Human TFIIIC Complex, TFIIIC220, a Lysine Acetyltransferase Targets Histone H3K18. ***J Biochem***, Apr 29;175(5):573.

10) Bhattacharya, D., Sakhare, K., Dhiman, C., Ansari, A., **Kundu, T. K.,** Narayan, K. P., & Banerjee, R***º***. (2023). Delivery of chemotherapeutic drug targeting folate receptor to oral cancer cells using functionalized carbon nanospheres. ***Biomed Mater***.18(5).

11) Srivastava, S., Kumar, S., Bhatt, R., Ramachandran, R., Trivedi, A. K*º*., **Kundu, T. K*º*.** (2023). Lysine Acetyltransferases (KATS) in Disguise: Diseases Implications. ***J Biochem***, 2023;173(6):417-433.

12) Pal, S., Mehta, P., Pandey, A., Ara, A., Ghoshal, U., Ghoshal, U. C., Pandey, R., Tripathi, R. K., Yadav, P. N., Ravishankar, R., **Kundu, T. K.,** Rajender, S*º*. (2023). Molecular determinants associated with temporal succession of SARS-CoV-2 variants in Uttar Pradesh, India. ***Front Microbiol***, 14, 986729.

13) Achari, A., Chatterjee, S., Dey, S., **Kundu, T. K.,** Jaisankar, P***º***. (2022). Catecholase-catalyzed synthesis of wedelolactone, a natural coumestan and its analogs. ***Org Biomol Chem***, 21(1), 89–92.

14) Müller, F., De Virgiliis, F., Kong, G., Zhou, L., Serger, E., Chadwick, J., Sanchez-Vassopoulos, A., Singh, A. K., Eswaramoorthy, M**., Kundu, T. K**., Di Giovanni, S***º*** (2022). CBP/p300 activation promotes axon growth,

sprouting, and synaptic plasticity in chronic experimental spinal cord injury with severe disability. ***PLoS Biol,*** 20(9), e3001310. (ecollection)

15) Bhattacharya, A., Chatterjee, S., Bhaduri, U., Singh, A.K., Vasudevan, M., Sashidhara, K.V., Guha, R., Nazir, A., Rath, S.K., Natesh, N., ***Kundu TK^{o}*** (2022). Butyrylation meets adipogenesis - probed by p300 catalyzed acylation specific small molecule inhibitor: Implication in anti-obesity therapy. ***J Med Chem,*** 65(18), 12273-12291.

16) Singh, A. K., Neo, S. H., Liwang, C., Pang, K., Leng, J., Sinha, S. H., Shetty, M. S., Vasudevan, M., Rao, V. J., Joshi, I., Eswaramoorthy, M., Pavon, M. V., Sheila, A. R., Navakkode, S., **Kundu TK^{o}**., Sajikumar, S^{o}. (2022). Glucose derived carbon nanosphere (CSP) conjugated TTK21, an activator of the histone acetyltransferases CBP/p300, ameliorates amyloid-beta 1-42 induced deficits in plasticity and associativity in hippocampal CA1 pyramidal neurons. ***Aging cell,*** 21(9):e13675

17) Mustafi, P, Hu, M, Kumari S, Das, C, Guohong Li., **Kundu TK^{o}** (2022), Phosphorylation-dependent association of human chromatin protein PC4 to linker histone H1 regulates genome organization and transcription, ***Nucleic Acids Res.***50(11), 6116–6136.

18) Mishra, P., Beura, S., Sikder, S., Dhal, A. K., Vasudevan, M., Roy, M., Rakshit, J., Budhwar, R., **Kundu, T. K.,** Modak, R^{o}. (2022). vp1524, a Vibrio parahaemolyticus NAD+ dependent deacetylase, regulates host response ***during*** infection by induction of host histone deacetylation. ***J Biochem.,***171(6), 673–693.

19) Panda, D. P., Singh, A. K., **Kundu, T. K.,** Sundaresan, A^{o}. (2022). Visible-light excited polar Dion-Jacobson Rb(Bi1-xEux)2Ti2NbO10 perovskites: photoluminescence properties and in vitro bioimaging. ***J Mater Chem B.,*** 10(6), 935–944.

20) Senapati, P., Bhattacharya, A., Das, S., Dey, S., Sudarshan, D., G, S., Vishwakarma, J., Sudevan, S., Ramachandran, R., Maliekal, T. T., **Kundu TK^{o}**. (2022). Histone Chaperone Nucleophosmin Regulates Transcription of Key Genes Involved in Oral Tumorigenesis***. Mol Cell Biol.,*** 42(2), e0066920

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A. SCIENTIFIC REVIEWS:

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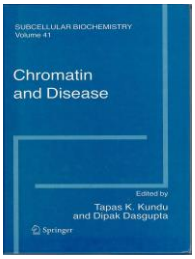
(**º** Corresponding author)

B. BOOKS AUTHORED/EDITED:

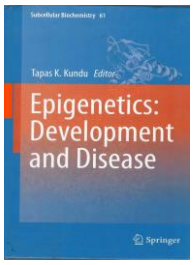


1) Chromatin and Disease

Edited by **Tapas K. Kundu** and Dipak Dasgupta (2007)

Springer Publications, Subcellular Biochemistry, **Vol. 41**

ISBN-13 978-1-4020-5465-5.

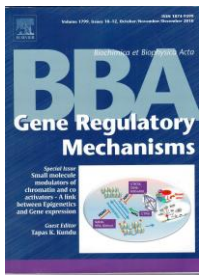


2) **Epigenetics: Development and Disease**

Edited by **Tapas K. Kundu** (2012)

Springer Publications, Subcellular Biochemistry, **Vol. 61**

ISBN 978-94-007-4524-7.



3) **Small molecule modulators of chromatin and co-activators**

Edited by **Tapas K. Kundu** (2010).

Elsevier Publications, **Biochimica et Biophysica Acta (BBA): Gene Regulatory Mechanisms** (Special issue), Vol. 1799

ISSN 1874-9399

4) **Chemical Biology of the Genome**

Authors: Siddhartha Roy, Tapas Kundu

eBook ISBN: 9780128176450

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Imprint: Academic Press

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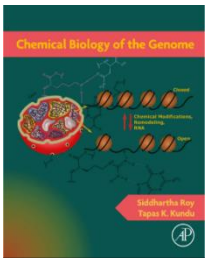
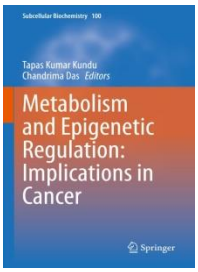


5) Subcellular Biochemistry, Vol. 100,

Authors: Tapas Kumar Kundu and Chandrima Das (Eds): **Metabolism and Epigenetic Regulation: Implications in Cancer,**



C. OTHERS (BOOK CHAPTERS):

1) Stephanie Kaypee, Somnath Mandal, Snehajyoti Chatterjee, **Kundu TKº**. (2015) Emerging epigenetic therapies: Lysine Acetyltransferase inhibitors. ***Epigenetic Cancer Therapy (Academic Press*)**; 471–94

2) Senapati P, Sudarshan D, Gadad SS, Shandilya J, Swaminathan V and **Kundu TKº**. (2015). Methods to study Histone chaperone function in Nucleosome Assembly and Chromatin. Transcription. ***Chromatin Protocols, Methods in Molecular Biology (Humana Press*)**; 1288: 375–94

3) Kumari S, Das C, Sikder S, Kumar M, Bachu M, Ranga U and **Kundu TK°**. (2015) Identification and characterization of nonhistone chromatin proteins: human positive coactivator 4 as a candidate. ***Chromatin Protocols, Methods in Molecular Biology (Humana Press)***; 1288:245–72

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5) Arif M, Karthigeyan D, Siddhanta S, Kumar GV, Narayana C and **Kundu TK°.** (2013) Analysis of protein acetyltransferase structure-function relation by surface-enhanced Raman scattering (SERS): a tool to screen and characterize small molecule modulators. ***Methods Mol Biol;*** 981: 239–61

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7) Selvi BR, Chatterjee S, Modak R, Eswaramoorthy M and **Kundu TK°**. (2012) Histone Acetylation as a Therapeutic Target. ***Epigenetics, Development and Disease(Springer);*** 61: 567–96

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10) Selvi BR, Krishna DV and **Kundu TK°**. (2010) Turning histone acetylation off and on; small molecule modulators of histone acetylation. **Epigenomics and Diseases** ***(Cambridge Press);*** 362–88

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12) Gadad SS, Shandilya J, Swaminathan V and **Kundu TKº**. (2009) Histone chaperone as coactivator of chromatin transcription: Role of acetylation. ***Chromatin Protocols (HumanaPress);*** **523**(2): 263–78

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16) Swaminathan V, Ashok Reddy BA, Selvi RB, Sukanya MS and **Kundu TKº**. (2007): Small Molecule Modulators in Epigenetics: Implication in gene expression and therapeutics. ***Chromatin and Disease (Springer*)**;41:397–428

(**º Corresponding author**)

D. LIST OF PATENTS TAKEN/APPLIED:

1) Modulators (Inhibitors/Activators) Of Histone Acetyltransferases,
Inventors: Tapas K Kundu, AlameluVaidhyanathan, Karanam Balasubramanyam, Venkatesh Swaminathan,

a) **Patent No-** 212171, 2007, India
b) **Patent No-** 7332629, 2008, USA
c) **Patent No-** 7750047, 2010, USA (Div. Appl)

2) Compounds of Garcinol and Isogarcinol and a Process Thereof.
   Inventors: Tapas K Kundu,Balasubramanyam Karanam, MantelinguKempegowda, Mohammad Altaf, Swaminathan Venkatesh, Radhika Ashish Varier
   a) **Patent No-** 223720, 2008, India
   b) **Patent No-** 1694622, 2012, Europe (Validated in France, Germany, Italy and United Kingdom)
   c) **Patent No-** 7402706, 2008, USA

3) Highly Specific Polyclonal Antibodies and A Method Thereof.
   Inventors: Tapas K Kundu, Chandrima Das, Radhika Ashish Varier, Febitha Kandan Kulangara,
   a) **Patent No-** 239873, 2010, India

4) Derivatives Of 4,6-Disubstituted 1,2,4-Triazolo-1,3,4-Thiadiazole, A Process and Uses Thereof.
   Inventors: Tapas K Kundu, Radhika Ashish Varier, Kanchugarakoppal Subbegowda Rangappa, Badi Sri Sailaja, Nanjundaswamy shivananju, Basappa,
   a) **Patent No-** 245033, 2011, India
   b) **Patent No-** 1945648, 2011, Europe

5) Site-Specific Inhibitors of Histone Methyltransferase (Hmtase) And Process of Preparation Thereof.
   Inventors: Tapas K Kundu ,SelviRuthrothaBharathaVikru, Hari Kishore Annavarapu, MantelinguKempegowda.
   a) **Patent No-** 7875741, 2011, USA
   b) **Patent No-** 8003698, 2011, USA (Div. Appl)

6) Carbon Nanosphere-N-(4-Chloro-3-Trifluoromethyl-Phenyl)-2-Ethoxy-6-Pentadecylbenzamide Composition And A Process Thereof.
   Inventors: Tapas K Kundu, Eswaramoorthy Muthusamy, SelviBharathaRuthrothaVikru, Dinesh Jagadeesan,
   a) **Patent No-** 9034387, 2015, USA
   b) **Patent No-** 272637, 2016, India

7) Inhibition of Histone Acetyltransferases by CTK7A and Methods Thereof.

Inventors: Tapas K Kundu, Mohammed Arif, Kempegowda Mantelingu, Gopinath Kodaganur Srinivasachar

a) **Patent No-** Patent No- 2475769, 2017, Europe (Valided in France, Germany)
b) **Patent No-** CN 102575236 B, 2014, China

8) A Nanosphere-Histone Acethyltransferase (HAT) Activator Composition and Process Thereof.
Inventors: Tapas K Kundu, EswaramoorthyMuthusamy, Anne-Laurence Boutillier, Snehajyoti Chatterjee, Puspak Mizar, Chantal Mathis, Jean-Christophe Cassel, Romain Neidl, MohankrishnaDalvoyVasudevarao, VedamurthyBhusainahalliMaheswarappa.

a) **Patent No-** 311070, 2019, India
b) **Patent No-** 9314539, 2016, USA
c) **Patent No-** 2841111, 2016, Europe (validated in France, Germany and United Kingdom)

9) Monoclonal Antibodies Against NPM1 and Acetylated NPM1, Methods and Kit Thereof.
Inventors: Tapas K Kundu, Parijat Senapati, Gopinath KodaganurSrinivasachar, Deepthi Sudarshan, Manjula Das, Smitha Pazhoor Kumaran, Manjunath ShivasangappaDevaraman, AjithkumarSumitrappa.

a) **Patent No-** 309617, 2019, India

10) Carbon Nanosphere-Folate Receptor Targeting Ligand Conjugate, Complex and Composition and Method of Preparation Thereof
Inventors: Tapas K Kundu, Eswaramoorthy Muthusamy, Rajkumar Banerjee, Chandra Kumar Elechelawar, Sarmistha Halder Sinha,
Application filed, Application No-201841009113 (India) on 13/Mar/2018

11) Neuropsychotic drug based-glucose nanospheric bioconjugate for effective orthotopic glioma treatment
Inventors: Tapas K Kundu, Eswaramoorthy Muthusamy, Madhan Mohan Chandra Sekhar Jaggarapu, Rajkumar Banerjee
Application filed, Application No-202111015505 (India) 31/03/2021

12) Small molecule modulator targeting a rare histone modification, regulating adipogenesis and pharmaceutical formulation thereof

Inventors: Tapas K Kundu, Aditya Bhattacharya, Sourav Chatterjee, Koneni Venkata Sashidhara, Prabhat Ranjan Mishra, Amir Nazir, Rajdeep Guha
Application filed on 25th May 2022, Application No-202111024677 (India, PCT-No-WO2022254465A1)

12 HUMAN RESOURCE TRAINING:

a. Students who received Ph.D. Degree:

i. **Dr. Sourav Banerjee,** obtained Ph.D. in 2003 for the thesis titled "Regulation of p53 Functionby Nonhistone Chromosomal Protiens HMGB-1 and PC4"

Present Position: Associate Professor, NBRC, Gurgaon, Haryana, India

ii. **Dr. Swaminathan Venkatesh,** obtained Ph.D. in 2006 for the thesis titled "Regulation of acetylation- Dependent Chromatin Transcription by Human Nucleophosmin, a Histone Chaperone"

Present Position: Senior Data Scientist, Solutions Architect at Concurrency, Inc., Greater Chicago Area.

iii. **Dr. Kiran Batta**, obtained Ph.D. in 2006 for the thesis titled "Functional Cooperativity ofTumor Suppressor p53 and Transcriptional coativator PC4: Transcription to repair"

Present Position: Lecturer in Cancer Biology, The University of Manchester Manchester, UK

iv. **Dr. Chandrima Das,** obtained Ph.D. in 2006 for the Thesis titled "Functional Mechanisms ofHuman Transcriptional Coactivator PC4, a Bona Fide Nonhistone Component of chromatin"

Present Position: Associate Professor, SINP, Kolkata, India

v. **Dr. Shrikanth Gadad**, obtained Ph.D. in 2009 for the Thesis Titled: "Modulation of HumanHistone Chaperone Nucleophosmin (NPM1) Functions by its Interacting Partners: Implications in Chromatin Dynamics and Transcription"

Present Position: Assistant Professor, Center of Emphasis in Cancer, Department of Biomedical Sciences, Texas University Health Sciences Center at El Paso, USA.

vi. **Dr. Mohammed Arif,** obtained Ph.D. in 2009 for the Thesis Titled "Molecular Mechanisms of inhibition of Histone Acetyltransferases: Implications in Antineoplastic Therapy"

Present Position: Assistant Professor, Department of Biology,Faculty of Science, University of Jeddah, Jeddah, Saudi Arabia.

vii. **Dr. Jayasha Shandilya,** obtained Ph.D. in 2009 for the Thesis titled "Post TranslationalModifications Regulate Multifunctional Nucleolar Protein NPM1: Implications in oral cancer Manifestation"

Present Position: Associate Professor, School of regenerative Medicine, AMITY, University of Noida, Haryana, India.

viii. **Dr. Ruthrotha Selvi B**, obtained Ph.D. in 2010 for the Thesis titled "Chromatin modifications by CARM1/PRMT4 and p300/KAT3B in the regulation of gene expression, probed by specific small molecule inhibitors"

Present Position: Assistant Professor, IISER, Berhampur, Odisa, India

ix. **Dr. Sujata Kumari**, obtained Ph.D. in 2012 for the Thesis titled "Chromatin associatedprotein, PC4 in genome organization and breast cancer manifestation"

Present Position: Professor, HOD, Department of Biotechnology, Rizvi College of Engineering, Mumbai, Maharashtra, India

x. **Dr. Dhanashekaran Karthigeyan,** obtained Ph.D. in 2013 for the Thesis titled "AuroraKinases beyond Centrosomes: Role of Transcription factors' phosphorylation in gene expression and cell cycle"

Present Position: Assistant Professor, Regional Centre for Biotechnology, Gurgaon, Haryana, India.

xi. **Dr. Parijat Senapati,** obtained a Ph.D. in 2015 for the Thesis titled "Understanding the mechanisms and gene targets of histone chaperone NPM1 mediated transcriptional regulation".

Present Position: Scientist, RGCB, Thiruvananthapuram.

xii. **Dr. Amrutha Swaminathan,** obtained Ph.D. in 2016 for the thesis titled "Chromatin Organisation Differentiation and Development: Role of Chromatin-associated protein, PC4, and histone modifications"

Present Position: Assistant Professor, IISER, Thiruvananthapuram.

xiii. **Dr. Amit Kumar Behera,** obtained her PhD in 2017 for the thesis titled, Regulation of Expression and function of Protein Arginine Methyltransferase 4 (PRMT4/CARM1): Implication in differentiation and disease. Amit K Behera works on regulation of PRMTs with emphasis on their relevance in disease and therapeutics.

Present position: Post Doctoral Fellow, University of California, Santa Cruz, California, USA.

xiv. **Dr. Stephanie Kaypee,** obtained her PhD in 2017 for the thesis titled, "Mechanistic Insight into the Substrate-mediated Regulation of p300 Autoacetylation: Implications in Tumor Suppressor/Oncogene function."

Present position: Post Doctoral Fellow, Tohoku Medical School, Japan

xv. **Dr. Sweta Sikder** obtained her PhD in 2018 for the thesis titled "Role of Non-Histone Chromatin Protein PC4 in regulation of Autophagy and Tumorigenesis"

Present position: Post Doctoral Fellow, National Institute of Health, USA

xvi. **Dr. Arnab Bose** obtained her PhD in 2018 for the thesis titled "The Role of Aurora Kinases at the Crossroads of Cancer and Differentiation"

Present position: Post Doctoral Fellow, Fred Hutchinson Cancer Research Center, USA.

xvii. **Dr. Suchismita Day** obtained her Ph.D. in 2020 for the thesis entitled, "The functional crosstalk among members of the NPM family in the regulation of gene Expression"

Present position: Post Doctoral Fellow, City of Hope Comprehensive Cancer Center, USA

xviii. **Dr. Pallabi Mustafi** Obtained her PhD in 2021 for the thesis titled "Understanding the Role of Post-translational Modifications of Human Non-histone Chromatin Protein PC4 "

Present Position: Post -Doctoral fellow, Clinical Research Division, Fred Hutchinson Cancer Research Centre (Under Professor Antonio Bedalov)

xix. **Dr. Moumita Basu** Obtained her Ph.D. in 2022 for the thesis titled "Elucidating the Relevance of Eukaryotic Acetyltransferases in Early Development and Cellular Homeostasis"

Present Position: Senior Scientist I, Thermo fisher Scientific India

xx. **Dr. Aditya Bhattacharya** Obtained his Ph.D. in 2022 for the thesis titled **"**Elucidating the Functional Implications of Histone Acylation in Adipogenesis and Hepatic Steatosis"

Present Position: Postdoctoral Researcher, Stowers Institute for Medical Research (Prof. Jerry Workman Laboratory)

xxi. **Dr. Siddharth Singh** Obtained his Ph.D. in 2023 for the thesis titled **"**Oral Cancer Associated Somatic Mutations in TP53 and their Pathophysiological Relevance"

xxii. **Dr. Akash Kumar Singh** Obtained his Ph.D. in 2023 for the thesis titled "Exploring the Therapeutic Potential of a Specific Small Molecule Activator of Lysine Acetyltransferases P300/CBP for Neurological Disorders"

xxiii. **Dr. Smitha A.S** obtained her Ph.D. in 2023 for the thesis titled " Histone Acetylation and Heterochromatinization Neurogenesis: Role of Non-histone proteins HP1α, PC4 and Lysine acetyltransferase KAT3B/p300"

The following students have completed their Ph.D. under CEFIPRA Projects

1) **Dr. Sadhan Chandra Das**

(From ENS Lyon under the supervision of Prof. Philippe Bouvet and Prof. Tapas K Kundu)
Thesis Title: Molecular mechanism of nucleolin-mediated Pol I transcription and characterization of nucleolin acetylation.
Year: 2012
Present Position: Assistant Professor, IISER Mohali, India

2) **Dr. Snehajyoti Chatterjee**

(From University of Strasbourg under the Supervision of Prof. Anne-Laurence Boutillier and Prof. Tapas K Kundu)

Thesis Title: Role of Lysine Acetyltransferase (KAT) Activation in Spatial Memory: A New Therapeutic Approach for Memory related Disorders such as alzheimer's Disease

Year: 2015

Present Position: Assistant Professor, Neuroscience & Pharmacology Department, University of IOWA, USA.

b. Ph.D. Students Presently Working:

i. **Aayushi Agarwal** works on the role of chromatin protein PC4 in oral cancer progression (CSIR-CDRI)

ii. **Amrish Rai** works on understanding the role of histone acetyltransferase P300/CBP in neuro disorders. (CSIR-CDRI)

iii. **Anjali Sharma** works on Chromatin Organization and Brain functions: Role of non histone heterochromatin Proteins, PC4 & HP1

iv. **Jaya Lakshmi P R** works on Epigenetics and metabolism: Implications in liver and Brain health

v. **Rohini Bhatt**works on Epigenetic regulation of oral cancer: Implications on therapy

vi. **Supriya Varsha Bhagat**works on Habit and Oral cancer: Implications of novel p53 mutation

vii. **Nabanita Das** works on molecular mechanism of Oral Cancer: Implications of histone chaperon

viii. **Lipali Priyadarshini** works on epigenetic regulation of Autism and neurodegenartive disorders

ix. **Sohini Bhattacharyya** works on interaction RNA parteners of Chromatin protein PC4: Implications in genome organization and diseases

x. **Parna Chakraborty** works on Chromatin Dynamics and epigenetic regulation of Breast Cancer

c. M.S. Thesis Completed:

I. Mohan Krishna D V: Thesis Title: **"**Histone Acetyltion and Gene Expression inNeural Cells: Probed by small Molecule Modulator" (2010).

II. **Surabhi Sudevan:** Thesis Title **"**Structure Activity Relationship validation of AuroraKinase inhibitors towards drug designing and Understanding modulation of the kinase activity by means of Post translational modifications" (2013).

III. **Debanjan Mukherjee:** Thesis Title:"Identification of thr p300 Lysine AcetyltransferaseHomologues in Zebrafish" (2015)

IV. **Siddharth Singh:** Thesis Title: "Functional implications of a rare patient derived mutation in tumor suppressor gene *TP53"* (2016)

V. **Pallabi Mustafi:** Thesis Title: "Understanding the diverse functions of a highly abundant human nuclear protein PC4" (2016)

VI. **Akash K Singh**: Thesis Title: "Role of Lysine Acetyle transferases p300/CBP in Neurological Disorders: Implications in Therapeutics"

d. Post-Doctoral Fellows Trained:

i. **Dr. Karanam Balasubramanyam**

a. Area of Research: Chemical Biology
b. Present Position: Assistant Professor, Department of Biology, Tuskegee University, Alabama.

ii. **Dr. K. Mantelingu**

a. Area of Research: Chemical Biology
b. Present Position: Associate Professor, Department of Chemistry, University of Mysore

iii. **Dr. Ravindra K C**

a. Area of Research: Chemical Biology

iv. **Dr. Puspak Mizar**

a. Area of Research: Chemical Biology
b. Present Position: Postdoctoral Research Associate (with Prof Thomas Wirth), Cardiff School of Chemistry

v. **Dr. Rahul Modak**

a. Area of Research: Epigenetics.
b. Present Position: Assistant Professor, KIIT University, School of Biotechnology

vi. **Dr. Jeelan Basha**

a. Area of Research: Chemical Biology
b. Present Position: Assistant Professor, Indian Academy Group of Institutions, Bengaluru

vii. **Dr. Sadhan Chandra Das**

a. Area of Research: Epigenetics and Diabetes.
b. Present Position: DBT/Welcome Trust India Alliance Intermediate Fellow, Pharmacology Division, CSIR CDRI, Lucknow

viii. **Dr. Manoj Kumar**

a. Area of Research: p53 mutation and Oral Cancer

ix. **Dr. Parijat Senapati**

a. Area of Research: NPM1 and transcription regulation
b. Present Position: Post-Doctoral Fellow, Division of Biological Sciences, University of California, San Diego, USA.

x. **Dr. Amrutha Swaminathan**

a. Area of Research: Chromatin and differentiation
b. Present Position: Post-Doctoral Fellow, Medical School Department of Neurosciences, University de Montreal.

xi. **Dr. Jagannath KV**

a. Area of Research: Works on chemical biology of epigenetic enzymes and tumour suppressor
b. Present Position: Assistant Professor. Dept. Of Chemistry. Central College Campus, University of Bengaluru, Karnataka

xii. **Dr. Sourav Chaterjee**

a. Area of research: Design and synthesis of natural product inspired small molecule inhibitors targeting chromatin modifying enzymes.
b. Present position: Post Doctoral Associate, University of Minnesota, USA.

xiii. **Dr. Shrinka Sen**

a. Area of research: Epigenetics and autophagy; implications in Breast cancer.

b. Present position: Post Doctoral Fellow, Terry Fox Laboratory, Canada.

xiv. **Dr. Somnath Mandal**

Present position: Assistant Professor, Department of Biochemistry, Uttar Banga Krishi Vishwavidyalaya, Cooch Behar, WB, India

xv. **Dr. SarmisthaHaldar** worked on the Synthesis of conjugated small molecule withnanoparticle as HAT activator induces hyperacetylation in hippocampus of mice brain

e. Post-Doctoral Fellows Presently Working:

1. **Siddharth Singh** works on functional aspect of a rare mutation in p53 protein in solid tumor.
2. **Akash Kumar Singh** works on epigenetics and intellectual disability.

f. Course Offered:

He has been actively involved in the teaching of the courses on 'Advanced Molecular Biology' (2000-2021) and 'Gene expression and Disease' (2022 onwards) for Ph.D. and Integrated Ph.D. students enrolled in Molecular Biology and Genetics Unit of Jawaharlal Nehru Centre of Advanced Scientific Research. Students from other units and institutes (eg. NCBS) are also benefited by this course.

g. Other Teaching Experience:

- He enjoys participating in DST-INSPIRE program in different parts of the country.
- He has also been involved as an Invited Lecturer for M.Sc. Students in Calcutta University, University of Pune, and Madurai Kamaraj University.
- **He is instrumental to initiate the M.Sc. Interdisciplinary Biosciences course in JNCASR involving multiple units of the Centre and presently serving as the Coordinator of this important academic programme.**

13 *CURRENT GRANTS:*

- "Investigating the therapeutic potential of the epigenetic modulator to rescue cognitive, emotional and physiological deficits in an Autism spectrum disorder mouse model, syngap1+/-"
  Funding Agency: Science and Engineering Research Board, Government of India
  Duration:2022-25

- Unravelling the mechanisms of HIV-1 latency: HIV-1 Transcription and Epigenetics'
  Funding Agency: Science and Engineering Research Board, Government of India
  Duration:2023-26

- "Centre for Marine Therapeutics"
  Funding Agency: Department of Science and Technology and Department of Pharmaceuticles, Government of India
  Duration:2023-26

14 MEETINGS AND CONFERENCES ORGANIZED:

- **Indo-Japan Workshop on "Chromatin Structure Function",** held from January20-23, 2005 at Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore, India

Organized by:**Tapas K. Kundu** (JNCASR, Bangalore, India)

- **Asian First meeting of Asian Forum of Chromosome and Chromatin Biology on "Nuclear Architecture Chromosome-Chromatin Dynamics"**, held from December 11-13,2006 at JNCASR, Bangalore, India.

Organized by:**Tapas K. Kundu** and Rakesh K. Mishra (CCMB, Hyderabad, India)

- **Tenth Asian Conference on transcription (ACT X)**, held from **13th – 16th January 2008, at Indian Institute of Science, JNCASR and National Centre for Biological Sciences, Bangalore.**

Organized by: Dipankar Chatterjee, **Tapas K. Kundu,** G.V. Shivashankar, Parag Sadhale, ValakunjaNagaraja, Umesh Varshney

- **Satellite meeting to 2nd Asian forum of Chromosome and ChromatinBiology meeting** held on November 25th, 2008 at JNCASR, Bangalore, India.

Organized by: **Tapas K. Kundu**, Parag P. Sadhale (IISc, Bangalore, India) and G.V.Shivashankar (NCBS, Bangalore, India)

- **International Symposium on Nuclear Architecture and Chromatin Dynamics and 2nd Meeting of the Asian Forum of Chromosome and Chromatin Biology**, held from November 26-29,2008 at Centre for Cellular and Molecular Biology, Hyderabad, India

Organized by: **Tapas K. Kundu** and Rakesh K. Mishra (CCMB, Hyderabad, India)

- **Asian Academic Seminars on "Genome Regulation: From Nanobiology to Pathogenesis", held at Jawaharlal Nehru Centre for Advanced Scientific Research from** 26th-30th December 2008.

Organized by: Akira Ishihama (Hosei University, Tokyo, Japan), **Tapas K. Kundu** (JNCASR, Bangalore, India), IkuroKawagishi (Hosei University, Tokyo, Japan) Akihiro Ishijima (Tohoku University, Sendai, Japan), Dipankar Chatterji (IISc, Bangalore, India) and G.V. Shivashankar (NCBS, Bangalore, India)

- **I2CAM School on "Emergence in genomic matter-An Interdisciplinary approachto understand the human genome organization"**, held at Jawaharlal Nehru Centre for Advanced Scientific Research from 9th-15th February, 2009.

Organized by: Swapan K. Pati, Chandrabhas Narayana and **Tapas K. Kundu.**

- **International symposium on Chromosome/ Chromatin Dynamics:** Epigenetics andDisease and 3rd Meeting of the Asian Forum of Chromosome and Chromatin Biology held at Jawaharlal Nehru Centre for Advanced Scientific Research from 4th- 6th December, 2010.

- **The 17th Transcription Assembly Meeting:** Held at Jawaharlal Nehru Centre for Advanced Scientific Research from March 17-18th, 2014.

Organized by: **Tapas K Kundu**, Dipankar Chatterji (IISc), V Nagaraja (IISc). Gene networks in chromatin/chromosome function

- **5th Meeting of the Asian Forum ofChromosome and Chromatin Biology** held from January 15th to 18th, 2015 at JawaharlalNehru Centre for Advanced Scientific Research, Bangalore.

Organized by: **Tapas K. Kundu,** Rakesh K Mishra, Stephan Dimitrov, Kazuhiko Igarashi, Jeimin Wong, Jerry L Workman

- **11th Asian Epigenomics meeting held** from September 30th to October 1st, 2016 at JawaharlalNehru Centre for Advanced Scientific Research, Bangalore.

Organized by:**Tapas K. Kundu,** Rakesh K Mishra,Ullas L Kolthur, JingdeZhu, Toshikazu Ushijima, Shyam Prabhakar, Li-Jung Juan, Young-Joon Kim.

- **6th Meeting of the Asian Forum of Chromosome and Chromatin Biology** held from March 3rd to March 5th, 2017 at CSIR - Centre for Cellular and Molecular Biology, Hyderabad.

Organized by: Rakesh K Mishra, Ullas L Kolthur **Tapas K. Kundu** andPurnimaBharagava.

- **7th meeting of the Asian Forum for Chromosome and Chromatin Biology** held from 15th-17th November 2018 at Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore.

Organized by**: Tapas K. Kundu**, Rakesh K Mishra, Stephan Dimitrov, Kazuhiko Igarashi, Jeimin Wong, Jerry L Workman

- **8th meeting of the Asian Forum for Chromosome and Chromatin Biology** held from 4th -6th November 2023 at Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore.

Organized by**: Tapas K. Kundu**, Rakesh K Mishra, Stephan Dimitrov, Kazuhiko Igarashi, Jeimin Wong, Jerry L Workman

15 SCIENCE OUTREACH PROGRAMS

His group is actively involved in the science outreach program for the school children from different villages over the past six years. He and his group have organized several seminars and workshops in this regard and each year more than 300 students from close to 100 different schools in India have participated in these workshops. He has also involved himself enthusiastically in similar outreach programs organized by Department of Science and Technology (DST), INSPIRE as well as Sir J.C.Bose National talent search. Some of the conferences organized are listed here.

i. Workshop on **"Cancer: Epigenetics, Cause and remedy"**, from 18th-20th December, 2006 at Rabindra Bhaban, Balurghat, Dist: Dakshin Dinajpur, West Bengal, India

ii. Workshop on **"Cancer and Diabetes: Cause and Remedy"** from December 27-28th, 2007 at Rabindra Bhaban, Balurghat, Dist: Dakshin Dinajpur, West Bengal, India

iii. Workshop on **"Our genes and Cancer: Implications and therapy",** on 12thDecember, 2008 at Malda College Auditorium, Malda, West Bengal, India

iv. Workshop on **"Our genes and Cancer: Implications and therapy",** on 6th January, 2010 at Malda College Auditorium, Malda, West Bengal, India

v. Workshop on **"Our Genes Cells and Cancer",** on 26th April, 2011 at Malda College Auditorium, Malda, West Bengal, India

vi. Workshop on **"Our Genes, Disease and Therapy",** on 6th May, 2012 at Malda College Auditorium, Malda, West Bengal, India

vii. A Workshop on **"Cancer and Diabetes**" in Malda, West Bengal, September 2013.

viii. "**Epigenetics and Cancer: genes, habits and disease**; a Workshop in Malda, West Bengal,2015

ix. **"Stem Cells and regenerative medicine"**a workshop in Malda West Bengal, 2016

x. **"Brain: Function and disorder"** a workshop in Malda West Bengal, 2017

xi. **Research on Antibiotics: Past, Present & Future** a workshop in Malda West Bengal, 2018

xii. **The phenomenon of ageing, related disorders and smart ageing** a workshop in Malda West Bengal, 2019

xiii. **Stress & human life : Implications in health & diseases** a workshop in Malda West Bengal, 2022

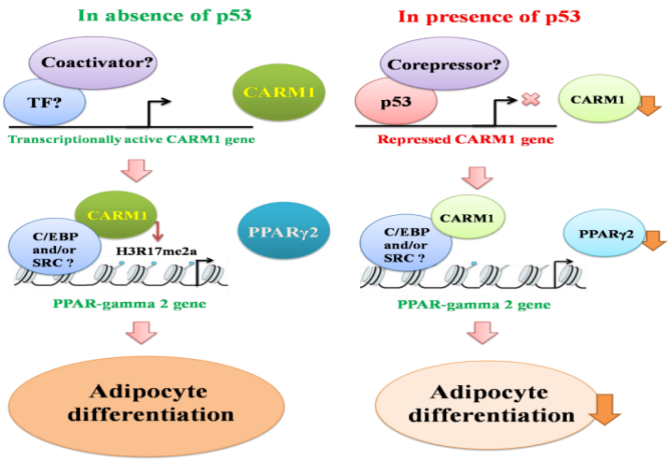
xiv. **"Homo Sapiens: Owner of the best brain"** a workshop in Malda West Bengal, 2023

16. BRIEF RESEARCH ACHIEVEMENTS

The focus of his group is to understand the different aspects of functional chromatin dynamics which are responsible for gene regulation and its link to cellular physiology, differentiation, and pathobiology. They are investigating different diseases in this context, namely cancer (oral cancer and breast cancer), obesity, AIDS and neurodegenerative disorders. Briefly,

A. Tumor suppressor p53 regulate Adipogenesis Epigenetically:

In this study Prof. Kundu's group have discovered that p53 mediated regulation of expression of CARM1, a well-known transcriptional coactivator and arginine methyltransferase, negatively impacts fate of adipocyte differentiation. They demonstrate that p53 gets recruited to CARM1 promoter and represses its expression. When CARM1 expression is not repressed by p53, CARM1 induces and maintains PPARγ2 expression, which is essential for normal adipogenesis. Further transcriptome analysis and gene network modeling revealed multiple pathways along with lipid biogenesis pathway also to be modulated by p53 in preadipocytes. The experimental evidences on p53 mediated repression of CARM1 expression seem to bridgethe mechanistic gap within the regulatory influence of p53 on PPAR-γ expression in adipocytes. This would illuminate our understanding on metabolism of glucose and lipid at organismal levelwith a molecular basis and allow to address obesity and associative complications such asdiabetes with better scientific preparedness.



p53 negatively regulates the expression of arginine methyltransferase CARM1 thereby repressing adipogenesis

- Behera AK, Bhattacharya A, Vasudevan and **Kundu TK[o]**. (2018) p53 mediated regulation of Coactivator associated arginine methyltransferase 1 (CARM1) expression is critical for suppression of adipogenesis, ***FEBS J.*** 285(9):1730–44

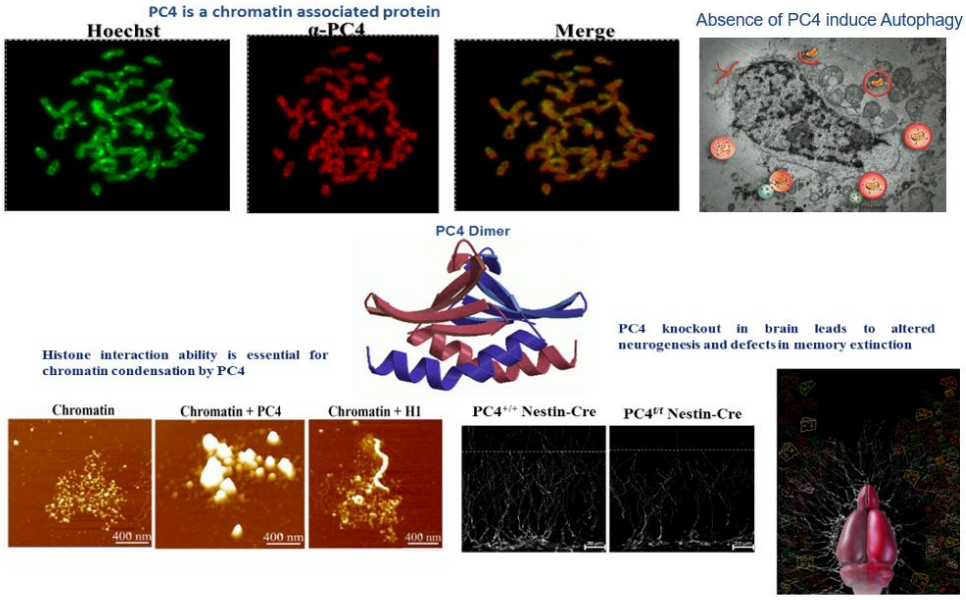
B. A new nonhistone chromatin protein

The eukaryotic genome is organized into a highly dynamic nucleoprotein filament, chromatin. The chromatin structure and function are much more diverse and complex than it was initially revealed. Besides histones, linker histones, and DNA, many more non-histone proteins and RNA are directly involved in the functional organization of the chromatin. The beads on a string nucleosomal filament further fold into different domains to regulate underlined gene function, replication, and also repair. Prof. Kundu`s group discovered that highly abundant nuclear protein positive coactivator 4 (PC4) is a bona fide nonhistone chromatin protein, which compacts the chromatin into a globular structure interacting with core histone and linker histones in a phosphorylation-dependent manner. It interacts with the heterochromatin protein HP1α and preferably stabilizes the heterochromatin organization. Knocking down of PC4 dramatically opens up the chromatin organization, as revealed by micrococcal nuclease digestion and electron microscopy. Furthermore, in the absence of PC4, the global epigenetic landscape changes significantly, resulting activation of autophagy and DNA damage. They found that though PC4 knock-out mice are embryonically lethal, the brain-specific knock-out mice survive with minimal defects in neurogenesis and memory extinction. However, the spleen-specific knockout of PC4 results in a reduced response to antigen stimulation. It also reveals that PC4 maintains B Cell function by regulating gene expression with IKAROS. Therefore, PC4 could be an effective therapeutic target in human B Cell lymphoma and myeloma cells.

Although it was expected that organ specific knockout of PC4 will have a drastic effect on the physiological function, in reality, it was not threatening to the life. Surprisingly, it was found that, in the absence of PC4, another heterochromatin protein and interacting partner of PC4 expression is dramatically high both in cell line and brain. We are investigating whether this is an inbuilt compensation mechanism. Mechanistically, the genome organization by PC4 in association with histone H1 and HP1αis not fully understood. They have initiated the cryo-EM studies of chromatosome and nucleosomal array containing PC4.

The functional diversity of PC4 is regulated by different post translational modifications. The p300 mediated acetylation of PC4 is critical for its coactivator function, where as the TiP60 mediated acetylation regulates its DNA repair activity. However, majority of nuclear PC4 (almost 95%) is a nonhistone chromatin protein and is phosphorylated.

PC4 is downregulated in the majority of breast cancer, causing hyper autophagy and radiation resistance, whereas it is over-expressed and hyperregulated in tobacco-related oral cancer, which upregulates many oncogenes.



Multifunctional nonhistone chromatin protein PC4 is critical for genome organization and Neurogenesis

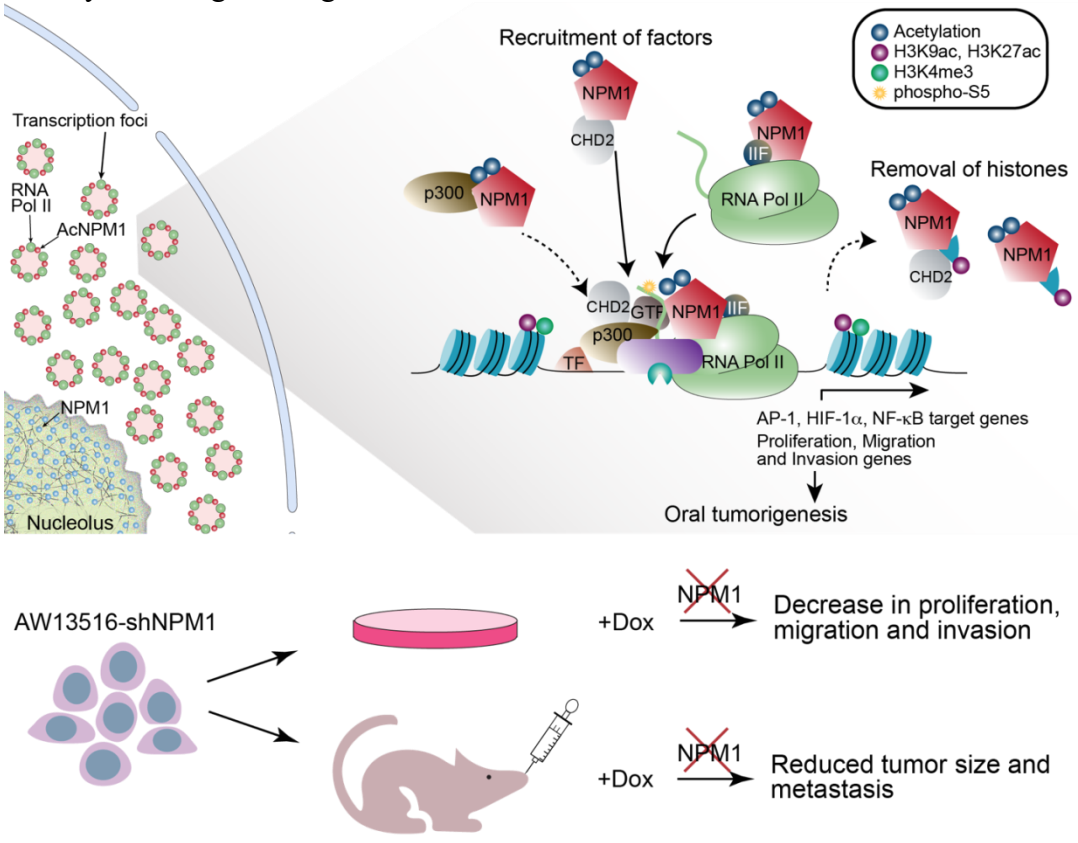
- Das C, Hizume K, Batta K, Kumar BR, Gadad SS, Ganguly S, Lorain S, Verreault A, Sadhale PP, TakeyasuKand **Kundu TKº**. (2006) Transcriptional coactivator PC4, a chromatin-associated protein, induces chromatin condensation. ***Mol CellBiol.*** 26(22): 8303–15
- Das C, Gadad SS, and **Kundu TKº**. (2010) Human Positive coactivator 4 controls Heterochrominization and silencing of neural gene expression interacting with REST/NRSF and CoREST. ***J Mol Biol.***397(1): 1–12
- Swaminathan A, Delage H, Chatterjee S, Belgarbi-Dutron L, Cassel R, Martinez N, Cosquer B, Kumari S, Mongelard F, Lannes B, Cassel JC, BoutillierALº, Bouvet Pº and **KunduTKº**. (2016) Transcriptional Coactivator and Chromatin Protein PC4 Is Involved

in Hippocampal Neurogenesis and Spatial Memory Extinction. ***J Bio lChem.***291(39): 20303–14

- Sikder S, Kumari S, Mustafi P, Ramdas N, Padhi S, Saha A, Bhaduri U, Banerjee B, Manjithaya R and **Kundu TK**º. (2019) Nonhistone human chromatin protein PC4 is critical for genomic integrity and negatively regulates autophagy**.** ***FEBS J***. 286(22), 4422–4442
- Ochiai K, Yamaoka M, Swaminathan A, Shima H, Hiura H, Matsumoto M, Kurotaki D, Nakabayashi J, Funayama R, Nakayama K, Arima T, Ikawa T, Tamura T, Sciammas R, Bouvet P, **Kundu TK**º and Igarashi Kº. (2020) Chromatin Protein PC4 Orchestrates B Cell Differentiation by Collaborating with IKAROS and IRF4 ***Cell Reports.***33 (12): 108517
- Mustafi, P, Hu, M, Kumari S, Das, C, Guohong Li., **Kundu TK**º (2022), Phosphorylation-dependent association of human chromatin protein PC4 to linker histone H1 regulates genome organization and transcription, ***Nucleic Acids Res.*** 50(11), 6116–6136

C. Histone Chaperones in the regulation of transcription and thereby diseases:

Prof.Kundu's group is working on the human histone chaperone NPM1 and have found that it is a regulator of RNA polymerase II-driven chromatin transcription in an acetylation-dependent manner. They have shown that NPM1 was over-expressed and hyperacetylated in oral cancer. They have also found that NPM1 is a positive regulator of p300 autoacetylation. The mechanisms of transcription regulation by NPM1 and its gene specificity are being investigated now.



Evidence forrole of nucleolar protein Nucleophosmin (NPM1) in RNA Polymerase II-driven transcription relevant to health and disease

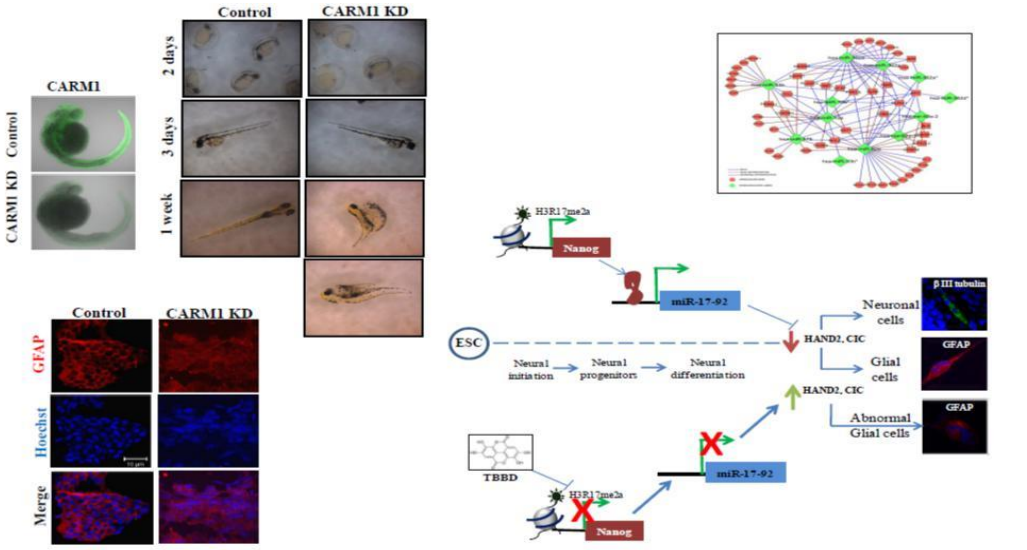
- Swaminathan V, Kishore AH, Febitha KK and**Kundu TK^{o}**. (2005) Human histone chaperone nucleophosmin enhances acetylation-dependent chromatin transcription. ***Mol Cell Biol.***25(17): 7534–45.
- Shandilya J, Swaminathan V, Gadad SS, Choudhari R, Kodaganur GS and**Kundu TK^{o}**. (2009) Acetylated NPM1 localizes in the Nucleoplasm and Regulates Transcriptional Activation of Genes Implicated in Oral Cancer Manifestation. ***Mo lCell Biol***. 29(18): 5115–27.
- Gadad SS, Rajan RE, Senapati P, Chatterjee S, Shandilya J, Dash PK, Ranga Uand **Kundu TK^{o}**. (2011) HIV-1 infection induces acetylation of NPM1 that facilitates Tat localization and enhances viral transactivation. ***J Mol Biol.*** 410 (5): 997–1007.
- Shandilya J, Senapati P, Dhanasekaran K, Bangalore SS, Kumar M, Hari Kishore A, Bhat A, Kodaganur G S and **Kundu TK^{o}**. (2014) Phosphorylation of multifunctional nucleolar protein nucleophosmin (NPM1) by aurora kinase B is critical for mitotic progression. ***FEBS Lett.*** 588(14): 2198–205.

- Senapati, P., Bhattacharya, A., Das, S., Dey, S., Sudarshan, D., G, S., Vishwakarma, J., Sudevan, S., Ramachandran, R., Maliekal, T. T., and **KunduTK^{o}**. (2022). Histone Chaperone Nucleophosmin Regulates Transcription of Key Genes Involved in Oral Tumorigenesis. ***Mol Cell Biol,*** 42(2), e0066920.

- Sikder S., Agrawal A., Singh S., Peraman R., Ravichandran V., **KunduTK^{o}**., (2023) KAT5 Acetylates Human Chromatin Protein PC4 to promote DNA Repair, (https://doi.org/10.1101/2024.01.12.575390).

D. **Small molecule modulators of chromatin modifying enzymes to elucidate differentiation pathways:**

Prof. Kundu's laboratory has also been actively working on the small moleculemodulators of chromatin modifying enzymes for more than a decade now. Apart from several small molecule inhibitors of lysine acetyltransferases and arginine methyltransferase, theyhave also discovered the first known small molecule activator of p300/CBP lysine acetyltransferase, which could activate histone acetylation in mice brain and thereby enhance the neurogenesis process and spatial memory. At present the mechanisms of p300/CBP activation and neurogenesis is one of the key interests of his group. His laboratory has discovered new molecule to target, specific histone acetyl transferase PCAF and using this molecule, the gene network for muscle differentiation has been established. By employing one of the sitespecific inhibitors of the histone arginine methyl transferase CARM1, a new mechanism of glial differentiation has been shown by his group.



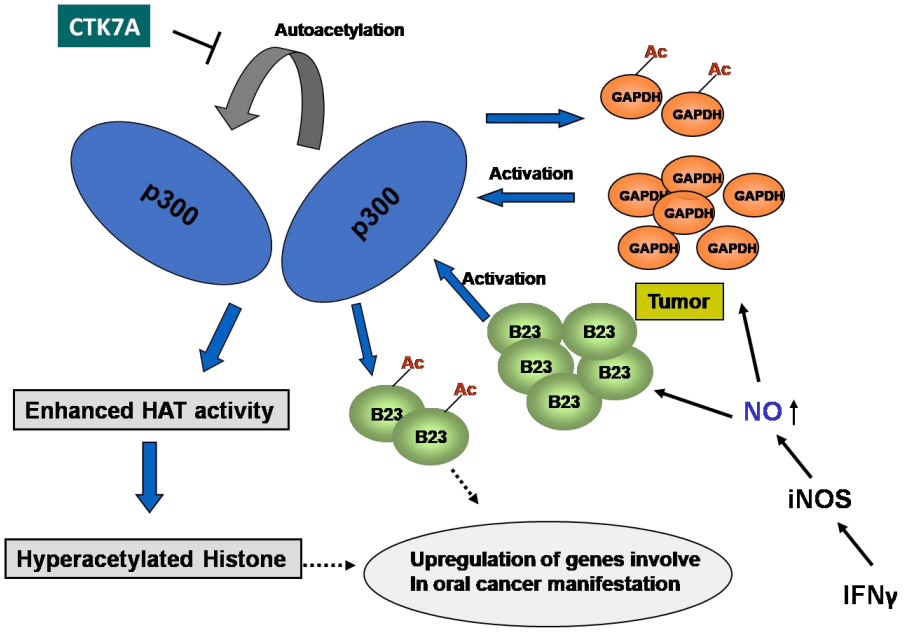
Elucidation of neurogenesis pathway using small molecule inhibitor of PRMT4

- Modak R, Basha J, Bharathy N, Maity K, Mizar P, Bhat A, Vasudevan M, Rao V K, Kok W K, Nagashayana N, Taneja Rand **Kundu TK**º. (2013) Probing p300/CBP associated factor (PCAF)-dependent pathways with a specific small molecule inhibitor of lysine acetyltransferase. ***ACS Chem Biol***. 8(6):1311–23
- Selvi BR, Swaminathan A, Maheshwari U, Nagabhushana A, Mishra R and **KunduTK**º. (2015) CARM1 regulates astroglial lineage through transcriptional regulation of Nanog and posttranscriptional regulation by miR92a. ***Mol BiolCell.***26(2):316–26

- Chatterjee S, Mizar P, Cassel R, Neidl R, Selvi B R, Mohankrishna DV, Vedamurthy BM, Schneider A, Bousiges O, Mathis C, Cassel J-C, Eswaramoorthy M, **Kundu T K**º and BoutillierALº. (2013) A Novel Activator of CBP/p300 Acetyltransferases Promotes Neurogenesis and Extends emory Duration in Adult Mice. ***J Neurosci***. 26; 33(26): 10698–1071

E. **Inhibitors of KATs: potential therapeutic molecules:**

KAT inhibitors are another class ofsmall molecule modulators that Prof. Kundu's group has been pursuing. These small molecules are derivitized from natural compounds through a rational design approach, tested *in vitro* and *in vivo* for their efficacy and specificity, the promising candidates have yieldedmolecules such as LTK14, a p300 specific inhibitor, which could repress HIV replication. CTK7A is another KAT inhibitor that could specifically suppress p300 autoacetylation and hence its activity, showing promising results in inhibiting histone acetylation in oral cancer. Many other molecules such as Luteolin, Garcinol have also shown promising therapeutic results in cancer cell lines and xenograft models.



Implications of KAT inhibitors as the antineoplastic therapeutics

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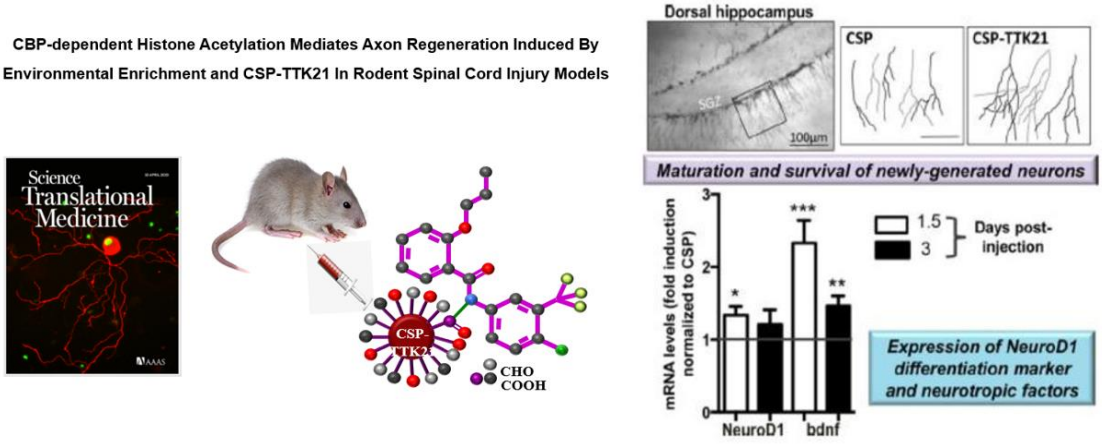
F. **Specific KAT activator: implications in Nano-Biotechnology and Neurodegenerative Diseases:**

Prof. Kundu's group is actively working in the area of nanobiotechnology incollaboration with other groups. The major emphasis has been given to the possible utilization of their recently discovered carbon nanospheres. The mechanism of its ability

to cross the blood-brain barrier, delivery of the HAT activator molecule in the mammalian brain and targeted delivery of anti-neoplastic therapeutics in the solid tumor targeting the epigenetic modifications are the major focus of his laboratory. They have successfully conjugated a histone acetyltransferase activator with the CSP and could target it to mice brain. The conjugated molecule could induce histone hyperacetylation in hippocampus of mice brain thereby inducing neurogenesis and longterm spatial memory formation. Recently they have shown that indeed the specific activation of p300/CBP could result in almost complete recovery of memory in the neurodegenerative disease model. This activation could also dramatically lead to repairing of spinal and behavioral deficits in autism.



Activation of p300/CBP by specific small molecule activator induced neurogenesis and memory formation

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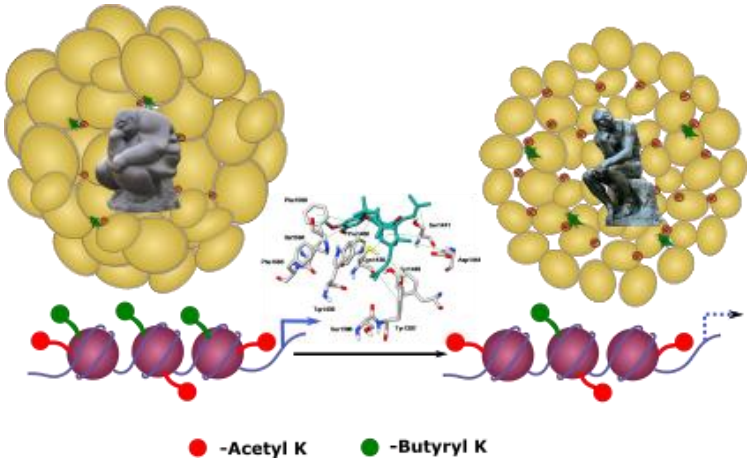
- Singh A. K., Rai A., Joshi I., Reddy D. N., Guha R., Shukla S, Nazir A., Clement J.P., **KunduTK^{0}**, (2023), Oral Administration of a specific p300/CBP Lysine Acetyltransferase Activator Induces Synaptic Plasticity and Repairing Spinal Cord Injury (https://doi.org/10.1101/2023.10.04.560982)

G. Butyrylation meets adipogenesis - probed by p300 catalyzed acylation specific small molecule inhibitor: Implication in anti-obesity therapy

The master epigenetic enzyme EP300 (p300) besides having lysine acetyltransferase activity can also catalyse other acylation modifications the physiological implications of which are still being investigated. Prof. Kundu`s group found that histone butyrylation increases both globally as well as locally in the promoters of pro-adipogenic genes during adipogenesis. To delineate the role of p300 catalysedbutyrylation from acetylation in adipogenesis, they identified a semi-synthetic derivative (LTK-14A) of garcinol which specifically inhibited histone butyrylation without affecting acetylation mediated by p300. Treatment of 3T3L1 cells with LTK-14A significantly abolished adipogenesis with downregulation of pro-adipogenic genes along with the inhibition of H4K5 butyrylation. Administering the specific inhibitor to high fat diet fed and genetically obese db/db mice led to an attenuation/decrease in their weight gain. The reduced obesity could be partially attributed to the inhibition of H4K5 butyrylation in fat pads and liver. This report therefore not only for the first time causally links histone butyrylation with adipogenesis but also presents a probable candidate for anti-obesity therapeutics.



Selective inhibition of p300 catalysed histone butyrylation by LTK-14A without affecting its canonical acetyltransferase activity leads to inhibition of adipogenesis and attenuation of obesity.

• Bhattacharya, A., Chatterjee, S., Bhaduri, U., Singh, A.K., Vasudevan, M., Sashidhara, K.V., Guha, R., Nazir, A., Rath, S.K., Natesh, N., **Kundu TK[o]** (2022). Butyrylation meets adipogenesis - probed by p300 catalyzed acylation specific small molecule inhibitor: Implication in anti-obesity therapy. ***J Med Chem,*** 65(18), 12273-12291

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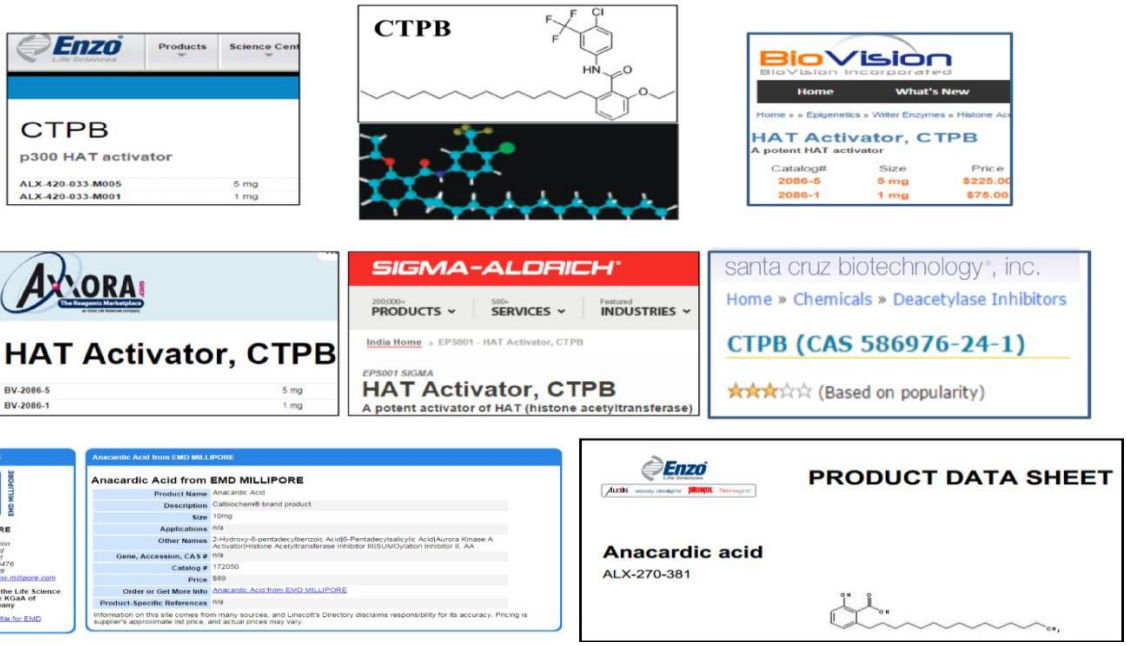
Commercialized Products Based on Prof. Kundu's Innovation

Title of the Invention: ***Modulators (Inhibitors/Activators) of Histone Acetyltransferases:***

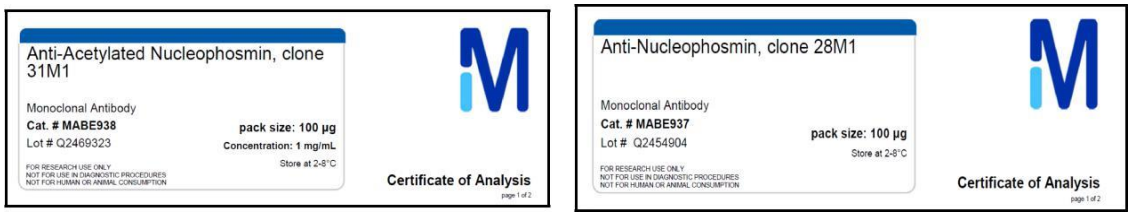


Product: His group has found the first natural inhibitor of histone acetyltransferase (HAT), anacardic acid, from Cashewnut shell liquid. Using anacardic acid as synthon, our group has synthesized the only known small molecule activator of HAT, specific to p300. These small molecule compounds have been commercialized for academic research purposes

EMD Biosciences Inc., USA: Product: Anacardic acid (HAT inhibitor), CTPB (specific activator of HAT, p300)

Alexis, USA. Product: Anacardic acid (HAT inhibitor) CTPB (specific activator of HAT, p300)

Title of the Invention: ***Monoclonal Antibodies against NPM1 and Acetylated NPM1, andProcess Thereof***



They have identified the sites of acetylation and generated acetylation site specific antibodies against the modified protein. These antibodies are highly valuable reagents to elucidate the physiological role of this chaperone and also could be useful for diagnostic purposes. Very recently, we have

commercialized a set of these antibodies to Merck Millipore and Abcam. Several other companies have also shown interest to avail the license for these antibodies.

Title of the Invention: ***Inhibition of Histone Acetyltransferases by CTK7A and methodsthereof.***
Product: This is a HAT inhibitor, which inhibits p300 autoacetylation in mice tumor.