

Curriculum Vitae

Dr. Anil K. Mantha
Associate Professor
Dept. of Zoology
School of Basic and Applied Sciences
Central University of Punjab
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Education:

| Degree | Institution | Year | Subject |
|---------|---|---------|--|
| Ph.D. | Jawaharlal Nehru University (JNU), New Delhi, India | 2001-06 | Life Sciences 'The role of neurokinin B (NKB) and amyloid beta protein fragment (25-35) on molecular and biochemical correlates in aging brain functions' |
| M.Phil. | National Institute of Mental Health and Neurosciences (NIMHANS), Bangalore, India | 1998-00 | Biophysics 'Ca ²⁺ Induced structural and functional changes in isolated rat brain mitochondria' |
| M.Sc. | Dr. Babasaheb Ambedkar Marathwada University, Aurangabad, Maharashtra, India | 1996-98 | Biophysics |
| B.Sc. | Osmania University, Hyderabad, Andhra Pradesh, India | 1993-96 | Microbiology, Chemistry and Botany |

Experience:

| Position Held | Place of Work | Start Date | End Date | Total Experience* |
|------------------------------|---|------------|------------|-----------------------------|
| Associate Professor | Dept. of Zoology (formerly known as Animal Sciences), School of Basic and Applied Sciences, Central University of Punjab, Bathinda (PB) | 28-12-2015 | Till date | 3 Yr. & 6 months |
| Head of the Department (HOD) | Dept. of Animal Sciences, School of Basic and Applied Sciences, Central University of Punjab, Bathinda (PB) | 04-01-2016 | 03-01-2019 | 3 Yr. |

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| Officiating in Charge (OIC) | Centre for Animal Sciences, School of Basic and Applied Sciences, Central University of Punjab, Bathinda (PB) | 14-7-2015 | 03-01-2016 | < 6 months |
| Assistant Professor | Centre for Animal Sciences (formerly known as Biosciences), School of Basic and Applied Sciences, Central University of Punjab, Bathinda (PB) | 31-5-2012 | 27-12-2015 | 3 Yr. & 7 months |
| Adjunct Assistant Professor | Dept. of Biochemistry and Molecular Biology, University of Texas Medical Branch (UTMB), Galveston, Texas, USA | Sep. 2012 | Aug. 2016 | 3 Yr. & 11 months |
| Assistant Professor (Non-Tenure Research) | Dept. of Biochemistry and Molecular Biology, University of Texas Medical Branch (UTMB), Galveston, Texas, USA | 1-03-2012 | 25-05-2012 | < 3 months |
| Postdoctoral Research Associate | Dept. of Biochemistry and Molecular Biology, UTMB, Galveston, Texas, USA | 29-01-2006 | 29-02-2012 | 6 Yr. & 1 months |
| Lecturer in Biophysics | Dept. of Physiology, S.V.S. Medical College, Mahabubnagar (Telangana) | July 2001 | Aug. 2001 | 1 month |
| Lecturer in Biophysics | Dept. of Physiology, M. R. Medical College, Gulbarga (KA) | Nov. 2000 | July 2001 | 9 months |
| Lecturer in Biophysics | Dept. of Physiology, Vinayaka Mission's Medical College, Karaikal (UT) | Sep. 2000 | Nov. 2000 | 2 months |

*Total Experience for Counting is Presented in **Bold**

Research Grants Operational:

.....Nil.....

Research Grants Completed:

1. **Mantha AK** (PI): Mitochondrial Oxidative DNA Damage-Repair in Alzheimer's Disease: AP-endonuclease (APE1/Ref-1) as a Potential Therapeutic Target, from the **Dept. of Science & Technology** (DST), New Delhi, under the Cognitive Science Research Initiative (CSI-2012). **Rs. 39.91 Lakhs** for 3 years (2014-18) – **PCR to be submitted.**

2. **Mantha AK** (PI): Identification of APE1-associated proteome during oxidative stress conditions in glioblastoma cell lines, from **Central University of Punjab**, Bathinda as Research Seed Money. **Rs. 3 Lakhs** for 2 years (2014-16).
3. **Mantha AK** (PI): Apurinic/Apyrimidinic endonuclease (APE1) as an anti-cancer therapeutic agent for Glioblastoma therapy, from UGC, New Delhi under the BSR-start up grant scheme. **Rs. 6 Lakhs** for 2 years (2013-2015).
4. **Mantha AK** (PI): APE1/Ref-1's Dual Functions Countering Beta Amyloid Induced Genotoxicity, from Alzheimer's Association, USA, **US \$ 99,990** for 2 years (2011-2013, extended as 2012-2015).

Teaching and Research Assignments:

No. of Students Guided:

1. **Research Associate – 01 (supervising)**
2. **Ph.D.**
 Completed – 03
 Supervising- 03 & Co-supervising - 03
3. **M.Phil.**
 Completed- 07
4. **M.Pharma.**
 Completed- 03
5. **M.Sc. Completed – 17**
 Supervising – 04 (batch 2018-19)

Ph. D. Research (Completed):

1. Oxidative Stress Induced Cell Proliferation and DNA Repair Mechanisms in Glioblastoma Cells: Role of ENPP2 and APE1. (Dr. Ravi P. Cholia, 2017).
2. A Biochemical Study to Evaluate the Role of Apurinic/Apyrimidinic Endonuclease 1 (APE1) in Lung Cancer Progression. (Dr. Shweta Thakur, 2018)
3. Organophosphate Pesticides Pester A β -Induced Genotoxic Responses In Cultured Neuronal Cells: APE1/Ref-1 Mediated Intervention. (Dr. Bibekananda Sarkar, 2018).

Under Supervision:

1. *In vitro* evaluation of Anti-cancer potential of Essential oil of *Vitex Negundo* Linn. Towards Glioblastoma Therapy. (**Nandini Gautam**, EVST).

2. An *In Vitro* Study to Evaluate the Effect of *Viola pilosa* and *Glycyrrhiza glabra* Extracts on Doxorubicin Induced Cardiotoxicity in H9c2 Cardiomyocytes. (**Shishir Upadhyay**, Biosciences).
3. Evaluation of Amyloid Beta (A β)-Induced Mitochondrial Dysfunction: Neuroprotective Role of Apurinic/Apyrimidinic Endonuclease 1 (APE1) Via its Interaction with Cysteamine Dioxygenase (ADO). (**Navrattan Kaur**, Biosciences).
4. Influence of Wheat Protein Gliadin on Oxidative Stress, Inflammation and Associated Signaling Pathways in Human Intestinal Cells (**Kunj Bihari Gupta**, Biochemistry and Microbial Sciences).
5. *In Vitro* Study on A β Induced Innate Immune Responses and Neuroprotection by Ferulic Acid (**Sharanjot Kaur**, Biochemistry and Microbial Sciences).
6. An In Vitro Study on Neuroprotective Role of Rosmarinic Acid and Glycyrrhizic Acid Against Organophosphate Pesticides Pestered Amyloid Beta (A β)-Toxicity In Cell Culture Model of Alzheimer's Disease (**Iqbal Kaur**, Animal Sciences).

M. Phil. Dissertation Supervised:

1. Effect of Amyloid Beta (25-35) Peptide on Mitochondrial Respiratory Function in Neuronal Cells Over-Expressing APE1. (Navrattan Kaur, Biosciences, 2014)
2. Understanding the Oxidative Stress Responses and Antioxidants State in Differentiated Neurons. (Sukhchain Kaur, Biosciences, 2016).
3. *In vitro* Study of Oxidative Stress Induced DNA-damage Responses in Differentiated Neurons. (Iqbal Gill, Biosciences, 2016).
4. Doxorubicin Induced Cardiotoxicity through Mitochondrial Dysfunction. (Nidhi Sharma, Biosciences, 2016)
5. Evaluation of Antioxidant Potential Against A β (25-35) Induced Oxidative Stress Response in Human Neuroblastoma (SH-SY5Y) Cells (Sharanjot Kaur, Biosciences, 2016).
6. To Study the Expression Pattern of Key Neuronal Proteins Modulated by Ferulic Acid Against A β (25-35) Induced Oxidative Stress in SH-SY5Y Cells (Aditi Dhawan, Biosciences, 2016).
7. Identification of Oxidative Stress Induced Neoantigen in Human Lung Cancer A549 Cell Line. (Saurabh Vaish, Biosciences, 2017)

M. Pharma. Dissertation Co-Supervised:

1. Design and synthesis of APE1 inhibitors as putative anticancer agents (Gagandeep Kaur, 2014).

2. Synthesis of Some Piperazine Containing Scaffolds as Potential MAO Inhibitors (Sheetal Menia, 2014).
3. Design, Synthesis and Screening of Phenylpiperazine Derivatives as Putative MAO Inhibitors (Bhupinder Kumar, 2015).

M. Sc. Dissertation / Project Work Supervised:

1. An *In vitro* Study on Oxidative Stress Induced Superoxide Dismutase (SOD) Activity in Human Glioblastoma (U-87 MG) Cells. (Manbir Kaur, M.Sc. Biosciences, 2014).
2. Assessment of Antioxidant Potential of Phytochemicals in Human Glioblastoma (U-87 MG) Cells. (Manpreet Kaur, M.Sc. Biosciences, 2014).
3. Pollen Induced Stress in Human Lung Carcinoma A549 Cells. (Rekha Atri, M.Sc. Biosciences, 2014).
4. To Understand the Role of Cellular Antioxidant Enzymes in Oxidative Stress Environment in Human Glioblastoma (U-87 MG) cells (Sanju Kumari, M.Sc. Biosciences, 2016).
5. Implications of Signalling Pathways in Pollen Induced Inflammation in A549 Lung Carcinoma Cell line. (Amrit Pal Kaur, M.Sc. Biosciences, 2016).
6. Synthesis and Characterization of Cationic Polymeric Nanoparticles and Evaluation of their Bioactivities. (Heerak Chugh, M.Sc. Biosciences, 2016).
7. To Evaluate the Antioxidant Properties of Ethnobotanical Plants of Himachal Pradesh. (Manisha Rani, M.Sc. Biosciences, 2016).
8. Understanding the Role of Oxidative Stress and Mitochondrial Functioning in Human Glioblastoma U-87 MG cells. (Saurabh Kumar, M.Sc. Biosciences, 2016).
9. Evaluation of Role of Curcumin in Modulation of APE1's Expression in Human Neuroblastoma SH-SY5Y Cells. (Daljeet Kaur, M.Sc. Biosciences, 2016).
10. Effect of Ferulic Acid on the Expression Levels of DNA Repair Enzymes Against A β (25-35) Induced Oxidative Stress in Human Neuroblastoma (SH-SY5Y) cells. (Tania Devi, M.Sc. Animal Sciences, 2017)
11. Effect of Curcumin on the Expression levels of Different Enzymes Against Oxidative Stress Induced by Chlorpyrifos in Human Neuroblastoma (SH-SY5Y) cells. (Varinder Singh, M.Sc. Animal Sciences, 2017).
12. Ginkgolide B Modulates BER Pathway Enzymes in the Presence of Amyloid β (25-35)- induced Oxidative Stress. (Meenu Saini, M.Sc. Animal Sciences, 2017).

13. Neuro-protective role of Ginkgolide B in A β -induced Neurodegeneration and AChE enzyme Activity in Human Neuroblastoma SH-SY5Y cells. (Ankita Mukherjee, M.Sc. Animal Sciences, 2018).
14. Role of Curcumin on Monoamine Oxidase (MAO) Enzyme Expression and Activity Against Amyloid Beta (A β)-Induced Oxidative Stress in Human Neuroblastoma U-87 MG cells. (Nishibala N Behera, M.Sc. Animal Sciences, 2018).
15. Neuroprotective Role of Alpha-Tocopherol Against A β (25-35) Induced Oxidative Stress Responses in Cultured Neuroblastoma SH-SY5Y Cells. (Akash, M.Sc. Animal Sciences, 2019).
16. To evaluate the neuroprotective role of α -Tocopherol via the modulation of antioxidant enzymes in A β (25-35) induced oxidative stress responses in SH-SY5Y cells. (Neha Tiwari, M.Sc. Animal Sciences, 2019).
17. To Study The Neuroprotective Potential of α -Tocopherol In SH-SY5Y Cells by Modulating DNA Damage and Repair Enzyme APE1. (Golden Kumar, M.Sc. Animal Sciences, 2019).

Professional Recognition / Awards / Scholarships:

Scholarships:

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| 2003-05 | Senior Research Fellowship (SRF), Indian Council for Medical Research, New Delhi, India. |
| 2002-03 | Senior Research Fellow , UGC-Excellence project, School of Life Sciences, Jawaharlal Nehru University, New Delhi, India. |
| 1998-2000 | NIMHANS Fellowship , National Institute of Mental Health and Neuro Sciences, Bangalore, India. |

Awards:

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| 2019 | Recipient of Faculty Research Award - 2019 from CUPB (under the category cumulative Impact Factor more than 15 of research publications in the academic year 2017-18). |
| 2018 | Recipient of Faculty Research Award - 2018 from CUPB (under the category cumulative Impact Factor more than 15 of research publications in the academic year 2016-17). |
| 2009 | Young Investigator award from the Alzheimer's Drug Discovery Foundation (ADDF), USA. |
| 2004 | Travel award for attending the International Brain Research Organization (IBRO) Advanced School on Neuroscience - "Receptors, Channels, Messengers" at Yalta, Ukraine, from CSIR, New Delhi, India. |

Peer Recognition:

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| 2014 – Till date | Editorial board member, Austin Journal of Proteomics, Bioinformatics & Genomics, USA |
| 2010 - Till date | Reviewed manuscripts for highly reputed International Journals |
| 2016 – 2017 | Editorial board member, Journal of Alzheimer’s Disease, USA |
| 2012 – 2014 | Editorial board member, Journal of Biotechnology and Biomaterials |
| 2013 – Till date | Life member, Indian Association of Neurosciences |
| 2011 - 2015 | Alzheimer’s Association, USA |
| 2003 - 2004 | Indian Biophysical Society |

Area of Research Specialization / Research Interest:

My research interest underscores examining various DNA repair and regulatory proteins to understand the molecular mechanisms and pathways through which the processes associated with onset of aging, age related, and neurodegenerative disorders in developing potential therapeutic targets. I am currently working on regulatory and repair functions of AP-endonuclease (APE1) in mammalian genomes. APE1 is the main apurinic/apyrimidinic endonuclease in eukaryotic cells playing a central role in the Base Excision Repair (BER) pathway of all DNA lesions (uracil, alkylated and oxidized and abasic sites) including single-strand breaks (SSBs) and has role in co-transcriptional activation of transcription factors (TFs) such as AP-1, NF- κ B, TP53 and HIF1 α , and named redox effector factor-1 (Ref-1). APE1/Ref-1 is a vital protein with its biological activities located in two functionally distinct domains. The N-terminus, containing the nuclear localization signal (NLS) region, is principally devoted to the redox activity and protein-protein interactions, while the C-terminus exerts the enzymatic activity on the AP sites of DNA.

My own interest lies in elucidating the neuro-protective role of APE1/Ref-1 in neurological disorder Alzheimer’s disease (AD). Due to its multi-functional nature, it is proving to be a critical target in neuronal cancer therapy for “Glioblastoma”. APE1/Ref-1’s role as a neuro-protector is an unexplored field of neurodegenerative disorders. Furthermore, the expression of APE1/Ref-1 and its sub-cellular localization is still poorly investigated in case of AD. My research work is mainly focused to understand and elucidate the molecular mechanisms of genotoxicity associated with amyloid beta (A β) protein deposits in human brain tissue and role of APE1/Ref-1 as a potential candidate for therapeutic intervention in AD and glioblastoma using neuronal and glial cell lines as model systems.

1. Oxidative Stress and Cancer Biology.
2. DNA Damage-Repair [Single-Strand Base Repair via Base Excision Repair (BER)-pathway] and Human Diseases.
3. DNA Repair and Regulatory Functions of Apurinic/Apyrimidinic Endonuclease (APE1/Ref-1).
4. Amyloid Beta (A β) Neurotoxicity and Alzheimer’s disease (AD).

Publications:

(<http://www.ncbi.nlm.nih.gov/pubmed/?term=mantha+ak>)

Research Papers (#Corresponding Author, *Equal Author)

1. List of Publications (Research papers, books, book chapters:

| S. No. | Authors, title, journal, volume, page numbers | Impact Factor | ISSN No | UGC Sr. No. |
|--------------------------|--|---------------|----------|-------------|
| Research Articles | | | | |
| 1. | Kaur G, Cholia RP, Joshi G, Amrutkar SM, Kalra S, Mantha AK , Banerjee UC, and Kumar R. Anticancer activity of dihydropyrazolo[1,5-c]quinazolines against rat C6 glioma cells via inhibition of topoisomerase II. <i>Arch Pharm (Weinheim)</i> . 2018. 351(6):1800023. | 1.994 | 05214184 | 1980 |
| 2. | Kumar B, Dwivedi AR, Sarkar B, Gupta SK, Krishnamurthy S, Mantha AK , Parkash J, Kumar V. 4,6-Diphenylpyrimidine Derivatives as Dual Inhibitors of Monoamine Oxidase and Acetylcholinesterase for the Treatment of Alzheimer's Disease. <i>ACS Chem Neurosci</i> . 2018 Oct 22. doi: 10.1021/acchemneuro.8b00220. | 4.211 | 19487193 | 293 |
| 3. | Kumar B, Sheetal, Mantha AK , Kumar V. Synthesis, Biological Evaluation and Molecular Modeling Studies of Phenyl-/Benzhydrylpiperazine Derivatives as Potential MAO Inhibitors. <i>Bioorganic Chemistry</i> . 2018. 77: 252-262. | 3.231 | 00452068 | 14836 |
| 4. | Cholia RP, Dhiman M, Kumar R, Mantha AK [#] . Oxidative stress stimulates invasive potential in rat C6 and human U-87 MG glioblastoma cells via activation and cross-talk between PKM2, ENPP2 and APE1 enzymes. <i>Metabolic Brain Disease</i> . 2018. pp.1-20. | 2.441 | 08857490 | 6082 |
| 5. | Gupta KB, Upadhyay S, Saini RG, Mantha AK and Dhiman M. Inflammatory response of gliadin protein isolated from various wheat varieties on human intestinal cell line. <i>J. of Cereal Science</i> . 2018: 81(2018): 91-98. | 2.302 | 07335210 | 21816 |
| 6. | Thakur S, Dhiman M, and Mantha AK [#] . APE1 Modulates Cellular Responses to Organophosphate Pesticides Induced Oxidative Damage in Non-small Cell Lung Carcinoma A549 | 2.561 | 03008177 | 31515 |

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| | cells. <i>Molecular and Cellular Biochemistry</i> . 2017. 441(1-2):201-16. | | | |
| 7. | Sarkar B, Dhiman M, Mittal S, and Mantha AK[#] . Curcumin Revitalizes Amyloid Beta (25-35)-Induced and Organophosphate Pesticides Pestered Neurotoxicity in SH-SY5Y and IMR-32 Cells via Activation of APE1 and Nrf2. <i>Metabolic Brain Disease</i> . 2017. 32(6):2045-61. | 2.441 | 08857490 | 6082 |
| 8. | Cholia RP, Kumari S, Kumar S, Kaur M, Kaur M, Kumar R, Dhiman M, Mantha AK[#] . An in vitro Study Ascertaining the Role of H ₂ O ₂ and Glucose Oxidase in Modulation of Antioxidant Potential and Cancer Cell Survival Mechanisms in Human U-87 MG Cells. <i>Metabolic Brain Disease</i> . 2017. 32(5):1705-16. | 2.441 | 08857490 | 6082 |
| 9. | Sengupta S, Mantha AK , Song H, Roychoudhury S, Nath S, Ray S, Bhakat KK. Elevated level of acetylation of APE1 in tumor cells modulates DNA damage repair. <i>Oncotarget</i> . 2016. 7(46):75197- 75209. | 5.168 | 19492553 | 27388 |
| 10. | Roychoudhury S, Nath S, Song H, Hegde ML, Bellot LJ, Mantha AK , Sengupta S, Ray S, Natarajan A, Bhakat KK. Human Apurinic/Apyrimidinic Endonuclease (APE1) Is Acetylated at DNA Damage Sites in Chromatin, and Acetylation Modulates Its DNA Repair Activity. <i>Mol Cell Biol</i> . 2017. 37(6):e00401-16. | 4.398 | 02707306 | 31516 |
| 11. | Gill I, Kaur S, Kaur N, Dhiman M, and Mantha AK[#] . Phytochemical Ginkgolide B attenuates A β (1-42)- induced oxidative damage and altered cellular responses in human neuroblastoma SH-SY5Y cells. <i>Journal of Alzheimer's Disease</i> . 2017. 60(s1):S25-S40. | 3.731 | 13872877 | 26398 |
| 12. | Hegde ML, Dutta A, Yang C, Mantha AK , Hegde PM, Pandey A, Sengupta S, Yu Y, Calsou P, Chen D, Lees-Miller SP and Mitra S. Scaffold attachment factor A (SAF-A) and ku temporally regulate repair of radiation-induced clustered genome lesions. <i>Oncotarget</i> . 2016. 7(34):54430- 54444. | 5.168 | 19492553 | 27388 |
| 13. | Bhakat KK, Sengupta S, Adeniyi VF, Roychoudhury S, Nath S, Bellot LJ, Feng D, Mantha AK , Sinha M, Qiu S, Luxon BA. Regulation of limited N-terminal proteolysis of APE1 in tumor via acetylation and its role in cell proliferation. <i>Oncotarget</i> . 2016 7(16):22590- 22604. | 5.168 | 19492553 | 27388 |
| 14. | Kaur N, Dhiman M, Perez-Polo, JR, and Mantha AK[#] . Ginkgolide B Revamps Neuroprotective Role of APE1 and | 2.481 | 03604012 | 24845 |

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|-----|---|--------|----------|-------|
| | Mitochondrial OXPHOS Against A β (25-35)-Induced Neurotoxicity in Human Neuroblastoma Cells. <i><u>Journal of Neuroscience Research</u></i> . 2015. 93: 938-947. | | | |
| 15. | Tsutakawa SE, Shin DS, Mol CD, Izumi T, Arvai AS, Mantha AK , Szczesny B, Ivanov IN, Hosfield DJ, Frankel KA, Hitomi K, Cunningham RP, Mitra S, Tainer JA. Conserved structural chemistry for incision activity in structurally non-homologous apurinic/aprimidinic endonuclease APE1 and endonuclease IV DNA repair enzymes. <i><u>J. Biological Chemistry</u></i> . 2013. 288(12):8445-55. | 4.125 | 00219258 | 21606 |
| 16. | Sengupta S, Chattopadhyay R, Mantha AK , Mitra S, and Bhakat KK. Regulation of mouse-renin gene by apurinic/aprimidinic-endonuclease 1 (APE1/Ref-1) via recruitment of histone deacetylase 1 corepressor complex. <i><u>J. of Hypertension</u></i> . 2012. 30(5): 917-925. | 4.085 | 02636352 | 28561 |
| 17. | Mantha AK [#] , Dhiman M, Tagliatalata G, Perez-Polo JR and Mitra S. Proteomic study of amyloid beta (25-35) peptide exposure to neuronal cells: Impact on APE1/Ref-1's protein-protein interaction. <i><u>J. of Neuroscience Research</u></i> . 2012. 90(6): 1230-123. | 2.481 | 03604012 | 24845 |
| 18. | Oezguen N*, Mantha AK *, Izumi T, Schein CH, Mitra S and Braun W. MD simulation and experimental evidence for Mg ²⁺ binding at the B site in human AP endonuclease 1. <i><u>Bioinformation</u></i> . 2011: 7(4):184-190. | N/A | 09732063 | N/A |
| 19. | Sengupta S, Mantha AK , Mitra S and Bhakat KK. Human AP-endonuclease (APE1/Ref-1) and its acetylation regulate YB-1/p300 recruitment and RNA polymerase II loading in the drug induced activation of multidrug resistance gene MDR1. <i><u>Oncogene</u></i> . 2010: 30(4):482-93. | 7.519 | 09509232 | 27369 |
| 20. | Barnes T, Kim WC, Mantha AK , Kim SE, Izumi T, Mitra S, Lee CH. Identification of apurinic/aprimidinic endonuclease APE1 as the endoribonuclease that cleaves c-myc mRNA. <i><u>Nucleic Acids Research</u></i> . 2009: 37(12):3946-58. | 10.162 | 03051048 | 27034 |
| 21. | Bhakat KK, Mantha AK and Mitra S. Transcriptional Regulatory Functions of Mammalian AP-endonuclease (APE1/Ref-1), an Essential Multifunctional Protein. <i><u>Antioxidant Redox Signaling</u></i> . 2009; 11(3): 1-17. | 6.337 | 15577716 | 1720 |
| 22. | Mantha AK , Oezguen N, Izumi T, Braun W and Mitra S. Unusual role of a cysteine residue in substrate binding and | 4.632 | 00222836 | 24678 |

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|------------------------|--|-------|----------|-------|
| | activity of human AP-endonuclease1. <i><u>Journal of Molecular Biology</u></i> . 2008; 379(1):28-37. | | | |
| 23. | Dike A, Chandrashekar IR, Mantha AK , Baquer NZ and Cowsik SM. Pharmacophore Pattern Identification of Tachykinin Receptor Selective Peptide Agonists: Implications in Receptor Selectivity. <i><u>American Journal of Biochemistry & Biotechnology</u></i> . 2007; 3 (4): 180-186. | -- | 15533468 | 3441 |
| 24. | Mantha AK , Moorthy K, Cowsik SM and Baquer NZ. Membrane associated functions of neurokinin B (NKB) on A β (25-35) induced toxicity in aging rat brain synaptosomes. <i><u>Biogerontology</u></i> . 2006 b; 7 (1): 19-33. | 3.231 | 13895729 | 14660 |
| 25. | Mantha AK , Moorthy K, Cowsik SM and Baquer NZ. Neuroprotective role of neurokinin B (NKB) on β - amyloid (25-35) induced toxicity in aging rat brain synaptosomes: Involvement in oxidative stress and excitotoxicity. <i><u>Biogerontology</u></i> . 2006 a; 7(1):1-17. | 3.231 | 13895729 | 14660 |
| 26. | Moorthy K, Yadav UCS, Siddiqui MR, Mantha AK , Cowsik SM, Sharma D, Basir SF and Baquer NZ. Effect of hormone replacement therapy in normalizing age related neuronal markers in different age groups of naturally menopausal rats. <i><u>Biogerontology</u></i> . 2005; 6(5): 345-356. | 3.231 | 13895729 | 14660 |
| 27. | Mantha AK , Chandrashekar IR, Baquer NZ and Cowsik SM. Three-dimensional structure of the mammalian tachykinin peptide neurokinin B bound to lipid micelles. <i><u>Journal of Biomolecular Structure and Dynamics</u></i> . 2004; 22(2): 137-148. | 3.123 | 07391102 | 21655 |
| 28. | Moorthy K, Yadav UC, Mantha AK , Cowsik SM, Sharma D, Basir SF and Baquer NZ. Estradiol and Progesterone treatments change the lipid profile in naturally menopausal rats from different age groups. <i><u>Biogerontology</u></i> . 2004; 5 (6) 411-419. | 3.231 | 13895729 | 14660 |
| Review Articles | | | | |
| 29. | Mittal S, Thakur S, Mantha AK , Kaur H. Bio-analytical applications of nicking endonucleases assisted signal-amplification strategies for detection of cancer biomarkers -DNA methyl transferase and microRNA. <i><u>Biosens Bioelectron</u></i> . 2019. 124:233-243 | 7.780 | 09565663 | 14886 |
| 30. | Sarkar B, Kulharia M, and Mantha AK [#] . Understanding human thiol dioxygenase enzymes: structure to function and biology to | 1.78 | 09599673 | 3017 |

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| | pathology. <i>International Journal of Experimental Pathology</i> ; 2017. 98(2):52-66. | | | |
| 31. | Mittal S, Kaur H, Gautam N, Mantha AK . Biosensors for breast cancer diagnosis: A review of bioreceptors, biotransducers and signal amplification strategies. <i>Biosens Bioelectron</i> . 2017. 88:217-231. | 7.780 | 09565663 | 14886 |
| 32. | Kumar B, Sheetal, Mantha AK , and Kumar V. Recent Developments on the Structure-Activity Relationship Studies of MAO Inhibitors and Their Role in Different Neurological Disorders. <i>RSC Adv</i> . 2016. 6(48):42660-83. | 3.108 | 20462069 | 23625 |
| 33. | Cholia RP, Kumar R, and Mantha AK [#] . Understanding the Multifaceted Role of Ectonucleotide Pyrophosphatase/ Phosphodiesterase 2 (ENPP2) and its Altered Behavior in Human Diseases. <i>Current Molecular Medicine</i> . 2015. 15(10):932-943. | 2.345 | 15665240 | 14260 |
| 34. | Thakur S, Dhiman, M, Tell G, and Mantha AK [#] . A Review on Protein-Protein Interaction Network of APE1/Ref-1 and its Associated Biological Functions. <i>Cell Biochemistry & Function</i> . 2015. 33(3): 101-112. | 2.186 | 02636484 | 5225 |
| 35. | Kaur G, Cholia RP, Mantha AK [#] , Kumar R. DNA repair and redox activities and inhibitors of APE1/Ref-1: A comparative analysis and their scope and limitations toward anticancer drug development. <i>Journal of Medicinal Chemistry</i> . 2014. 57(24):10241-10256. | 6.259 | 0222623 | 24572 |
| 36. | Gautam N, Mantha AK [#] , Mittal S. Essential Oils and their Constituents as Anti-cancer Agents: A Mechanistic View. <i>BioMed Research International</i> . 2014. DOI: 10.1155/2014/154106. | 2.476 | 23146133 | 14762 |
| 37. | Thakur S, Sarkar B, Cholia RP, Gautam N, Dhiman M, Mantha AK [#] . APE1/Ref-1 as an Emerging Therapeutic Target for Various Human Diseases: Phytochemical Modulation of its Functions. <i>Experimental and Molecular Medicine</i> . 2014. 46(7):e106. | 5.063 | 12263613 | 29076 |
| 38. | Mantha AK [#] , Sarkar B, Tell G. A short review on the implications of base excision repair pathway for neurons: Relevance to neurodegenerative diseases. <i>Mitochondrion</i> . 2013. 16: 38-49. | 3.704 | 15677249 | 31393 |

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|---------------------------|--|--------|-------------------|-------|
| 39. | Mantha AK[#] . APE1: A Molecule of Focus with Neuroprotective and Anti-Cancer Properties. <i>J. of Biotechnology & Biomaterials</i> . 2013: 3(3). | -- | 2155952X | N/A |
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| Research Abstracts | | | | |
| 41. | Taglialatela, G., Woltjer, R., Reese, L., Bjorklund, N., & Mantha, AK . (2012). Absence of BETA-AMYLOID oligomers at mitochondria in the hippocampus of individuals with Alzheimer's disease neuropathology who remain cognitively intact. <i>Alzheimer's & Dementia: The Journal of the Alzheimer's Association</i> , 8(4), S783-S783. | 9.478 | 15525260 | N/A |
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| 43. | Bhakat KK, Chattopadhyay R, Tadahide I, Mantha AK , and Mitra S. Acetylated APE1 is a repressor in calcium-mediated down regulation of the human renin gene. <i>Circulation</i> . 2006; 114 (18): 129. | 19.309 | 00097322 | 18643 |
| 44. | Chandrashekar IR, Mantha AK , Dike A and Cowsik SM. Three-dimensional structure of lipid induced NK-2 selective tachykinin agonists. <i>J. of Biomolecular Structure and Dynamics</i> . 2003. 20 (6). | 3.123 | 07391102 | 21655 |
| Book Chapters | | | ISBN | |
| 45. | Kaur S, Dhiman M, and Mantha AK[#] . Ferulic Acid: A Natural Antioxidant with Applications toward Neuroprotection against Alzheimer's disease. <i>Functional foods and Human Health</i> . 2018. Springer Publishers. pp-575-586 | -- | 978-981-13-1122-2 | -- |
| 46. | Upadhyay S, Gupta KB, Kaur S, Rubal, Kumar S, Mantha AK and Dhiman M. Resveratrol: A Miracle Drug for Vascular | | | |

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| | Pathologies. <i>Functional foods and Human Health</i> . 2018. Springer Publishers. pp-119-142 | -- | 978-981-13-1122-2 | -- |
| 47. | Kaur N, Sarkar B, Gill I, Kaur S, Mittal S, Dhiman M, Padala PR, Perez-Polo JR, and Mantha AK[#] . Indian herbs and their therapeutic potential against Alzheimer's disease and other neurological disorders. <i>Neuroprotective Effects of Phytochemicals in Neurological Disorders</i> . 2016. Wiley Publishers. pp-79-112 | -- | 978-1-119-15514-0 | -- |
| 48. | Kaur N, Sarkar B, Mittal S, Dhiman M, Taglialatela G, Perez-Polo RJ, Mantha AK[#] . Oxidative Stress Events and Neuronal Dysfunction in Alzheimer's Disease: Focus on APE1/Ref-1 Mediated Survival Strategies. <i>Free Radicals in Human Health and Disease, Oxidative Stress and Human Health</i> . 2014. Springer publishers. pp-175-208 | -- | 978-81-322-2034-3 | -- |
| 49. | Dhiman M, Thakur S, Upadhyay S, Kaur A, Mantha AK . Oxidative Stress and Inflammation in Cardiovascular Diseases: Two Sides of the Same Coin. <i>Free Radicals in Human Health and Disease, Oxidative Stress and Human Health</i> . 2014. Springer publishers. pp-259-278 | -- | 978-81-322-2034-3 | -- |

Workshop/Conferences:

Organized

1. Two day work shop on “**Functional Proteomics**” organized in collaboration with the Dept. of Biochemistry and Microbial Sciences; and Dept. of Chemical Sciences, 8th – 9th Oct. 2018, Central University of Punjab, Bathinda.
2. Co-chaired the session in “Socio-Legal & Other Challenges for the Prevention of Drug Abuse in India: Existing Approaches & Agenda of Reform”, October 2017, Central University of Punjab, Bathinda.
3. One-day national symposium on “Recent Trends in Biological Sciences” on 29th March 2016, Bathinda.
4. Earth day celebration in collaboration with Punjab Pollution Control Board, May 2016.
5. One day national Workshop on "Training the Teachers - Water Quality and Health" on Feb.11, 2015, Bathinda

Attended and Oral Presentations:

1. Organophosphate pesticides induce survival mechanisms and modulates APE1 cellular functions in non-small cell lung cancer cells, at the “**International Symposium “on Tumor Microenvironment and Cancer Prevention & Therapeutics**, February 8 - 9, 2019, JNU, **New Delhi**, India.
2. Oxidative Stress Stimulates Metastatic Potential via Activation and Cross-talk between the Enzymes APE1, PKM2, and ENPP2 in Rat C6 and Human U-87 MG Glioblastoma Cells, at the “**International Symposium on Cancer Prevention and Treatment**”, February 9 - 10, 2018, JNU, **New Delhi**, India.
3. Neuroprotective role of Curcumin against Amyloid Beta (25-35)-Induced and Organophosphate Pesticides Pestered Neurotoxicity in SH-SY5Y and IMR-32 Cells via Activation of APE1 and Nrf2-mediated Pathways, October 29 – November 3, 2017, Ravenshaw University, **Cuttack**, India.
4. Biology of Amyloid Beta-induced Oxidative Stress in Alzheimer’s Disease: An association of Mammalian Thiol Dioxygenase, ADO with the Human AP-Endonuclease 1 (APE1) Towards Neuroprotection, February, 10-11, 2017, JNU, **New Delhi**, India.
5. Understanding the role of oxidative stress in GBM progression and development of phytochemical based therapeutic interventions. CRCA-International Symposium on Role of Herbals in Cancer Prevention and Treatment, February 9-10, 2016, JNU, **New Delhi**, India.
6. Accentuating the role of multifunctional enzyme APE1/Ref-1 in renovation of mitochondrial functioning by Ginkgolide B against Amyloid β -mediated mitochondrial dysfunction in Alzheimer’s disease. IBRO School on Mitochondria and Neurodegeneration, October 26th -30th, 2015, **Chandigarh**, India.
7. Understanding the neuroprotective role of APE1/Ref-1 and it’s interaction with ADO against Amyloid β -mediated mitochondrial dysfunction in Alzheimer’s disease. XXXIII - IAN conference at Punjab University, October 31st – November 2nd, 2015, **Chandigarh**, India.
8. Oxidative Stress Induced Modulation of SOD and APE1: Key Towards Survival of Glioblastoma Cells. **Allahabad**, October, 24-27, 2013.

Poster Presentations:

1. Kaur M, Kaur M, Dhiman M, **Mantha AK**. Assessment of Antioxidant Potential of Phytochemicals in Human Glioblastoma (U-87 MG) Cells. **Bhubaneswar**, Dec. 18-21, 2014.
2. **Kaur N**, Dhiman M, Perez-Polo JR, and **Mantha AK**. Phytochemical modulation of APE1-mediated neuronal survival along with mitochondrial OXPHOS against A β -induced neurotoxicity: A synergistic mechanism of neuroprotection. **Bengaluru**, Nov. 1-3, 2014.

3. **Mantha AK**, Dhiman M, Taglialatela G. Amyloid beta induced genotoxicity: what protects neurons? **Cuttak**, Nov. 9-11, 2013.
4. **Mantha AK**, *Dineley KT*, Perez-Polo JR and *Mitra S*. Neuroprotective Role of APE1/Ref-1 in Amyloid Beta Mediated Genotoxicity in Neuronal Precursor PC12 Cells. November 12, 2009 at UTMB, **Galveston**, TX, USA.
5. **Mantha AK**, Oezguen N, Izumi T, Bhakat KK, Mitra S and Braun W. Does the APE1 Double Mutant E96Q, D210N Bind Mg²⁺ in the Active Site? February 19 to 24, 2009 at **Galveston**, TX, USA.
6. **Mantha AK**, Chandrashekar IR, Dike A, Moorthy K, Baquer NZ and Cowsik SM. Role of Neurokinin B and Ab-protein fragment 25-35 on aging rat brain synaptosomes. The XXIst International Conference on Magnetic Resonance in Biological Systems, January 16 to 21, 2005 at **Hyderabad**, India.
7. **Mantha AK**, Chandrashekar IR, Moorthy K, Baquer NZ and Cowsik SM. Tachykinin NK-3 Receptor and its Agonist Neurokinin B (NKB) Interactions: Shedding Light on Aging Brain Functions. IBRO Advanced School on Neuroscience “Receptors, Channels, Messengers”, September 16 to 28, 2004 at **Yalta**, Ukraine.
8. **Mantha AK**, Chandrashekar IR, Dike A, Baquer NZ and Cowsik SM. Three-dimensional structure of the mammalian tachykinin peptide neurokinin B bound to lipid micelles: A NK3 receptor agonist of mammalian origin involved in neuroprotection and Aging. NMRS 2004 [National Magnetic Resonance Society] Symposium on NMR Drug Design & Bioinformatics, February 17 to 20, 2004 at **Kolkata**, India.
9. Vidyasagar S, **Mantha AK** and Kulkarni SG. Evaluation of radiation exposure doses from television. National Symposium on Radiation and Molecular Biophysics, Bhabha Atomic Research Centre (BARC), January 21 to 24, 1998 at **Mumbai**, India.

Other Achievements and Merits:

1. University 2nd Rank in M.Sc. Biophysics (1998)

Collaborations:

1. Dept. of Neuroscience & Cell Biology, University of Texas Medical Branch, Galveston, TX, USA.
2. Dept. of Biochemistry & Molecular Biology, University of Texas Medical Branch, Galveston, TX, USA.
3. Dept. of Medical and Biological Sciences, University of Udine, 33100 Udine, Italy.
4. Department of Environmental Science and Technology, Central University of Punjab, Bathinda, India.

5. Department of Biochemistry and Microbial Sciences, Central University of Punjab, Bathinda, India.
6. Department of Pharmaceutical Sciences and Natural Products, Central University of Punjab, Bathinda, India.

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