

CHANDRA KUMAR SINGH

Address

Department of Dermatology, University of Wisconsin
School of Medicine and Public Health
1111 Highland Avenue, WIMR 7418
Madison, WI 53706, USA
Phone: 001-608-698-3311
Email: csingh@dermatology.wisc.edu
<https://dermatology.wisc.edu/staff/singh-chandra/>

Career Goals

My long-term research goal is to be able to make an impact on the quality of human life through cutting-edge cancer research. Specifically, my research focuses on (a) chemoprevention and experimental therapeutics, and (b) identification of molecular targets for intervention. Using natural resources and cutting-edge scientific knowledge, I want to identify and develop new molecules, approaches, and strategies that can ultimately be translated from the bench to the bedside for the prevention and/or treatment of cancer, specifically for skin and prostate cancer.

Education

2003 – 2008	PhD	Biochemistry, University of Lucknow, Lucknow, India (researcher at Indian Institute of Toxicology Research, Lucknow, U.P., India).
2000 – 2002	MS	Biotechnology, University of Jammu, Jammu, Jammu and Kashmir, India.
1995 – 1998	BS	Chemistry, Botany and Zoology, VBS Purvanchal University, Jaunpur, Uttar Pradesh, India.

Research Appointments and Positions

Nov 2021 – present	Scientist II in the Department of Dermatology, University of Wisconsin, Madison, WI, USA
Aug 2021 – Nov 2021	Associate Scientist in the Department of Dermatology, University of Wisconsin, Madison, WI, USA
Jul 2014 – Jul 2021	Assistant Scientist in the Department of Dermatology, University of Wisconsin, Madison, WI, USA
Mar 2011 – Jun 2014	Research Associate in the Department of Dermatology, University of Wisconsin, Madison, WI, USA
Oct 2008 – Feb 2011	Post-doctoral Fellow, Department of Pathology, Microbiology & Immunology, University of South Carolina, Columbia, USA
May 2008 – Sep 2008	Research Officer in the Antibody Discovery Unit, Glenmark Research Centre, Navi Mumbai, Maharashtra, India
Mar 2003 – May 2008	Research Fellow / PhD Studentship in the Food Toxicology Division, Indian Institute of Toxicology Research, Lucknow, India

Jan 2002 – Jun 2002

Project Trainee in the Fermentation Unit, Ranbaxy Research Laboratories, Gurgaon, India

Honors and Awards

- ❖ Received an Academic Professional Development Grant from UW to attend American Association for Cancer Research 2019 meeting.
- ❖ Selected by Marquis Who's Who in the World 2018, which is comprised of the top 3% of the professionals in the world.
- ❖ Received 2017 University of Wisconsin Skin Disease Research Center Pilot and Feasibility award.
- ❖ Awarded certificate of outstanding contribution in reviewing for the journal '*Toxicology and Applied Pharmacology*' in the year 2015 and 2017.
- ❖ Received Pigment Cell & Melanoma Research Best Poster Award at the 18th annual meeting of PanAmerican Society for Pigment Cell Research Sept. 9-12, 2013, UW-Madison, for the poster entitled "Novel downstream molecular targets of sirtuins in human melanoma cells".
- ❖ Received Postdoctoral Research Grant (2011) from Department of Defense, USA.
- ❖ Received Senior Research Fellowship award from Council of Scientific & Industrial Research (CSIR) India (2006) in Life Sciences.
- ❖ Qualified Graduate Aptitude Test in Engineering (GATE-2002) in Life Sciences by scoring 87.87 percentile.
- ❖ Qualified National Eligibility Test (CSIR-UGC NET-2002) in Life Sciences.
- ❖ Qualified the Combined Entrance Examination in Biotechnology (CEEB-2000) conducted by Jawaharlal Nehru University, New Delhi and received scholarship during 'MS' (2000-2002) from the Department of Biotechnology, Government of India.

Professional Memberships (past and present)

- ❖ 2017– Present: Skin Diseases Research Center (SDRC)
- ❖ 2011– Present: American Association for Cancer Research (AACR)
- ❖ 2009 – 2010: American Diabetes Association (ADA)
- ❖ 2005 – 2006: Indian Society of Cell Biology (ISCB)

Editorial Board Member and Scientific Reviewer of Journals and Grants

- ❖ Served/Serving as an editorial board member for the following journals:
Frontiers in Oncology, Journal of Oncology
- ❖ Served/Serving as a scientific reviewer for the following journals:
Antioxidants & Redox Signaling, Biology, BMJ Open, Experimental Cell Research, International Journal of Molecular Sciences (IJMS), International Journal of Research Studies in Medical and Health Sciences

(IJRSMHS), International Archives of Public Health and Community Medicine, Journal of Clinical and Investigative Dermatology (JCID), Journal of Alternative and Complementary Medicine (JACM), Journal of Basic and Clinical Physiology and Pharmacology (JBCPP), Journal of Skin Cancer, Molecular Cancer, Molecular Nutrition & Food Research, Nutrients, Photochemistry and Photobiology, PlosOne, Toxicology and Applied Pharmacology (TAAP), Tumor Biology, Journal of Proteome Research, Journal of Cancer Metastasis and Treatment, Cancer letters, Cancers, Frontiers in Oncology, Frontiers Cell and Developmental Biology, Journal of Oncology, Journal of Clinical Medicine, and Cell Communication and Signaling

- ❖ Served as a Grant Reviewer for the following institutions:
 - 2022: *The Wellcome Trust/Department of Biotechnology (DBT) India Alliance Fellowships, New Delhi, India*
 - 2020: *Dutch Research Council (NWO), which is the most important science funding bodies in the Netherlands*
 - 2016 and 2019: *The Pilot and Feasibility Studies (PFS) Grant Applications, Skin Diseases Research Center at the University of Wisconsin-Madison (UW SDRC), a center supported in part by a grant from the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS)*
 - 2017: *Cy-Tera and Eastern Mediterranean Production Call Submissions, The Cyprus Institute.*

Funding Support

Pending:

Title: Functional and Therapeutic Significance of PLK4 in Melanoma

Supporting Agency: NIH/NCI (1R01CA261937)

Role: Co-I (PI: Nihal Ahmad)

Period of performance: 07/01/2022–06/30/2027

Project goals: The objective of this study is to determine the role and functional as well as therapeutic significance of PLK4 in melanoma. This study may ultimately lead to the development of novel therapeutic strategies for clinical management of melanoma.

Title: Combined inhibition of PLK1 and NOTCH for melanoma management

Supporting Agency: Veterans Affairs (I01BX005917)

Role: Collaborator (PI: Nihal Ahmad)

Period of performance: 04/01/2022-03/31/2026

Project goals: The major goal of this project is to determine the therapeutic efficacy of concomitant inhibition of PLK1 and NOTCH against melanoma.

Ongoing:

Title: Role of sirtuin 6 in melanoma development and progression

Supporting Agency: Veterans Affairs (1I01CX002210)

Role: Collaborator (PI: Nihal Ahmad)

Period of performance: 10/01/2021-09/30/2025

Project goals: The major goal of this project is to determine the role and functional significance of SIRT6 in melanoma development and progression.

Title: Role of polo-like kinase 4 in melanomagenesis and melanoma progression

Supporting Agency: Veterans Affairs (I01BX004221)

Role: Collaborator (PI: Nihal Ahmad)

Period of performance: 07/01/2018-09/30/2022

Project goals: The goal of this study is to test the hypothesis that PLK4 plays a critical role in melanoma development and progression and could serve as a novel target for melanoma management.

Title: Clinical validation of a novel melanoma metastatic immune-gene signature panel associated with patient survival

Supporting Agency: UW-ICTR/SDRC (Pilot Award)

Role: Co-I (PI: Gagan Chhabra)

Period of performance: 07/01/21-06/30/22

Project goals: The objective of this pilot study is to validate a novel melanoma metastatic immune-gene panel that is associated with patient survival.

Completed:

Title: Mechanism-based combination of resveratrol and quercetin against atopic dermatitis.

Supporting Agency: UWSDRC Pilot Award

Role: Principal Investigator

Period of Performance: 12/15/20-08/31/21

Project Goals: The objective of this pilot study is to determine if a mechanism-based combination of resveratrol and quercetin inhibits atopic dermatitis (AD) in an oxazolone-induced AD-like skin condition in SKH-1 hairless mice.

Specific Aims: 1) To determine the effect of resveratrol and quercetin combination against AD in an oxazolone-induced AD-like skin condition in SKH-1 hairless mice. 2) To decipher the mechanism(s) of the biological response of resveratrol-quercetin combination against AD.

Title: Role of SIRT3 in melanoma development and progression

Supporting Agency: Veterans Affairs (I01CX001441)

Role: Collaborator (PI: Nihal Ahmad)

Period of performance: 04/01/2017–03/31/2021

Project goals: The goal of this project is to test the hypothesis that SIRT3 plays a critical role in melanoma progression via modulating p53 signaling, Ku70-Bax interaction and/or cellular metabolic homeostasis.

Title: Dual-specificity phosphatase-4 (DUSP4) in pancreatic cancer

Supporting Agency: University of Wisconsin (UW) Pancreas Cancer Research Program Grant

Role: Co-Investigator (PI: Nihal Ahmad)

Period of performance: 12/01/2017-11/30/2018

Project goals: The goal of this study is to test the hypothesis that DUSP4 acts as a tumor suppressor and its loss is associated with pancreas cancer progression. A corollary of this hypothesis that will be tested is that pharmacological activation of DUSP4 will impart anti-tumor response in pancreas cancer and sensitize it to anti-cancer drug therapy.

Title: Dietary grape in the management of atopic dermatitis

Role: Principal Investigator

Supporting Agency: Co-funded by: Skin Diseases Research Center (SDRC) pilot award (# AAC6265) (NIH/NIAMS Award Reference #: P30 AR066524) and UW Institute for Clinical and Translational Research (ICTR) (#AAC6691)

Period of performance: 09/01/2017 – 08/31/2018

Project goals: The goal of this study is to determine the efficacy of dietary grape against atopic dermatitis in *NC/NgaTnd* mice, which express spontaneous atopic dermatitis most precisely.

Title: Grape powder in the management of skin cancer

Role: Co-Investigator (PI: Nihal Ahmad)

Supporting Agency: California Table Grape Commission

Period of performance: 07/01/2015 – 12/31/2016

Project goals: The goal of this project is to define the chemopreventive effects of grape powder against UVB-mediated skin tumorigenesis in *SKH-1 hairless* mice, which is regarded to have relevance to human skin cancer.

Title: Combination of resveratrol and zinc for prostate cancer management

Role: Principal Investigator (Mentor: Nihal Ahmad)

Supporting Agency: Department of Defense (DOD W81XWH-12-1-0105)

Period of performance: 04/15/2012 – 04/14/2014

Project goals: The goal of this project was to define the chemopreventive effects of resveratrol and zinc combination against prostate cancer in the transgenic mouse model of prostate cancer.

Peer-Reviewed Articles

My published research articles and abstracts are available at Google Scholar (total citations: 1878; Mar 2022):

http://scholar.google.com/citations?hl=en&user=CirrZDkAAAAJ&view_op=list_works&pagesize=100

and in MyBibliography:

<https://www.ncbi.nlm.nih.gov/sites/myncbi/chandra.singh.1/bibliography/47799723/public/?sort=date&direction=descending>

1. **Singh CK**, Denu RA, Nihal M, Shabbir M, Garvey DR, Huang W, Iczkowski KA, Ahmad N. PLK4 is upregulated in prostate cancer and its inhibition reduces centrosome amplification and causes senescence. *The Prostate* 2022, DOI: 10.1002/pros.24342
2. Kabay G, Yin Y, **Singh CK**, Ahmad N, Gunasekaran S, Mutlu M. Disposable electrochemical immunosensor for prostate cancer detection. *Sensors and Actuators: B. Chemical* 2022 <https://doi.org/10.1016/j.snb.2022.131667>
3. Thornton J, Chhabra G, **Singh CK**, Guzmán-Pérez G, Shirley CA, Ahmad N. Mechanisms of immunotherapy resistance in cutaneous melanoma: recognizing a shapeshifter. *Front Oncol.* 2022, <https://www.frontiersin.org/articles/10.3389/fonc.2022.880876/abstract>
4. Su S, Chhabra G, **Singh CK**, Ndiaye MA, Ahmad N. PLK1 inhibition-based combination therapies for cancer management. *Transl Oncol.* 2022, 16:101332. PMID: 34973570
5. Chhabra G, **Singh CK**, Guzmán-Pérez G, Ndiaye MA, Iczkowski KA, Ahmad N. Antimelanoma Effects of Concomitant Inhibition of SIRT1 and SIRT3 in BrafV600E/PtenNULL Mice. *J Invest Dermatol.* 2021, S0022-202X(21)02223-5. PMID: 34597611

6. **Singh CK**, Chhabra G, Patel A, Chang H, Ahmad N. Dietary Phytochemicals in Zinc Homeostasis: A Strategy for Prostate Cancer Management. *Nutrients* 2021 30;13(6):1867. PMID: 34070833
7. **Singh CK**, George J, Chhabra G, Nihal M, Chang H, Ahmad N. Genetic Manipulation of Sirtuin 3 Causes Alterations of Key Metabolic Regulators in Melanoma. *Front Oncol.* 2021, 16;11:676077. PMID: 33937086
8. Chhabra G, **Singh CK**, Amiri D, Akula N, Ahmad N. Recent advancements on immunomodulatory mechanisms of resveratrol in tumor microenvironment. *Molecules.* 2021; 26(5): 1343. PMID: 33802331
9. **Singh CK***, Panackal JE, Siddiqui S, Ahmad N, Nihal M. Combined inhibition of specific sirtuins as a potential strategy to inhibit melanoma growth. *Front. Oncol.* 2020, 10:591972. PMID: 33178616 (**Corresponding author*).
10. Su S, Chhabra G, Ndiaye MA, **Singh CK**, Ye T, Huang W, Dewey CN, Setaluri V, Ahmad N. PLK1 and NOTCH positively correlate in melanoma and their combined inhibition results in synergistic modulations of key melanoma pathways. *Mol Cancer Ther.* 2021; 20(1):161-172. PMID: 33177155
11. **Singh CK**, Chhabra G, Ndiaye MA, Siddiqui IA, Panackal JE, Mintie CA, Ahmad N. Quercetin–resveratrol combination for prostate cancer management in TRAMP mice. *Cancers* 2020, 12(8), 2141. PMID: 32748838
12. Garcia-Peterson LM, Ndiaye MA, Chhabra G, **Singh CK**, Guzmán-Pérez G, Iczkowski KA, Ahmad N. CRISPR/Cas9-mediated knockout of SIRT6 imparts remarkable anti-proliferative response in human melanoma cells *in vitro* and *in vivo*. *Photochem Photobiol.* 2020; 96(6):1314-1320. PMID: 32621766
13. Mintie CA, Musarra AK, **Singh CK**, Ndiaye MA, Sullivan R, Eickhoff JC, Ahmad N. Protective effects of dietary grape on UVB-mediated cutaneous damages and skin tumorigenesis in SKH-1 mice. *Cancers (Basel).* 2020 Jul 1; 12(7). PMID: 32630288
14. Su S, Ndiaye M, **Singh CK**, Ahmad N. Mitochondrial sirtuins in skin and skin cancers. *Photochem Photobiol.* 2020 Sep;96(5):973-980. PMID: 32124989
15. Mintie CA, **Singh CK**, Ahmad N. Whole fruit phytochemicals combating skin damage and carcinogenesis. *Transl Oncol.* 2020; 13(2):146-156. PMID: 31865177
16. Mintie CA*, **Singh CK***, Ndiaye MA, Barrett-Wilt GA, Ahmad N. Identification of molecular targets of dietary grape-mediated chemoprevention of ultraviolet B skin carcinogenesis: A comparative quantitative proteomics analysis. *J Proteome Res.* 2019; 18(10):3741-3751. (** Joint first author*). PMID: 31487184
17. Miranpuri GS, Nguyen J, Moreno N, Yutuc NA, Kim J, Buttar S, Brown GR, Sauer SW, **Singh CK**, Kumar S, Resnick DK. Folic acid modulates matrix metalloproteinase-9 expression following spinal cord injury. *Ann Neurosci.* 2019; 26(2):60-65.
18. George J, Nihal M, **Singh CK**, Ahmad N. 4'-Bromo-resveratrol, a dual Sirtuin-1 and Sirtuin-3 inhibitor, inhibits melanoma cell growth through mitochondrial metabolic reprogramming. *Mol Carcinog* 2019, 58(10):1876-1885. PMID: 31292999

19. Teng Y, **Singh CK**, Sadak O, Ahmad N, Gunasekaran S. Electrochemical detection of mobile zinc ions for early diagnosis of prostate cancer. *J Electroanal Chem* 2019; 833, 269-274.
20. **Singh CK**, Mintie CA, Ndiaye MA, Chhabra G, Dakup PP, Ye T, Yu M, Ahmad N. Chemoprotective effects of dietary grape powder on ultraviolet B radiation-mediated skin carcinogenesis in SKH-1 hairless mice. *J Invest Dermatol.* 2019; 139(3):552-561. PMID: 30393084
21. Chhabra G, Garvey DR, **Singh CK**, Mintie CA, Ahmad N. Effects and mechanism of nicotinamide against UVA- and/or UVB-mediated DNA damages in normal melanocytes. *Photochem Photobiol.* 2019; 95: 331–337. PMID: 30102774
22. Chhabra G, **Singh CK**, Ndiaye MA, Fedorowicz S, Molot A, Ahmad N. Prostate cancer chemoprevention by natural agents: clinical evidence and potential implications. *Cancer Lett.* 2018; 422:9-18. PMID: 29471004
23. Denu RA, Shabbir M, Nihal M, **Singh CK**, Longley BJ, Burkard ME, Ahmad N. Centriole overduplication is the predominant mechanism leading to centrosome amplification in melanoma. *Mol Cancer Res.* 2018;16(3):517-527. doi: 10.1158/1541-7786. PMID: 29330283
24. **Singh CK**, Chhabra G, Ndiaye MA, Garcia-Peterson LM, Mack NJ, Ahmad N. The Role of Sirtuins in Antioxidant and Redox Signaling. *Antioxid Redox Signal.* 2018; 28(8):643-661 PMID: 28891317
25. Garcia-Peterson LM, Ndiaye MA, **Singh CK**, Chhabra G, Huang W, Ahmad N. SIRT6 histone deacetylase functions as a potential oncogene in human melanoma. *Genes & Cancer.* 2017; 8(9-10):701-712. doi: 10.18632/genesandcancer.153. PMID: 29234488
26. Gutteridge RE*, **Singh CK***, Ndiaye MA, Ahmad N. Targeted knockdown of polo-like kinase 1 alters metabolic regulation in melanoma. *Cancer Lett.* 2017, 394:13-21. PMID: 28235541 (*** Joint first author**).
27. Seenivasan R, **Singh CK**, Warrick JW, Ahmad N, Gunasekaran S. Microfluidic-integrated patterned ITO immunosensor for rapid detection of prostate-specific membrane antigen biomarker in prostate cancer. *Biosens Bioelectron.* 2017, 95:160-167. PMID: 28445813
28. Miranpuri GS, Meethal SV, Sampene E, Chopra A, Buttar S, Nacht C, Moreno N, Patel K, Liu L, Singh A, **Singh CK**, Hariharan N, Iskandar B, Resnick DK. Folic acid modulates matrix metalloproteinase-2 expression, alleviates neuropathic pain, and improves functional recovery in spinal cord-injured rats. *Ann Neurosci.* 2017; 24:74-81. <https://doi.org/10.1159/000475896>
29. Sanna V, **Singh CK**, Jashari R, Adhami VM, Chamcheu JC, Rady I, Sechi M, Mukhtar H, Siddiqui IA. Targeted nanoparticles encapsulating (-)-epigallocatechin-3-gallate for prostate cancer prevention and therapy. *Sci Rep.* 2017; 7:41573. PMID: 28145499
30. **Singh CK***, Malas KM, Tydrick C, Siddiqui IA, Iczkowski KA, Ahmad N. Analysis of zinc-exporters expression in prostate cancer. *Sci Rep.* 2016; 6:36772. PMID: 27833104 (*** Corresponding author**).
31. **Singh CK**, Nihal M, Ahmad N. Histone Deacetylase Inhibitory Approaches for the Management of Osteoarthritis. *Am J Pathol.* 2016; 186(10):2555-8. Commentary. PMID: 27560709
32. **Singh CK**, Siddiqui IA, El-Abd S, Mukhtar H, Ahmad N. Combination chemoprevention with grape antioxidants. *Mol Nutr Food Res.* 2016; 60(6):1406-15. Review. PMID: 26829056

33. George J, Nihal M, **Singh CK**, Zhong W, Liu X, Ahmad N. Pro-proliferative function of mitochondrial sirtuin deacetylase SIRT3 in human melanoma. *J Invest Dermatol.* 2016; 136(4):809-18. PMID: 26743598
34. **Singh CK**, Xiaoqi Liu, Ahmad N. Resveratrol, in its natural combination in whole grape, for health promotion and disease management. *Ann N Y Acad Sci.* 2015, 1348(1):150-60. Review. PMID: 26099945
35. **Singh CK**, Kaur S, George J, Nihal M, Pellitteri Hahn MC, Scarlett CO, Ahmad N: Molecular signatures of sanguinarine in human pancreatic cancer cells: A large scale label-free comparative proteomics approach. *Oncotarget.* 2015, 30;6(12):10335-49. PMID: 25929337
36. Wilking MJ*, **Singh CK***, Nihal M, Ndiaye M, Ahmad N. Sirtuin deacetylases: a new target for melanoma management. *Cell Cycle.* 2014, 13(18):2821-6. PMID: 25486469 (*** Joint first author**).
37. **Singh CK**, Ndiaye M, Ahmad N: Resveratrol and cancer: Challenges for clinical translation. *Biochim Biophys Acta. (Molecular Basis of Disease)* 2014, 1852(6):1178-85. Review. PMID: 25446990
38. **Singh CK**, Ndiaye MA, Siddiqui IA, Nihal M, Havighurst T, Kim K, Zhong W, Mukhtar H, Ahmad N. Methaneseleninic acid and γ -Tocopherol combination inhibits prostate tumor growth in Vivo in a xenograft mouse model. *Oncotarget.* 2014, 5(11):3651-61. PMID: 25004451
39. **Singh CK**, Pitschmann A, Ahmad N. Resveratrol-zinc combination for prostate cancer management. *Cell Cycle.* 2014;13(12):1867-74. PMID: 24866157
40. Wilking MJ, **Singh CK**, Nihal M, Zhong W, Ahmad N. SIRT1 deacetylase is overexpressed in human melanoma and its small molecule inhibition imparts anti-proliferative response via p53 activation. *Arch Biochem Biophys.* 2014, 563:94-100. PMID: 24751483
41. **Singh CK**, George J, Nihal M, Sabat G, Kumar R, Ahmad N. Novel downstream molecular targets of SIRT1 in melanoma: a quantitative proteomics approach. *Oncotarget.* 2014, 5(7):1987-99. PMID: 24743044
42. **Singh CK**, George J, Ahmad N. Resveratrol-based combinatorial strategies for cancer management. *Ann N Y Acad Sci.* 2013, 1290:113-21. Review. PMID: 23855473
43. **Singh CK**, Kumar A, Lavoie HA, Dipette DJ, Singh US. Diabetic complications in pregnancy: is resveratrol a solution? *Exp Biol Med* 2013, 238(5):482-90. Review. PMID: 23436883
44. **Singh CK**, Kumar A, LaVoie HA, DiPette DJ, Singh US. Resveratrol prevents impairment in activation of retinoic acid receptors and MAP kinases in the embryos of a rodent model of diabetic embryopathy. *Reprod Sci.* 2012, 19(9):949-61. PMID: 22534330
45. Kumar A, **Singh CK**, Lavoie HA, Dipette DJ, Singh US. Resveratrol restores Nrf2 level and prevents ethanol-induced toxic effects in the cerebellum of a rodent model of fetal alcohol spectrum disorders. *Mol Pharmacol.* 2011, 80(3):446-57. PMID: 21697273
46. **Singh CK**, Kumar A, Hitchcock DB, Fan D, Goodwin R, LaVoie HA, Nagarkatti P, DiPette DJ, Singh US. Resveratrol prevents embryonic oxidative stress and apoptosis associated with diabetic embryopathy and improves glucose and lipid profile of diabetic dam. *Mol Nutr Food Res.* 2011, 55(8):1186-96. PMID: 21254394

47. Kumar A, **Singh CK**, DiPette DD, Singh US. Ethanol impairs activation of retinoic acid receptors in cerebellar granule cells in a rodent model of fetal alcohol spectrum disorders. *Alcohol Clin Exp Res.* 2010, 34(5):928-37. PMID: 20201933
48. Kumar R, **Singh CK**, Kamle S, Sinha RP, Bhatnagar RK, Kachru DN: Development of nanocolloidal gold based immunochromatographic assay for rapid detection of transgenic vegetative insecticidal protein in genetically modified crops. *Food Chem.* 2010,122(4):1298–1303.
49. **Singh CK**, Ojha A, Bhatnagar RK, Kachru DN. Detection and characterization of recombinant DNA expressing vip3A-type insecticidal gene in GMOs--standard single, multiplex and construct-specific PCR assays. *Anal Bioanal Chem.* 2008, 390(1):377-87. PMID: 17994293
50. **Singh CK**, Ojha A, Kamle S, Kachru DN: Assessment of cry1Ab transgene cassette in commercial Bt corn MON810: Concurrent Gene, Event, Construct and GMO specific characterization. *Nature Protocol Exchange.* 2007:doi:10.1038/nprot.2007.1440.
51. **Singh CK**, Ojha A, Kachru DN. Detection and characterization of cry1Ac transgene construct in Bt cotton: multiple polymerase chain reaction approach. *J AOAC Int.* 2007, 90(6):1517-25. PMID: 18193727

Patent

1. Kachru DN, **Singh CK**, Ojha A, Bhatnagar RK (2006): A PCR based method for detection and identification of vegetative insecticidal protein (vip) gene. Indian patent no. 1891/DEL2006.

Book Chapter

1. **Singh CK**, Chhabra G, Ahmad N. Chapter 7: Resveratrol and Cancer Cell Biology. In: *Resveratrol: State of the Art Science and Health Applications*. Edited by: Wu MJ and Hsieh TC, World Scientific, Singapore, 2018; pp. 183–207. https://doi.org/10.1142/9789813270916_0007
2. **Singh CK**, Chhabra G, Mintie CA, Ahmad N. Grape Chemopreventive Agents Against Angiogenesis and Metastasis. In: *Natural Products for Cancer Chemoprevention: Single Compounds and Combinations*. Edited by: Pezzuto JM and Vang O, Springer Nature, Switzerland, 2020; pp. 375–400. https://doi.org/10.1007/978-3-030-39855-2_12

Published Abstracts

1. Chhabra G, Su S, **Singh CK**, Ndiaye MA, Ahmad N. Potential correlations between PLK1, BRAFV600E and MITF in melanoma. *Cancer Res* 2021;81(13 Suppl): 2157.
2. **Singh CK**, Mintie CA, Ndiaye MA, Chhabra G Ahmad N. Molecular analysis of atopic dermatitis pathogenesis in NC/NgaTnd mice. *J Invest Dermatol* 2020, 140(7): S102.
3. Chhabra G, **Singh CK**, Ndiaye MA, Ahmad N. Anti-tumor effects and mechanism of 4'-bromo-resveratrol in a BRAF^{V600E}/PTEN^{NULL} melanoma mouse model. *J Invest Dermatol* 2020, 140(7): S93.
4. Su S, Chhabra G, Ndiaye MA, **Singh CK**, Dewey C, Ahmad N. RNA-seq analysis of differential gene expression in melanoma cells after combined inhibition of Plk1 and Notch. *Cancer Res* 2020, 80(16): 222.

5. Garcia-Peterson L, Ndiaye MA, Guzmán-Pérez G, **Singh CK**, Chhabra G, Ahmad N. Effects of CRISPR/Cas9-mediated deletion of SIRT6 in human melanoma cells, *in vitro* and *in vivo*. *Cancer Res* 2020, 80(16): 4052.
6. Chhabra G, **Singh CK**, Ndiaye MA, Iczkowski KA, Ahmad N. Concomitant inhibition of SIRT1 and SIRT3 reduces melanoma growth and metastasis in BRAF^{V600E}/PTEN^{NULL} transgenic mice. *Cancer Res* 2020, 80(16): 2918.
7. **Singh CK**, Ndiaye MA, Chhabra G, Mintie CA, Ahmad N. Molecular analysis of chemopreventive effects of grape antioxidants resveratrol and quercetin in transgenic adenocarcinoma of the mouse prostate. *Cancer Res* 2019, 79(13): 5085.
8. Su S, Chhabra G, **Singh CK**, Ndiaye MA, Ahmad N. The combined inhibition of Plk1 and Notch1 results in a synergistic anti-proliferative response in human melanoma cells. *Cancer Res* 2019, 79(13): 302.
9. Chhabra G, Ndiaye MA, Su S, **Singh CK**, Ahmad N. Polo-like kinase 1 positively correlates with N-cadherin and promotes epithelial-mesenchymal transition in melanoma. *Cancer Res* 2019, 79(13): 1875.
10. **Singh CK**, Mintie CA, Ndiaye MA, Chhabra G, Roy S, Sullivan R, Longley B, Schieke SM, Ahmad N. Dietary grape powder inhibits atopic dermatitis-like skin lesions in NC/Nga mice. *J Invest Dermatol* 2019, 139 (5): S158.
11. Chhabra G, **Singh CK**, Ndiaye MA, Ahmad N. Plk1 phosphorylates Numb and promotes EMT in melanoma. *J Invest Dermatol* 2018, 138(5), S213.
12. Mintie CA, **Singh CK**, Ndiaye MA, Barrett-Wilt GA, Ahmad N. Identification of potential targets of dietary grape-mediated chemoprevention of photocarcinogenesis in SKH-1 hairless mice using global proteomics. *J Invest Dermatol* 2018, 138(5), S198.
13. Garcia-Peterson L, Ndiaye MA, **Singh CK**, Chhabra G, Ahmad N. Involvement of SIRT6 deacetylase in autophagy regulation in melanoma. *J Invest Dermatol* 2018, 138(5), S214.
14. **Singh CK**, Chhabra G, Nihal M, Iczkowski KA, Ahmad N. Pro-proliferative function of the histone deacetylase SIRT3 in prostate cancer. *Cancer Res* 2018, 78:539.
15. Su S, **Singh CK**, Ndiaye MA, Setaluri V, Ahmad N. An analysis of correlative interactions between Plk1, Notch1 and FoxM1 in melanoma. *Cancer Res* 2018, 78: 2530.
16. Garvey DR, Ndiaye MA, **Singh CK**, Noll A, Ahmad N. The potential role of polo-like kinase 4 in non-melanoma skin cancers. *Cancer Res* 2018, 78:547.
17. Garcia-Peterson L, Ndiaye MA, **Singh CK**, Chhabra G, Ahmad N. The effects of Sirtuin 6 inhibition on autophagy-related pathways in melanoma. *Cancer Res* 2018, 78:548.
18. Mintie CA, **Singh CK**, Ndiaye MA, Barrett-Wilt GA, Ahmad N. Mechanism of skin cancer chemoprevention by dietary grape: A global proteomics approach. *Cancer Res* 2018, 78:1260.
19. Chhabra G, **Singh CK**, Ndiaye MA, Ahmad N. Potential role of polo-like kinase 1 in epithelial-mesenchymal transition in melanoma. *Cancer Res* 2018, 78:2016.
20. Nethramurthy S, Ndiaye MA, **Singh CK**, Ahmad N. Combination of volasertib (BI6727) and abemaciclib (LY2835219) for melanoma management: Concomitant targeting of multiple cell cycle phases. *Cancer Res* 2018, 78: 5830.

21. **Singh CK**, Ndiaye MA, Mintie CA, Chhabra G, Ahmad N. Chemoprevention of ultraviolet-B radiation mediated skin carcinogenesis by dietary grape powder in SKH-1 hairless mice. *J Invest Dermatol* 2017, 755, S130. (* *selected for oral presentation*)
22. Nihal M, **Singh CK**, Wood GS, Ahmad N. Potential pro-proliferative role of polo-like kinase 4 in cutaneous T-cell lymphoma. *J Invest Dermatol* 2017, 126, S21.
23. Chhabra G, **Singh CK**, Ndiaye MA, Fedorowicz S, Molot A, Ahmad N. Polo-like kinase 1 inhibition suppresses epithelial mesenchymal transition in melanoma. *J Invest Dermatol* 2017, LB995.
24. **Singh CK**, Malas KM, Tydrick C, Iczkowski KA, Ahmad N. Role of zinc transporters in prostate cancer and a potential association with racial disparity. *Cancer Res* 2017, 77(13):4139.
25. Garcia-Peterson L, Ndiaye MA, **Singh CK**, Huang W, Ahmad N. Potential pro-proliferative role of SIRT6 in melanoma. *Cancer Res* 2017, 77(13):820.
26. **Singh CK**, Ndiaye MA, Mintie CA, Chhabra G, Ahmad N. Chemopreventive effects of dietary grapes on skin cancer. *Cancer Res* 2017, 77(13):5263.
27. Gutteridge REA, **Singh CK**, Ndiaye MA, Ahmad N. Targeted depletion of polo-like kinase 1 alters metabolic regulation in melanoma. *Cancer Res* 2017, 77(13):5415.
28. **Singh CK**, Shabbir M, Nihal M, Iczkowski KA, Ahmad N. Polo-like kinase 4: A potential new target for the management of prostate cancer. *Cancer Res* 2016, 76(14): LB-228.
29. **Singh CK**, George J, Nihal M, Ahmad N. Potential role of DUSP4 as a tumor suppressor in pancreatic cancer. *Cancer Res* 2016, 76(14):3667.
30. Shabbir M, Nihal M, **Singh CK**, Longley BJ, Ahmad N. A pro-proliferative function of centriole duplication regulator, polo-like kinase-4 in human melanoma. *Cancer Res* 2016, 76(14): LB-102.
31. Shabbir M, Nihal M, **Singh CK**, Longley BJ, Ahmad N. Potential pro-proliferative function of polo-like kinase 4 in human melanoma. *J Investigative Dermatol* 2016, 136, S112.
32. **Singh CK**, Ahmad N. Resveratrol-Quercetin combination significantly inhibits prostate cancer in TRAMP mice. *Cancer Res* 2015, 75(15):2801.
33. George J, Nihal M, **Singh CK**, Ahmad N. Small molecule SIRT3 inhibitor 4'-bromo-resveratrol inhibits proliferation, promotes apoptosis and causes metabolic reprogramming of human melanoma cells. *Cancer Res* 2015, 75(15):1127.
34. **Singh CK**, Nihal M, George J, Siddiqui IA, Mukhtar H, Ahmad N. Effect of resveratrol-zinc combination on prostate tumor growth in transgenic adenocarcinoma of mouse prostate (TRAMP) model. *Cancer Res* 2015, 75(15):4643.
35. George J, Nihal M, **Singh CK**, Ahmad N. 4-Bromo-resveratrol, a new small molecule inhibitor of SIRT3, imparts anti-proliferative effects and causes metabolic reprogramming of human melanoma cells. *J Investigative Dermatol* 2015, 135, S112.
36. **Singh CK**, George J, Duster M, Safdar N, Ahmad N. Combination of the probiotic *Lactobacillus rhamnosus* GG with grape antioxidant resveratrol for the management of colorectal cancer. *Cancer Res* 2014, 74(19):235.
37. George J, Nihal M, **Singh CK**, Zhong W, Ahmad N. The mitochondrial sirtuin SIRT3 promotes survival of human melanoma cells in vitro. *Cancer Res* 2014, 74(19):3516.

38. **Singh CK**, Kaur S, George J, Pellitteri-Hahn MC, Scarlett CO, Ahmad N: Mechanism of anti-proliferative effects of sanguinarine in pancreatic cancer cells: A label-free quantitative proteomics approach. *Cancer Res* 2014, 74(19):4533.
39. George J, Nihal M, **Singh CK**, Zhong W, Ahmad N. Overexpression of mitochondrial sirtuin deacetylase SIRT3 promotes the survival of human melanoma cells. *J Investigative Dermatol* 2014, 134, S122.
40. **Singh CK**, George J, Nihal M, Sabat G, Kumar R, Ahmad N. Novel downstream molecular targets of sirtuins in human melanoma cells. *Pigment Cell Melanoma Res* 2013, 26(5):780.
41. Wilking MJ, **Singh CK**, Nihal M, Ahmad N. Small-molecule inhibition of SIRT1 causes anti-proliferative effects in human melanoma cells. *Pigment Cell Melanoma Res* 2013, 26(5):709.
42. George J, Nihal M, **Singh CK**, Zhong W, Ahmad N. Mammalian Sir2 homolog SIRT3 promotes melanoma growth and survival. *Pigment Cell Melanoma Res* 2013, 26(5):769.
43. **Singh CK**, George J, Nihal M, Sabat G, Kumar R, Ahmad N. Mechanism of sirtuin inhibition mediated anti-proliferative response in human melanoma cells: A proteomics approach. *J Investigative Dermatol*, 2013, 133:S240.
44. **Singh CK**, Ndiaye M, Nihal M, Siddiqui IA, Havighurst T, Kim K, Zhong W, Mukhtar H, Ahmad N. Methaneseleninic acid and γ -tocopherol combination inhibits prostate tumor growth in a xenograft model. *Cancer Res* 2013, 73(8): 3693.
45. George J, Nihal M, **Singh CK**, Ahmad N. SIRT3, a mitochondrial sirtuin deacetylase, promotes survival of human melanoma cells. *Cancer Res* 2013, 73(8): LB-209.
46. **Singh CK**, George J, Kumar R, Ahmad N. Mechanism of anti-proliferative effects of SIRT1 inhibition in melanoma cells: a proteomics approach. *Cancer Res* 2013, 73(8): 2509.
47. **Singh CK**, Wilking MJ, Nihal M, Wood GS, Ahmad N. Tenovin-1, a small-molecule inhibitor of SIRT1, imparts anti-proliferative response in human melanoma cells via p53 activation. *J Investigative Dermatol* 2012, 132:S123–S134.
48. **Singh CK**, Wilking MJ, Nihal M, Ahmad N. Targeted inhibition of SIRT1 histone deacetylase by small-molecule inhibitor Tenovin-1 imparts significant anti-proliferative effects in human melanoma cells. *Cancer Res* 2012, 72(8): 4722.
49. **Singh CK**, Nihal M, Ahmad N. Resveratrol enhances the anti-proliferative response of zinc by increasing zinc-transporter protein ZIP1 in prostate cancer cells: A novel combinatorial approach for prostate cancer management. *Cancer Res* 2012, 72(8): 3729.
50. Nihal M, **Singh CK**, Ndiaye M, Wood GS, Ahmad N. SIRT1 histone deacetylase is a potential therapeutic target for human melanoma. *Pigment Cell Melanoma Res* 2011, 24 (4), 857-858.
51. Kumar A, **Singh CK**, DiPette D, Singh US. Resveratrol prevents impairment in MAP kinase pathways and protects the embryos against malformations in a rodent model of diabetic embryopathy. *Developmental Biol* 2011, 356(1): 223.
52. Kumar A, **Singh CK**, DiPette D, Singh US. Resveratrol prevents ethanol-induced apoptosis in the external granule layer of cerebellum in a rodent model of fetal alcohol spectrum disorders. *Alcohol Clin Exp Res* 2010, 34(6):214A.
53. Kumar A, **Singh CK**, Singh US. Retinoic acid signaling in alcohol neurotoxicity. *Alcohol Clin Exp Res* 2009, 33(6):165A.

Poster/Oral Presentation in Conferences

Presented or was part of presented work in:

1. Society for Investigative Dermatology (SID) Meeting, May 8-11, 2019, Chicago, IL, USA.
2. American Association for Cancer Research (AACR) 110th Annual Meeting, March 29-April 3, 2019, Atlanta, Georgia, USA.
3. Resveratrol 2018 – 5th International Conference of Resveratrol and Health, October 18 - 20th 2018; Xi'an, China.
4. AACR 109th Annual Meeting, April 14-18, 2018; Chicago, IL, USA.
5. International Investigative Dermatology meeting, May 16-19, 2018; Orlando, Florida, USA
6. University of Wisconsin Carbone Cancer Center Research Retreat, Scientific Poster Session, April 5, 2018, Madison, WI, USA
7. SID Meeting, April 26-29, 2017, Portland, Oregon, USA.
8. AACR 108th Annual Meeting, April 1-5, 2017; Washington, DC, USA.
9. UW Skin Diseases Research Center (SDRC) Retreat, Poster Session Jun 4, 2016, Madison, WI.
10. SID Meeting, May 11-14, 2016, Scottsdale, Arizona, USA.
11. AACR 107th Annual Meeting, April 16-20, 2016; New Orleans, USA.
12. AACR 106th Annual Meeting, April 18-22, 2015; Philadelphia, Pennsylvania, USA.
13. Resveratrol 2014 - 3rd International Conference of Resveratrol and Health, Nov 30 - Dec 03, 2014; Waikoloa, Hawaii, United States.
14. Introductory Biology 152, Undergraduate Mentored Research, May 7, 2014, Madison, USA.
15. AACR 105th Annual Meeting, April 5-9, 2014; San Diego, USA.
16. 18th annual meeting of PanAmerican Society for Pigment Cell Research (PASPCR) Sept. 9-12, 2013 at University of Wisconsin-Madison, USA.
17. International Investigative Dermatology meeting, May 8-11, 2013 Edinburgh, Scotland.
18. Introductory Biology 152, Undergraduate Mentored Research, May 7, 2013, Madison, USA.
19. AACR 104th Annual Meeting, April 6-10, 2013; Washington, DC, USA.
20. University of Wisconsin Carbone Cancer Center Research Retreat, Feb. 2, 2013, Madison, WI.
21. 11th Annual Medical Student Research Forum, Oct. 11, 2012, UW–Madison, USA.
22. SID Meeting, May 9-12, 2012, Raleigh, USA.
23. AACR 103rd Annual Meeting, Mar 31-Apr 4, 2012; Chicago, USA.
24. Carolina Women's Health Research Forum, Oct 29, 2010, University of South Carolina, Columbia, USA.
25. 33rd Annual Scientific Meeting of the Research Society on Alcoholism Jun 26-30, 2010 San Antonio, Texas

26. 32nd Annual Scientific Meeting of the Research Society on Alcoholism June 20–24, 2009, San Diego, California
27. XXIX All India Cell Biology Conference and Symposium on Gene to Genome: Environment and Chemical Interaction; Jan. 18-20, 2006 at IITR, Lucknow, India.

Workshops and Short-Term Research Experiences:

- ❖ “Grant Writing Workshop” May 3, 2018, by Grant Writers Seminars and Workshops, LLC, sponsored by Department of Medicine, University of Wisconsin (UW)-Madison.
- ❖ “Scientific Writing Workshop” Nov. 3-4, 2011 at Health Sciences Learning Center (HSLC), University of Wisconsin – Madison, USA sponsored by UW-ICTR and RECD.
- ❖ Worked as a Research Officer in the Antibody Discovery Group of Glenmark Research Centre, Navi Mumbai, India, from May - September 2008.
- ❖ “Dipsticks for diagnostic analyses” at National Institute of Immunology (NII), New Delhi, July 2007.
- ❖ “DNA fingerprinting” workshop at Centre for Cellular and Molecular Biology (CCMB), Hyderabad, India, May 2006.
- ❖ National workshop and training programs on “Database management system and their role in biological sciences” from February 03-05, 2004 at Biotech Park, Lucknow, India.
- ❖ International workshop and training programs on “Detection methods for GM plants/foods” from October 15-17, 2003 at IITR, Lucknow, India.
- ❖ M.Sc. dissertation at Ranbaxy Research Laboratories, Gurugram, India (June - July 2002) entitled “Yield improvement of an immunosuppressive antifungal agent from a *Streptomyces* sp.”.