

# Dr. Santosh Kumar

Associate Professor Dept of Biotechnology

Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.)

E-mail: [santoshnccs@gmail.com](mailto:santoshnccs@gmail.com), [santosh.5@ggu.ac.in](mailto:santosh.5@ggu.ac.in)

Cell Phone: 9815377524

Whatsapp: +1-3464949933

## SUMMARY OF EDUCATION

Degree	Specialization /Discipline	College/University/Institute	Year of joining	Year of leaving	%/CGPA
Ph.D.	Biotechnology	National centre for cell science, Pune,	2004	2009	Awarded

## RESEARCH EXPERIENCE

	Position	Institute	Topic	Period
1	Associate Professor	Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.)	Cancer research and teaching	8 May 2023 to till Day
2	Research Scientist	MD Anderson Cancer Center Houston, Texas USA	IPSC derived cell therapy system	16 May 2022 to 30 <sup>th</sup> April 2023
3	Ramanujan Fellow	AIIMS Patna, India	Role of TG2 in drug resistance in cancer and metastatic	Jan 2017 to July 2021
4	Ramanujan Fellow	Panjab University	Role of TG2 in drug resistance in cancer and metastatic	March 2016 to Jan 2017
5	Postdoc	University of Houston	SUMOylation and Cancer	Dec 2014 to March 2016
6	Postdoc	University of Mississippi Medical Center	Muscle wasting and aging	Aug 2013 to Dec 2014
7	Postdoc	MD Anderson Cancer Center Houston, Texas USA	Drug resistance, EMT and metabolism in cancer	Apr 2013 to Aug 2013
8	Postdoc	Baylor College of Medicine	Mitochondria and cancer	Apr 2012 to Apr 2013
9	Postdoc	MD Anderson Cancer Center Houston, Texas USA	Drug resistance, EMT and metabolism in cancer	June 2010 to Apr 2012
10	Postdoc	Nebraska medical center, Omaha, NE USA	Regulation of p66Shc in Prostate cancer	Apr 2009 to Jun 2010

## AWARD AND FELLOWSHIP

Name of the fellowship	Year of award	Subject
DST Ramanujan fellowship	2015 November	Biological Science
CSIR-UGCNET	2003 December	Life science
CSIR-UGCNET	2004 December	Life science
ICMR	2003	Life science
GATE	2003	Life science

## JOURNAL REVIEWER

- Nature communication
- Plos One
- Scientific reports
- BioMed Research International
- Oxidative Medicine and Cellular Longevity
- Biochemistry & Analytical Biochemistry
- Frontiers in Bioengineering and Biotechnology
- Journal of Materials Chemistry
- Journal of Research in Medical and Dental Science
- Oxidative Medicine and Cellular Longevity

## PATENT

1. Anti-tumor activity of AECHL-1, a novel triterpenoid isolated from *Ailanthus excelsa* in vitro and in vivo. Dr. Sandhya Sitasawad, Manish S. Lavhale, **Santosh Kumar** and Dr. Shri Hari Mishra. [Indian patent (2261/DEL/2008) and PCT patent (PCT/IN08/000795)].

## LIST OF PUBLICATIONS

1. Antioxidants ameliorates glucose/glucose oxidase-induced myocardial damage through mitochondrial and MAPK Pathway. Santosh Kumar\*, Agrawal P, Mendhey P, Dhatwalia SK, Sitasawad SL. 3 Biotech, 2025 Sep;15(9):323, Corresponding author **Impact Factor- 3.0**
2. Green Tea's EGCG: Brewing Hope in the Battle Against Breast Cancer. Manoj Kumar, Roop Lal, Amit Sehgal, Suman Rawat, Ankit Kumar, **Santosh Kumar**, Sunil Kumar Dhatwalia\*, The Natural Products Journal, 21 January, 2025 (Ref: BMS-NPJ-2024-368) **Impact Factor- 1.2**
3. Imidazo[1,2-a]Quinoxaline-2-Carbonitrile Derivative (RA-22) Inhibits Self-Renewal and Growth of Cancer Stem and Cancer Cells via Downregulating AKT Pathway. Pramit Kumar, Umesh Prasad Yadav, Gaurav Joshi, Sahil Arora, Manvendra Kumar, Joydeep Chatterjee, Vikas Chandra, Sandeep Singh, Raj Kumar, Santosh Kumar. ChemistrySelect 2024, 9, e202400223. Corresponding author **Impact Factor- 2.2**
4. Regulatory Mechanism of Cancer Cell Metabolism by Natural Compounds. Pramit Kumar, Pradeep Kumar, Ravi Das, Umesh Prasad Yadav, Sadhana Sharma, Preeti Sharma, Santosh Kumar. **Cancer Science & Research**. Accepted: August 23, 2023; Published: October 10, 2023. Corresponding author **Impact Factor- 1.64**
5. Design, synthesis and anticancer activity of 2-arylimidazo[1,2-a]pyridinyl-3-amines. Yadav UP, Arshad J. Ansari JA, Arora S, Joshi G, Singh T, Kaur H, Dogra N, Kumar R **Santosh Kumar**, **Sawant DM**, **Singh S**. *Bioorganic Chemistry*. 2022 Jan;118:105464. Corresponding author **Impact Factor- 5.275** Corresponding author
6. Let-7a induces metabolic reprogramming in breast cancer cells via targeting mitochondrial encoded ND4. Sharma P, Sharma V, Singh T, Ahluwalia, Dogra N, **Santosh Kumar**, Singh S. Cancer Cell Int. 2021 Nov 27;21(1):629. **Impact Factor- 5.149**
7. Yadav UP, Singh T, Kumar P, Sharma P, Kaur H, Sharma S, Singh S, Santosh Kumar\* and Mehta K. Metabolic Adaptations in Cancer Stem Cells. *Frontiers in oncology*. June 2020, Vol 10, Article 1010, doi: 10.3389/fonc.2020.01010 **Impact Factor- 6.244**. Corresponding author
8. Yadav RK, Ali A, Santosh Kumar, Sharma A, Baghchi B, Singh P, Das S, Singh C, Sharma S. CAR T cell therapy: newer approaches to counter resistance and cost. *Heliyon* 6 (2020) e03779. **Impact Factor- 2.850**
9. Joshi G, Ansari A J, Yadav U, Singh S, Sawant D, Singh P, Sharma P, Amrutkar S, Banerjee U, Sharon A, **Santosh Kumar**, Sharma S, Kalra S and Kumar R. E-pharmacophore Enabled Screening of Pyrazolo[1,5-c]quinazolines as Non-camptothecin Topoisomerase-I Inhibitors: Synthesis, Anticancer Evaluation and Their Further Preliminary Assessment as Dual Topoisomerase-I and Histone Deacetylase. *Bioorganic Chemistry*. 2020 Jan; 94:103409. **Impact Factor- 5.275**
10. **Santosh Kumar**, Parash Parajuli, Audrey Loumaye, Purba Singh, Sailaja Eragamreddy, Thien Ly Nguyen, Seval Ozkan, Mohammed S. Razzaque, Ce' line Prunier, Jean-Paul Thissen, Azeddine Atfi Twist1 Activation in Muscle Progenitor Cells Causes Muscle Loss Akin to Cancer Cachexia.. *Developmental Cell*. 2018 Jun 18;45(6):712-725 **Foot note:** Santosh Kumar and Parash Parajuli. contribute equally towards this work. **Impact Factor- 10.09**
11. Karami S, Lin MF, **Santosh Kumar**, Bahnassy S, Quttina M, Li Y, Ren J, Tasneem Bawa-Khalfe. Novel SUMO-Protease SENP7S Regulates  $\beta$ -catenin Signaling and Mammary Epithelial Cell Transformation. *scientific reports*. 2017 Apr 21;7:46477 **Impact Factor- 4.379**
12. Lin MF, **Santosh Kumar**, Ren J, Karami S, Bahnassy S, Li Y, Zheng X, JWang J, Tasneem Bawa- Khalfe. SUMOylation of HPI $\alpha$  Supports Association with ncRNA to Define Responsiveness of Breast Cancer Cells to Chemotherapy. *Oncotarget*. 2016 May 24;7(21) **Impact Factor- 4.177**
13. Park JH, Vithayathil S, **Santosh Kumar**, Sung PL, Dobrolecki LE, Putluri V, Bhat V, Bhowmik S, Gupta V, Arora K, Wu D, Tsouko E, Zhang Y, Maity S, Donti TR, Graham BH, Frigo DE, Coarfa C, Yotnda P, Putluri N, Lewis MT, Sreekumar A, Creighton CJ, Wong C LJ & Kaiparettu BA. Fatty acid beta-oxidation driven Src mediated oncogenic properties links mitochondrial energy reprogramming in the regulation of cancer phenotype in triple negative breast cancer. *Cell Reports*. 2016 Mar 8;14(9):2154-65 **Impact Factor- 9.423**
14. Courivaud T, Ferrand N, Elkhattouti A, **Kumar Santosh**, Levy L, Ferrigno O, Atfi A, and Prunier C. Functional characterization of a WWPI/Tiul1 tumor-derived mutant reveals a paradigm of its constitutive activation in human cancer. *Journal of Biological Chemistry*. 2015 Aug 21;290(34):21007-18 **Impact Factor- 5.157**
15. Prunier C, Zhang MZ, **Kumar Santosh**, Levy L, Ferrigno O, Tzivion G, Atfi A. Disruption of the PHRF1 Tumor Suppressor Network by PML-RAR $\alpha$  Drives Acute Promyelocytic Leukemia Pathogenesis. *Cell Reports*. 2015 Feb 11. pii: S2211-1247(15)00049-2. **Impact Factor- 9.423**
16. Amy Han, **Santosh Kumar**, Jansina Y. Fok, Amit K. Tyagi and Kapil Mehta. Tissue transglutaminase expression promotes castration-resistant phenotype and transcriptional repression of androgen receptor. *European J of Cancer*. 2014 Jun; 50 (9):1685-96. **Impact Factor- 9.162**

17. **Santosh Kumar**, Taraka R. Donti, Navneet Aganihotri, Kapil Mehta. Transglutaminase 2 reprograms glucose metabolism in mammary epithelial cells by activating inflammatory signaling pathways. *International Journal of Cancer*. 2014 Jun 15;134 (12):2798-807. **Impact Factor- 7.396**
18. **Santosh Kumar** and Sandhya L. Sitasawad. Multiple antioxidants improve cardiac complications and inhibit cardiac cell death in streptozotocin-induced diabetic rats. *PLoS One*. 2013 Jul 2;8(7):e67009. **Impact Factor-3.240**
19. Navneet Agnihotri, **Santosh Kumar** and Kapil Mehta. Tissue transglutaminase as a central mediator in inflammation-induced progression of breast cancer. *Breast cancer research*. 2013 Feb 25;15(1):202. **Impact Factor-6.466**
20. **Santosh Kumar** and Kapil Mehta. Tissue transglutaminase, inflammation, and cancer: how intimate is the relationship? *Amino Acids*. 2013 Jan;44(1):81-8. **Impact Factor- 3.52**
21. **Santosh Kumar** and Kapil Mehta. Tissue Transglutaminase Constitutively Activates HIF-1 $\alpha$  Promoter and Nuclear Factor- $\kappa$ B via a Non-Canonical Pathway. *PLoS One*. 2012;7(11):e49321. **Impact Factor-3.240**
22. Anupam Kumar, Jia Xu, Bokyoung Sung, **Santosh Kumar**, Dihua Yu, Bharat B. Aggarwal and Kapil Mehta. Evidence that GTP-binding domain but not catalytic domain of transglutaminase 2 is essential for epithelial-to-mesenchymal transition in mammary epithelial cells. *Breast Cancer Res* 2012 Jan 6; 14(1):R4. **Impact Factor-6.466**
23. **Santosh Kumar**, Satyendra Kumar, Mythilypriya Rajendran, Syed Mahfuzul Alam, Fen-Fen Lin, Pi- Wan Cheng, Ming-Fong Lin, Steroids up-regulate p66Shc longevity protein in growth regulation by inhibiting its proteasomal degradation pathway. *PLoS One*. 2011 Jan 14;6(1):e15942. **Impact Factor-3.240**
24. **Santosh Kumar** and Sandhya L. Sitasawad. N-Acetyl Cysteine prevents glucose/glucose oxidase- induced oxidative stress, mitochondrial damage and apoptosis in H9c2 cells. *Life Science*. 2009 Mar 13; 84(11-12):328-36. **Impact Factor-5.037**
25. Murugavel P, Pari L, Sitasawad SL, Kumar S, **Santosh Kumar**. Cadmium induced mitochondrial injury and apoptosis in Vero cells: Protective effect of diallyl tetrasulfide from garlic. *International Journal of Biochemistry & Cell Biology* 2007, 39, 161–170. **Impact Factor-3.673**

## Book Chapter

1. Kapil Mehta & Santosh Kumar, TG2 – Player that Dictates the Rules in Cancer Progression. Title of the Book: Multi-Targeted Approach to Treatment of Cancer. Publisher & ISBN: Springer International Publishing Switzerland: 978-3-319-12252-6, 2014.
2. Natural Compound-Based Nanoparticles to Target Free Radicals in Cancer. Umesh Prasad Yadav UP, Rhuthuparna M, Vasudev K, Suman P, Munshi A, Santosh Kumar, Singh S. Book: Springer in Nature, Handbook of Oxidative Stress in Cancer: Therapeutic Aspects pp 1-14, 2022 Corresponding author
3. Santosh Kumar, Prachi Agrawal, Prachi Mendhey, Robins Kumar, Abhishek Dadsena, Prakash Kaushik, Subham Patel. Title of the Book: The microbiome in cancer and autoimmunity part A, Title of chapter: Introduction to Microbiomes in Health and Disease. Volume 394 of International Review of Cell and Molecular Biology, Academic Press, 2025, ISBN: 0443317070, 9780443317071
4. Gorki V, Dhatwalia SK\*, Kumar, A., Walter, N. S., Kumar, S., Kumar, S., Sinha, S. K., & Sobti, R. C. (in press). Instrumentation and techniques in stem cell cultures. In Integrated Approaches to Stem Cells. CRC Press, Taylor & Francis.

## ABSTRACT/ CONFERENCES/ SEMINARS

1. Parash Parajuli, Santosh Kumar, Audrey Loumaye, Purba Singh, Sailaja Eragamreddy, Thien Ly Nguyen, Seval Ozkan, Mohammed S. Razzaque, Céline Prunier, Jean-Paul Thissen, Azeddine Atfi. Abstract A40: Twist1 activation in muscle progenitor cells during development or adulthood causes severe muscle loss reminiscent of human cancer cachexia. AACR Special Conference: Advances in Modeling Cancer in Mice: Technology, Biology, and Beyond; September 24-27, 2017; Orlando, Florida, May 2018, Volume 78, Issue 10 Supplement
2. Thien Ly Nguyen, Purba Singh, Parash Parajuli, Lianna Li, Celine Prunier, Santosh Kumar, Sailaja Eragmerdi, Seval Ozkan, Hao Me, Jussara do Carmo, John Hall, Azeddine Atfi. Abstract A38: Twist1- driven fatty pancreas formation facilitates pancreatitis and pancreatic ductal adenocarcinoma progression. AACR Special Conference: Advances in Modeling Cancer in Mice: Technology, Biology, and Beyond; September 24-27, 2017; Orlando, Florida. May 2018, Volume 78, Issue 10

3. Parash Parajuli, Purba Singh, Zhe Wang, Santosh Kumar, Lena Li, Sailaja Eragamreddy, Thien Ly Nguyen, Subhi Talal Younes, Xu Zhang, Keli Xu, Mohammed S. Razzaque, Céline Prunier, Azeddine Atfi. Abstract B33: Tgif inactivation defines a synthetic lethal interaction among oncogenic Kras and Twist1 in pancreatic ductal adenocarcinoma. AACR Precision Medicine Series: Opportunities and Challenges of Exploiting Synthetic Lethality in Cancer; January 4-7, 2017; San Diego, CA. October 2017, Volume 16, Issue 10
4. S Karami, FM Lin, S Kumar, J Ren, S Bahnassy, T Bawa-Khalfe. Abstract P1-04-08: Non-nuclear SUMO dynamics regulate mammary epithelial cell transformation. Cancer research 77 (4 Supplement), P1-04-08
5. S Bahnassy, S Kumar, J Ren, G Frutiz, S Karami, T Bawa-Khalfe. Abstract P3-04-21: Androgen receptor in tamoxifen-resistant breast cancer is affected by SUMO. Cancer Research 77 (4 Supplement), P3-04-21-P3- 04-21
6. T Bawa-Khalfe, S Kumar, FM Lin. Abstract P2-04-03: SUMO wrestlers breast cancer: SUMO posttranslational modification directs breast cancer cell epigenome. Cancer Research 76 (4 Supplement), P2- 04-03-P2-04-03.
7. Kapil Mehta, **Santosh Kumar**, and Anupam Kumar. Tissue transglutaminase (TG2) - the key driver in inflammation-induced progression of cancer. Abstract 207: Cancer Research: April 15, 2012; Volume 72, Issue 8, AACR 103rd Annual Meeting Mar 31-Apr 4, 2012; Chicago, IL, USA
8. **Santosh Kumar**, Vineet Gupta, Sajna Vithayathil, Junhyoung Park, Taraka R Donti, Chad J Creighton, Michael T Lewis, Arun Sreekumar, Lee-Jun Wong, Benny A Kaiparettu. Mitochondria-nuclear cross talk regulates cancer properties by activating oncogenic pathways. Abstract 1696: Cancer Research: April 15, 2013; Volume 73, Issue 8, AACR 104th Annual Meeting Apr 6-Apr 10, 2013; Washington, DC, USA
9. Jun Hyoung Park, **Santosh Kumar**, Sajna Vithayathil, Kavisha Arora, Nagireddy Putluri, Efrosini Tsouko, Taraka R Donti, Daniel E Frigo, Chad J Creighton, Michael T Lewis, Arun Sreekumar, Lee-Jun Wong, and Benny Abraham Kaiparettu. Abstract P1-07-06: Activation of oncogenic pathways by mitochondrial reprogramming in triple negative breast cancer.
10. Roland Baron & Azeddine Atfi Ming-zhu Zhang, Eric Hesse, Celine Prunier, Mutsuko Ohnishi, Harikiran Nistala, Guang-rong Yu, Yun-Feng Yang, **Santosh Kumar**, William Horne. Homeodomain Protein TGIF is required for Canonical Wnt Signalling-Induced Bone Formation. ECTS-IBMS, P14
11. **Santosh Kumar**, Sandhya L. Sitasawad. "Oxidative and Nitrosative stress induced apoptosis in cardiac cells cultured in elevated glucose: Therapeutic potential of Anti-oxidants and diabetic cardiomyopathy" poster presentation in XXIX all India cell biology conference & symposium on Gene to Genome: Environment & chemical interaction, Lucknow from January 17-20, 2006.
12. **Santosh Kumar**, Vinnet Gupta, Sajna Antony Vithayathil, Lee Jun Wong and Benny Abraham Kaiparettu. Mitochondrial-Nuclear Crosstalk Regulate Cancer Properties Dan L. Duncan Cancer
13. Anupam Kumar, **Santosh Kumar**, Kapil Mehta. Tissue transglutaminase (TG2) induces EMT and stem cell characteristics in mammary epithelial cells. The MD Anderson Alumni and Faculty Association's 15th Annual Trainee May 27, 2011 Center, Baylor College of Medicine, Houston, TX-77030
14. Joshi GK, **Kumar S**, Mehta B, Prasad S, Lakchaura BD. Isolation and determination of genetic diversity of protease producing bacteria of lake Nainital. National Symposium on Cellular and Molecular Biophysics. NIMHANS, Bangalore. Jan 14-16, 2004.
15. Best poster award in National Symposium on Cellular and Molecular Biophysics held in NIMHANS, Bangalore, 14-16 Jan., 2004 entitled 'Isolation and determination of genetic diversity of protease producing bacteria of Lake Nainital'.

## Google Scholar

**Citation:** 1631  
**h- Index:** 20  
**i-10:** 22

## Linkedin Profile:

<https://www.linkedin.com/in/dr-santosh-kumar-253b3636/>