Dr. Surajit Pathak, Ph.D., Professor

Department of Biotechnology, Faculty of Allied Health Sciences
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WoS Researcher ID: https://publons.com/researcher/AAH-4022-2020/
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Total Experience: 20 years of Research and 8 years of Teaching

Key areas of Interest

My Lab is interested in aspects of microRNA-based biomarker discovery in colorectal cancer. We are also focusing on the role of various inflammatory cytokines in cell fate determination of cancer associated fibroblasts and studying the role of aging genes during primary to metastatic colon cancer progression

We have published more than 115 research articles in peer-reviewed international journals of repute with 2350 citations. In our group we received various research grants including Core International and National research grants from SERB-CRG (DST), DST Indo-Italy Bi-lateral research projects and from various international funding agencies.

- M. Sc: 2002, University of Kalyani, India
- Ph.D.: 2007, University of Kalyani, India

Professional Experience

- October 2019 to till date Professor, Chettinad Academy of Research and Education, Kelambakkam, Chennai
- October 2016-October 2019, Associate Professor, Chettinad Academy of Research and Education, Kelambakkam, Chennai
- August 2015- September 2016, Assistant Professor (Senior-Scale), Chettinad Academy of Research and Education, Kelambakkam, Chennai

Teaching Experience

Total experience: 8 years
Subjects : Molecular biology, Recombinant DNA Technology, Cell culture methods, Stem cell Biology

Research Guidance

Post Doc: 1 (Completed 2 years Post-Doctoral Research in 2019, (Institute Fellowship)
Ph.D. Ongoing: 7 (Ongoing)
Ph.D. Awarded: 4
M.Sc. Project (Thesis completed): 10

Summary of Research

Citation indices (Google scholars)	All	Since 2017
Citations	2350	1600
h-index	28	18
i10-index	49	33

Publications
2022

- RNA-Interference-Mediated miR-122-Based Gene Regulation in Colon Cancer, a Structural *in Silico* Analysis. Harsha Ganesan, Suman K. Nandy, Antara Banerjee, **Surajit Pathak**, Hong Zhang 4and Xiao-Feng Sun. **International Journal of Molecular Sciences 2022. 2022 December 3; 1 5275.**
- MicroRNAs and long non-coding RNAs in pancreatic cancer: From epigenetics to potential clinical applications. Bravo-Vázquez LA, Frías-Reid N, Ramos-Delgado AG, Osorio-Pérez SM, Zlotnik-Chávez HR, **Pathak S,** Banerjee A, Bandyopadhyay A, Duttaroy AK, Paul S. **Translational Oncology. 2023 Jan 1; 27:101579.**
- Exploring dithiolate-amine binary ligand systems for the supramolecular assemblies of Ni (II) coordination compounds: Crystal structures, theoretical studies, cytotoxicity studies, and molecular docking studies. Bhattacharjee, T., Adhikari, S., Bhattacharjee, S., Debnath, S., Das, A., Gabriel Daniliuc, C., Thirumoorthy, K., Malayaperumal, S., Banerjee, A., **Pathak, S**., & Frontera, A. (2022). **Inorganica Chimica Acta, 543, 121157.**
- Maternal obesity and gut microbiota are associated with fetal brain development. Basak S, Das RK, Banerjee A, Paul S, **Pathak S,** Duttaroy AK. **Nutrients. 2022 Oct 27; 14(21):4515.**
- Bioactive food components and their inhibitory actions in multiple platelet pathways. Das D, Adhikary S, Das RK, Banerjee A, Radhakrishnan AK, Paul S, **Pathak S,** Duttaroy AK. **Journal of Food Biochemistry. 2022 Oct 11: e14476**.
- Recent insights into the microRNA and long non-coding RNA-mediated regulation of stem cell populations. Estrada-Meza C, Torres-Copado A, Loreti González-Melgoza L, Ruiz-Manriquez LM, De Donato M, Sharma A, **Pathak S**, Banerjee A, Paul S. **3 Biotech. 2022 Oct;12(10):1-25.**
- Wnt Signalling Inhibitors Potently Drive Trans-differentiation Potential of Mesenchymal Stem Cells Towards Neuronal Lineage. Banerjee A, Rowlo P, Jothimani G, Duttaroy AK, **Pathak S. Journal of Medical and Biological Engineering. 2022 Oct;42(5):630-46.**
- Can plant-derived anti-HIV compounds be used in COVID-19 cases? Das D, Jena AB, Banerjee A, Radhakrishnan AK, Duttaroy AK, **Pathak S. Medical Hypotheses. 2022 Sep 1; 166:110926.**

- Plant-derived bioactive compounds in colon cancer treatment: An updated review. Esmeeta A, Adhikary S, Dharshnaa V, Swarnamughi P, Maqsummiya ZU, Banerjee A, **Pathak S,** Duttaroy AK. **Biomedicine & Pharmacotherapy. 2022 Sep 1; 153:113384.**
- Impact of smoking-induced dysregulated human miRNAs in chronic disease development and their potential use in prognostic and therapeutic purposes. Paul S, Ruiz-Manriquez LM, Ambriz-Gonzalez H, Medina-Gomez D, Valenzuela-Coronado E, Moreno-Gomez P, **Pathak S**, Chakraborty S, Srivastava A. **Journal of Biochemical and Molecular Toxicology. 2022 Sep;36(9): e23134.**
- Making Biomarkers Relevant to Healthcare Innovation and Precision Medicine. Al-Dewik NI, Younes SN, Essa MM, **Pathak S**, Qoronfleh MW. **Processes. 2022 Jun 1;10(6):1107.**
- A Comprehensive Cancer-Associated MicroRNA Expression Profiling and Proteomic Analysis of Human Umbilical Cord Mesenchymal Stem Cell-Derived Exosomes.Jothimani G, **Pathak S**, Dutta S, Asim , Duttaroy K, Antara Banerjee. **Tissue Eng Regen Med 2022. 2022 May 5;1–19.**
- Functional Implications and Clinical Potential of MicroRNAs in Irritable Bowel Syndrome: A Concise Review. Bravo-Vázquez LA, Medina-Ríos I, Márquez-Gallardo LD, Reyes-Muñoz J, Serrano-Cano FI, **Pathak S**, et al. **Dig Dis Sci 2022. 2022 May 4;1:1–16**.
- Molecular characterization of primary and metastatic colon cancer cells to identify therapeutic targets with natural compounds Jothimani G, Ganesan H, **Pathak S**, Banerjee A. **Curr Top Med Chem. 2022 Apr 1;22**.
- Dietary Fats and the Gut Microbiota: Their impacts on lipid-induced metabolic syndrome Basak S, Banerjee A, **Pathak S**, Duttaroy AK.. **J Funct Foods. 2022 Apr 1;91:105026**.
- Role of ER Stress Mediated Unfolded Protein Responses and ER Stress Inhibitors in the Pathogenesis of Inflammatory Bowel Disease Deka D, D'Incà R, Sturniolo GC, Das A, **Pathak S**, Banerjee A. **Dig Dis Sci 2022. 2022 Mar 22;1–15**.
- A Brief Review on the Regulatory Roles of MicroRNAs in Cystic Diseases and Their Use as Potential Biomarkers Ruiz-Manriquez LM, Ledesma Pacheco SJ, Medina-Gomez D, Uriostegui-Pena AG, Estrada-Meza C, Bandyopadhyay A, et al.. **Genes 2022, Vol 13, Page 191. 2022 Jan 22;13(2):191.**

- Essentiality, relevance, and efficacy of adjuvant/combinational therapy in the management of thyroid dysfunctions .Das D, Banerjee A, Jena AB, Duttaroy AK, **Pathak S**. **Biomed Pharmacother. 2022 Feb 1;146:112613.**
- Phytochemicals mediated modulation of microRNAs and long non-coding RNAs in cancer prevention and therapy. Ruiz-Manriquez LM, Estrada-Meza C, Benavides-Aguilar JA, Ledesma-Pacheco SJ, Torres-Copado A, Serrano-Cano FI, **et al**. **Phyther Res. 2022 Feb 1;36(2):705–29.**
- The role of microRNAs in solving COVID-19 puzzle from infection to therapeutics: A mini-review. Paul S, Bravo Vázquez LA, Reyes-Pérez PR, Estrada-Meza C, Aponte Alburquerque RA**, Pathak S**, et al. **Virus Res. 2022 Jan 15;308:198631**.
- Natural Compounds as Oriental Therapy for Liver Protection against Inflammatory and Carcinogenic Mechanisms: from Induction to Molecular Biology Advancement. Banerjee A, Sriramulu S, Catanzaro R, He F, Chabria Y, Balakrishnan B, **et al. Curr Mol Med. 2022 Mar 17;22.**

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- The role of microRNAs in solving COVID-19 puzzle from infection to therapeutics: A mini-review. Paul S, Vázquez LA, Reyes-Pérez PR, Estrada-Meza C, Alburquerque RA, **Pathak S**, Banerjee A, Bandyopadhyay A, Chakraborty S, Srivastava A. **Virus Research. 2021 Nov 14:198631.**
- Comparison of efficacy, safety & satisfaction of intermittent versus continuous phototherapy in hyperbilirubinaemic newborns ≥35-week gestation: A randomized controlled trial. Gottimukkala SB, Sethuraman G, Kitchanan S**, Pathak S. Indian J Med Res. 2021 Apr; 153(4):446-452. doi: 10.4103/ijmr.IJMR_2156_18.**
- Nanomedicines for Solid Tumors: Current Status, Challenges, and Future Prospects. Gopi J, Gopinath M, Banerjee A, Rupert S, Vennila R, **Pathak S.** In Nanomedicine for **Cancer Diagnosis and Therapy 2021 (pp. 81-96). Springer, Singapore.**
- A review on interplay between small RNAs and oxidative stress in cancer progression A Das, H Ganesan, S Sriramulu, F Marotta, NR Kanna, A Banerjee, **Surajit Pathak. Molecular and Cellular Biochemistry 476 (11), 4117-4131 2021**
- Current understanding of the mesenchymal stem cell-derived exosomes in cancer and aging MK Makalakshmi, MS Jain, H Ganesan, AK Duttaroy, **S Pathak, Biotechnology Reports, e00658 1 2021**

- Relationship of Serum Cytokine Profile to Steroid Resistance in Demyelinating Neurologic Illnesses D Markandeyan, M Ulaganathan, **S Pathak,** RG Vengalathur **International Journal of Nutrition, Pharmacology, Neurological Diseases 11 2021**
- The impact of fusion genes on cancer stem cells and drug resistance S Panicker, S Venkata Balasubramanian, **S Pathak,** S Ramalingam **Molecular and Cellular Biochemistry, 1-13 1 2021**
- Maternal Supply of Both Arachidonic and Docosahexaenoic Acids Is Required for Optimal Neurodevelopment S Basak, R Mallick, A Banerjee, **S Pathak,** AK Duttaroy **Nutrients 13 (6), 2061**
- Emerging role and clinicopathological significance of AEG-1 in different cancer types: A concise review, Sushmitha Sriramulu, Xiao Feng Sun, Sarubala Malayaperumal, Harsha Ganesan, Hong Zhang, Murugesan Ramachandran, Antara Banerjee, **Surajit Pathak**, **Cells 10 (6), 1497.**
- Transcriptional modulation of Wnt and NF-kβ target genes by STW 5 herbal preparation under experimental IBS-like conditions STW5 modulates Wnt signaling in IBS. Monica Piccione, Nicola Facchinello, Sandra Schrenk, Marco Gasparella, **Surajit Pathak,** Ramy Ammar, Sabine Rabini, Luisa Dalla Valle and Rosa Di Liddo. **Pharmaceuticals (Accepted), 2021**
- Smoking induced dysregulation of human miRNAs and their role in chronic disease development. Sujay Paul, Luis M. Ruiz-Manriquez; Hector Ambriz-Gonzalez; Daniel Medina-Gomez; Estefania Valenzuela-Coronado; Paloma Moreno-Gomez; **Surajit Pathak,** Samik Chakraborty, Aashish Srivastava. (**Toxicology Accepted) 2021**
- Evaluation of Binding and Abrasion Properties of Grey Mangrove (Avicennia marina) Leaf Extract against Escherichia coli K12 DNA. Praveen Tudu, Shouvik Mahanty, Sushmitha Sriramulu, Punarbasu Chaudhuri, **Surajit Pathak. Anti-Infective Agents (**DOI: **10.2174/2211352519666210528155419), 2021**
- Natural Compounds for Liver Protection against Inflammatory and Carcinogenic Mechanisms: from Empirism to Molecular Biology Advancement" **Surajit Pathak*,** Roberto Catanzaro, Fang He, Yashna Chabria, Antara Banerjee, Baskar Balakrishnan, Sruthi H, Antonio Ayala, Reza Rastmanesh, Francesco Marotta* **Current Molecular Medicine. (Accepted), 2021**

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emerging therapies by targeting tumor microenvironment. Adv Exp Med Biol**.2019** Apr 11. doi: 10.1007/5584_2019_355.

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BOOKS/CHAPTERS

- Contributed to the eBook chapter titled "**Urinary tract infections &Treatment" for publication in eBook** edited by Justin Prince Published). **Pathak S,** Sushmitha S, Ganesan J, Murugesan R, Banerjee A, Bissi L, Marotta F, Open Aces e books (2017). ISBN: 978-81-935757-6-5
- **Pathak S,** Sushmitha S, Ganesan J, Murugesan R, Marotta F, Bissi L, Banerjee A. Antimicrobial Research. Novel bioknowledge and programs. Educational programs. **Antimicrobial: research, bio knowledge, education chapter on biofilm, Biofilms. (A. Méndez-Vilas, Ed), Formatex Research Center, ISBN: 978-84-947512-0-22017: 273-279**
- Contributed in the chapter titled "Novel therapeutic Approaches of Polyphenols: A review" for publication in eBook edited by Polyphenols Book**, Elsevier publishing house. Surajit Pathak,** Pallavi Kesavan, Ram Murugesan, Francesco Marotta, Surajit Pathak **Polyphenols Book, Elsevier2018 B978-0-12-813006-3.00025-8, 00011**
- Metabolism of Dietary Polyphenols by Human Gut Microbiota and Their Health Benefits, **Surajit Pathak**, Pallavi Kesavan, Anushka Banerjee, Antara Banerjee, Gulcin Sagdicoglu Celep, Laura Bissiand Francesco Marotta, **Polyphenols Book, Elsevier, B978-0-12-813006-3.00025-8, 0002**5
- Contributed in the chapter titled "An insight into the link between Oral health and Neurological diseases" for publication in eBook edited by Caister Academic Press. **Surajit Pathak**, Suhanya Veronica Prasad, Sushmitha S, Ganesan J, Ram Murugesan, Antara Banerjee, Francesco Marotta. **Book** on **Microbiota: Caister Academy Press, 2018. Page87-8.DOI: https://doi.org/10.21775/9781910190937.06**

Patent Granted (2015-2019)

It is hereby certified that a patent has been granted to the patentee for an invention entitled "**A METHOD AND DEVELOPMENT OF NANOSCAFFOLD FOR DELIVERY OF AGENT FOR STEM CELL DIFFERENTIATION**" as disclosed in the above-mentioned application for the term of 20 years from the 11th day of January 2017 in accordance with the provisions of the **Patents Act,1970 (Patent No: 343553),**

Personal Details

Name: **Prof. Surajit Pathak**
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Editor in Special Issue "Current Aging Sciences"

Scientific Organization Membership

Lifetime member of Indian Association of Cancer Research (IACR)
2. Lifetime member of Indian Science Congress
3. Member of Aesthetic Multi-speciality Society, Europe.

Declaration: 'I hereby declare that the detail provided in this resume is true. I shall strive to keep up the esteem of your institution and can carry out programs under established policies.

Signature:

Prof. Surajit Pathak, Ph.D.
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Achievements

Extramural projects/ Other Funding Received/Grants ongoing/completed (PI)

- **DST (India) SERB- 2018-2021 CORE RESEARCH Project granted on "**An approach towards investigating the interplay between microRNA 122 and AEG-1 protein in colon cancer progression"
- **DST (India)-Italy Bilateral Research Grant Higher Education Ministry** collaborative research project for the year 2017-2020 for conducting research on Title: TAZ as a marker for mesenchymal stem cells and its role in maintaining of its stemness property.
- **Regenera Research Group (Italy)** for the year 2017-2023 for conducting research on mesenchymal stem cells and maintaining of its stemness property.
- Received **travel, accommodation, registration grant** from AMWC **China Anti-aging medicine world congress, 2019, Shenzhen, China** as an invited Speaker
- **Received Bilateral Mobility Research Grant for the Year 2019 from University of Padova, Italy to work on prognostics marker in colon cancer**
- Received **travel, accommodation, registration grant** from AMWC **16thAesthetic & Anti-aging medicine world congress, 2019, Monaco** as an invited Speaker
- Received **travel, accommodation, registration grant** from **AMWC ASIA & TDAC (Taiwan Dermatology aesthetic conference), 2019, Taiwan-Taipei** as an invited Speaker
- Received travel, accommodation, registration Grant from AMWC EE - **4th Aesthetic & Anti-Aging Medicine World Congress Eastern Europe, Moscow, Russia** as an invited Speaker
- Received travel, accommodation, registration grant from AMWC **15thAesthetic & Anti-aging medicine world congress, 2018, Monaco** as an invited Speaker
- Received travel, accommodation, registration grant from **AMWC ASIA & TDAC (Taiwan Dermatology aesthetic conference), 2018, Taiwan-Taipei** as an invited Speaker
- **Chettinad Academy of Research and Education** (2016-2017) start up research grant on study of application of nanotechnology in colon cancer.
- **Editor in Chief Springer Nature book entitled "Cancer Stem Cells: New Horizon Cancer Therapy" in 2020 DOI** 10.1007/978-981-15-5120-8 **(https://www.springer.com/gp/book/9789811551192)**
- **Editor in Chief Elsevier Book "Stem Cells and Aging" in 2021.** (https://www.sciencedirect.com/book/9780128200711/stem-cells-and-aging), DOI-https://doi.org/10.1016/C2019-0-00820-5)
- **Editor in Chief Micro RNA and Colon Cancer special issue EMIDDT, Bentham Sciences, 2020. (https://www.eurekaselect.com/node/636/endocrine-metabolic-immune-disorders-drug-targets/issue/21/2931/1/10278)**