

HADIDA YASMIN

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PRESENT STATUS

Associate Professor- Immunology & Cell Biology Lab, Dept. of Zoology, Cooch Behar Panchanan Barma University, Cooch Behar, WB

Former Vice Principal & Assistant Professor in Zoology at North Bengal St. Xavier's College, Rajganj, Jalpaiguri, WB (2010-2016)

EDUCATION

Ph.D. – University of North Bengal, *Thesis title-* Analysis of the Effects of *Curcuma longa* Linn on Lymphocytes and Malignant cells in Murine Model for Immunotherapy- Awarded 2007

Masters of Science - Zoology (Specialization in Immunology & Cell Biology) -2001, University of North Bengal (NBU), WB

Bachelors of Science - Zoology (Honours.)- 1998, Malda College, NBU, WB

Honours Diploma - Network- Centered Computing - (1999), Academic Council of NIIT, Malda study centre, WB

Work experience (in chronological order)

Sl. No.	Positions held	Name of the Institute	From	To
1	Lecturer (Microbiology)	Siliguri College, Siliguri, WB	2004	2005

2	Senior Research Fellow (Funded by ICMR, New Delhi)	University of North Bengal, WB	2005	2008
3	Research Associate- (Funded by FERN, UK)	North Eastern Society for Preservation of Wild Life and Nature (NESPON),WB	2008	2010
3	Assistant Professor (Zoology) & Head	North Bengal St. Xavier's College, Rajganj, WB	2010	2016
4	Vice Principal & Assistant Professor in (Zoology)	North Bengal St. Xavier's College, Rajganj, WB	2012	2016
4	Assistant Professor (Zoology)	Cooch Behar Panchanan Barma University, Cooch Behar, WB	2016	2019
5	Associate Professor (Zoology) Head (2019-2020)	Cooch Behar Panchanan Barma University	2019	Still continuing

Professional Recognition/ Award/ Prize/ Certificate, Fellowship received

Sl. No.	Name of Award	Awarding Agency	Year
1	Teacher Associateship Research Award (TARE)	DST-SERB, Govt. of India	2022
2	Visiting Scientist	Dept. of Life Sciences, Trieste University, Italy	1 st Sep. 2022 to 30 th Oct. 2022
3	INSA-Visiting Scientist Award	Indian National Science Academy (INSA), New Delhi. Visiting Lab- Dept. of Transplant Immunology & Immunogenetics, AIIMS, New Delhi	2019 to 2020

4	Fulbright-Nehru International Education Administrator 2016-17	United States-India Educational Foundation, USA	October 15 th to 29 th , 2016
5	Travel Scholarship	Seattle University, USA	7 th to 9 th August, 2014
6	Senior Research Fellow (SRF)	Indian Council of Medical Research (ICMR, New Delhi)	2005 to 2008
7	Young Scientist Award First Position (Oral Presentation)	National Symposium – “Assessment and Management of Bioresources” Zoology Society, Kolkata	May 29, 2003
8	Young Scientist Award – First Position (Poster Presentation)	National Seminar – “Recent Advances in Stress Physiology, Toxicology and Immunology”. Dept. of Biochemistry and Biophysics, University of Kalyani.	28th Nov. 2003
9	Young Scientist Award - (Poster Presentation)	5th Sass International Conference on “Emerging Concepts in Leukemia and Lymphoma”, AIIMS	25th Dec, 2003

SUMMARY OF DOCTORAL WORK

The present investigation was framed to look into detail the effect of turmeric and curcumin on immunocompetent cells for potential therapeutic approaches against malignancy. The effect of turmeric was judged at cellular level for both lymphocytes and malignant cells. Blastogenesis, DNA synthesis, cell cycle study and set in of apoptosis and cytotoxicity towards tumor cells were investigated. The animal model used was **Swiss albino mice** and the tumor cell lines used were **Ascitic Fibrosarcoma** and **Ehlich Ascitic Carcinoma**. ETE stimulated murine lymphocytes towards **blastogenesis** and synthesis of DNA, as revealed by increased incorporation of **radioactive ³H-thymidine**. **FACS (Flowcytometry)** results showed activation of G2-M phase transition in lymphocytes, whereas tumor cells remained arrested in S-phase causing accumulation in G2-M phase and in G0 phase suggesting mitotic inhibition and apoptosis of tumor cells. Blastoid transformation of lymphocytes and apoptotic condition of tumor cells were beautifully revealed under electron microscopy (**SEM & TEM**). Formation of cytoplasmic blebs, plasma membrane disintegration, chromatin condensation and nuclear fragmentation were prominent in tumor cells with ETE treatment. **Cell mediated cytotoxic response** of ETE activated T cells towards tumor cells was assessed through conjugate formation through **radioactive ⁵¹Cr-release assay**. Then investigation was carried out by intravenous injection and oral administration of ETE to find out

its effectiveness in curbing tumor induction and tumor growth. Turmeric was effective in delaying the appearance of tumor, growth of tumor and thus increasing the life span of the tumor bearing host.

Anti-inflammatory role of turmeric was also documented in **2,4 DNFB induced DTH** reaction in mouse paw showing higher count of CD4⁺ T cells and also inhibition of TNF- α (**ELISA**) and DTH inhibition. ETE administered **intravenously or orally** could delay the onset and growth of tumors. ETE also inhibited **free radical generation** such as O₂⁻, H₂O₂ and OH⁻. ETE was also found to stimulate nitric oxide (NO) production in lymphocytes by activating L-arginine derived nitric oxide synthase (**NOS**) pathway. The **expression** of few **genes** such as **perforin, IL-2, IL-6, TNF- α and iNOS** were assessed (**RNA isolation, cDNA synthesis, PCR**) to compare efficacy of ETE with commercially available curcumin in T cells where ETE upregulated expression of IL-2, IL-6 and perforin markedly over curcumin.

By all these counts turmeric seems to be stimulatory for the lymphocytes and causing cytotoxic differentiation of T cells. Ethanolic turmeric extract (ETE) itself was capable of setting apoptosis in the malignant cells. Thus, turmeric plays diabolically opposite role on lymphocytes and malignant cells in murine model. The present investigation showed in detail these opposite effects, in conjunction promotes the role of turmeric as a strong immunotherapeutic agent for cancer.

PRESENT FIELD OF INTEREST: IMMUNOLOGY & CELL BIOLOGY

- **Looking for immunostimulatory and anti-inflammatory compounds/nanoparticles from the plant world with the potentiality to modulate the immune system for immunotherapeutic approaches against inflammatory diseases and cancer.** Immunomodulation is a process by which the immune system of an organism is altered and regulated through certain molecules known as immunomodulators. Immunomodulators not only regulate the immune function of the normal physiological process but also try to maintain the healthy immune response in altered physiological conditions. With the conventional therapy to treat cancer has several side effects thus, there is a need to search for plant immunomodulators which will stimulate our immune system to fight against malignancy. We search for such plant based medicines used by local medicine healers and investigate them for their anti-inflammatory, anti-oxidant and anti-cancer properties in cell culture (NIH-3T3, PC-3, HTR-8/svneo) and mouse models (DNFB-induced delayed typed hypersensitivity; Ehrlich Ascitic carcinoma) at tissue (immunohistochemistry), cellular (fluorescence and electron microscopy) and molecular level (western blot, q PCR).
- **Understanding the role of complement regulators such as Properdin and Factor H in adverse pregnancy cases (Preeclampsia, Gestational diabetes and Spontaneous abortion).** Complement regulatory proteins are integral to protecting healthy cells from destruction, and preventing excessive complement activation during pregnancy. For the

trophoblast invasion and healthy placentation to occur, the fetal cells must avoid recognition by the complement system. Absence of complement activators and regulators may result in abnormal invasion of fetal trophoblast into the decidua, can increase oxidative stress and accumulation of apoptotic trophoblasts and also results in implantation failure and subsequently the pregnancy. Thus, we wish to examine the abundance and localization of the various complement regulators in the amnion, chorion and decidua placental tissue. If there is a differential regulation of the proteins then the source of their local synthesis such as Neutrophil, Macrophage or T cells, will be ascertained. Syncytiotrophoblast derived extracellular vesicles (STBEVs) have immunomodulatory roles during pregnancy and altered functionality of STBEV during Preeclampsia have also been reported. Thus, we would like to further ascertain whether these regulators are associated with STBEVs and if present, are they expressed differentially and whether they have immunomodulatory role too.

RESEARCH PROJECTS SANCTIONED

1. *Project entitled-* Contributing to a reflective approach towards climate change and sustainability strategies in India- funded by **Rosa Luxemburg Stiftung, South Asia**, October 2011-July 2012 (**completed**)
2. *Project entitled-* Efficacy of Bioactive compounds isolated from the medicinal plants used by Rajbansi Community of Cooch Behar for immunotherapeutic approaches- funded by **Higher Education, Science & Technology and Biotechnology, Govt. of West Bengal – No.296/ST/P/S&T/1G-66/2017 – Rs. 1999610/- (Ongoing)**
3. *Project entitled-* Analysis of immunostimulatory and anti-cancer properties of ethnomedicinal plants of North Bengal for immunotherapeutic approaches to treat malignancy- funded by **Indian National Science Academy, Govt. of India** (INSA Visiting Scientist Program for 2 months) at AIIMS, New Delhi-(**INSA/SP/VSP-23/2019-20/1753**).
4. *Project entitled-* Community based initiative for the conservation of Black Softshell Turtle (*Nilssonina nigricans*) of Baneswar, Cooch Behar, WB **funded by Higher Education, Govt. of West Bengal. Memo No. 744 (Sanc)/HED-12011(19)/6/2019-UNV SEC-Dept. of HE – Rs. 471000/- (Ongoing)**.
5. *Project entitled-* To understand the role of complement activators and regulators in adverse pregnancies- Funded by **Lady Tata Memorial Trust, Mumbai – No.3209/2021-Junior Research Scholarship to Ms. Tamali Roy-Rs. 2354400/- (Ongoing)**
6. *Project entitled -*Investigating the role of Factor-H, a complement inhibitor, at the fetomaternal interface of women with Early and Late Onset Preeclampsia" – Funded by **DST-SERB Teachers Associateship for Research Excellence (TARE), Govt. of India**. File Number: TAR/2022/000626- **Rs. 1680000/- (Ongoing)**

REGISTERED PhD SCHOLARS: 3

- **Torisa Roy** [DST, West Bengal Govt. Project Fellow, (2018-2021)] Thesis title: A study of the anti-inflammatory and wound healing properties of certain medicinal plants used by Rajbanshi community of Cooch Behar, West Bengal, India
- **Priyanka Sharma** (CSIR-JRF, 2020-2022, CSIR-SRF-2022 -continuing) Thesis title: *In vitro* and *in vivo* assessment of Natural Immunomodulators in Cancer models
- **Tamali Roy** (Lady Tata Research Fellow, 2021-continuing) Thesis title: Investigating the role of complement activators and regulators in normal and adverse pregnancy

RESEARCH PUBLICATIONS

1. Chakravarty A.K., **Yasmin H.** and Das SK. (2004): Two way efficacy of alcoholic turmeric extract: Stimulatory for Murine Lymphocytes and inhibitory for Ascitic Fibrosarcoma, *Pharmaceutical Biology*, 42 (3) : 217-224. [ISSN: 1388-0209; Impact Factor-2.971]
2. Chakravarty A.K., and **Yasmin H.** (2005): Alcoholic Turmeric Extract Simultaneously Activating Murine Lymphocytes and Inducing Apoptosis of Ehrlich's Carcinoma Cells. *International Immunopharmacology*, 5: 1574-1581. [ISSN: 1567-5769, Impact Factor-4.56]
3. Chakravarty A.K., and **Yasmin H.** (2007): Activation of Cell Mediated Immune Response and apoptosis towards malignant cells with turmeric treatment in Murine Model. *Indian Journal of Biochemistry and Biophysics*. 45: 23-29. [ISSN: 0301-1208, Impact Factor-1.98]
4. Chakravarty A.K., and **Yasmin H.** (2008): Free Radical Scavenging and Nitric Oxide Synthase Activation in Murine Lymphocytes and Ehrlich Ascitic Carcinoma Cells treated with Ethanolic Extract of Turmeric. *Proceedings of National Academy of Sciences. India. Sect B*, 78 (I): 37-44. [ISSN: 0369-8211; Impact Factor-0.96]
5. Chakravarty A.K., Mazumder T and **Yasmin H.** (2008):, *Comp. Bio. Nat. Pro.* Vol. 5 – Immunomodulation & Vaccine Adjuvants, Studium Press. India. [ISBN 10 : 1-933699-55-8]
6. Chakravarty A.K., **Yasmin H.**, Chatterjee SN and Mazumder T and (2009): Comparison of Efficacy of Turmeric and Curcumin in Immunological Functions and Gene Expression. *International Journal of Pharmacology*. 5(6):333-345 [ISSN: 1811-7775; Impact Factor-0.81]
7. **Yasmin H.** and Chakravarty AK (2011): Turmeric accentuates cell mediated cytotoxicity towards tumor target cells in Recent Studies in Biodiversity and Traditional Knowledge in India. Gaur Mahavidyalaya, *Sarat Book*, India. 271-278. [ISBN-978-81-9203-86]
8. **Yasmin H.**(2015): Isolation of CD4⁺ T cells through Magnetic Assorted Cell Sorter (MACS) in Contemporary Laboratory and Experiments in Zoology. APCR Govt. College, *Pages and Chapters*, India. 173-174.[ISBN-978-81-8211-128-8].

9. Praveen Mathews Varghese, Anthony G. Tsolaki, **Hadida Yasmin**, Abhishek Shastri ,Janez Ferluga , Manu Vatish , Taruna Madan , Uday Kishore. 2020. Host-pathogen interaction in COVID-19: Pathogenesis, potential therapeutics and vaccination strategies. *Immunobiology*. 225(6). 152008. doi.org/10.1016/j.imbio.2020.152008 [Impact Factor-3.16]
10. Ferluga J. Yasmin H., Bhakta. S., Kishore U. 2021. Vaccination Strategies against *Mycobacterium tuberculosis*: BCG and Beyond, In *Microbial pathogenesis. Advances in Experimental Medicine and Biology* vol. 1313. Springer https://doi.org/10.1007/978-3-030-67452-6_10 [Impact Factor-3.650]
11. Syreeta DeCordova, Abhishek Shastri , Anthony G. Tsolaki, **Hadida Yasmin**, Lukas Klein, Shiv K. Singh and Uday Kishore. 2020. Molecular Heterogeneity and Immunosuppressive Microenvironment in Glioblastoma. *Front. Immunol.* 11: 1402. doi: 10.3389/fimmu.2020.01402 [Impact Factor-8.78]
12. Murugaiah V, **Yasmin H**, Pandit H, Ganguly K, Subedi R, Al-Mozaini M, Madan T, Kishore U. Innate Immune Response Against HIV-1. *Adv Exp Med Biol.* Springer Nature. 2021;1313:23-58. doi: 10.1007/978-3-030-67452-6_3. PMID: 34661890. (*VM and HY are joint first authors) [Impact Factor-3.650]
13. Janez Ferluga J, **Yasmin H**, Al-Ahdal MN, Bhakta S, Kishore U. (2020) Natural and Trained Innate Immunity against *Mycobacterium tuberculosis*. *Immunobiology*. 225(3):151951. doi.org/10.1016/j.imbio.2020.151951[Impact Factor-3.650]
14. Pramanik K R., Pandey R., Roy T., Saha S., **Yasmin H**. A study on Community Based Conservation Status of *Nilssonia nigricans* (Anderson 1875) in Cooch Behar, West Bengal, India.2021. Multidimensional outlook on Environment. *Green Feather* 26-34
15. **Yasmin H** and Kishore U. 2020. Biological activities of SP-A and SP-D against extracellular and intracellular pathogens. In *Collectin protein family and its multiple biological properties*. Springer Nature, http://dx.doi.org/10.1007/978-3-030-67048-1_5.
16. **Yasmin H**, Saha S, Butt MT, Modi RK, George AJT, Kishore U. SARS-CoV-2: Pathogenic Mechanisms and Host Immune Response. *Adv Exp Med Biol.* Springer Nature .2021;1313:99-134. doi: 10.1007/978-3-030-67452-6_6. PMID: 34661893. [Impact Factor-3.650]
17. **Yasmin H**, Varghese PM, Bhakta S, Kishore U. Pathogenesis and Host Immune Response in Leprosy. *Adv Exp Med Biol.* Springer Nature. 2021;1313:155-177. doi: 10.1007/978-3-030-67452-6_8. PMID: 34661895. [Impact Factor-3.650]
18. Ferluga J, Singh I, Rout S, Al-Qahtani A, **Yasmin H**, Kishore U. Immune Responses in Malaria and Vaccine Strategies. *Adv Exp Med Biol.* Springer Nature. 2021;1313:273-291. doi: 10.1007/978-3-030-67452-6_12. [Impact Factor-3.650]
19. **Yasmin, H.**; Adhikary, A.; Al-Ahdal, M.N.; Roy, S.; Kishore, U. Host–Pathogen Interaction in Leishmaniasis: Immune Response and Vaccination Strategies. *Immuno* 2022, 2, 218–254. <https://doi.org/10.3390/immuno2010015>

20. **Yasmin H**, Bulla Roberta, Madan Taruna, Kishore U. Complement and Cancer Immunity. Handbook of Cancer and Immunology. 2022. Springer Nature https://doi.org/10.1007/978-3-030-80962-1_22-1
21. Banerjee S, Kar P, Islam R, Naidoo D, Roy A, Sarkar I, Sen G, Saha T, **Yasmin H**, Sen A. Synthesis of silver nanoparticles from secondary metabolites of star gooseberry fruit (*Phyllanthus acidus*) and their nephroprotective efficiency. South African Journal of Botany. 2022. 151(A):385-395. <https://doi.org/10.1016/j.sajb.2022.10.021>. [Impact Factor-3.02]

WORKSHOPS/CERTIFICATE COURSES/TRAINING PROGRAMMES COMPLETED

1. Workshop on “**Scanning Electron Microscopy**” – 9th -12th December 2001. University Science Instrumentation Centre at University of Burdwan, West Bengal.
2. Training Programme on “**Cultivation of Medicinal Plants**” - 12 - 14 September, 2003, Department of Science and Technology, Govt. of West Bengal and NBU.
3. 12th Training course on **Immunodiagnostic for Infectious Diseases** – 6th - 11th February, 2006, Mahatma Gandhi Institute of Medical Sciences, Sevagram, Warda, Maharashtra.
4. Workshop on “**Bioinformatics**” - 7th - 9th March, 2008. Bioinformatics Facility, Dept. of Botany, University of North Bengal, WB
5. UGC-Sponsored “**Teacher’s Orientation Program**”, 1st - 28th March 2013 Academic Staff College, University of North Bengal. WB, (Score-**Grade A**)
6. **Inter-Institutional Faculty Exchange Programme (IIFEP)**- 17th - 25th November, 2014, All Indian Association for Christian Higher Education (AIACHE), New Delhi
7. Hands on Training Workshop in “**Human Cell Culture Technology and its Application in Cancer Research**”- 12th Nov-22nd November, 2018, sponsored by DST (Kiran Division), organized by Dept. of Biotechnology, University of Mysore.
8. One-week National e-Workshop on **Innovation and Intellectual Property Rights (NeW IPR-2021)** from June 14-19, 2021 Theme “*IP for ALL*”, organized by Innovation & Technology Enabling Center (InTEC) CSIR-Institute of Minerals and Materials Technology (IMMT), Bubneshwar.
9. Online Accrediated certificate Course on " Counselling Children & Adolescents from UdeMy-2021
10. Online workshop on Publication Ethics and Research Integrity in Science conducted by Elsevier- 11th May, 2022
11. Online Certificate Program on COVID-19 and Work from World Health Organization (WHO)-2022

12. . **“Workshop on Good Clinical Practice & Basic Biomedical Ethics”** organized by Indian Society of Rational Pharmacotherapeutics and M.J.N. Medical College, Cooch Behar, West Bengal, India- 12th August 2022.

PATENTS:

Hadida Yasmin, Torisa Roy and Tamali Roy. **Immunomodulatory properties of ethanolic extract of *Cleome spinosa* leaves in inhibiting delayed type hypersensitivity.** Application ID_90/IPR/CU16/Nov-2022/2/1, West Bengal State Council of Science and Technology (Applied for)

MEMBERSHIPS:

1. Life member of Indian Immunology Society – No. LM/IIS/806/07/19
2. Life member of Indian Science Congress –No. L38739
3. Life member of Chemical Biology Society- No. LM-50
4. Member of All India Association for Christian Higher Education (AIACHE)

RESEARCH COLLABORATORS

1. Prof. Uday Kishore, Centre for infection, Immunity and Disease Mechanisms, College of Health and Life Sciences, Brunel University London, Uxbridge, UK
2. Dr. Taruna Madan Gupta, Scientist Scientist F and Head, Department of Innate Immunity, ICMR-National Institute for Research in Reproductive and Child Health (ICMR-NIRRH), J.M.Street, Parel, Mumbai-12.
3. Dr. Tapas Nag, Professor, Dept. of Anatomy, All Indian Institute of medical Sciences, Ansari Nagar, New Delhi
4. Dr. Subir Dasgupta, Professor, Dept. of Zoology, Maulana Azad College, Kolkata, WB
5. Dr. Arnab Sen, Professor, Head, Dept. of Botany, University of North Bengal, Dist- Darjeeling, WB
6. Dr. Rajib Prasab, MSVP, MJN Medical College & Hospital, Coochbehar
7. Dr. Samik Bindu, Assistant Professor, Dept. of Zoology, Cooch Behar Panchanan Barma University

SOME ADDITIONAL RESPONSIBILITIES:

Editorial Board Member as Review Editor of Molecular Innate Immunity (Special section) of Frontiers in Immunology Journal

Editor of Special Issue “Pattern Recognition Receptors: Innate Immunity and Beyond” in International Journal of Molecular Sciences, MDPI

Editor- “Pranie”- Departmental Newsletter, Dept. of Zoology, CBPBU

Chairperson, Institutional Biosafety Committee (IBSC), Cooch Behar Panchanan Barma University

Chairperson, Institutional Ethics Committee (IEC) for Biomedical Research, MJN Medical College and Hospital

Member Secretary, Institutional Ethics Committee (IEC), Cooch Behar Panchanan Barma University

Member, IQAC, Cooch Behar Panchanan Barma University

Member, NAAC, Cooch Behar Panchanan Barma University

Member, Sports Board, Cooch Behar Panchanan Barma University

Controller of Examinations (Former In-Charge), Cooch Behar Panchanan Barma University

Former Member, Executive Council, Cooch Behar Panchanan Barma University

Former Member Secretary, Institutional Animal Ethics Committee (IAEC), Cooch Behar Panchanan Barma University

Academic Liaison Officer for MoU with CSIR-Central Drug Research Institute, Lucknow & CBPBU

Academic Member, District Tobacco Control Board, Coochbehar

HOBBIES: Sports & Painting

Hadida Yasmin

Hadida Yasmin (21/02/2023)