### **Format for Scientist Profile**

\* Name: Dr. S. Verma

\* Designation: Scientist- E

\* **Discipline/research area** (write key words): Cancer Biology using alternative therapeutic approach of Traditional Medicine, New Drug Discovery, Nanotechnology

\* ORCID ID, h-index: 0000-0003-1489-1871/ h-index = 14



\* Address (off.): National Institute of Pathology, Safdarjung Hospital campus New Delhi-110029

\*Telephone (off.): 91-11-26165797, 91-11-26106475-78, 26198402-6

\* Email address: svarmasv1@rediffmail.com / saurabhverma.nip@gov.in

\* Educational Qualifications: (starting with the highest degree, avoid adding the year of awarded degree)

**1. PhD**: Neuropharmacological investigation of Nitric Oxide (NO) on Central Cardiovascular System (CNS) from Ventral Surface of Medulla (VLM) at Central Drug Research Institute, Lucknow .

**2.** MSc: First Division, Lucknow University

**3.** BSc: First Division, Lucknow University

- \* Research Experience (starting from the latest): 31 years :
- 1. Twenty two Years (22): At ICMR-NIP.
- 2. Two Years (02): Research Associate, At All India Institute of Medical Sciences, New Delhi

**3. Seven years (07):** Research Assist, JRF, SRF, At Central Drug research Institute, Lucknow

#### \* Awards:

**1. Prof. S.S. Parmar award** for best paper on research paper titled, "Senstivity of iontophoretically applied Clonidine onto Ventrolateral Medullary Neurons" in XIX Annual Meeting of Indian Academy of Neurosciences and International Symposium on Neurodegeneration & Neuroprotection on 18-20<sup>th</sup> March, 2002 at Institute of Chemical Biology, Kolkata. This study was based on my thesis entitiled," Neuropharmacological Investigation on the Role of Nitric Oxide in Central Cardiovascular Regulation from the Ventral surface of Medulla."

**2. Special Appreciation Award** to paper titled, "Flow Cytometric analysis of Th1and Th2 cytokines as ummunological dysfunction in the patients of superficial transitional cell carcinoma" in 24<sup>th</sup> annual convention of Indian Association for Cancer research (IACR) and International symposium on Human Papillomavirus and Cervical Cancer which was held on 9-12 Feb, 2005 at Institute of Cancer Preventive Oncology (ICPO).

#### \* Membership/Fellowship of Professional Societies/Associations :

- 1. Member of Indian Pharmacological Society (IPS), India
- 2. Member of Indian Academy of Neurosciences (IAN), India
- 3. Member of International Brain Research Organization (IBRO), Paris, France.
- 4. Member of Indian Association for Cancer Research.

#### COLLABORATORS:

- 1. Ministry of AYUSH
- 2. All India Institute of Medical Sciences (AIIMS), New Delhi
- 3. Jamia Milia Islamia University, New Delhi
- 4. Delhi Technical University (DTU), New Delhi
- 5. Institute of Nuclear Medicine & Allied Sciences, DRDO, New Delhi
- 6. SRM University Delhi-NCR, Sonepat, Haryana

#### \* **Publications** (write numbers only National , International): 34 International : 32

National: 2

#### \* **10 best publications** (preferably with citations and impact factor)

**1.** Cyclogenase-2 as a therapeutic target against human breast cancer: a comprehensive review. Ankita Sahu, Khalid Raza, Dibyabhaba Pradhan, AK Jain, **S. Verma\***. WIREs Wiley interdisciplinary Reviews: Mechanisms of Disease, 2023. **IF= 7.2** [ACCEPTED].

**2.** Proteoglycans in breast cancer, identification and characterization by LC-MS assisted proteomics approach: A review. Ajeeshkumar K.K., Ankita Sahu, Astha Singh, Saurabh Verma\*. Clinical Proteomics, 2023. DOI: 10.1002/prca.202200046. IF= 3.9.

3. Macrophage targeted punicalagin nanoengineering to alleviate Methotrexate Induced Neutropenia: A molecular docking, DFT and MD simulation analysis. Ritu Karwasra, Shaban Ahmad, Nagmi Bano, Sahar Qazi, Khalid Raza, Surender Singh, Saurabh Verma\*. 27(18), 6034-6045, 2022 Molecules, doi:10.3390/molecules27186034. IF= 4.9

**4.** Computational screening for finding new potent cox-2 inhibitors as anticancer agents. Ankita Sahu, **Saurabh Verma**<sup>\*</sup>, Dibyabhaba Pradhan, Khalid Raza, Sahar Qazi, A K Jain. Letters in Drug Design & Discovery. **DOI: 10.2174/1570180819666220128122553.** Vol 20, issue 3, 213-224, ISSN No.1570-1808, 2022. **IF= 1.2** 

5. Impact of ErbB receptors and anticancer drugs against breast cancer: A review. Ankita Sahu, Saurabh Verma, Meena Varma, Manoj Kumar Yadav. Current Pharmaceutical Biotechnology, 2021. ISSN No. 1873-4316 DOI: 10.2174/1389201022666210719161453. IF= 2.8

6. A brief overview on current status of nanomedicines for treatment of pancytopenia: focusing on chemotherapeutic regime. Karwasra, R., Singh, S., Raza, K., Sharma, N., & Verma, S\*. Journal of Drug Delivery Science and Technology, Elsevier, 61, 2021 DOI.org/10.1016/j.jddst.2020.102159. IF= 5.0

**7. Filgrastim loading in PLGA and SLN nanoparticulate system: A bioinformatics approach**. Ritu Karwasra, Saman Fatihi, Khalid Raza, Surender Singh, Kushagra Khanna, Nitin Sharma, Shivkant Sharma, Deeksha Sharma, **Saurabh Verma\*.** Drug Development & Industrial Pharmacy. Volume 46 (8), 1354-1361, 2020. **IF= 3.7** 

8. Curcuma oil: reduces early accumulation of oxidative product and is anti-apoptogenic in transient focal ischemia in rat brain. Priyanka Rathore, Preeti Dohare, Saurabh Verma, Aprajita E Ray, NR Jagananthan, Madhur Ray. Neurochemical Research, 33, 1672-1682, 2008. IF= 2.9.

9. Double-blinded randomized controlled trial for immunomodulatory effects of Tulsi (Ocimum sanctum Linn) leaf extract on healthy volunteers. Shankar Mondal, Saurabh Varma, Vishwa Deepak Bamola, Satya Narain Naik, Bijay Ranjan Mirdha, Madan Mohan Padhi,

Nalin Mehta, Sushil Chandra Mahapatra. Journal of Ethanopharmacology, 136, 452-456, 2011. **IF= 3.6.** 

**10.** Flow Cytometric analysis of Th1 and Th2 cytokines in PBMCs as a parameter of immunological dysfunction in patients of Superficial Transitional cell carcinoma of bladder. Agarwal S, Verma S, Burra U, Murthy NS, Mohanty NK and Saxena S. Cancer Immunol Immunother, 55(6), 734-43, Jun 2006.IF= **4.9**.

Total IF = 100.8

**Total citations =** 1194

### \* Book and Book Chapters:

	BOOKS / BOOK CHAPTERS:					
	BOOKS	PUBLISHER				
1	Applications of Nature-inspired computing (NIC) and Artificial Intelligence (AI) Algorithms in solving Personalized Therapy Complications. Ritu Karwasra, Kushagra Khanna, Annie Gupta, Nitin Sharma, Rishabh Malhotra, Shivkant Sharma, Surender Singh, Saurabh Verma*[IN PRESS]	Nature-Inspired Intelligent Computing Techniques in Bioinformatics [Volume 1066 in Computational Intelligence]. Springer-Nature (Web of Science, EI-Compendex, DBLP, SCOPUS, Google Scholar and Springerlink Indexed),. [H-index-68]. ISSN: 1860-949X ISSN: 1869-9503 [electronic] ISBN: 978-981-19-6378-0 ISBN: 978-981-19-6379-7 [eBook] https://doi.org/10.1007/978-981-19-6379-7				
2	Nature-Inspired Computing in Breast Cancer Research: Overview, Perspective, and Challenges of the State-of-the-Art Techniques. Ankita Sahu, Khalid Raza, Ajeeshkumar KK, Mudasir Nabi Peerzada, <b>Saurabh Verma*[IN PRESS]</b>	Nature-Inspired Intelligent Computing Techniques in Bioinformatics [Volume 1066 in Computational Intelligence]. <b>Springer-Nature</b> (Web of Science, El-Compendex, DBLP, SCOPUS, Google Scholar and <b>Springerlink Indexed),. [H-index-68].</b> ISSN: 1860-949X ISSN: 1869-9503 [electronic] ISBN: 978-981-19-6378-0 ISBN: 978-981-19-6379-7 [eBook] https://doi.org/10.1007/978-981-19-6379-7				
3	Nature-Inspired Computing: Bat Echolocationto BAT Algorithm. Astha Singh, Arun Meyyazhagan, Saurabh Verma *[IN PRESS]	Nature-Inspired Intelligent Computing Techniques in Bioinformatics [Volume 1066 in Computational Intelligence]. Springer-Nature (Web of Science, El-Compendex, DBLP, SCOPUS, Google Scholar and Springerlink Indexed),. [H-index-68].				

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		Springerlink Indexed), 2022. [H-index-68]. DOI: _10.1007/978-981-16-9221-5_1. Print ISBN978-981-16-9220-8 Online ISBN978-981-16-9221-5 First Online02 March 2022 Publisher: Springer, Singapore
8	Machine learning based approach for early diagnosis of breast cancer using biomarkers and gene expression profiles. Ankita Sahu <sup>1</sup> , Sahar Qazr <sup>2</sup> , Khalid Raza <sup>2</sup> , Astha Singh <sup>1</sup> , Saurabh Verma <sup>1*</sup> [Corresponding Author]	Computational Intelligence in Oncology: applications in diagnosis, prognosis and therapeutic of cancers [series in Computational Intelligence, Springer- Nature (Web of Science, El-Compendex, DBLP, SCOPUS, Google Scholar and Springerlink Indexed), 2022. [H-index-68]. DOI: 10.1007/978-981-16-9221-5_17 Print ISBN978-981-16-9220-8 Online ISBN978-981-16-9221-5 First Online02 March 2022 Publisher: Springer, Singapore
9.	Handbook of Research on Advancements in Cancer Therapeutics Editors: Sumit Kumar (Jawaharlal Nehru University, India), Moshahid Alam Rizvi (Jamia Millia Islamia, India) and <b>Saurabh</b> <b>Verma</b> (National Institute of Pathology, India). [https://www.igi- global.com/book/handbook-research- advancements-cancer-therapeutics/255739] OR https://go.shr.lc/2TIJE1e	IGI Global, International Academic Publisher, , Pennsylvania, USA, 2020
	Chapter on COVID-19: Hard road to find integrated computational drug repurposing Pipeline. Ankita Sahu, Sahar Qazi, Khalid Raza, <b>Saurabh Verma [Corresponding</b> <b>Author].</b> [https://link.springer.com/chapter/10.1007/97 8-981-15-8534-0_15]	Computational Intelligence Methods in COVID-19: Surveillance, Prevention, Prediction and Diagnosis, SPRINGER, volume 923, pp295-309, 2020. <b>[H-index=</b> <b>62]</b> . (Web of Science, El-Compendex, DBLP, SCOPUS, Google Scholar and Springerlink Indexed ) Print ISBN 978-981-15-8533-3. Online ISBN 978-981-15-8534-0 https://link.springer.com/chapter/10.1007/97 8-981-15-8534-0_15. Part of the <u>Studies in</u> <u>Computational Intelligence</u> book series (SCI, volume 923). Series Print ISSN 1860-949X. Series Online ISSN 1860- 9503
11	Recent Advancement in Cancer and its Prevention. <b>S. Verma</b> and PD Sharma.	Lambert Academic Publications, Germany, 2014. ISBN: 978-3-659-52826-2.

12	Study on COX-2 Expression in Breast & Prostrate Cancer patients: Flow Cytometric and IF analysis of Cox-2 expression. <b>S</b> . <b>Verma</b> and Anwesha Mallik	Lambert Academic Publications, Germany, 2012. ISBN: 978-3-8484-2615-7
13	Tissue Transglutaminase (tTG) expression in human brain tumours: An immunohistochemical study. <b>S. Verma</b> and Anwesha Mallik	Lambert Academic Publications, Germany, 2011. ISBN: 978-3-8454-3488-9
	DNA content analysis and invitro cytotoxicity in bladder cancer patients: Flow cytometric evaluation of DNA content analysis and therapeutic responses (in vitro cytotoxicity) of transitional cell carcinoma patients. <b>S.</b> <b>Verma</b>	Lambert Academic Publications, Germany, 2010. ISBN: 978-3-8433-6413-3
15	Immunoflurescence based study on breast cancer patients: Flowcytometric study on surface antigen markers (CD3, CD4 and CD8) and DNA content analysis in breast cancer. <b>S. Verma</b> and Rishikesh Shukla.	Lambert Academic Publications, Germany, 2010. ISBN: 978-3-8383-9762-7.

\* **Projects** (preferably write the PI project with titles, years, funding agency and if writing the other project mention your role clearly, like PI/Co-I/Coordinator ).

### A. PROJECTS [ON-GOING]: AS PRINCIPAL INVESTIGATOR

S.No	Type of	Funding	PI/	Project Titled
•	Project	Agencies	Co-PI	
1	Extramural	ICMR	PI	Temporal variation of
	[On going]			proteoglycans expression in
				experimentally induced breast
				cancer model using proteomics
				approach: A possible therapeutic
				target for breast cancer treatment
				[2021-2023].
2	Extramural	ICMR	PI	Development of novel
	[On going]			arylisoxazole derivatives against
				epidermal growth factor receptor-2
				(HER-2) for breast cancer
				treatment through informatics and
				experimental approach.[2021-
				2023

3	Extramural [On-going]	ICMR	PI	Identification of Glutathione-S- Transferase(GST) inhibitor for treatment of urothelial Carcinoma [2010-2023]
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# **B. PROJECTS [COMPLETED]: AS PRINCIPAL INVESTIGATOR**

1	Extramural [Completed]	MINISTR Y of AYUSH	PI	To study the antitumour potential of Pashanbheda, Punarnava, Gokshura and Badra on the human urothelial cell carcinoma (UCC) cell lines. [2018-2022]
2	Extramural [Completed]	ICMR	PI	Efficiency of Myeloid growth factor nanoparticles form methotrexate induced neutropenia. [2019-2021]
3	Extramural [Completed]	ICMR	PI	Integrated insilico and invitro study of novel aromatase inhibitors for breast cancer treatment. [2019-2022].
4	Extramural [Completed]	ICMR	PI	Identification and determination of potent inhibitors against cyclooxygenase using computer aided drug design approach. [2016-2018]
5	Intramural [Completed]	NIP	PI	To study the expression of cyclooxygenase-1 and Cycloxygenase-2 (Cox-1andCox- 2) incorrelation With cytokine dysfunction in invasive and noninvasive TCC of human [2012-2015]

6	Intramural [Completed]	NIP	PI	To study the expression and relevance of tissue transglutaminase in superficial and invasive Human bladder Transitional Cell Carcinoma(TCC). [2008-2011].
7	Intramural [Completed]	NIP	PI	To study the host immune response in patients of superficial TCC of bladder [2005-2007].
8	Intramural [Completed]	NIP	PI	Flow Cytometric DNA analysis and cytological diagnosis of pleural effusion [203-2005].

### C. PROJECTS [COMPLETED]: AS CO- INVESTIGATOR

S.No.	Type of	Funding	PI/	Project Titled	Year
	Project	Agencies	Co-PI		
1	Extramural	DST-SERB	Co-I	Study of HLA-DR3 and/ or DQ2 restricted CD4+ Tcells in type1diabetes in North India. [DST-SERB, 2016-19]	2016- 19
2	Extramural	ICMR	Co-I	Role of Th40 cells in Type1 Diabetes in North India	2016- 18
3	Extramural	DST	CO-PI	Immunogenetic profile of nasopharyngeal cancer in a high prevalence region of North-East India	2010- 13
4	Intramural	NIP	CO-I	Characterization of host immune factors associated with progression of superficial TCC of Bladder by microarray analysis	2009- 12
5	Extramural		Co-PI	To study the antiapoptogenic activity of	2006- 2009

				Curcumin oil in Transient	
				Focal Ischemia in Rat Brain	
	Intramural	NIP	CO-I	Cytokine regulation in the immunopathogenesis of salpengitis/infertility due to Chlamydia trachomatis infection in woman	2003- 2006
6	Intramural	NIP	CO-I	Role of in vitro cytotoxicity assay and adjuvant intravesicle therapy in the management of superficial bladder cancer	2001- 2005
7	Intramural	NIP	CO-I	Role of invitro cytotoxicity, assessment and immunologic enhancement in the management of superficial bladder cancer	2002- 2004
8	Intramural	NIP	CO-I	Apoptotic cell population as a marker to predict induction of remission in patients with acute leukemia	2001- 2004
9	Intramural	NIP	CO-I	Evaluation of the profile of androgen receptor and estradiol modulated proteins in the ejaculated spermatozoa from fertile and infertile subjects	1999- 2001
10	Intramural	NIP	CO-I	Evaluation of estrogen receptors (ER) and progesterone receptors (PR) in the human spermatozoa from fertile subjects	1999- 2002
11	Intramural	NIP	CO-I	Evaluation of estrogen (ER) and progesterone receptor in the male reproductive tract of mice	1999- 2002
12	Intramural	NIP	C0-I	An invitro model to predict chemotherapeutic response in acute leukemia	1999- 2003

## \* SUPERVISOR:

POST	POST DOCTORAL FELLOWS: SUPERVISOR: 7						
S.No.	Name	Department	Years	Project Title			
1	Dr Ajeesh kumar	ICMR-PDF [On-going]	2021- 2023	Temporal variation of proteoglycans expression in experimentally induced breast cancer model using proteomics approach: A possible therapeutic target for breast cancer treatment			
2.	Dr Mudasir Nabi Peerzada	ICMR-PDF [On-going]	2021- 2023	Development of arylisoxazole based coumarin derivatives against epidermal growth factor receptor-2 (HER-2) for breast cancer treatment through informatics, and experimental approach			
3.	Dr Astha Singh	ICMR RA [On going]	2020- 2023	Identification of Glutathione-S- Transferase(GST) inhibitor for treatment of urothelial carcinoma			
4.	Dr Ritu Karwasra	ICMR PDF [Completed]	2019- 2021	Efficiency of Myeloid growth factor nanoparticles form methotrexate induced neutropenia			
5.	Dr Ankita Sahu	ICMR RA [completed]	2019- 2022	Integrated insilico and invitro study of novel aromatase inhibitors for breast cancer treatment			
6.	Mr Sumit Kumar	JRF [Completed]	2019- 2021	To study the antitumour potential of Pashanbheda, Punarnava, Gokshura and Badra on the human urothelial cell carcinoma (UCC) cell lines.			
7.	Dr. Ankita Sahu	ICMR PDF [Completed]	2016- 18	Identification and determination of potent inhibitors against cyclooxygenase using computer aided drug design approach.			
1.	Dr. HariRam	Senior Resident	2013-	Circulating levels of regulatory T			
	Maharia,	Department of Cardiology, GB Pant Hospital , New Delhi	2015	cells and pro/anti- inflammatory cytokines in coronary heart disease			

2.	Dr. Mohan	Senior Resident,	2012-	Circulating levels of regulatory T
	Kumar	Department of	2014	cells in rheumatic heart disease
		Cardiology, GB Pant		
-		Hospital , New Delhi.		
3.	Dr. Sandeep	Senior Resident,	2010-	Comparison of endotracheal tube
	Gade	Department of Cardiology CP Dept	2012	with supraglottic airway device
		Cardiology, GD Pallt		during laparoscopic surgery and
		nospital, New Delli.		its effects on level of
				inflammatory biomarker
PhD T	HESIS CO-SUPER	VISED: 1	1	
1	Shankar Mondal	Department of	2005-	Antimicrobial and
		Physiology, All	2010	Immunomodulatory effects of Tulsi
		India Institute of		(ocimum
		Medical Sciences (AIIMS)		sanctum Linn.)
		Sciences(Anivis)		
DNB T	HESIS CO-SUPE	RVISED: 2		
1	Dr Payal Salgia	National Institute of	2003-	Study of Tumour markers in
	, 0	Pathology	2005	superficial transitional Cell
				Carcinoma of the Bladder using
				Confocal Laser Scanning
				Microscope
2	Dr Hemant	National Institute of	2002-	Correlation of DNA content and
	Kapoor	Pathology	2004	grading in soft tissue tumour".
	·			
MSc T	HESIS SUPERVIS	ED: 12	1	
1.	Leena Arora	Fellow of Indian	2016	Flowcytometric analysis of
		Science Academy		CD44+/CD24- expression in
				breast cancer stem cells
2	Mr Kshitij Jain	National Institute of	2014	Flow Cytometer and Contocal laser
		Pathology		Scanning Microscopy
3	Ms Iram Mufti	Biotechnology Devi	201/	mTOR gene expression in acute
5		Ahilya Vishvavidalaya,	2014	leukemia"
		Indore		leukenna
4	UN Nandhitha	B.E. Biotechnology, RV	2014	Proinflammatory markers in tumour
		college of Engineering,		cells of urothelial bladder
		Banglore in		carcinoma
5	Ms Mrunmavi S	College of Arts.	2014	To study the expression pattern of T-
-	Bhouraskar, Pillai	commerce and science		regulatory cells in rheumatic
		on fellowship of Indian		heart patients
		Academy of Sciences,		
		Banglore		

6	Miss Rudrakshi Munshi	Department of Biotechnology, Amity University, Noida	2009	Advanced technological applications in Research and Medical Sciences
7	Miss Priynaka	School of studies in Microbiology, Jeevaji University, Gwalior	2009	Immunofluorescence and Immunohistochemistry based studies on Cox-2 Expression in Breast and Prostate Cancer Patients
8	Miss Swarna Saxena,	Department of Biochemistry, Jeevaji University, Gwalior	2008	FlowCytometric study of Cox-1 and Cox-2 expression in correlation with cytokines dysfunction in Transitional Cell carcinoma(TCC) patients
9	Mr Rishikesh Shukla,	Department of Microbiology, Jeewaji University Gwalior	2007	Flow Cytometric study of surface antigen markers (CD3, CD4 and CD8) and DNA content analysis in Breast Cancer patients
10	Miss Umang Srivastava,	Department of Biochemistry from the Jivaji Universtity, Gwalior	2006	The study of Immunoexpression of tissue Transglutaminase in Brain tumour
11	Ms Priyanka Badoniya,	Department of Biocemistry from Jeevaji university.	2005	Study on ex[ression and Correlation of estrogen Receptor, p-Glycoprotein and Tissue transglutaminase in Human Breast Cancer
12	Mr. Santosh Sharma	Department of Biochemistry from Jeevaji, Gwalior.	2004	Flow Cytometric evaluation of DNA content analysis and therapeutic responses (in vitro cytotoxicity) in superficial bladder carcinoma" with the objectives to