

Prof. S. M. S. Chahal

Curriculum Vitae

1. **Name** : Sukh Mohinder Singh Chahal
2. **Designation** : Professor (Re- employed)
3. **Department** : Human Genetics
4. **Date of Birth** : 24.07.1955
5. **Residential Address** : A-9 Campus, Punjabi University, Patiala
- Correspondence Address** : Department of Human Genetics,
Punjabi University,
Patiala 147 002, Punjab (India)
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6. **Areas of Specialization** : Human Biochemical and Population
Genetics/ Biological Anthropology

7. **Academic Qualifications**

S. No.	Degree held	Year	Board / University	% of marks	Division/ Rank	Subjects taken
1	Ph. D.	1981	University of Newcastle-upon-Tyne, England	-	-	Human Genetics
2	M. Sc.	1976	University of Delhi, Delhi	60.4	First/	Physical Anthropology
3	B. Sc.	1974	University of Delhi, Delhi	59.4	High Second	Zoology, Chemistry, Botany

4.	Pre-Medical	1972	University of Delhi, Delhi	61.1	First	Zoology, Botany, Chemistry, English
5.	Higher Secondary	1971	C.B.S.E., New Delhi	69.3	First	Biology, Physics, Chemistry, English

8. Membership of Professional Bodies/ Organizations

- Life Member, Indian Anthropological Society, Calcutta
- Life Member, Genetic Association of India, Bareilly
- Life Member, Indian Anthropological Association, Delhi
- Life Member, Ethnographic and Folk Cultural Society, Lucknow
- Life Member, Indian Society for Human Ecology, Delhi
- Life Member, Punjab Academy of Sciences, Patiala
- Life Member, Indian National Confederation and Academy of Anthropologists (INCAA), Kolkata
- Member, Indian Science Congress Association (ISCA), Calcutta
- Member, International Association of Human Biologists (IAHB)

9. Medals/ Awards/ Honours/ Received

- Secured IIIrd position in M.Sc. (Anthropology) examination of University of Delhi, Delhi (1976).

10. Scholarship

- Awarded *Commonwealth Scholarship* by the U.K. Govt. (1978-1981), for doing research in human genetics, leading to the degree of Ph.D. from the University of Newcastle-upon-Tyne.

11. Details of Experience

Sr. no.	Name of Institute/ Employer	Position held	Duration	Major job responsibilities and nature of experience
1	Punjabi University, Patiala	Professor	December 2003 till date	Teaching and research
2	Punjabi University, Patiala	Reader	December 1995- December 2003	Teaching and research
3	Punjabi University, Patiala	UGC Research Scientist 'B' (equivalent to University Reader)	June 1988- May 1993	Research and teaching
4	Punjabi University, Patiala	Lecturer	December 1983 -May 1988 & June 1993 – November 1995	Teaching and research
5	University of Delhi, Delhi	Lecturer	September - December 1983	Teaching and research

12. Published Work (Please specify numbers only)

- Research Papers (78)
 - i) National: 30
 - ii) International: 48
- Books (3)
 - i) Original: 1
 - ii) Edited: 2

13. R & D Projects Completed (6)

- SAP DRS-I (UGC), Department of Human Genetics, Punjabi University, Patiala (**Coordinator**).
- *Anthropogenetic Profile of "Denotified" Tribes (Vimukt Jatis) of Punjab (North-West India) and its Social Implication* (Major Project funded by the U.G.C.) (**Principal Investigator**).

- *Genetic Differentiation in Punjab Populations* (Major Project funded by the U.G.C.) (**Principal Investigator**).
- *Impact of Modernization Activities and Changing Environment on Demogenetic Composition of Human Populations of Garhwal, U.P. Himalayas* (Major Project funded by the Department of Environment, Ministry of Forests & Wildlife, Govt. of India, New Delhi).(**Co-Investigator**).
- *Erythrocyte Enzyme Variation in Two Tribal Groups of Kumaon Himalayas* (Minor Project funded by the U.G.C.) (**Principal Investigator**).
- *Application of Isoelectric Focusing (IEF) to Forensic Blood Genetic Marker Analysis* (Minor Project funded by the U.G.C.) (**Principal Investigator**).

14. Ph. D. Candidates Guided (20)/ Under Guidance (11)

Sr. No.	Name of the candidate	Title of the thesis	Year of award/registration
1.	Ms. Inderjit Kaur Sehgal	<i>Genetic Variation Among Five Endogamous Groups of Punjab</i>	1986
2.	Mr. Krit Pal Singh Kushwaha	<i>A Study of Serogenetic Markers Among the People of Haryana and its Application in Forensic Science</i>	1989
3.	Ms. Gurjeet Kaur Sidhu	<i>Enzyme Typing of Human Hair Roots</i>	1992
4.	Mr. Parminder Singh	<i>Biochemical Variation Among People of Garhwal Himalayas</i>	1992
5.	Ms. Dhiru Joshi*	<i>Biochemical Variations in Some Endogamous Groups of Haryana</i>	1993
6.	Mr. Ranbir Singh Parmar	<i>Growth Patterns and Body Composition of Male Brahmins and Rajputs of Garhwal Himalayas</i>	1995
7.	Ms. Jaskiran Kaur Shaheed	<i>Transfection of Non-Melanocytic Cells with Tyrosinase Gene Constructs for Survival Studies</i>	1999
8.	Mr. Harjeet Singh	<i>Erythrocyte Enzyme Variation Among People of Kumaon Himalayas</i>	2000
9.	Ms. Aparna Sarin	<i>Distribution of Red Cell Enzyme Polymorphisms in Regional</i>	2002

		<i>Subpopulations of Brahmin and Rajput of Himachal Pradesh</i>	
10.	Ms. Harjot Pal Kaur	<i>Red Cell Enzyme Markers Among the Muslims : A Minority Community of Punjab</i>	2001
11.	Ms. Rupinder Kaur Virk	<i>Genetic Status of the Scheduled Caste Populations in Punjab</i>	2001
12.	Ms. Sukhvir Kaur	<i>Biochemical Variation in the Jat Sikh of the Northern Districts of Punjab</i>	2006
13.	Ms. Anjali Saini	<i>A Study of Enzyme Markers in the Buksa : A Primitive Tribe of Uttaranchal</i>	2008
14.	Ms. Mandeep Inder Kaur	<i>Biochemical Variation Among Three Endogamous Groups of the Tharu Tribe of Uttar Pradesh</i>	2008
15.	Mr. Deepak Bharti**	<i>Genetic Variation in Selected Tribes of Madhya Pradesh</i>	2010
16.	Ms. Gagandeep Kaur Walia	<i>Cytokine Gene Polymorphisms and Recurrent Pregnancy loss in Population of Delhi</i>	2011
17.	Mr. Rajasekhara Reddy Ravuri	<i>Mitochondrial DNA and TCF7L2 Gene Polymorphisms in Type II Diabetes</i>	2015
18.	Ms. Padmaja Koneru	<i>ADIPOQ, HHEX and KCNJ11 Gene Polymorphisms in Type II Diabetes</i>	2015
19	Ms. Ushma Jaykamal Shah	<i>Pesticide Exposure and Risk of Parkinson's Disease in Punjab: A Molecular Genetic Investigation</i>	2015
20.	Ms. Pooja Mittal	<i>A Comparative Study of Growth Patterns Among The Banias of Delhi and Punjab</i>	2016
21.	Ms. Inderjeet Kaur	<i>An Investigation of PPARG2 and IGF2BP2 Gene SNPs in Type 2 Diabetes Mellitus (T2DM) in Southern Punjab, North-West India</i>	Registered September 2012
22.	Ms. Navjot Kaur	<i>A Study of Transcription Factor 7-Like 2 Gene Polymorphisms in Type 2 Diabetes Mellitus in People of Malwa Region of Punjab</i>	Registered September 2012
23.	Ms. Prabhjot	<i>Genetic Variation of Seven Unlinked</i>	Registered

	Kaur	<i>Restriction Fragment Length Polymorphisms in “Denotified” Tribes (Vimukt Jatis) of Punjab, North West India</i>	May 2013
24.	Ms. Isha	<i>Distribution of DRD2 and Beta-Globin RFLP Markers in the Bangala, Barar, Gandhila and Nat Scheduled Caste Populations of Punjab</i>	Registered November 2013
25.	Ms. Vasundhara Raina	<i>Genomic Profiling of the Jat Sikh of the Malwa Region of Punjab</i>	Registered November 2013
26.	Mr. Sarabjit Singh	<i>Growth and Physical Development of the Rajput and Brahmin Boys of Kangra District, Himachal Pradesh</i>	Registered May 2014
27.	Mr. Chandan Kumar Jha	<i>LDL-Receptor Gene Polymorphisms in the Pathogenesis of Coronary Artery Disease in the Population of Bangalore (Karnataka)</i>	Registered November 2014
28.	Ms. Manju Bala	<i>Genomic profiling of the Gaddis of Himachal Pradesh</i>	Registered December 2015
29.	Ms. Mandip Kaur	<i>Association Study of Genetic Polymorphisms with Coronary Artery Disease in People of South Punjab</i>	Registered February 2017
30.	Ms. Anu Raina	<i>Genomic Profiling of Selected Populations of Jammu (Jammu and Kashmir), North India</i>	Registered February 2017
31.	Mr. Dheeraj Jamwal	<i>Genomic Profiling of the Brahmin and Rajput Populations of Himachal Pradesh</i>	Registered February 2017

* Awarded by the Kurukshetra University, Kurukshetra (Haryana)

**Awarded by the Barkatullah University, Bhopal (Madhya Pradesh)

15. M. Phil. Candidate guided.

- Ms. Gurvinder Kaur Walia
Genetic Variation in People of Punjab: A Statistical Appraisal (2008).

16. List of Papers/ Courses Taught at P.G. level

S. No.	Paper	Class
1.	Practical Paper HGP- 105 Human Physiology	M.Sc. I (Semester I)
2.	Theory Paper HGL- 101: Fundamentals of Human Genetics	M.Sc. I (Semester I)
3.	Theory Paper HGL- 103: Human Physiology	M.Sc. I (Semester I)
4.	Practical Paper HGP- 204: Serological and Biochemical traits, Pedigree analysis	M.Sc. I (Semester II)
5.	Theory Paper HGL- 203 : Clinical Genetics	M.Sc. I (Semester II)
6.	Theory Paper HGL- 304: Human Biochemical Genetics and Immunogenetics	M.Sc. II (Semester III)
7.	Practical Paper 1: Cytogenetics	M.Sc. II (Semester III)
8.	Theory Paper HGL- 401: Analytical Techniques in Human Genetics	M.Sc. II (Semester IV)
9.	Theory Paper HGL- 404: Human Population and Quantitative genetics	M.Sc. II (Semester IV)
10.	Practical Paper 5: Dissertation	M.Sc. II (Semester IV)
11.	Paper- I Research Methodology	Ph.D (Course Work)
12.	Paper II Recent Advances in Human Genetics	Ph.D (Course Work)
13.	Practical/Seminar	Ph.D (Course Work)

17. Technical Proficiency

Introduced the demonstration of electrophoretic typings of various polymorphic red cell enzymes viz. adenosine deaminase (ADA), adenylate kinase locus 1 (AK1), esterase D (ESD), phosphoglucomutase locus 1 (PGM1), acid phosphatase locus 1 (ACP1), glyoxalase locus 1 (GLO1) and glucose phosphate isomerase (GPI), along with hemoglobin types to M.Sc. Classes.

As part of various research projects, actively participated in a number of anthropological field works in the states of Himachal Pradesh, Uttarakhand, Haryana, Rajasthan and Punjab and studied a large number of different endogamous caste/ tribal population groups providing massive database on a battery of red cell enzyme polymorphisms, haemoglobin types and ABO and Rh (D) blood groups on people of north and north-west India.

18. Seminars/Symposium organized.

- National Symposium on *Biological Anthropology - Recent Perspectives*, Department of Human Biology, Punjabi University, Patiala, March 24-25, 2006 (**Coordinator**).
- National Seminar on *Contemporary Issues in Human Biology in the 21st Century* Department of Human Biology, Punjabi University, Patiala, March 31 - April 1, 2012 (**Convener**).
- National Seminar on *Recent Advances in Human Biology (A Series of Plenary Talks)*, Department of Human Biology, Punjabi University, Patiala, 11-12 March, 2013 (**Convener**).
- National Seminar on *Recent Advances in Human Genetics: A Series of Lectures on Human Genetics*, Department of Human Genetics, Punjabi University, Patiala, 23-24 March 2015 (**Convener**).
- National Seminar on "*Recent Advances in Human Genetics*" in the Department of Human Genetics, Punjabi University, Patiala on 27-28 March, 2017. (**Convener**).

19. Participation in Seminars/Symposia/Workshops/Training Programmes.

- International Symposium on *Genomics in Health and Disease*, National Institute of Immunohaematology (ICMR), 28 - 30 January 2015.
- Training programme on LBSNAA, Mussoorie, 16-20 December 2012.
- Special Session of the Section on Anthropological and Behavioural Sciences of the Indian Science Congress *Anthropological and Psychological Approaches for a Healthy Society*, Department of Anthropology, Panjab University, Chandigarh, 26-27 March 2011.
- Inter-Congress in Anthropology: 2011 on *Anthropological Impact Assessment of Development Initiatives*, Anthropological Survey of India, Kolkata, 21-23 February 2011.
- Training programme on *Management & Leadership Development*, Centre for Disaster Management, LBSNAA, Mussoorie, 16-20 August, 2010.
- *INCAA Indian Anthropological Congress*, Indira Gandhi Rashtriya Manav Sangrahalaya, Bhopal, 21-23 February 2010.
- International Symposium on *Genetic and Epigenetic Basis of Complex Diseases*, Centre for Cellular and Molecular Biology, Hyderabad, 5-7 December, 2009.
- International Symposium on *Ethics, Culture and Population Genomics*, New Delhi, 17-20 March 2009.

- National Seminar on *Darwin, Science and Anthropology*, Department of Anthropology, Panjab University, Chandigarh, 16-17 March, 2009.
- Workshop on *Genetic Epidemiological Methods for Dissection of Complex Human Traits*, TCG-ISI Centre for Population Genomics (CpG), Kolkata, 23-28 February, 2009.
- National Seminar on *Paradigms in New Anthropology*, Department of Anthropology, University of Delhi, Delhi, 22-24 December, 2008.
- Training Course on *Diversity to Discovery*. International School of Anthropology, Mysore, Southwest Foundation for Biomedical Research, San Antonio, Texas, USA, & Anthropological Survey of India, Mysore, 15-28 February, 2008.
- *INCAA 2nd Anthropological Congress*, Maharashtra Association of Anthropological Sciences & Department of Anthropology, University of Pune, Pune, 21-23 February 2007.
- National Symposium on *Biological Anthropology – Recent Perspectives*, Department of Human Biology, Punjabi University, Patiala, 24-25 March, 2006.
- INCAA First Anthropological Congress on *Indian Anthropology for the 21st Century: The Challenges Ahead*, the North-Eastern Hill University, Shillong, 25-27 March, 2004.
- Workshop on *Biochemical Genetics*, Department of Genetics, Barkatullah University, Bhopal, 24-27 March 2003.
- National Seminar on *Recent Advances in Human Biology*, Department of Human Biology, Punjabi University, Patiala, 3-5 February,

20. A. List of Papers Published

1. Singh, S.M., Bhasin, M.K., Nath, S. and Singh, I P. 1977. A Report on physical development of Rajput boys of Barkot. *Indian J. Hered.* 9: 7-11.
2. Papiha, S.S., Chahal, S.M.S., Roberts, D.F. and Singh, I.P. 1980. Genetic studies among Kanet and Koli of Kinnaur district in Himachal Pradesh. *Amer. J. Phys. Anthropol.* 53: 275-283.
3. Papiha, S.S., White, I. and Chahal, S.M.S. 1981. Study of phosphoglucomutase polymorphism by isoelectric focusing: gene frequencies in the Gaddi tribe of Himachal Pradesh. *Ann. Hum. Biol.* 8: 379-382.
4. Chahal, S.M.S. and Papiha, S.S. 1981. A population genetic study of the Jat Sikhs, Punjab, India. *J. Indian Anthropol. Soc.* 16: 251-260.
5. Bhasin, M.K., Walter, H., Singh, Indera P., Bhasin, V., Singh, S.M. and Singh, R. 1982. Genetic studies of Pangwalas, transhumant and settled Gaddis. 1. Blood group polymorphisms and saliva secretor system. *Z. Morph. Anthropol.* 73: 79-96.

6. Papiha, S.S., Mukherjee, B.N., Chahal, S.M.S., Malhotra, K.C. and Roberts, D.F. 1982. Genetic heterogeneity and population structure in North-West India. *Ann. Hum. Biol.* 9: 235-251.
7. Papiha, S.S., Noble, S.E. and Chahal, S.M.S. 1982. Properdin factor B (BF) polymorphism in tribal population of Himachal Pradesh, India. *Hum. Hered.* 32 : 197-201.
8. Chahal, S.M.S., Papiha, S.S., Roberts, D.F. and Singh, I.P. 1982. Serological and biochemical variation in the Gaddi Tribe of Himachal Pradesh, India. *Z. Morph. Anthropol.* 73: 197-208.
9. Papiha, S.S., Roberts, D.F., White, I., Chahal, S.M.S. and Asefi, A.J. 1982. Population genetics of the group specific component (Gc) and phosphoglucosmutase (PGM₁) studied by isoelectric focusing. *Amer. J. Phys. Anthropol.* 59: 1-7.
10. Chahal, S.M.S. 1983. Genetic structure of Indian populations. *Research Proceedings* (Department of Anthropology, University of Delhi) 10: 37-46.
11. Papiha, S.S., Chahal, S.M.S., Roberts, D.F., Murty, K.J.R., Gupta, R.L. and Sidhu, L.S. 1984. Genetic differentiation and population structure in Kinnaur district, Himachal Pradesh, India. *Hum. Biol.* 56: 231-257.
12. Papiha, S.S. and Chahal, S.M.S. 1984. Population genetic study of red cell enzyme phosphoglucose isomerase in India. *Jpn. J. Hum. Genet.* 29: 147-156.
13. Bhasin, M.K., Singh, Indera P., Sudhakar, K., Bhardwaj, V., Chahal, S.M.S., Walter, H. and Dannewitz, A. 1985. Genetic studies in four tribal populations of the Surat district, Gujarat (India). *Ann. Hum. Bio.* 12: 27-39.
14. Chahal, S.M.S., Sehgal, I.K., Bansal, I.J.S. and Singh, P. 1985. Genetic polymorphism of erythrocyte acid phosphatase in Indian populations. *Acta Anthropogenet.* 9: 177-195.
15. Sehgal, I.K., Chahal, S.M.S. and Bansal, I.J.S. 1986. Genetic variation in five endogamous groups of Patiala district, Punjab. *J. Indian Anthropol. Soc.* 21: 63-72.
16. Bhasin, M.K., Singh, Indera, P., Walter, H., Chahal, S.M.S., Bhasin, V., Singh, R. and Sudarshan, K. 1986. Genetic studies of Pangwalas, transhumant and settled Gaddis. 4. Finger dermatoglyphics. *J. Indian Anthropol. Soc.* 21: 78-86.
17. Kaur, K., Chahal, S.M.S. and Kaur, H. 1986. Distribution of the A₁A₂BO blood groups in the Kamboh of Punjab. *Biologica* 1: 268-274.
18. Bhasin, M.K., Singh, Indera P., Walter, H., Bhasin, V., Chahal, S.M.S. and Singh, R. 1986. Genetic studies of Pangwalas, transhumant and settled Gaddis. 4. Colour blindness, mid-phalangeal hair, ear lobe attachment and behavioural traits. *Anthropol. Anz.* 44: 45-53.
19. Bhasin, M.K., Singh, Indera P., Walter, H., Chahal, S.M.S., Bhasin, V., Singh, R. and Sudarshan K. 1986. Genetic studies of Pangwalas, transhumant and settled Gaddis. Palmar dermatoglyphics. *Indian J. Phys. Anthropol. Hum. Genet.* 12: 9-28.

20. Chahal, S.M.S., Sehgal, I.K., Bansal, I.J.S. and Singh, P. 1985. Population genetics of glyoxalase I (GLO) polymorphism in India. *Anthrop. Anz.* 44: 249-256.
21. Chahal, S.M.S., Sehgal, I.K., Bansal, I.J.S. and Singh, P. 1986. Genetic variation of esterase D (EsD) polymorphism in Indian populations. *Anthrop. Anz.* 44: 341-353.
22. Chahal, S.M.S., Bansal, I.J.S., Sehgal, I.K. and Singh, P. 1986. Distribution of adenylate kinase (AK) polymorphism in Indian populations. *Z. Morph. Anthrop.* 76: 339-355.
23. Bhasin, M.K., Walter, H., Chahal, S.M.S., Bhardwaj, V., Sudhakar, K., Danaker-Hopfe, H., Dannewitz, A., Singh, Indera P., Bhasin, V., Shil, A.P., Sharma, M.B. and Wadhavan, D. 1986. Biology of the people of Sikkim, India. 1. Studies on the variability of genetic markers. *Z. Morph. Anthrop.* 77: 49-86.
24. Chahal, S.M.S., Bansal, I.J.S., Sehgal, I.K. and Singh, P. 1987. Electrophoretic variants of red cell phosphoglucose isomerase in some caste populations of Punjab. *Hum. Hered.* 37: 190-192.
25. Sehgal, I.K., Bansal, I.J.S., Chahal, S.M.S. and Singh, P. 1987. Genetic structure of five endogamous groups of Punjab. *J. Indian Anthrop. Soc.* 22: 263-269.
26. Chahal, S.M.S., Thind, K.K. and Mahajan, A. 1989. Erythrocyte enzyme polymorphisms in the Kamboh caste of Patiala, Punjab. *Hum. Hered.* 39: 37-40.
27. Chahal, S.M.S., Sidhu, B.K. and Mahajan, A. 1989. Biochemical variation in the Sunni Muslims of Pulwama district, Jammu and Kashmir. *Hum. Hered.* 39: 113-115.
28. Kushwaha, K.P.S., Chahal, S.M.S., Bansal, I.J.S., Chugh, O.P. and Sarojani, 1989. Gene diversity and genetic distance among four caste groups of Haryana. *J. Indian Anthrop. Soc.* 24: 291-293.
29. Kushwaha, K.P.S., Chahal, S.M.S., Bansal, I.J.S., Chugh, O.P. and Sarojani, 1990. Serogenetic variation in four caste populations of Haryana, India. *Hum. Hered.* 40: 262-266.
30. Kushwaha, K.P.S., Gaur, J.R., Sangwan, S.K., Yadav, A.S., Thukral, K., Kushwaha, B.P., Chopra, I.S. Chugh, O.P. and Chahal, S.M.S. 1990. ABO and RhD blood groups among 19 caste populations of Haryana. *Bionature* 10: 73-75.
31. Chahal, S.M.S., Mahajan, A. and Singh, P. 1991. Erythrocyte enzyme variation in some caste populations of Chamba, Himachal Pradesh. *J. Hum. Eco.* 2: 73-76.
32. Bhasin, M.K., Walter, H., Singh, Indera P., Sudarshan, K.J., Chahal, S.M.S., Bhasin, V. and Singh, R. 1991. Palmar dermatoglyphic creases among eleven population groups of Himalayas. *J. Hum. Eco.* 2: 103-106.
33. Kushwaha, K.P.S. and Chahal, S.M.S. 1991. Properdin factor B (Bf) polymorphism in Haryana, India. *J. Hum. Ecol.* 2: 205-206.
34. Gill, P.S., Chahal, S.M.S., Blangero, J., Corruccini, R.S., Bansal, I.J.S., Kaul, S.S. and Bhalla, V. 1991. Genetic epidemiology of non-insulin dependent diabetes

- mellitus (NIDDM) in North India: Preliminary analyses of some genetic markers in Punjabis. *Hum. Biol.* 63: 549-553.
35. Kaur, I., Singh, I.P. and Chahal, S.M.S. 1991. Cervical carcinoma and its association with genetic markers. *J. Indian Anthropol. Soc.* 26: 265-269.
 36. Kushwaha, K.P.S., Toor, S.K., Chahal, S.M.S., Sangwan, S.K. and Kushwaha, B.P. 1992. Polymorphism of the third component of human complement (C3) in Haryana, India. *J. Hum. Ecol.* 3: 45-46.
 37. Bhasin, M.K., Khanna, A. and Chahal, S.M.S. 1992. Red cell enzyme polymorphisms among Bodhs and Dards of Ladakh, Jammu and Kashmir, India. *J. Hum. Ecol.* 3: 149-150.
 38. Bhasin, M.K., Khanna, A. and Chahal, S.M.S. 1992. Distribution of red cell enzymes among three population groups of Ladakh, Jammu and Kashmir, India. *J. Hum. Ecol.* 3: 177-181.
 39. Bhasin, M.K., Khanna, A. and Chahal, S.M.S. 1992. Distribution of red cell enzymes among two Kashmiri population groups of Srinagar district, Jammu and Kashmir, India. *J. Hum. Ecol.* 3: 183-186.
 40. Bhasin, M.K., Khanna, A. and Chahal, S.M.S. 1992. Distribution of red cell enzymes systems among Gujjars and three Dogra population groups of Jammu and Kashmir, India. *J. Hum. Ecol.* 3: 187-191.
 41. Walter, H., Danker-Hopfe, H., and Chahal, S.M.S. 1993. Genetic studies of five population samples of Himachal Pradesh and Punjab, North West India. *J. Hum. Ecol.* 4: 15-21.
 42. Sidhu, G.K. and Chahal, S.M.S. 1993. Enzyme typing of human hair roots: stability studies from North West India. *Acta Crim. Japon.* 59: 41-48.
 43. Gill, P.S., Chahal, S.M.S., Corruccini, R.S. and Kaul, S.S. 1993. Genetic distances among the diabetic "Punjabis" and the comparative populations from North India. *Intern. J. Anthropol.* 8: 83-86.
 44. Kushwaha, K.P.S. and Chahal, S.M.S. 1994. Forensic Status of 20 blood genetic marker systems in India. *J. Hum. Ecol.* 5: 259-270.
 45. Chahal, S.M.S., Bansal, I.J.S. and Singh, P. 1995. Distribution of blood groups in Garhwal Himalayas, Uttar Pradesh, India. *J. Hum. Ecol.* 6: 43-48.
 46. Chahal, S.M.S., Mehta, P., Joshi, R., Singh, H. and Singh, P. 1995. Distribution of the MN blood groups in Kumaon, Uttar Pradesh, India. *J. Hum. Ecol.* 6: 53-54.
 47. Pal, S.K., Singh, H. and Chahal, S.M.S. 1995. Polymorphic protein expression (profile) in numigall. *Indian J. Exp. Biol.* 33: 58-60.
 48. Yadav, J.S., Kaur, M., Yadav, A.S. and Chahal, S.M.S. 1995. Incidence of colour-blindness in eleven endogamous caste groups of Haryana. *J. Hum. Ecol.* 6: 147-148.

49. Papiha, S.S., Chahal, S.M.S. and Mastana, S.S. 1996. Variability of genetic markers in Himachal Pradesh, India: Variation among the subpopulations. *Hum. Biol.* 68: 629-654.
50. Yadav, J.S., Kaur, M., Yadav, A.S. and Chahal, S.M.S. 1997. Finger dermatoglyphics study in some caste populations of Haryana. In *Essays on Cytogenetical Research*, eds. R.C. Sobti and G. Obe. Delhi: Narendra Publishing House. Pp. 317-338.
51. Yadav, J.S., Kaur, M., Chahal, S.M.S. and Yadav, A.S. 1997. Blood group variation in selected caste populations of Haryana. *J. Hum. Ecol.* 8: 117-120.
52. Kushwaha, K.P.S. and Chahal, S.M.S. 1997. Distribution of the Rhesus, P, Kell, Duffy and Lewis blood groups in Haryana. *J. Hum. Ecol.* 8: 467-470.
53. Chahal, S.M.S., Kaur, H.P., Kaur, R. and Singh, H. 1999. Screening for haemoglobin variants in people of Punjab, North-West India. *J. Hum. Ecol.* 10: 435-438.
54. Kaur, H.P., Kaur, R., Bansal, I.J.S., Chahal, S.M.S. and Singh, P. 2000. The ABO and Rh (D) blood groups among the Jat Sikh of Faridkot and Ferozepur districts of Punjab. In *Advances in Human Biology at the Turn of the Millennium*, ed. P. Singhal. Patiala: Punjabi University. Pp. 252-255.
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B. List of Books Published

- I.** Bhasin, M. K. and Chahal, S. M. S. 1996. *A Laboratory Manual for Human Blood Analysis*. Delhi: Kamla-Raj Enterprises.
- II.** Praveen Singhal et al. 2000. Member, Editorial Board. *Advances in Human Biology at the Turn of the Millennium*. Patiala: Publication Bureau, Punjabi University.
- III.** Bansal, I. J. S., Chahal, S. M. S. and Mukhopadhyay, B. (eds.) 2013. *Studies on Biological Anthropology: Biocultural Dimensions*. Jhargram: Indian National Confederation and Academy of Anthropologists.

C. List of Souvenirs published

- I.** Sectional Editor, *Fourth South Asian Youth Summit' 94 Souvenir*, Punjabi University, Patiala, 24 September – 3 October, 1994.
- II.** Member, Editorial Board. *83rd Indian Science Congress Souvenir*, Punjabi University, Patiala 3-8 January 1996.



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(Signature of the Teacher)