Name	:	**Dr. Ranbir Chander Sobti (Awarded Padma Shri by President of India on 14th April 2009)**
Present Position	:	**Vice Chancellor** **Panjab University, Chandigarh–160 014** **Part-time Director** **National Research Development Corporation (Government of India Undertaking)**
Address	:	Vice Chancellor Panjab University Chandigarh – 160 014
Phone	:	0172–2541945 (O)
Fax	:	0172–2541022
Email	:	rcsobti@pu.ac.in; vc@pu.ac.in

ACADEMIC QUALIFICATION

DEGREE	YEAR	UNIVERSITY	DIVISION	POSITION
B.Sc. (Hons. School)	1969	Panjab University	1st	2nd
M.Sc. (Hons. School)	1970	Panjab University	1st	1st
Ph.D.	1974	Panjab University		

POSITION HELD

UNIVERSITY	Year (s)	POSITION
Panjab University	1974 to 1975	Teaching Assistant
Panjab University	1975 to 1976	Curator
Panjab University	1976 to 1985	Lecturer
Panjab University	1985 to 1994	Reader
University of Miami, Florida, USA	1980 to 1983	Research Associate Professor
Panjab University	1994 onwards	Professor in Cell Biology
Panjab University	July 2006 onward	Vice-Chancellor

ADMINISTRATIVE EXPERIENCE (ABOUT 20 YEARS)

(i) Created and Headed the Department of Biotechnology, Panjab University first as Coordinator (1989-94) and then as Chairman (1994-2000, 2002-till September 2005).

(ii) Dean, Alumni Relations 1998-1999.

(iii) Dean Foreign Students, Panjab University, 2001-2004.

(iv) Honorary Director Academic Staff College 2004 – July 22, 2006.

(v) Chairman, Board of Examiners DOAECC (till 2007).

(vi) Chairman and Convener of various Boards (during various sessions).

(vii) Research Publications : About 200

(viii) Books 20

AWARDS / PRIZES / CERTIFICATES ETC. WON BY

A. Awards

(i) National Merit Scholarship

(ii) All Round Best Student Award

(iii) University Medal for Standing 1st

(iv) Lady Tata Memorial Fellowship

(v) INSA Young Scientist Medal

(vi) U.G.C. Career Award

(vii) Punjab Rattan Award

(viii) Sir Shri Ram Memorial Oration Award for the year 2006-2007

(ix) Delivered 12th Dr. J.C. Bose Memorial Lecture at IETE New Delhi on 30 Nov. 2006

(x) DD Jain Oration Award (Haryana) 2007

(xi) "B.C. Guha Memorial Award" by the Indian Science Congress 2008

(xii) Amity Academic Excellence Award 2008

(xiii) National Open and Distance Education Board "Life Time Achievement Award"

(xiv) Punjab Sarkar Parman Patra-2008

(xv) **PADMA SHREE AWARD, 2009**

(xvi) Jai Prakash Memorial Education Award, 2009

(xvii) Dr. G.S. Randhawa Oration Award, 2009

(xviii) Yokohama National University International Exchange Foundation Award, 2009

B. Fellowships

(i) Fellow National academy of Sciences (F.N.A.Sc.)

(ii) Fellow National Academy of Medical Sciences

(iii) Fellowship Zoological Society

(iv) Fellowship Indian Society of Cytologists & Geneticists (FSCG)

(v) Fellowship Punjab Academy of Sciences (FPASC)

(vi) Hony. Fellowship Institute of Chemical Engineering

(vii) Fellowship of Comprehensive Cancer Centre for the State of Florida

(viii) Fellow International Union Against Cancer, Geneva

(ix) Hony. Fellow Industrial of Chemical Engineering

(x) N.C.I. (USA) Visiting Fellowship

(xi) ICRETT Fellowship of UICC (Geneva)

(xii) Visiting Fellowship of Sylvester Cancer Centre, University of Miami, Miami

(xiii) Invited to attend International Conference on Cancer Detection in 1998 and 2000

(xiv) Selected for various exchange programmes between Germany, UK and USA and Japan.

(xv) President, Punjab Academy of Sciences

C. Editorship

(i) Member Editorial Board, Molecular Cell Biochemistry (Canada)

(i) Editor, Journal of Human Genetics

(ii) Editor International Journal of Human Genetics

(iii) Member Executive, Environment Mutagen Society of India

(iv) Member Editorial Molecular Cell Biochemistry (Canada)

(v) Editor, Newsletter, EMSI

(vi) Editor, Biotech Bulletin

(vii) Associate Editor, Journal of Cytology and Genetics

(viii) Reviewer of various International Journals (International Journal of Cancer, Human Genetics, Molecular Cellular Biochemistry, British Journals of Medicine *etc.*)

D. Other

(i) President Section of Animal, Veterinary and Fishery Sciences ISCA for the session 2003-2004.

OTHER RESPONSIBILITIES

Member of Selection Committees, Research Degree Committees, Board of Studies of various Universities. Besides all these, a large number of lectures have been delivered in the rural areas, schools, colleges, Universities *etc.* to popularize Science.

MEMBERSHIP OF SOCIETIES

Member	:	American Society of Human Genetics (1982-85).
Member	:	American Association of Cancer Research 2006 onward
Member	:	Cell Kinetics Society, USA (1982-85)
Member	:	Canadian Society of Genetics (1982-85)
Member	:	Genetic Society of America (1982-85)
Life Member	:	Environmental Mutagen Society of India and Executive Member, 1979-80, 1993-94.

Life Member	:	Indian Society of Human Genetics.
Life Member	:	Indian Society of Cell Biology.
Life Member	:	Indian Science Congress Association (Convener, Local Chapter Since, 1994)
Life Member	:	Society of Cytologists and Geneticists, India.
Member	:	Society of Cell and Chromosome Research, Japan.
Member	:	High Powered 'TOKTEN' Committee of CSIR
Chairman Board of Exam.	:	DOEACC, Government of India
Chairman	:	All India Biotechnologists Association (AIBA), North Zone
Advisor Biotechnology	:	Government of Uttranchal, Dehradun
Member Advisory Council S & T	:	Government of Haryana
Member, Governing Board	:	Consortium of Educational Communication, Delhi
Member, Standing Finance Committee	:	PGIMER, Chandigarh
Member, Standing Academic Committee	:	PGIMER, Chandigarh
Member, Standing Selection Committee	:	PGIMER, Chandigarh
Chairman Standing Purchase Committee	:	PGIMER, Chandigarh
Member, Advisory Committee	:	Indian Council of Cultural Relations
Executive Member	:	Indian Institute of Public Admin. New Delhi
Member, Academic Advisory Committee	:	Academic Staff College, Guru Nanak Dev Univ. Amritsar. Academic Staff College, Gorkhpur Univ. Gorkhpur
Member of the 11th Member VC Team for the Education to visit USA, September 2007	:	US Department of State
Member, Governing Board	:	Inter University Centre for Astronomy & Astrophy, Pune
Member, Governing Council	:	Inter University Centre for Astronomy & Astrophy, Pune
Nominated Member	:	Board of Governors, NIT, Srinagar
Member	:	National Scientific Advisory Committee of the International Symposium on Genetics, Health and Disease (ISGHD) of Department of Human Genetics, GNDU, Amritsar
Expert Member Research Council	:	Industrial Toxicology Research Centre, Lucknow w.e.f 1st April , 2007 for 3 years
Member	:	Committee to Select VCs of certain universities.
Member	:	Executive Council of Indian Institute of Public Administration

Member	:	Task Force Manpower Planning of the Department of Biotechnology, Government of India (1992-1996)
Executive Member	:	Indian Institute of Public Administration
Member	:	Edusat System UGC
Member Governing Body	:	IUA, New Delhi
Member	:	India-U.K. Higher Education Panel, Twinned University Programme (2009)
Member	:	NAAC Committee for University and Colleges
Member	:	**National Academy of Sciences, India Allahabad**

USEFULNESS OF THE WORK CARRIED OUT BY DR. SOBTI TO THE SOCIETY

The work carried out by Dr. Sobti has direct relevance to human health as he has:

1. identified genotypes susceptible to develop lung, prostate, cervix, oesophageal and bladder cancers and also the expression pattern of certain genes and mechanisms of carcinogenic process.
2. developed simplified molecular technique for the detection of genetic polymorphism in population
3. identified agricultural chemicals with carcinogenic and mutagenic potential and worked out structure and activity relationship
4. detected molecular interrelation of bruchid and curculionid pests using RFLP-RAPD techniques
5. determined molecular taxonomic position of termites of North India
6. characterized the buffalo and goat genomes by developing EST and microsatellite maps. More than 1000 accession numbers for ESTs of goats have been developed (Manishi *et al.,* 2005; Sodhi *et al.,* 2005a, b, c).
7. purified the thermostable and Novel enzymes CMCase and Beta galactosidase
8. a large number of gene sequences of goat, buffalo and termites have got gene accession number.

CONTRIBUTIONS IN ESTABLISHING INSTITUTIONS OF SCIENTIFIC EXCELLENCE

Dr. Sobti has single handedly established Centre (now full fledged department) of Biotechnology at Panjab University which has been recognized by the DBT, UGC (under emerging areas), and DST (under FIST programme). The students who have got M.Sc./Phd. Degree from this department are occupying prestigious positions in the reputed institutes in the country and aboard.

The course curricula for the courses run by the department were originally designed by Dr. Sobti.

It is under his leadership that Panjab University has got PURSE Award from the DST as well as special grant of Rs. 100 crores has been recommend by the PMO.

Role in popularizing Science in the Society

Dr. Sobti has made extensive efforts in popularizing science by

1. Organizing Symposia, Conferences, Workshops
   i) Symposium on Biotechnology in Medicine, 1990

ii) 1st Chandigarh Symposium in New Biology-January 1992
iii) 2nd Chandigarh Symposium in New Biology-February 1993
iv) 3rd Chandigarh Symposium in New Biology-December 1993
v) Reorientation course on Fundamental of Genetic Engineering – April 1993
vi) Reorientation course on Fundamental of Biotechnology – December 1993 to Jan. 1994 (Sponsored by PSCST)
vii) Short Term Training Course on Genetic Risk Assessment (DBT sponsored January-February 1993)
viii) DBT sponsored Teacher's Training Programmes in Vocational Biotechnology
Course I June 7-16, 1997
Course II June 17-27, 1997
ix) Refresher course in Environmental Studies July 1-21, 1997
x) Chandigarh Symposium, 1998
xi) Refresher Course in Advances in Life Sciences 16th September-13th October, 1998
xii) 3rd Punjab Science Congress and Symposium on Hundred years of Post Mendelian Genetics Advent of Biotechnology 10-12th December 1999.
xiii) National Academy of Science Meeting 1996
xiv) 1st INDO-US Workshop on Flow Cytometry 2001
xv) 9th Chandigarh Symposium on New Biology 2005
xvi) 5th INDO-US Workshop on Flow Cytometry 2005
xvii) National Workshop on Basic Bioinformatics 2005
xviii) The following organized in the university during his tenure as a VC. Under his direct supervision.
a. First and Second Chandigarh Science Congress.
b. First Chandigarh Language Congress.
c. First Chandigarh Social Science Congress.
d. First Stem Cell Conference.
e. Second Stem Cell Conference.
f. North Zone Vice Chancellor Conference.
g. Indo-US Animal cell culture, DNA Fingerprinting & Cell marker Identification
h. Indo-US, Symposium on Cancer Stem Cell, July 2008
i. Research Convention (AIU, 2008, 2009)
j. Indo-US, Symposium of Newer Technologies, February 2009
k. International Conference of Agricultural Biotechnology, October 2009
l. SAUFEST 2009
m. North Zone Cultural Fest (AIU) 2009

2. Organizing and delivering popular lectures
3. Publishing popular articles in Science today, Everymans Science, Everyday Science, and other scientific magazine and newspapers
4. Editing and publishing and scientific magazines Hippocampus, Biotech bulletin,
5. Visiting schools, colleges in urban and rural areas to make the students and general public aware about the scientific development in general and environment in particular.

Number of Publications **More than 200**

BOOKS PUBLISHED (22)

(i) **Eukaryotic Chromosomes: Structural and Functional Aspects** with Prof. G.Obe, Director Institute of Genetics. University of Essen. Published by M/s Narosa Publishers and Springer Verlag, Heidelberg.

(ii) **Medical Zoology** published by S.L. Nagin and Co., India.

(iii) **Some Essays on Cytogenetical Research** M/s Narendra Publishers,New Delhi

(iv) **Trends in Environmental Muta genesis** Tausco Publishers, New Delhi

(v) **New Biology: 1,** Pb. Univ., Chandigarh.

(vi) **Fundamentals of Biotechnology**, Pb. Univ. Chandigarh.

(vii) **Advances in Life Sciences**, Pb. Univ. Chandigarh

(viii) **Functional Aspects of Chordates**, Published by S.L. Nagin Chand and Co., India

(ix) **Environment: Components, Problems and Conservation**, Published by Narendra Publishers, New Delhi.

(x) **Animal Physiology** (M/s Narosa Publication National Issue; M/s Alpha Publication International Issue, Cambridge)

(xi) **An Insight of the Insects** published by M/s Tausco Publishers, New Delhi.

(xii) **Some aspects of structure and Function of chromosomes** Published by, M/s Kluwers

(xiii) **Basics of Biotechnology Vol 1 Introduction to Life Sciences** Published by M/s Vishal

(xiv) **Basics of Biotechnology Vol II: Concepts, Tools and Applications, M/s Vishal Publishers**

(xv) **Medical Zoology and Medical Technology** published by M/s Shobhan Lal and Co

(xvi) **Medical Zoology: An introduction to Parasitology** published by M/s Shobhan Lal and Company

(xvii) **Pathological Zoology** Published by M/s Shobhan Lal and Company (in Press)

(xviii)**Elements of Biotechnology** Published by M/s Ane Publishers, New Delhi

(xix) **Fundamental of Modern Biology** Published by M/s Ane Publishers, New Delhi

(xx) **Biotech Bulletins** Volumes 1 to 9

(xxi) **Academic Staff Colleges : Perspective Panjab University , Chandigarh**

(xxii) **Centre State Relationship : Panjab University, Chandigarh.**

Countries Visited :USA, U.K. Canada, Germany, Japan, Netherlands, Malaysia and Nepal

No. of Research projects handled 22

Specific Contribution to Scientific Knowledge

Dr. Sobti started his career as a cytogeneticist (Zoology) and has made commendable contributions in the cytogenetic characterization of various animal groups and the normal and diseased humans. Dr. Sobti has made following contributions during **last couples of years in India:**

i) Characterized the buffalo and goat genomes by developing EST and microsatellite maps. More than 1000 accession numbers for ESTs of goats have been acquired [**Journals of Genetics** 85: 165-170, 2006; **DNA Sequence** 17 (2): 94-98, 2006; **Animal Biotechnology**; 18 (2) 123-130, 2007, Biochem Genetics 45 (1-2) 145-153, 2007; 46 (3-4) 124-136}.

ii) Detection of molecular marker for determining the systematic position of bruchids, curculionids and termites [**Caryologia** 56 (2) : 219-222; 59 (3) : 226-234; **Cytologia** 7 (1): 57-62; 76 (1) : 81-85; **Molecular Cell Biochemistry** 295 (1-2) : 145-151].

iii) Isolation of microbes and characterization of thermostable enzymes like β galactosidase (65°C), CMCase (60°C) and serine alkaline protease (65°C) [**J. Indust. Microbiol. Biotechnol.** 24, 58-63, 2000, **Folia Microbiol.** 44, 367-371, 2001; **Process Biochem**. 36, 276-285, 2001; **World J. Microbiol and Biotech.** 17, 761-765, 2001; **Engg. in Life Science** 2005 5 (6) : 581-584].

iv) Finding of microbial transformation pathway involved in conversion of ferulic acid to vanillin which has tremendous applications in food and beverage industry so as to avoid the usage of synthetic vanillin (**Journal Biotech,** 2001).

v) Characterization of Shiga toxin from *Shigella flexneri* (**JPAS,** 2, 137-148, 2002).

vi) Detection of diagnostic significance of telomerase activity in gastrointestinal and lung cancers (**Mol. Cell Biochem.,** 217, 51-56, 2001).

vii) Association of single nucleotide polymorphisms (SNPs) of metabolic, DNA repair, cell cycle, immunomodulatory genes with the risk of lung, prostate, bladder and cervix cancers. The CYP1A1 Msp and ile/val genotypes are important markers for the risk of lung cancer and GSTM1 null genotype for bladder cancer. An increased risk of prostate cancer associated with estrogen receptor (ER α-/-) genotype has been observed. There is 3, 5, and 6 fold increased risk of prostate cancer in individuals carrying CYP17A1/A2/A2/A2, PRA1/A2/A2/A2 and CYP1B1 and P1, combined with ER + /-/-/- genotype. CYP19 CT genotype unlike SR D5A2, VDR and Cyp2d6 genes also plays an important role in the risk of prostate cancer. Formation of resistance in P388 mouse cancer cells has been linked with the development of specific chromosome markers in cells.

viii) Role of STAT and SOC genes in the genesis of cervical cancers (**Mol. Cell. Bio.** 2009)

ix) Phosphatidic acid (generated through the activation of receptor CR by cholesterol) regulates mevalonate pathway, DNA synthesis as well as expression of genes coding for C-Phos, c-myc and cyclin D.

Besides he has also worked on the following :

1. Molecular analysis of genetic stability of micropropagated apple root stock (**Scientica Horticulture.** 104 : 151-160).
2. Regulation of growth of *Lilium* plantlets in liquid medium by application of paclobutrazol or ancymidol for its amenability in a bioreactor system (**Plant Cell Rep.** 2005, 20: 1-10).

Biographical information, and significant contributions at (a) National and (b) International Level

Dr. Sobti has made excellent contributions in finding out relationship of various polymorphic forms of metabolic, DNA repair, cell cycle and immunomodulatory genes and the expression pattern of polymorphic form of some of the genes. It has been done to know the comprehensive multiple gene based genotypes associated with the risk of upper aerodigestive tract, lung, bladder, cervix and prostate cancers in North Indian population. Most of the observations have been made for the first time, some of which are new to the field as such and others on Indian population and the data are quite different from that wherever reported for other populations of the world.

Polymorphisms in *CYP1A1* (*msp1*, ile/val, pst1) and *GSTM1* do not show any association with upper aerodigestive tract (UAT) cancer. However, an increased risk towards UAT cancer has been observed in bidi smokers having *GSTM1* or *GSTT1* null genotypes.

The risk of **oesophageal cancer** is increased with combined *CYP1A1 (*1/*2A)* and *CYP2D6 (EM)* genotypes. Same is the case with *GSTT1* null and *GSTP1* (exon 5 and 6)

polymorphisms. New mutations have been reported in *P53* gene in North Indian population. These include insertion of T in exon 6 at 13256 and that of A at 14376 in exon 8.

While studying the CYP1A2, SULT1A1, NAT2 and XRCC1 polymorphisms in relation to **lung cancer** in North Indian population it has been reported that *NAT2 (*5/wt/*5/*5)* genotype in combination with other genotypes of *CYP2D6 (EM/HEM)* and *p53* shows elevated the risk of lung cancer. The risk is further increased in case of smokers. An associative interaction between *ERCC2* and *CCDN1* genetic polymorphism for risk of lung cancer has also observed.

The *GSTT1* null and *CYP2D6 (HEM)* alleles increase the risk of **bladder cancer**. The number of mutations in *p53* gene is more in patients with combined genotypes of *CYP2D6 (HEM), GSTM1* null and *GSTT1* null alleles. There is no other report in the world rgarding the detection of single nucleotide polymorphism of the genes *LIG1 (exon 6, A → C), APE1 (ASP 148 Glu) IL-1β (-31, C→ T), IFN γ (+874 A/A), IL 18 (-137, C/C)* and *NBS (-185 Gln/Gln)* in patients with bladder cancer. The expression of IL13, IFNγ and IL18 for mRNA and protein levels as well as microsatellite of IFN-γ have role in the genesis of bladder cancer. IL4 (70 bp repeat in VNTR in intron 3) gene polymorphism also alter the risk for bladder cancer patients from India. The report regarding hypermethylation status of RB1, DAPK and CASP-8 in bladder cancer of Indian population is also new to literature.

While studying the polymorphisms in NBS1 (Glul/Glu*gln/gln), IL4, IL6, IL10, FAS and TAB a risk of **cervix cancer.** It has been observed that *+874 of IFN γ* and *TAP* genotype increases the risk for cervix cancer. On the other hand *APE1 148 ASP/Glu* polymorphism decreases it. The expression of *IL18, IFNγ* genes and hypermethylation of *p14* and *p16* genes do not show any difference in cervix carcinoma patients and healthy controls in North Indian population.

The mutant genotype *(A2/A2)* of *CYP17* significantly increases the risk of **prostate cancer.** CYP1B1 (leu/leu) genotype combined with PR (A2/A2 or A1/A2) is associated with the risk of prostate cancer. mEH3 and mutant genotype of ER (+/-/-/-) and CYP17 (A1/A2/A2/A2) and HPC/ELAC2 (Leu/Leu) show an increased the risk of prostate cancer in the Indian population.* The TA repeats (TA 9/9) and PSA (G/G) genotypes also play role in the risk of prostate cancer development has also been reported.

Metabolic syndrome and CHD allele of *VEGF-1154* polymorphism is associated with development of coronary heart disease. SNP 45 T/G in adiponectin gene is associated with development of coronary heart disease in north Indian population.* G allele is associated with the elevated risk of coronary heart disease.

VEGF-1154A/A may be a major risk factor in CAD, smoking, type2 diabetes and obesity, but protective in MetS thru some alternate signaling pathway. Heterozygosity in TNF-α 308G/A may have a protective role in CAD and a high risk in MetS.* C allele of LEPR*ser492thr* has a protective effect in MetS and CAD probably due to down regulation of the receptor. This study provides preliminary evidence of association of cytokine polymorphism with MetS and CAD and their risk factors in this population.

AIDS : There is no statistically significant variation in the genotype frequencies of *IL-1β*, *IL-1RA, IL-6* and *IL-10* among cases and controls.* There is a statistically reduced risk of HIV-1

and slower rate of disease progression with *RP2/RP2* genotype of *IL-4*. Moreover, marginal reduced risk of HIV susceptibility due to the combined effects of *AA* genotype of *IL-1RA* and *Rp2/Rp2 of IL-4* is there 5.99 folds of statistically significant increased risk for disease progression is there in the carriers of combined genotype effects of *RP1/RP1* of *IL-4* and *GC* of *IL-6*. Furthermore, 1.66 folds of statistically non significant elevated risk of HIV susceptibility and 1.06 folds statistically non significant marginal rate of disease progression due to the combined effects of *AB* genotype of *IL-1RA* and *CC* of *IL-6* there

Heterozygote individuals for *XRCC3 Thr241Met, XPD- GLn751Gln,and XPG-His1104Hi* are associated with the risk of HIV-1/AIDS disease while no association is there *XRCC1-Arg399Gln*, *XRCC3 -Gln241Gln*, *XPD-lyc751Gln,XPG-Asp1104His* genotypes in a sample of north Indian population.

These and other observations on animal molecular genetics/biology, human cytogenetics, environmental carcinogenesis have been published in international journals (Cancer Genetics and Cytogeneteics, Cell and Molecular Biochemistry, Mutation Research, Oncology Research, Anticancer Research, Biomarker *etc.*).