




## University Faculty Details Page on DU Web-site

Title	Prof.	First Name	Vijay K.	Last Name	Chaudhary	Photograph
Designation		Professor				
Department		Biochemistry				
Address (Campus)		First Floor, Engg. Department Building, University of Delhi South campus, New Delhi 110021				
(Residence)		1, Type 5A Flats University of Delhi South campus, New Delhi 110021				
Phone No (Campus)		24115883 (Direct), 7156 (Internal)				
(Residence) optional		91-11-24115863				
Mobile		91-9811800434				
Fax		91-11-24115270				
Email		vkchaudhary@south.du.ac.in,				
Web-Page						
<b>Education</b>						
Subject		Institution		Year		Details
Ph.D. Biochemistry		University of Delhi		1983		V.P. Chest Institute, Delhi
M. Sc. Biochemistry		G.B. Pant University, Pantnagar, UT		1975		College of Basic Sciences and Humanities (CBSH)
B. Sc. Biochemistry		Agra University		1973		S.M. College, Chandausi
<b>Career Profile</b>						
Organisation / Institution		Designation		Duration		Role
<b>University of Delhi South campus (UDSC), New Delhi</b>		<b>Director, Centre for Innovation in Infectious Disease Research, Education and Training (CIIDRET)</b>		<b>Oct. 2015-</b>		<b>Research &amp; Training</b>
Department of Biochemistry, UDSC, New Delhi		Professor and Head		2011- 2014		Teaching and Research
<b>Department of Biochemistry, UDSC, New Delhi (DBUDSC)</b>		<b>Professor</b>		<b>1996-date</b>		<b>Teaching and Research</b>
DBUDSC, New Delhi		Professor and Head		1999-2002, 2011-2014		Teaching and Research
DBUDSC, New Delhi		Head		1993-1996		Teaching and Research
DBUDSC, New Delhi		Reader		1990-1996		Teaching and Research
Laboratory of Molecular Biology, National Cancer Institute, National Institutes of Health, Bethesda, USA		Visiting Fellow and Visiting Associate		1985-1990		Research
Escorts Medical Centre, and N.I.T. Faridabad		Clinical Biochemist		1981-1985		Headed Biochemistry Laboratory
<b>Research Interests / Specialization</b>						
<p>Professor Chaudhary has more than 30 years of research experience in the field of Antibody technology with interest to generate Novel Reagents and Test Devices for Diagnosis of Infectious Diseases (AIDS, Tuberculosis, Malaria and Typhoid). He has vast experience in Phage display, directed Evolution of Antibodies and Therapeutic Proteins, High throughput genome-wide cloning, expression and Purification of Proteins, Discovery and Production of Therapeutic Proteins.</p>						

Teaching Experience (Subjects/Courses Taught)			
1990-Present - Recombinant DNA Technology, Functional Genomics, Antibody Engineering, DNA Sequencing, Expression systems and strategies for recombinant protein production.			
Honors & Awards			
<ul style="list-style-type: none"> <li>• <b>2019 Biotech Product and Process Development and Commercialization Award, Department of Biotechnology, Government of India</b></li> <li>• <b>2017, Outstanding Alumnus award</b> of the College of Basic Sciences and Humanities by the G.B. Pant University of Agriculture and Technology, Pantnagar.</li> <li>• <b>2015, Visitor's Award for Innovation by the President of India at a special ceremony at Rashtrapati Bhawan on 4 February 2015</b></li> <li>• <b>2014, Biotech Product and Process Development and Commercialization Award, Department of Biotechnology, Government of India.</b></li> <li>• Bachhawat Memorial Lecture award (2009) by National Academy of Sciences India.</li> <li>• 2005, WIPO (World Intellectual Property Organization, Geneva) Gold Medal for "Best Invention of Year 2004" for inventing "On-site Detection of HIV (AIDS).</li> <li>• 2004, National Research Development Corporation (NRDC, DSIR, Ministry of Science &amp; Technology, Government of India) award of Rs. 1,50,000/- for inventing "On-site Detection of HIV (AIDS)"</li> <li>• <b>2002, Biotech Product and Process Development and Commercialization Award, Department of Biotechnology, Government of India.</b></li> <li>• 1999, All India Biotech Association (AIBA) Award</li> <li>• 1997, VASVIK Award for Biological Science and Technology</li> <li>• <b>1991, the National Institutes of Health, USA (NIH) Director's Award</b></li> <li>• Fellow of the National Academy of Sciences</li> <li>• Member, Guha Research Conference.</li> </ul>			
Publications (LAST FIVE YEARS)			
<u>Books / Monographs</u>			
<u>Year of Publication</u>	<u>Title</u>	<u>Publisher</u>	<u>Co-Author</u>
2005	<i>Phage Display: A molecular fashion show.</i> Manuscript in book entitled " <i>Phages: Their Role in Bacterial Pathogenesis and Biotechnology</i> "	<i>American Society of Microbiology (ASM)</i>	Oppenheim, A Gupta.

<u>Salient Publications in Indexed/ Peer Reviewed Journals</u>			
<u>Year of Publication</u>	<u>Title</u>	<u>Journal</u>	<u>Co-Author</u>
2018	Biotin-tagged proteins: Reagents for efficient ELISA-based serodiagnosis and phage display-based affinity selection.	PLoS ONE 13(1): e0191315,	Verma, V., Kaur, C., Grover, P., Gupta, A.,
2015	M. tuberculosis Secretory Protein ESAT-6 Induces Metabolic Flux Perturbations to Drive Foamy Macrophage Differentiation.	Sci Rep., 5:12906. <i>J.Clin. Microbiol.</i> Vol 41(7) Pg 2814-2821.	Singh V, Kaur C, Rao KV, Chatterjee S.
2015	Host interactions of Chandipura virus	Acta Trop.	Rajasekharan S, Kumar K, Rana J,

	matrix protein	149:27-31. doi:10.1016	Gupta A, Gupta S.
2015	Host-pathogen interactome analysis of Chikungunya virus envelope proteins E1 and E2.	Virus Genes. 50(2):200-9.	Dudha N, Rana J, Rajasekharan S, Gabrani R, Gupta A, Gupta S.
2014	A Novel Helper Phage Enabling Construction Of Genome-Scale ORF-Enriched Phage Display Libraries	<i>PLoS One</i> , 9(10): e111538	Shrivastava N, Verma V, Das S, Kaur C, Grover P, Gupta A.
2013	Rapid restriction enzyme-free cloning of PCR products: a high-throughput method applicable for library construction	<i>PLoS One</i> , 8(9): e75212.	Amita Gupta, Nimisha Shrivastava, Payal Grover, Ajay Singh, Kapil Mathur, Vaishali Verma, Charanpreet Kaur
2012	Intraviral protein interactions of Chandipura virus.	<i>Arch Virol.</i> 157(10): 1949-57	Kumar K, Rana J, Sreejith R, Gabrani R, Sharma SK, Gupta A, Gupta
2012	Mapping interactions of Chikungunya virus nonstructural proteins.	<i>Virus Res.</i> Oct;169(1):231-6	Sreejith R, Rana J, Dudha N, Kumar K, Gabrani R, Sharma SK, Gupta A, Vrati S, Gupta S.
2009	Directed evolution of an anti-human red blood cell antibody.	<i>MAbs.</i> 1(3):268-80	Gupta A.and Rajiv Bhat.
2006	Bifunctional recombinant fusion proteins for rapid detection of antibodies to both HIV-1 and HIV-2 in whole blood.	<i>BMC Biotechnology</i> Vol 6 Pg 39.	Gupta, A.
2005	Expression and purification of recombinant antigens of <i>Mycobacterium tuberculosis</i> for application in serodiagnosis.	<i>Protein Expression Purification</i> Vol 44 Pg75-85.	Abhishek Kulshreshtha, Nitin Verma, S. K. Sharma, Anil K. Tyagi and Gupta A.
2005	Serogroup-reactive and type-specific detection of bluetongue virus antibodies using chicken scFvs in inhibition ELISAs.	<i>J Virol Methods</i> Vol 129(1) Pg 31-39	Fehrsen J, van Wyngaardt W, Mashau C, Potgieter AC, Gupta A., Jordaan FA, du Plessis DH.
2005	Expression and purification of recombinant 38-kDa and Mtb81 antigens of <i>Mycobacterium tuberculosis</i> for application in serodiagnosis	<i>Protein Expression Purification</i> 40:169-176	Gupta A., Kulshreshtha, A., Gupta, G., Verma, N., Kumari, S., Sharma, S.K., Anil K. Tyagi.
2003	High Density Functional Display of Proteins on Bacteriophage Lambda	<i>J. Mol. Biol., Vol</i> 334(2) Pg 241-	Masanori Onda, Ira Pastan, Sankar Adhya

2003	Whole-Blood Agglutination Assay For On-Site detection of Human Immunodeficiency Virus infection	254 <i>J.Clin. Microbiol.</i> Vol 41(7) Pg 2814-2821	and Gupta A. Gupta A.
<a href="#">For complete list of publications click here</a>			
•			
Total Publication Profile <b>optional</b>			
<u>Books</u> Two			
<b>In Indexed/ Peer Reviewed Journals</b> More than 80 publications and a Dozen Indian and International patents.			
<b>Recent Conference Presentations</b>			
<ul style="list-style-type: none"> <li>Delivered lecture at Haffkine Institute for Training, Research and Testing on 4 January, 2019.</li> <li>Delivered a lecture entitled Antibodies in Diagnostics: Rapid Tests for Rural India at 88th Annual Session of The National Academy of Sciences, India (NASI) in a symposium in Science, Technology and Ecosystem for Sustainable Rural Development jointly organized by Mahatma Gandhi Chitrakoot Gramoday Vishwavidyalaya (MGCGV) &amp; Deendayal Research Institute (DRI), Chitrakoot, Satna, M. P on 6-8<sup>th</sup> December 2018.</li> <li>Delivered a lecture entitled Genome Sequencing - Gel to NGS and Beyond at Department of Biotechnology (DBT), Ministry of Science &amp; Technology, Govt. of India, Lodi Road New Delhi on 17th September 2018.</li> <li>Delivered a lecture entitled “The Magic of Antibodies” at National Conference on Recent Trends In Zoological Research In North-East India, North-Eastern Hill University, Shillong, Meghalaya, India, jointly organized by Department of Zoology (NEHU) &amp; Zoological Society (Kolkata) on 19th April 2018.</li> <li>Delivered a lecture entitled “Human Antibodies: wonder biologics” at a symposium on Translational Science - Lab2Life organized by Sri Venkateswara College (University of Delhi), on 15<sup>th</sup> February 2018.</li> <li>Delivered a lecture entitled “An indigenous phage-displayed naïve human antibody (scFv) library: A potential source of recombinant antibody-based therapeutics for human diseases including snake bite treatment” at “Development of advanced biologics for the treatment of human diseases” organized jointly by SciGenom Labs Pvt. Ltd. Kochi, India, University of Toronto and Bio 360 Life Sciences Park, Kerala State Industrial Development Corporation (KSIDC) on on 2-3 February, 2018.</li> <li>Delivered a lecture entitled “Human Antibodies: their production and applications” at International Conference on Advances in Biosciences and Biotechnology organized by Jaypee Institute of Information Technology (JIIT), NOIDA, on 1<sup>st</sup> February 2018.</li> <li>Delivered a lecture entitled “An indigenous phage-displayed naïve human antibody (scFv) library: A source of recombinant anti-snake venom molecules!” at SNAKSYMP 2017- Conference on Recent Advances in Research on Snake Venom and Snakebite Therapy: National and International Perspectives organized by CSIR-CCMB on 1<sup>st</sup> December 2017.</li> <li>Delivered a lecture entitled “Recombinant Antigens and Antibodies for improved immunoassays” at Indo-Iran Workshop to Develop Cooperation in Biotechnology organized by International Centre for Genetic Engineering &amp; Biotechnology on 4<sup>th</sup> August 2017.</li> </ul>			

- Delivered a lecture entitled “The Magic of Antibodies” under Faculty Development Program on “Recent Advances in Diagnostics and Therapeutics” at Department of Biotechnology, Jaypee Institute of Information Technology, NOIDA on July 18, 2016.
- Delivered the plenary lecture entitled “The Magic of Antibodies” on the occasion of ‘National Science Day’ at Central University of Haryana, Mahendragarh on February 28, 2017.
- Delivered a lecture in a symposium on “Breakthrough and New Challenges in the Diagnosis and Management of Tuberculosis”, held at MGM Institute of Health Sciences, Navi Mumbai from 18-19 March 2016.
- Made a presentation in Global Biotechnology Summit – 2016 celebrating 30 years of Biotechnology on 5-6 February 2016 in section Swatch Bharat Swasth Bharat: Innovation for a healthy nation.
- Prof. Vijay K. Chaudhary and Dr. Amita Gupta displayed a competitively selected poster describing “TB Confirm test” at exhibition on “Innovation in Medical Science and Biotechnology” held at the Lawn of Rashtrapati Bhawan, New Delhi on 16<sup>th</sup> March 2016.
- Participated in round table discussion “Innovation in Medical Science and Technology” held at West Hall, Rashtrapati Bhawan Conference Centre, New Delhi on 16<sup>th</sup> March 2016.
- Delivered Foundation Day Lecture “The Magic of Antibodies” at National Institute for Research in Tribal Health, Jabalpur (ICMR – NIRTH), March 1 2016
- Attended as the Chief Guest and delivered Inaugural Lecture “Science: My Inspiration” under INSPIRE (Innovation in Science Pursuit for Inspired Research) Internship Program, an initiative of Department of Science and Technology (DST), Govt. of India at AMITY University Campus, Manesar, November 24, 2015.

#### Public Service / University Service / Consulting Activity

##### University of Delhi:

- **Director**, Centre for Innovation in Infectious Disease Research, Education and Training (CIIDRET), University of Delhi.
- **Head** of the Department of Biochemistry, DU: 3 terms of three years each.
- Past Member of the Academic Council for 10 years.
- Member of the University Court for 22 years.
- **Chairman**, WUS Health Centre, University of Delhi, 2012-2016; Chairman, Interim Governing Council WUS Health Centre (IGC-WUSHC), WUS Health Centres, University of Delhi. 2012-2016
- Member of Governing Body, V.P. Chest Institute.
- Member of Governing Body. College of Vocational Studies.
- Past Member of Governing Body, Sri Aurobindo College, Motilal Nehru College, Desh Bandhu College, Ram Lal Anand College, Aryabhatta College and ARSD College,
- Past Chairman Building Committee, Aryabhatta College.
- Member, Governing Body, Technology-Based Incubator, University of Delhi South Campus, New Delhi, 110021. 2011-2015
- Member of selection Committees of several College Principals.
- Member, Board of Research Studies, Faculty of Inter Disciplinary and Applied Sciences, University of Delhi, 2008-2014.

##### Academic and Scientific Organizations:

- Chairman, Patent Facilitation Committee, Department of Biotechnology, Government of India (DBT), since January 2018.
- Co-Chairman, Technical Expert Committee (TEC) on “Infectious Disease Biology” Department of Biotechnology, Government of India (DBT), since October 2018.
- Co-Chairman of the DBT NER Technical Expert Committee (TEC) Medical Biotechnology-II
- Member, Expert group on Technology Transfer Organization (TTO's), Department of

Biotechnology, Government of India (DBT), since June 2018.

- Member, Scientific & Technical Appraisal & Advisory Group (STAG), Medical Biotechnology, Department of Biotechnology, Government of India (DBT), since October 2018.
- Member, the 'Expert Committee on TB diagnostics' of the Indian Council of Medical Research, New Delhi, since 2015.
- Member, The Working Group on TB Diagnostics of India TB Research Consortium (ITRC), of the Indian Council of Medical Research, New Delhi, since 2016.
- Member, Joint Scientific Advisory Committee NJIL&OMD, Agra and NIRT, Chennai.
- Mentor, **Nexus @ American Center, New Delhi.** (<https://startupnexus.net/mentors>).

**Past:**

- Member, Academic Council, Jawahar Lal Nehru University w.e.f. 8<sup>th</sup> May 2017 for two years.
- Member, The Joint Scientific Advisory Committee NJIL&OMD, Agra and NIRT, Chennai, since 2010.
- Member, Task Force on "Infectious Disease Biology" Department of Biotechnology, Government of India (DBT), since 2017.
- Co-Chairman Task Force on DBT-Boost to University Interdisciplinary Life Sciences for Education and Research (DBT-BUILDER) Department of Biotechnology (DBT), Government of India, 2015- 2016 (Member 2008-2016).
- Member, Project Review Committee for Allergy, Biochemistry and Immunology, ICMR New Delhi, 2014-till date.
- Member, Committee for Innovative Young Biotechnologists Award, Department of Biotechnology, Government of India, New Delhi, 2005-2014.
- Co-Chairman, Task Force for Vaccines and Diagnostics in areas of health care, Department of Biotechnology, Government of India, New Delhi, 2005-2009.
- Member, Task Force for Infectious Disease Biology, DBT, New Delhi, 2005-2009.
- Member, Research Council of Indian Institute of Toxicology Research, Lucknow, 2006 -2009.
- Member of the Academic Committee, Central Drug Research Institute, Lucknow, 2005- 2008.
- Member of the Academic Committee, Centre for Cellular and Molecular Biology, Hyderabad, 2008-2011.
- Past Member of SAC, Institute of Pathology (ICMR), Safdarjung Hospital, New Delhi, 2004-2008.

**Bio-Pharmaceutical Industries:**

- Member, Scientific Advisory Committee of Surat Raktadan Kendra and Research Centre, Surat, 2016-till date (Chairman for 2019 meeting)
- Advisor/Consultant, M/s Yashraj Biotech, Navi Mumbai, 2016-till date.
- Member Scientific Advisory Committee, M/s Yashraj Biotech, Navi Mumbai, 2010-till date.
- Member Scientific Advisory Committee, M/s Indian Immunologicals (IIL), Hyderabad, 2013-2016.
- Member, Scientific Advisory Committee, SPAN Diagnostics Ltd., Surat, 2006- 2014.
- Advisor, Cadila Pharmaceuticals Limited, Ahmedabad, 2007-2011.
- Advisor, Century Pharmaceuticals Limited, Baroda, 2007-08.
- Advisor, Ranbaxy Laboratories Limited, Delhi, 1991-1995, 2000-2003.

**Professional Society Memberships**

- Life member of Society of Biological Chemists (India).
- Life member of Association of Clinical Biochemists of India.
- Life member of Indian Science Congress Association
- Life member of Association of Microbiologists of India.

**Projects (Major Grants / Collaborations)**

- A Centre of excellence entitled “Antibody Technology: Research for therapeutic and diagnostic application” Department of Biotechnology, Govt. of India for Rs. 6.08 crores. w.e.f. 30<sup>th</sup> Dec, 2017 for 3 years. (PI, Prof. Vijay K. Chaudhary, as Director CIIDRET; Co-PI, Dr. Amita Gupta) (Clinical Collaborator Dr. Sarman Singh, AIIMS)
- “Genomic Facility at University of Delhi South Campus” by Department of Biotechnology, Govt. of India Rs. 2.47 Crore. w.e.f. 23<sup>rd</sup> Feb, 2018 for 3 years. (PI, Prof. Vijay K. Chaudhary as Director CIIDRET; Co-PI, Dr. Amita Gupta)
- “Identification of mycobacterial proteins and novel antigenic epitopes having immunodiagnostic potential and development of reagents for point of care test for tuberculosis” by Department of Biotechnology, Govt. of India for Rs. 79 lacs, w.e.f. Jan 2018 for three years (PI, Dr. Amita Gupta; Co-PI, Prof. Vijay K. Chaudhary as Director CIIDRET), (Clinical Collaborator Dr. Rohit Sarin, NITRD, New Delhi).

#### Other Details

Currently, the main focus of the laboratory is to identify Biomarkers, and develop reagents, which can be used for developing rapid but sensitive detection systems for the diagnosis of infectious diseases including Tuberculosis, Chikungunya, HIV-AIDS, Dengue, Typhoid and Malaria.

For sensitive detection of antigens, monoclonal antibodies are produced by conventional hybridoma technology. The high affinity clones and non-completing pairs of MAbs are identified by pair-wise epitope mapping using surface plasmon Resonance (SPR, BIACore 3000). The affinity and folding characteristics of MAbs are improved by Phage display based mutagenesis and selection and recombinant antibody fragments are produced. For antibody detection, high quality proteins are produced following high throughput strategies for cloning, expression and purification. These reagents (high affinity MAbs and purified Proteins) are employed for developing point-of-care tests using various rapid assay formats with colloidal-Gold and fluorescence labeled Nano-particles. The group has interactions with Academic and Industrial R&D Centres involved in Diagnostics Research in India, and abroad. **Some of the recently proposed/initiated programmes include:**

- Engineering of Insoluble/partially soluble antigens to produce soluble immunoreactive variants.
- Directed Evolution of antibodies for antigen detection in tuberculosis.
- Genome-wide search for new antigens to detect antibodies in serum and other fluids of tuberculosis patients.
- On-the-spot detection of *M. tuberculosis* bacteria
- Use of recombinant Rabbit antibody libraries for diagnostic applications.
- Use of Human Antibody Libraries for therapeutic applications.

**Professor Chaudhary heads CIIDRET, which has been established under ordinance XV-A) in October 2015.** CIIDRET Mandate includes:

- Innovative approaches towards **developing diagnostics, prophylactics and therapeutics** for infectious diseases plaguing India, such as Tuberculosis, Malaria, Typhoid HIV (AIDS), Chikungunya and Dengue infections etc.
- Utilization of available, and creation of **new state-of-the-art Proteomic and Genomic facilities**, and **to train undergraduate, post-graduate students, Research Scholars, scientists and teachers** to enhance their skills in advance techniques and technologies, beyond their regular classroom learning, through short-term and long-term courses.
- **Interaction with Biotech Industries to provide consultancy and to provide solutions** through expertise and facilities available with scientists / teachers involved at CIIDRET.

CIIDRET has developed reagents for immunochemical detection of Chikungunya Virus (CHIKV) infection, and for developing rapid immunoassays for the detection and confirmation of *M. tuberculosis* and NTMs in growing culture and has initiated process for selecting Industrial partner(s) for co-development.

CIIDRET has developed an ultra-large phage-displayed human antibody (scFv) library comprising of 10

billion clones by using proprietary cloning strategies, which have led to 100% recombinant clones with more than 70% in-frame full-length scFv molecule with sequences nearly matching with germline sequences indicating the naïve-ness. This library has been successfully used for selecting binders to a clinically important human target protein. The selected scFv clones have been converted into full-length human antibody retaining their binding specificity.

#### **Selected Awarded Patents/filed applications:**

- An antibody fragment library, and uses thereof; Vijay K. Chaudhary, Amita Gupta, Vaishali Verma. PCT application no. PCT/IN2018/050802. Publication No. WO/2019/106694 (06.06.2019).
- An antibody fragment library, and uses thereof; Vijay K. Chaudhary, Amita Gupta, Vaishali Verma; Indian Patent application no. 201711043081 Complete After Provisional (CAP) filed on November 30, 2018.
- A process for immobilizing polypeptides; Vijay K. Chaudhary, Amita Gupta, Vaishali Verma, Charanpreet Kaur, Payal Grover. PCT no. PCT/IN2018/050722; Publication No: WO/2019/092742 (16.05 2019)
- A process for immobilizing polypeptides; Indian Patent application no. 201711040047 filed on 9th November 2017.
- Process for purifying emulsion PCR mixture, and implementations thereof; Vaishali Verma, Amita Gupta Vijay K. Chaudhary. Indian Patent Application no. 201811038157, 8 October 2018.
- A process of producing ORF-enriched phage display library and uses thereof. (Application no. 2346/Del/2013)
- Improved process for expression, purification and enhanced recovery of mycobacterial recombinant proteins. Tyagi, Anil K., Chaudhary, Vijay K., Gupta, Amita and Kushrestha, Abhishek (Indian Patent No IN263766).
- Lambda phage display system and The Process, Vijay Kumar Chaudhary, Amita Gupta, Sankar Adhya, Ira H. Pastan, US 7,410,801, August12, 2008.
- A process for preparation of an agglutination reagent for rapid detection of Typhoid under a collaborative project with DRDE Gwalior (European patent EP 1575520 B1- awarded on 7.11.07).
- Process for preparation of an agglutination reagent for rapid detection of typhoid. US20060127960 (2006)
- A Process for the Isolation and High Yield Purification of Protein p17 of HIV-1 subtype B and C (Number: IN191365, 2003).
- A Process for the Isolation and High Yield Purification of Protein p24 of HIV-1 subtype B (Number: IN190977, 2003).
- Target-specific, Cytotoxic, Recombinant Pseudomonas Exotoxin, Ira Pastan, Vijay K. Chaudhary, David Fitzgerald, US Patent No.5, 705,163, January 6, 1998.
- Monoclonal Antibodies (MAbs) against two coat proteins gIIIp and gVIIIp of filamentous phage M13 and a process for their preparation. Patent No.764/Del/94, dated 20 October 1997.

#### **Technology Transferred and commercialized**

- The technology of production of “TBConfirm” test was transferred to M/s SPAN Diagnostics Limited, Surat. **The Drug Controller General of India has approved the test for commercial production.** The test is expected to be commercialized soon.
- A rapid test to detect antibodies to HIV in a drop of blood. This technology was transferred to a M/s Cadila Pharmaceuticals Limited Ahmedabad, that manufactured and marketed it under the trade name “NEVA-HIV” (Naked eye visible agglutination assay for HIV).
- Monoclonal antibodies against major and minor coat proteins of bacteriophage M13 and were licensed to M/s Pharmacia (now GE Health Care) in 1998.