

# Curriculum Vitae

## Dr. Girish Sahni



Date of Birth: 2<sup>nd</sup> March, 1956

Present Designation: Director

Address for correspondence: Institute of Microbial Technology  
(C.S.I.R.) Sector 39-A,  
Chandigarh-160036, INDIA

Phones:(+91)172-2690785,  
(+91)1722690684  
(+91)172-2690550 (res.)  
E-mail: [sahni@imtech.res.in](mailto:sahni@imtech.res.in)  
[director@imtech.res.in](mailto:director@imtech.res.in)

Fax:(+91)172-2690585/ 2690132

### Academic and Employment Experience

- M.Sc., (Honours) Microbiology (1978) Panjab University, Chandigarh (Silver medallist)
- Ph. D., Biochemistry (1984) Indian Institute of Science, Bangalore
- Research Associate 1985-86, Univ. California, Santa Barbara, USA
- Sr. Research Associate and Adjunct faculty, 1986-91, Rockefeller University, New York, and Albert Einstein College of Medicine, New York, USA
- Asst. Director, 1991-96, IMTECH, Chandigarh, India.
- Sr. Asst. Director, 1996-2001, IMTECH, Chandigarh, India.
- Deputy Director, 2001-2004, IMTECH, Chandigarh, India.

### Successful technologies developed by Dr. Sahni's group at IMTECH, India

- Complete high-efficiency process package for production of Natural Streptokinase *for the first time in India*. Product ("STPase")

was commercially launched by Cadila Pharma Ltd. (Ahmedabad) in 2002.

- Process for recombinant Indian bovine species, buffalo and goat hormone production. Complete technology package is ready to be transferred to industry.
- Process for recombinant (rDNA-based) Streptokinase production. Complete technology successfully transferred to M/s Shasun Drugs and Chemicals Ltd., Chennai. Products “Lupiflo” and “Klotbuster” launched in Indian market (July 2009).
- Process for Protein-engineered, therapeutically improved "clot-specific" Streptokinase. (Licensed to a US firm, Nostrum Inc., New Jersey)

### **Awards/Honours**

- National Biotechnology Product and Process Development Award (for Protein Engg. and Molecular Biology) of the Dept. of Biotechnology, Govt. of India, for the year 2002.
- CSIR Technology Shield for the year 2001-2002 (Team Leader) for Natural Streptokinase Process development leading to successful commercialisation.
- Vasvik Award in Biological Sciences for the year 2000.
- The Ranbaxy award (2003) in pharmaceutical sciences.

### **Membership/Fellowship of Prestigious Professional and Learned Societies**

- Fellow, Indian Academy of Sciences, Bangalore
- Fellow, National Academy of Sciences, Allahabad
- Fellow, Association of Microbiologists of India

### **Research Interests**

Exploration of structure-function inter-relationships in proteins aimed at fundamental scientific as well as applications' oriented exploitation; enzyme mechanisms; process development for rDNA based therapeutically important proteins, especially using protein and genetic engineering.

### **Representative Patents & Publications**

#### **Patents:**

- Shekhar Kumar, Neeraj Kumar Maheshwari and **Girish Sahni**. “Mutants of streptokinase and their covalently modified forms.” Indian Patent Application No. 0837/DEL/2008

- K.L. Dikshit, V.V. Vyas, R. Mahajan, J. Kaur, N. Thapar, J. Pratap, D. Nihalani and **Girish Sahni**. "A process for the extracellular preparation of streptokinase and its new analogs." Patent application number 1727/DEL/94/dated 30.12.94. Patent No. 183828, granted 15.12.2000.
- **Girish Sahni**, Rajesh Kumar Gupta, Kummara Rajagopal, Vasudha Sundram, Deepak Nihalani, Chaiti Roy and Mahavir Yadav. "New fibrin clot-specific streptokinase proteins with altered plasminogen activation kinetics, and process for the preparation of said proteins." Several patent applications have been filed in USA (Patent No. 7163817; granted in 2007), and Europe (No. 99310541) and India (190822; granted in 2005).
- **G. Sahni**, R. Kumar, C. Roy, K. Rajagopal, D.Nihalani, V.Sundaram and M. Yadav Novel clot specific streptokinase proteins processing altered plasminogen activation characteristics and a process for the preparation of said proteins. EP Patent No. 1024192 (granted in 2005)

#### SELECTED RESEARCH PUBLICATIONS:

- Kishore K.Joshi, **Girish Sahni**, Molecular cloning, expression, purification and characterization of truncated forms of human plasminogen in *Pichia pastoris* expression system. *Process Biochemistry* (2010), in press
- Suman Yadav and **Girish Sahni**. Probing the primary structural determinants of Streptokinase inter-domain linkers by site-specific substitution and deletion mutagenesis. *Biochem Biophys Acta-Proteins and Proteomics* (2010) in Press.
- Rachna Aneja, Manish Datt, Balwinder Singh, Shekhar Kumar and Girish Sahni Identification of a New Exosite Involved in Catalytic Turnover by the Streptokinase-Plasmin Activator Complex during Human Plasminogen Activation. *J Biol Chem*. 2009 (284): 32642-32650.
- D. Goyal, **G. Sahni**, and D.K. Sahoo (2009) Enhanced production of recombinant streptokinase in *Escherichia coli* using fed-batch culture. *Bioresour Technol*. 2009 Oct;100 (19):4468-74.
- S. Yadav, M. Datt, B. Singh and **G. Sahni** (2008) Role of the 88-97 loop plasminogen activation by streptokinase probed through site-specific mutagenesis. *Biochim Biophys Acta, Prot Proteomics*. 1784(9):1310-8.
- D. Goyal, D.K. Sahoo and **G. Sahni** (2007) Hydrophobic interaction expanded bed adsorption chromatography (HI-EBAC) based facile purification of recombinant Streptokinase from *E. coli* inclusion bodies. *J.Chromatogr B* 850: 384.
- Vasudha Sundram, Jagpreet S. Nanda, K. Rajagopal, Jayeeta Dhar, Anita Chaudhary and **Girish Sahni** (2003) Domain truncation studies reveal that the Streptokinase-Plasmin activator complex utilizes long-range protein-protein interactions with macromolecular substrate to maximize catalytic turn-over. *Journal of Biological Chemistry* 278: 30569.

- Jayeeta Dhar, A. Pande, V. Sundram, J.S. Nanda, S..C. Mande and **Girish Sahni** (2002) Involvement of a nine-residue loop of streptokinase in the generation of macromolecular substrate specificity by the streptokinase-plasminogen activator complex through interaction with substrate kringle domains. *Journal of Biological Chemistry* 277: 13257.
- U.K. Mukhopadhyay and **Girish Sahni** (2002) High level production and purification of biologically active recombinant buffalo and goat growth hormones. *Journal of Biotechnology* 97: 199.
- U.K. Mukhopadhyay and **Girish Sahni** (2002) An insight into the possible mechanism of working of two- cistronic gene expression systems and rational designing of newer systems. *Journal of Biosciences* 27: 219.
- U.K. Mukhopadhyay and **Girish Sahni** (2002) Cloning and characterization of hormone cDNAs from Indian species of cattle (*Bos indicus*), buffalo (*Bubalis bubalis*) and goat (*Capra hircus*). *Animal Biotechnology* 13: 179.
- Anita Chaudhary, V. Sundram, K. Rajagopal, Sneha Sudha Komath, N. Garg, M. Yadav, S.C. Mande and **Girish Sahni** (1999) Function of the central domain of streptokinase in substrate plasminogen docking and processing revealed by site-directed mutagenesis. *Protein Science* 8: 2791.
- D. Nihalani, R. Gupta, K. Rajagopal and **G. Sahni** (1998) Role of the amino-terminal region of streptokinase in the generation of a fully functional plasminogen activator probed with short synthetic peptides. *Protein Science* 7:637.
- D. Nihalani, G.P.S. Raghava and **G. Sahni** (1997) Mapping of the plasminogen binding site of streptokinase with short synthetic peptides. *Protein Science* 6:1252.
- D. Nihalani and **G. Sahni** (1995) Streptokinase contains two independent plasminogen binding sites. *Biochem. Biophys. Res. Commun.* 217:1245.