

Curricular Vitae

Dr. Alok Kumar Sil

Professor

Department of Microbiology

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Education:

Institution	Degree	Duration	Course of study
University of Calcutta (Ph. 913322410071)	Ph.D	1989 to 1994	Biochemistry
University of Calcutta (Ph. 913322410071)	M.Sc	1986 to 1988	Biochemistry
Narendrapur Ramakrishna Mission Residential College (University of Calcutta)	B.Sc	1983 to 1986	Chemistry (Hons), Mathematics and Physics

Awards: National Scholarship, 1981 by Government of India
Council of Scientific and Industrial Research Fellowship, 1989 by Government of India

Professional Experience:

A. Professor (August, 2016 to present); Department of Microbiology, University of Calcutta, India

Associate Professor (August 2013 to August, 2016); Department of Microbiology, University of Calcutta, India

Assistant Professor (March, 2004 to August, 2013); Department of Microbiology, University of Calcutta, India

Research Interests

- i) To study the microbial degradation of synthetic polymers
- ii) To study the underlying mechanisms involved in cigarette smoke-induced human diseases with particular emphasis on atherosclerosis and emphysema
- iii) To investigate the anti-microbial activities of natural and synthetic compounds
- iv) To study the underlying mechanisms of waste water purification at East Kolkata Wetland

B. Post Doctoral Fellow (January, 1995 to February 2004):

i) Department of Pharmacology, University of California San Diego, La Jolla, CA, USA
(Laboratory of Prof. M. Karin)
Research Project: Molecular and genetic study to elucidate the mechanism of skin development

ii) Department of Biochemistry and Molecular Biology , Pennsylvania State University
College of Medicine, Hershey, PA, USA(Laboratory of Prof. J. E. Hopper)
Research Project: Molecular and genetic study on *GAL* gene regulatory switch in *Saccharomyces cerevisiae*

C. Ph. D Student (September 1989 to December, 1994):

Department of Biochemistry, University of Calcutta, W.B., India (Laboratory of Prof. D.J. Chattopadhyay)

Research project: Cloning and characterization of ribosomal RNA gene from local isolate of *Giardia lamblia*.

Grants

Sl. No	Title	Agency	Period	Grant/ Amount (Rs.)
1	Isolation and characterization of soil microbe that can degrade polythenes	DST, Govt. Of West Bengal	April 2007 to March 2009	4,70,000
2	To study the effect of ascorbic acid on CS-induced NF-kB activation	UGC, Govt. Of India	August 2007 to July 2007	97,000
3	To study the molecular mechanisms of CS-induced NF-kB activation	CSIR, Govt. of India	February 2008 to January 2011	12,50,000
4	Identification and characterization of an anti-mycobacterial agent	DRDO, Govt. of India	July , 2008 to June, 2011	16,26,300
5	To study nano particle mediated enhancement of anti-mycobacterial activity of an anti-mycobacterial agent	University of Calcutta	June 2009 to May 2010	2,00,000
6	Isolation and characterization of soil microorganism(s) that can degrade commercially available plastic	DBT, Govt. of West Bengal	Oct 2012 to Sept 2015	16,35, 000
7	A Study of CS-induced atherosclerosis at the molecular and cellular level	DBT,	October 27, 2014 to	52,03,800

		Govt. of India	October 26, 2017	
8	Identification of the community structure of the polyurethane degrading microorganisms from east Kolkata solid waste dumping ground (DHAPA)	DST, Govt. of West Bengal	January 2016 to December 2018	19,47,000
9	A study on developing a sustainable bioelectrochemical system for conversion of waste to electricity	Twinning Project DBT, Govt. of India	January 10, 2017 to January 9, 2020	23,27,000.

List of publications

1. Maiti A, Saha N, Shukla A, Sarkar S, **Sil AK** (2020). Cigarette smoke affects ESCRT-mediated vacuolar activity in *Saccharomyces cerevisiae*. *Toxicology Letters* 338, 97-104
IF 3.61
2. Mukherjee G, Mukhopadhyay B, **Sil AK** (2020). Edible marine algae: a new source for anti-mycobacterial agents. *Folia Microbiol.* doi: 10.1007/s12223-020-00823-3.
IF 1.73
3. Mukherjee G, Mukherjee K, Das R, Mandal RS , Roy I, Mukhopadhyay B, and **Sil AK** (2020). Allyl piperidine-1-carbodithioate and benzyl 1H-imidazole 1 carbodithioate: two potential agents to combat against mycobacteria. *J Applied Microbiology*.
<https://doi.org/10.1111/jam.14762> **IF: 2.683**
4. Mukherjee G, Roy R, **Sil AK** (2020). Bacterial conditioned media: An effective agent against *Mycobacterium smegmatis* biofilm. *European Journal of Pharmaceutical and Medical Research* 7, 354-359. **IF: 6.2**
5. Das Gupta A, Sarkar S, Singh J, , Saha T , **Sil AK** (2016). Nitrogen dynamics of the aquatic system is an important driving force for efficient sewage purification in single pond natural treatment wetlands at East Kolkata Wetland. *Chemosphere* 164, 576-584
IF. 3.97
6. Das Gupta A, Sarkar S, Ghosh P, , Saha T , **Sil AK** (2016). Phosphorous dynamics of the aquatic system constitutes an important axis for waste water purification in natural treatment pond(s) in East Kolkata Wetlands. *Ecological Engineering* 90, 63-67; doi:10.1016/j.ecoleng.2016.01.056
IF. 3.04

7. Sarkar S, Tribedi P, Das Gupta A, Saha T , **Sil AK** (2016). Microbial Functional Diversity Decreases with Sewage Purification in Stabilization Ponds. *Waste Biomass Valor*, DOI 10.1007/s12649-016-9571-8 **IF. 1.06**
8. Sarkar S, Tribedi P, Ghosh P , Saha T , **Sil AK** (2016). Sequential Changes of Microbial Community Composition During Biological Wastewater Treatment in Single Unit Waste Stabilization System. *Waste Biomass Valor*, DOI 10.1007/s12649-015-9471-3 **IF. 1.06**
9. Mukherjee K, and **Sil AK** (2015). Synthesis of Chiral Gold Nanoparticle by Direct Reduction with L and D-Serine and Enhanced Anti-Mycobacterial Activity by D-Serine Protected Gold Nanoparticle. *Modern Chemistry and Applications*, 3: 165. doi:10.4172/2329-6798.1000165
10. Tribedi P, Das Gupta A and **Sil AK** (2015). Adaptation of *Pseudomonas* sp. AKS2 in biofilm on low-density polyethylene surface: an effective strategy for efficient survival and polymer degradation. *Bioresources and Bioprocessing*, 2: 14. doi:10.1186/s40643-015-0044-x
11. Das B, Ray T, Panda K, Maiti A, Sarkar S, and **Sil AK** (2014). Leucine and its transporter provide protection against cigarette smoke-induced cell death: A potential therapy for emphysema. *Toxicology Reports*, 1, 752–763. doi:10.1016/j.toxrep.2014.09.011
12. Mukherjee K, Mandal S, Mukhopadhyay B, Mandal NC, **Sil AK**. (2014). Bioactive compound from *Pseudomonas synxantha* inhibits the growth of Mycobacteria.. *Microbiol Res*; 169: 794-802. doi: 10.1016/j. **IF 1.98**
13. Sarkar S, Ghosh PB, **Sil AK**, Saha, T. (2014). Suspended particulate matter dynamics act as a driving force for single pond sewage stabilization system. *Ecological Engineering* 69, 206-212 **IF 3.04**
14. Tribedi, P. and **Sil, A.K.** (2014), Cell surface hydrophobicity: a key component in the degradation of polyethylene succinate by *Pseudomonas* sp. AKS2. *Journal of Applied Microbiology*, 116: 295–303. doi: 10.1111/jam.12375 **IF 2.6**
15. Tribedi, P. and **Sil, A. K.** (2013), Founder effect uncovers a new axis in polyethylene succinate bioremediation during biostimulation. *FEMS Microbiology Letters*, 346: 113–120. doi: 10.1111/1574-6968.12210 **IF 2.723**

16. Das B, Maity PC, Sil AK (2013). Vitamin C forestalls cigarette smoke induced NF- κ B activation in alveolar epithelial cells. *Toxicol Lett.* 2013 Apr 21;220(1):76-81. doi: 10.1016/j.toxlet.2013.04.009. **IF 3.86**
17. Tribedi P, Sil AK (2013). Low-density polyethylene degradation by *Pseudomonas* sp. AKS2 biofilm. *Environ Sci Pollut Res Int.* 2013 Jun;20(6):4146-53. doi: 10.1007/s11356-012-1378-y **IF 2.75**
18. Mukherjee K, Tribedi P, Mukhopadhyay B, Sil AK (2013). Antibacterial activity of long-chain fatty alcohols against mycobacteria. *FEMS Microbiol Lett.* 338 : 177-83. doi: 10.1111/1574-6968.12043 **IF 2.723**
19. Tribedi P, Sil AK (2013). Bioaugmentation of polyethylene succinate-contaminated soil with *Pseudomonas* sp. AKS2 results in increased microbial activity and better polymer degradation. *Environ Sci Pollut Res Int.* 2013 Mar;20(3):1318-26. doi: 10.1007/s11356-012-1080-0. **IF 2.75**
20. Tribedi P, Sarkar S, Mukherjee K, Sil AK (2011). Isolation of a novel *Pseudomonas* sp from soil that can efficiently degrade polyethylene succinate. *Environ Sci Pollut Res Int.* 2012 Jul;19(6):2115-24. doi: 10.1007/s11356-011-0711-1. **IF 2.75**
21. Maity PC, Ray T, Das B, Sil AK (2012). IKK β -I- κ B ϵ -c-Rel/p50: a new axis of NF- κ B activation in lung epithelial cells. *Oncogenesis.* 2012 Apr 9;1:e8. doi: 10.1038/oncsis.2012.8. **IF 5.95**
22. Sinha A, Mandal S, Banerjee S, Ghosh A, Ganguly S, Sil AK, Sarkar S. (2011). Identification and characterization of a FYVE Domain from the Early Diverging Eukaryote *Giardia lamblia*. [Curr Microbiol](#), 62: 1179-84 **IF 1.359**
23. Sarkar S, Ghosh PB, Sil AK, Saha, T. (2011). Heavy metal pollution assessment through comparison of different indices in sewage-fed fishery pond sediments at East Kolkata Wetland, India. **Environ Earth Sci**, 63: 915–924 **IF 1.572**
24. Mukherjee K, Tribedi P, Chowdhury A, Ray T, Joardar A, Giri S, Sil A.K. (2011). Isolation of a *Pseudomonas aeruginosa* strain from soil that can degrade polyurethane diol. **Biodegradation**, 22: 377-88 **IF 2.492**
25. Ray, T., Maity, P.C., Banerjee, S., Deb, S., Dasgupta, A.K., Sarkar, S., Sil, A.K. (2010). Vitamin C Prevents Cigarette Smoke Induced Atherosclerosis in Guinea Pig Model. **J Atheroscler Thromb**, 17: 817-27 **IF 2.93**

26. Sarkar, S., Ghosh, P. B., Mukherjee, K., **Sil, A.K.***, and Tapan Saha (2009). Sewage treatment in a single pond system at East Kolkata Wetland, India. **Water Science and Technology**, 60, 2309-2317 (* corresponding author) **IF 1.2**
27. Chakraborty, K, Maity, P.C., **Sil, A.K.**, Takeda, Y., Das, S. (2009). cAMP stringently regulates human cathelicidin antimicrobial peptide expression in the mucosal epithelial cells by activating CREB, AP-1 and I κ B. **J Biol Chem.**, 284:21810-27 **IF 4.6**
28. Maity, P.C., Bhattacharjee, S., Majumdar, S., **Sil, A.K.** (2009). Potentiation by cigarette smoke of macrophage function against Leishmania donovani infection. **Inflamm Res.**, 58: 22-29 **IF 2.143**
29. Descargues, P., **Sil, A.K.**, Karin, M.(2008). IKK α , a critical regulator of epidermal differentiation and a suppressor of skin cancer. **EMBO J.**, 27: 2639-2347, Review.
30. Descargues P*, **Sil, A. K.***, Sano, Y.* , Korchynskyi, O*, Han, G., Owens, P., Wang, X.J., and Karin, M (2008). IKK α is a critical coregulator of a Smad4-independent TGF β -Smad2/3 signaling pathway that controls keratinocyte differentiation. **PNAS**, 19, 2487-2492 (* these authors contribute equally)
31. Banerjee, S., Maity, P., Mukherjee, S., **Sil, A. K.**, Panda, K., Chattopadhyaya, D.J., and Chatterjee, I. B. (2007). Black tea prevents cigarette smoke-induced apoptosis and lung damage. **J Inflammation**, 4: 3
32. Datta, I., Sau, S., **Sil, A. K.**, and Mandal, N. C. (2005). The bacteriophage lambda DNA replication protein P inhibits the oriC DNA- and ATP-binding functions of the DNA replication initiator protein DnaA of Escherichia coli. **J Biochem Mol Biol.**, 38: 97-103.
33. Levinson, H., **Sil, A. K.**, Conwell, J. E., Hopper, J. E., Ehrlich H. P. (2004). Alpha V integrin prolongs collagenase production through Jun activation binding protein. **Ann. Plast Surg.**, 53, 155 - 161
34. ***Sil, A. K.**, Maeda, S., Roop, R., and Karin, M. (2004). IKK α acts in the epidermis to control skeletal and craniofacial morphogenesis. **Nature**, 428: 660 - 66
35. Carrozza, M. J., John, S., **Sil, A. K.**, Hopper, J. E., Workman, J. L. (2002). Gal80 confers specificity on HAT complex interactions with activators. **J Biol. Chem.**, 277: 24648-24652

36. Ghosh, S. K., Debnath, A., **Sil, A. K.**, De, S., Chattopadhyay, D. J. and Das, P. (2000). PCR Detection of Giardia lamblia in Stool: Targeting Intergenic Spacer Region of Multicopy rRNA Gene. **Molecular and Cellular Probes**, 14: 181-189.
37. **Sil, A. K.**, Xin, P., and Hopper, J. E. (2000). Vectors Allowing Expression of the S. cerevisiae Gal3p-Gal80p-Gal4p Transcription switch: Applications to Galactose regulated High Level Production of Proteins. **Prot. Exp. Pur.**, 18: 202-212
38. **Sil, A. K.**, Alam, S., Xin, P., Ma, L., Lebo, C. M., Morgan, M., Woods, M. P., and Hopper, J. E. (1999). The Gal3p-Gal80p-Gal4p Transcription Switch of Yeast: Gal3p Destabilizes Gal80p-Gal4p Complex in Response to Galactose and ATP. **Mol. Cell. Biol.**, 19: 7828-7840
39. **Sil, A. K.**, Das, P., Bhattacharya, S., Ghosh, S., and Chattopadhyay, D. J. (1998). Cloning of ribosomal RNA genes from an Indian isolate of Giardia lamblia and the use of intergenic nontranscribing spacer regions in the differentiation of Giardia from other enteric pathogens. **J. Biosciences**, 23: 557-564
40. Chaudhury, P., **Sil, A. K.**, Das, D., Sengupta, K., Bhattacharya, S., Chattopadhyay, D. J., and Das, P. (1994). Comparative Biochemical and Restriction Endonuclease Digestion Pattern Analysis of Indian and Portland-1 Strains of Giardia lamblia. **J. Protozool. Res.**, 4: 29-39

Book Chapter

1. Ghosh, S., **Sil A., K.**, Chattopadhyay, D. J., and Das, P (2005). Development of Diagnostic for Giardia lamblia Perspectives in Environmental Health: **Vector and water Borne Diseases**; edited by Mukhopadhyay A and De, A.; Original Press, New Delhi, India
2. Das Gupta A, Mukherjee G, Roy R, and Sil AK (2016). Microbes: Potential arsenal to combat metal toxicity. Handbook of Metal-Microbe Interactions and Bioremediation. Edited by Surajit Das, Hirak and Ranjan Dash. CRC Press. Taylor and Francis group.

Details of patents and income generated:

Name of faculty	Details of patent	Applied/Sanctioned	Year
Alok Kumar Sil	Animal model for cigarette smoke induced	Sanctioned	2013

	atherosclerosis and related methods (Patent no. US 8541645B2, dated September 24, 2013)		
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