Dr. Samiran Nandi

Principal Scientist (Biochemistry- Ani.Sci.)

Mob -

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Department	Fish Genetics and Biotechnology Division
Institute/University	Central Institute of Freshwater Aquaculture (*Indian Council of Agricultural Research*)
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Education (Post-graduation onwards) & Professional Career

Sl. No.	Examination passed/ Degree Awarded	Board/ University/ Institution	Year	Percentage/ OGPA	Division/ class	Major Subjects
1	Madhyamik Pariksha	W.B.Board of Secondary Education	1982	65%	1st	Beng., Eng., Math., Sci., Hist., Geo.,
2	Higher Secondary	W.B.Council of H.S. Education	1984	65.5%	1st	Beng., Eng., Math., Phys., Chem., Biol.,
3	B.V.Sc.& A.H.	Bidhan Chandra Krishi Viswavidyalaya	1989	67%	1st class	All Vety & Ani.Husbandry Subjects

4	M.V.Sc	IVRI, Izatnagar, UP	1991	8.743/10.000	1st class	Animal Biochemistry
5	Ph.D	IVRI, Izatnagar, UP	2002	8.553/10.000		Animal Biochemistry
6	Post Doctoral Training	Aquatic Genomics Unit, Auburn University, AL, USA	2005	NA	-	Genomics

Employment Record

Sl. No.	Institution/ Organisation, Place	Position	Scale of pay	From (Date)	To (Date)
1	C.I.F.A., ICAR, Kausalyaganga, Bhubaneswar, Orissa	Senior Scientist	12000– 18000 (pre rev.)	14.09.02	Continuing
2	C.I.F.A., ICAR, Kausalyaganga, Bhubaneswar, Orissa	Scientist (Senior scale)	10,000 -15200	14.09.99	13.09.02
3	C.I.F.A., ICAR, Kausalyaganga, Bhubaneswar, Orissa	Scientist	2200- 4000	04.02.94	13.09.99
4	NAARM, ICAR, Hyderabad, (joined ICAR)	Scientist	2200- 4000	14.09.93	03.02.94

Research/ teaching experience

Research Interests: Biochemistry and molecular biology in freshwater aquaculture

I	**Research experience and achievements**	**Professional Experience and Training** 1. M.V.Sc Dissertation work submitted in 1991on, "Isolation and Biochemical characterization of certain major antimicrobial cationic proteins and peptides of goat polymorphonuclear cells" under the guidance of Dr T. More, Pr. Scientist, Biochemistry, Division,

I.V.R.I. Izatnagar, Bareilly, UP.

2. Ph.D Thesis submitted in 2001 on," Cloning, characterization and selective expression of vitellogenin gene in *Labeo rohita*," under the guidance of Dr Bhaskar Sharma, National Professor, Biochemistry Division, I.V.R.I. Izatnagar, Bareilly, UP.

Research projects associated with

1. Worked as the co-investigator of the research project on "Nutrition and dietary studies with carp, catfish and prawn" under Institutional funding at CIFA nutrition divison, CIFA during 1994-96.
2. Worked as the subproject leader of "Development of carp brood stock diet," under the research project on "Studies on diet development for carp, catfish and prawn" under Institutional funding at nutritional division, CIFA during 1996-98.
3. Worked as the subproject leader of "Characterization and expression of vitellogenin gene in Indian major carp," under the research project on "Genetic up gradation of carp and prawn" under Institutional funding at FGBT Division, CIFA during 2002-2005.
4. Was resource person in the in-service training program "Hands on training on molecular biology for Fishery Scientists," sponsored by DBT, Govt.of India, at CIFA during 2002-2004.
5. Worked as P.I. of the AP Cess funded project, "Vitellogenin and its molecular expression in *Catla catla*(Ham.)," (ICAR#615005) during Nov.2004-Feb.2008.
6. Worked as co-investigator of the research project on "Differential hormonal gene expression during reproduction in Indian Major Carp, *Labeo rohita*" under Institutional funding at Nutrion and physiology Division, CIFA during 2006-2008.
7. Worked as co-investigator of the research project on ""Photo thermal manipulation of reproduction in carp, *L. rohita* under controlled environment", under Institutional funding.
8. Worked as P.I. of the DBT (Govt.of India), funded project, "Molecular studies on HUFA synthesizing capability in rohu (*Labeo rohita)*" during 2008-2011.
9. Worked as P.I. of the DBT (Govt.of India), funded project, "Construction and analysis of EST libraries for rohu (*Labeo rohita)*" during 2008-2011.

Important Trainings Undergone

1. Undergone NAIP training for three months during 2010-11, on Bioinformatics at Aquatic Genomics unit, Auburn University, Auburn, AL, USA.
2. Undergone DBT Overseas Associateship (Long-term) training for one year during 2005-06, on Aquatic Genomics, Construction of EST library and DNA microarray at Aquatic Genomics unit,Auburn University,Auburn,AL,USA.
3. Trained on,"2- D Gel Eletrophoresis of proteins," at CCMB, Hyderabad during 17-31st December 2004.
4. Attended the 11th ADNAT convention and hands on training on ," Protein structure prediction and structure determination" held at CCMB, Hyderabad during 23rd Feb. 2007 to 5th March, 2007.
5. Undergone Research project management training at National Academy of Agriculture Research Management, Hyderabad, India during September1993-February, 1994.

Technology Generated

Patent: Patent filed for the invention "A method and an apparatus for developing gonadal maturity in carp". (Indian Patent filed in the name of Indian Council of Agricultural Research, New Delhi; Application No.1689/DEL/2008 of 14.07.2008)

Trademark Registration:

Trade mark certificate for carp brood stock diet (CIFABROOD) was obtained from Trade Marks Registry office, Kolkata, Govt. of India,vide trade mark no.1792420 dt:05/03/09 issued on 18th March under class 31 in the name of Central Institute of Freshwater Aquaculture . The feed "CIFABROOD" was released by Honorable DDG (FY), ICAR on 7th June 2008.

NCBI Gene Bank Database Submissions:

As ESTs Submission

For rohu: 4,655 EST (Sanger based) sequences submitted in dbEST of NCBI, and Accession number obtained. Next generation sequence files submission in process.

For channel catfish: About 33000 ESTs (Sanger based) has been submitted.

II	**Teaching experience and achievements**	**Teaching Experience** 1) Taken regular theory and practical classes at CIFA on biochemistry and molecular biology for the M.F.Sc.(Freshwater Aquaculture) students of CIFE, Mumbai as faculty member from 1996-2007. 2) Imparted training to the fellows under the in-service training program" Hands on training on molecular biology for Fishery Scientists" sponsored by DBT, Govt.of India, at CIFA during 2001-2004, as a core resource person and supervised the project works of four trainees. 3) **Students Supervised**, As major supervisor- a) M.F.Sc. dissertation work,"Preliminary study on identification and expression of vitellogenin gene in *Catla catla* (Ham.)" – submitted by Rajesh B.T., in 2001,to Deemed University, CIFE, Mumbai. b) M.F.Sc. dissertation work," Molecular studies on hypoxia tolerance in Indian major carps:a begining"- submitted by Rama Bangera,in July,2007, to Deemed University, CIFE, Mumbai. c) Submitted Ph.D.thesis," Cloning and characterization of Vitellogenin gene in Indian major carp Catla, *Catla catla* (Ham.)" – submitted by Mr Deepak Ranjan Sahoo, in 2012, to Utkal University, Bhubaneswar. d) Submitted synopsis for Ph.D.thesis,"Development,analysis and annotation of expressed sequence tags(ESTs) from selected tissues of rohu(Labeo rohita,Ham.)-by Mr Dinesh kumar Sahu in 2012, to Utkal University, Bhubaneswar. **As co-supervisor-** e) M.F.Sc. dissertation work," Cloning and expression of lysozyme in *Labeo rohita*"- submitted by Mr Satish,in July,2008, to Deemed University, CIFE, Mumbai. f) M.F.Sc. dissertation work," cDNA cloning and expression of activin gene in rohu,*Labeo rohita(Ham.)* "- submitted by Mr. Kuruba Sankar,, in July,2008, to Deemed University, CIFE, Mumbai. g) M.Sc. (Biotechnology) dissertation work," Construction and characterization of rohu (*Labeo rohita)* testis-specific cDNA library generated by subtractive and suppressive hybridization"- submitted by Miss Aliza Swain,in July,2008,

		to Neelachal Institute of Medical Sciences(NIMS),under Utkal University, Bhubaneswar.

Honors/Awards		
		1. Jr. Reseach Fellowship during M.V.Sc. (Animal Biochemistry) course at IVRI, Izatnagar. 2. Qualified in ICAR Net and ASRB examination in1992. 3. Awarded DBT Overseas Associateship (Long-term) in May 2004. 4. Received appreciation letter from Dr. S.Ayyappan, D.D.G.(Fy), ICAR for the successful "cloning of GtH and GnRH genes in rohu" for the first time in 2006-07. 5. Received appreciation letter from the D.G. (ICAR) as a core member of the team for the "Early breeding of rohu on 24th January 2008 at CIFA". 6. Received appreciation letter from Dr. S.Ayyappan, DDG (Fy), ICAR as a member of the team for the "Early breeding of Indian major carps, rohu and catla" in the month of January-February, 2008 at CIFA. 7. Received ICAR Award for Outstanding Interdisciplinary Team Research in Agriculture and Allied Sciences in 2010 for the Biennium2007-2008 on "Off-season breeding of carps: a breakthrough in Indian freshwater Aquaculture", as one of the core team member.
I	**Membership of National/ International Academies**	***Membership of professional societies*** 1. Life member of the Association of Aquaculturist of India, CIFA, Bhubaneswar. 2. Member of the Association of Aquaculture Genomics, USA.

List of publications		
I	**International**	➢ Paul, B.N., Nandi, S., Sarkar,S., and Mukhopadhyay P.K. (1997). Effect of feeding unconventional animal protein sources on the nitrogen metabolism in Rohu Labeo Rohita (Hamilton). Israeli J. Aquaculture-Bamidgeh. 49:183-192.

- Paul, B.N., Nandi, S., Sarkar, S., and Mukhopadhyay, P.K. (1998). Dietary essentiality of phospholipids for Indian Major Carp larvae. Asian Fisheries Science. 11:253-259.

- Nandi, S., Chattopadhyay, D. N., Verma, J. P., Sarkar, S and Mukhopadhyay, P.K., 2001. Effect of dietary supplementation of fatty acids and vitamins on the breeding performances of the carp *Catla catla*. Reprod. Nutr. Dev. 4: 365-376.

- Nandi S, Peatman E, Xu P, Wang S, Li P, Liu Z. (2007). Repeat structure of the catfish genome: a genomic and transcriptomic assessment of Tc1-like transposon elements in channel catfish (*Ictalurus punctatus*) Genetica. Sep; 131(1):81-90.

- Nandi, S., Routray, P, Gupta, S.D., Rath, S.C., Dasgupta, S., Meher, P.K. and Mukhopadhyay, P.K. (2007) Reproductive performance of the carp *Catla catla*, reared on a formulated diet with PUFA supplementation. J. Appl. Ichthyol. Dec; 23(6): 684-691.

- Peatman, E., Baoprasertkul, P., Xu, P., Terhune,J., Nandi,S., Kucuktas, H., Li, P., Wang, S., Somridhivej, B., Dunham, R., Liu, Z. (2007) Expression analysis of the acute phase response in catfish(*Ictalurus punctatus*) after infection with a Gram-negative bacterium. Dev. Comp. Immunol.31 (11): 1183-96.

- Li P., Peatman, E., Wang, S., Feng, J., He, C., Baoprasertkul P., Xu, P., Kucuktas, H., Nandi S., Somridhivej, B., Serapion,J., Simmons, M., Turan,C., Liu, L., Muir,W., Dunham,R., Brady,Y., Grizzle, J., Liu Z. (2007) Towards the catfish transcriptome: development of molecular tools from 31,215 catfish ESTs BMC Genomics, Jun 18;8:177.

- Peatman E, Terhune J, Baoprasertkul P, Xu P, Nandi S, Wang S, Somridhivej B, Kucuktas H, Li P, Dunham R, Liu Z (2008) Microarray analysis of gene expression in the blue catfish liver reveals early activation of the MHC class I pathway after infection with *Edwardsiella ictaluri*. Mol. Immunol. Jan; 45(2): 553-66.

- Wang S, Peatman E, Abernathy J, Waldbieser G, Lindquist E, Richardson P, Lucas S, Wang M, Li P, Thimmapuram J, Liu L, Vullaganti D, Kucuktas H, Murdock C, Small BC, Wilson M, Liu H, Jiang Y, Lee Y, Chen F, Lu J, Wang W, Xu P, Somridhivej B, Baoprasertkul P, Quilang J, Sha Z, Bao B, Wang Y, Wang Q,

		Takano T, Nandi S, Liu S, Wong L, Kaltenboeck L, Quiniou S, Bengten E, Miller N, Trant J, Rokhsar D, Liu Z; the Catfish Genome Consortium. Assembly of 500,000 inter-specific catfish expressed sequence tags and large scale gene-associated marker development for whole genome association studies. Genome Biol. 2010 Jan 22; 11(1). ➢ C. Dash, P. Routray, S. Tripathy, D. K. Verma, B. C. Guru, P. K. Meher, S. Nandi and A. E. Eknath (2010) Derivation and characterization of embryonic stem-like cells of Indian major carp *Catla catla*. Journal of Fish Biology Vol. 77:5, pages 1096–1113. ➢ Li C, Zhang Y, Wang R, Lu J, Nandi S, Mohanty S, Terhune J, Liu Z, Peatman E. RNA-seq analysis of mucosal immune responses reveals signatures of intestinal barrier disruption and pathogen entry following Edwardsiella ictaluri infection in channel catfish, Ictalurus punctatus. Fish Shellfish Immunol. 2012 May; 32(5):816-27. Epub 2012 Feb 17. PMID: 22366064 [PubMed - in process] ➢ Jena B., Mohanty,J., Das,R.C., Garnayak,S.K. and Nandi,S. Induction, purification and partial characterization of vitellogenin in an Indian major carp *Catla catla* (Ham.) Aquaculture Research (2012):1-11[doi:10.1111/j.1365-2109.2012.03195.x].
II	**National**	➢ Rangarcharyulu, P. V., Paul, B. N., Nandi, S., Sarkar, S and Mukhopadhyay, P. K., 2000. Effect of different protein and energy levels on growth and carcass composition of *Labeo rohita* fry. J. Aquacuture 8:17-24. ➢ Kumar, N., Maiti, N. K., Mohanty, S., Samanta, M., Nandi, S., Meher, P.K. 2006. 16S r DNA PCR – restriction fragment length polymorphism analysis of *Pseudomonas* from freshwater fish culture system. Ind. J. of Microbiol. 46: 209-216. ➢ Nandi, S, Paul, B. N., Sarkar, S and Mukhopadhyay, P. K., 1999. Lipid and fatty acids in eggs of Indian major carps and their significance. National Academy of Science Letters *(Allahabad),* 22(3&4): 62- 65. ➢ Sahoo, P.K., Tripathy, S., Mishra, B.K., Adhikari, S., Das, B.K., Nandi, S., Haribabu, P., Sarangi, N. and Ayyappan, S. 2005. Is appendage deformity syndrome caused by *Macrobrachium rosenbergii* nodavirus? Current Science, 88: 1374-1375

- Dadasaheb Akolkar, Mrinal Samanta, Sriprakash Mohanty, Samiran Nandi and Nikhil Kumar Maiti 2005.Isolation of cellulolytic bacteria in *Labeo rohita* (Ham) and assessment of their cellulase(β-glucosidase) activity. J.Aqua. Trop. 20(2):119-126.
- Sarkar, S.K., Saha, A., Dasgupta, S., Nandi, S., Verma, D.K., Routray, P., Devaraja, C. mohanty, J.,Sarangi, N, Eknath, A.E.and Ayyappan, S. (2010). Photothermal maniulation of reproduction in indian major carps: a step forward for off-season breeding and seed production. *Current Science* (India) Vol. 99:7, page 960-964.