

Curriculum Vitae

Siddhartha Das, Ph. D

Associate Professor of Biology, University of Texas at El Paso

Additional Responsibilities

Unit director: Infectious Diseases and Immunology Unit, The Border Biomedical Research Center (BBRC), UTEP

Contact Numbers:

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Education:

1975	B.S	Chemistry (Hons)	University of Calcutta
1977	M.S	Biochemistry	University of Calcutta
1982	Ph.D.	Biochemistry	University of Calcutta

Positions held at UTEP:

1993-1999	Assistant Professor, Department of Biological Sciences, University of Texas, El Paso, TX.
1999-Present	Associate Professor, Department of Biological Sciences, University of Texas, El Paso, TX
1994- Present	Contributing Faculty, Center for Environmental Resource and Management (CERM), University of Texas, El Paso, TX.

Journal Reviewer:

Molecular and Biochemical Parasitology, Experimental Parasitology, The American Journal of Tropical Medicine and Hygiene, Molecular and Cellular Biochemistry, Journal of Eukaryotic Microbiology, Life Sciences, Molecular Microbiology, Cellular Microbiology, Journal of Parasitology, Parasitology, British Journal of Pharmacology.

Grant Reviewer: National Institute of Health, Howard Hughes Fellowship etc.

Current Members of the Laboratory:

Dr. Suparna Ray, Research Associate, Cross-talk between sPLA₂ and cPLA₂ in colonic epithelial carcinoma cells.

Yuni Hernandez, Sphingolipid Biology of *Giardia lamblia* (Ph.D. candidate)

Debarshi Ray, Cancer Biology (Ph.D. Student)

Tavis Mendez Cell Biology of *Giardia* (Ph.D. Student)

Priscila Castillo, undergraduate MARC student

Isela Arrieta, Undergraduate BARS Program

Daniel Dominguez, Undergraduate, Special Problem

Trevor Duarte, Undergraduate, Special Problem

Current, pending and Past Research Supports:

ACTIVE

Funding Agency: National Institute of Health – 5S06GM08012-36

Title: Phospholipid synthesis by *Giardia lamblia*, an early diverging eukaryotes.

Role: Principal Investigator

Amount: \$300,000

Dates: June 1, 2004 – May 31, 2007

Purpose: The goal of this project is to delineate the mechanisms of phospholipid remodeling and trafficking by *Giardia lamblia*.

Funding Agency: Coldwell Foundation

Title: Cholesterol, Fat and Colorectal Cancer

Role: Principal Investigator

Amount: \$20,000

Dates: November 11, 2005 – Current

Percent of Effort:

Purpose:

PENDING

Funding Agency: National Institute of Health – SO6GM0812

Title: Sphingolipids as potential targets for anti-giardial therapy

Role: Principal Investigator

Amount: \$489,974

Dates: June 1, 2007 – May 31, 2011

Purpose: The major focus of this project is to elucidate the novel role of sphingolipids in regulating the encystation-exystation cycle of *Giardia lamblia*.

Funding Agency: National Science Foundation

Title: Sphingolipid Metabolism in Encysting *Giardia lamblia*.

Role: Principal Investigator

Amount: \$429,543 (Direct costs)

Dates: January 1, 2007 – December 31, 2010

Purpose: The major goal of this proposal is to elucidate the novel role of complex glycosphingolipids in cyst wall biosynthesis by *Giardia lamblia*.

Funding Agency: MRI-NSF

Title: Acquisition of a confocal Raman/AFM Hybrid System

Role: Co-Principal Investigation

Amount: \$288,090

Dates: August 1, 2007 – July 31, 2010

Percent of Effort: N/A

Purpose: The goal of this proposal to acquire a Raman/AFM microscope at UTEP for research and teaching.

Past Research Support:

Tobacco Research Grant: University of Texas at El Paso. Total Cost: \$20, 000. (September 2004-February 2005)

Phospholipid synthesis by *Giardia lamblia*, an early-diverging eukaryote. NIH (SCORE) July 2000-June 2003. Total Cost: \$300,000. Specific role: **PI**. (2000-2003).

NIH R 29 (NIAID): Title: "GP49, The Major GPI Anchor Antigen of *Giardia lamblia*." Total Cost \$370, 000 (Jan, 1994-Dec, 1999). Specific role: **PI**.

NIH-MBRS (General Medicine). "Isolation and Characterization of Phosphatidylinositol specific Phospholipase-C from *Giardia lamblia*." Total cost \$150, 000 (June 94-May 1999). Specific role in the project-**AI**.

NSF (Material Research Institute). Acquisition of a Laser Scanning Confocal Microscope and an Atomic Force Microscope for Investigations in the Environmental, Life & Material Sciences. Total cost \$ 418,000. (Sept 1997-April 1999). Specific role in the project: **Co-PI**.

Other Awards/support:

Research grant from Hoffman-LaRoche Inc. Basel, Switzerland (1997-1998).

ASBMB Teachers Fellowship with Charles Geach, High School Biology Teacher, Irvine High School, El Paso, TX (1995).

University Research Institute Award of the University of Texas at El Paso (1994).

Teaching Interest: Biology, Structure and Function of Macromolecules, Membrane Biology, and Microbiology

Courses Taught at UTEP

Microbial Physiology (U*)	Fall, 1993
Biochemistry (U*)	Spring, 1994.
Adv. Molecular Techniques (Team) (G*)	Fall, 1994.
Microbial Pathogenesis (U*)	Spring, 1995
Receptor Biochemistry (Team) (G*)	Spring, 1995
Biochemistry-1 (G*)	Fall, 1995
Biochemistry (U*)	Spring, 1996
Cell Physiology (Team) (G*)	Spring, 1996
Biochemistry, *G	Fall, 1996
Microorganism and Diseases (U*)	Spring, 1997
Ph. D Biochemistry, Course	

Coordinator (Team taught)	Fall, 1997
General Biology (Freshman U*)	Spring, 1998
General Biology (Freshman Honors and Cluster Biology students)	Fall, 1998
Biochemistry-2 (G*)	Spring, 1999
Biochemistry-1 (G*)	Fall, 1999
General Biology (Freshman, Honors, U*)	Spring, 2000
General Biology (Freshman, U*)	Fall, 2000
Biochemistry (G*)	Spring, 2001.
General Biology (Freshman, Honors U*)	Fall 2001
General Biology (U*)	Spring 2002
Microbial Physiology (U*)	Fall 2003
Biochemistry (G*)	Spring 2003
Microbial Physiology (U*)	Fall 2003
General Biology (Freshman. Honors)	Spring 2004
Microbial Physiology (U*)	Fall 2004
Membrane Biology (G*)	Spring 2005
Microbial Physiology (U*)	Fall 2005
General Biology (Freshman, Honors U*)	Spring 2006
Microbial Physiology (U*)	Fall 2006
Membrane Biology (G*)	Spring 2007
Microbial Physiology (U*)	Fall 2007

* U: Undergraduate Class; *G: Graduate Class.

Supervised doctoral, master, undergraduate and Post-Graduate Students:

Tammy Stevens, Received Master Degree in 1998 on “Uptake and incorporation of Exogenous Phospholipids by *Giardia lamblia*”.

Current position: Research Assistant: Gila Medical Center, New Mexico.

Cynthia Castillo, Received Master Degree in 2002 on “Internalization and Trafficking of membrane phospholipids by *Giardia lamblia*”.

Current position: Research Assistant, Tufts University Medical Center. Boston. MA.

Heather Arredondo, Received Master Degree in 2002 on “Phospholipid Remodeling in *Giardia lamblia*”.

Current Position: Research Assistant, Baylor College of Medicine, Houston, TX.

Luis Adel-Alvarez, M.D. Received Master Degree in Biology in 2002 on “Phospholipid Remodeling in cultured colonic epithelial cells”.

Current Position: Oncologist, Puebla Medical Center, Puebla, Mexico.

Ray Jones, Received Ph.D. in Biology in 2005 on “Arachidonic acid and colorectal carcinogenesis”.

Current Position: Post-doctoral Fellow, UT-Southwestern Medical Center, Dallas, TX.

Sandra Macias, Received Master Degree in 2005 on “Possible interactions between Phospholipase A₂s and COX-2”.

Current Position: Research Assistant, Texas Tech Medical Center, El Paso, TX.

Christina Gutierrez, (Jointly with Dr. Sukla Roychowdhury) received her Master Degree in 2006. Topic: “G-proteins-tubulin interactions”.

Current Position: Research Assistant, Department of Biological Sciences, University of Texas at El Paso.

Yunuen Hernandez, Expected to defend her Ph.D. thesis in May 2007. Topic: “Sphingolipids as Novel Targets for anti-Giardial Therapy”.

Future Position: Post-doctoral Fellow: Institute of Parasitology, McGill University, Canada.

Rosa Carrasco, Finished undergraduate thesis (Honors) in 1996. Topic: Inositol/phosphatidylinositol exchange reactions in a parasitic protozoan, *Giardia lamblia*.

Current position: Researcher/project leader, Biotechnology Inc. Maryland

George Gibson, Finished undergraduate thesis (Honors) in 1996. Topic: Phospholipid Remodeling in a parasitic protozoan *Giardia lamblia*.

Current Position: Medical student, Philadelphia Osteopathic Medicine, Philadelphia, PA.

Edna Chavez, Finished undergraduate MARC thesis in 1998. Topic: Characterization Phosphatidylinositol 3-kinase enzymes in *Giardia lamblia*.
Current position: Resident and Fellow, Emergency Medicine, Texas Tech University, El Paso, Texas.

Anna Subramanian, Finished undergraduate MARC thesis in 2000. Topic: *Giardia lamblia*: Synthesis of phosphatidylinositol phosphates by exchange reactions.

Current position: High school teacher in Alaska.

Alethia Viallsenor, Worked as an undergraduate researcher until 2002 ((please see a review article published in 2002 in *International J. Parasitology* 32:655-675).

Current position: Ph.D. student at Southwestern Medical Center, Dallas, TX.

Krishna Reddy, Worked as an undergraduate researcher until 2004 (please see a review article published in 2002 in *International J. Parasitology* 32:655-675)
Current Position: MD/Ph.D. student at M.D. Anderson Cancer Center, Houston, Texas.

Robert Valverde, Finished undergraduate MARC thesis in 2004. Topic: Cellular and Molecular studies of PI3 Kinase in *Giardia lamblia*.

Current position: Ph.D. student at Yale University.

Candice Rodrigue, Finished her MARC thesis in 2006. Topic: Synthesis and Metabolism of Arachidonoyl-Phospholipids by a Mucosal Protozoan, *Giardia lamblia*.

Current position: Medical student, UTMB, Galveston, TX.

Daniel Gomez, Finished his MARC thesis in 2006. Topic: Synthesis of lipid rafts in *Giardia lamblia*.

Current position: Medical student, University of Guadalajara, Mexico.

Post-Graduate Trainee:

Mathias Marti, Lipid and Protein Biochemistry in *Giardia lamblia*. 1998.

Current Position: Post-doctoral Fellow, Walter Eliza Hall, Melbourne, Australia.

Oswaldo Rascon, Lipid Metabolism in colonic epithelial carcinoma cell lines, Colo 205. 1998.

Current position: Intern, Osteopathic Medicine, El Paso, TX.

(In addition, 30 more undergraduate students were mentored in my laboratory over the years)

Invited Speaker/Symposium Chair:

Symposium Chair, Symposium on Amebiasis and Giardiasis, American Society of Tropical Medicine & Hygiene, Atlanta, 1993.

Invited Speaker, International Symposium on GPI Anchor Protein - Structure and Function, Brazil, 1994.

Invited Speaker, Theodore Gilrad Cancer Facility, Univ. of California at San Diego, 1995.

Symposium Chair, (Symposium on Giardiasis and Trichomoniasis) American Society of tropical Medicine and Hygiene, 1995.

Symposium Chair, 8th annual MARC Biomedical Symposium on Space Biology, UT El Paso. 1996.

Symposium Chair and Organizer, RCMI Symposium on Bacterial Pathogenesis, UT El Paso, 1996. Fall Faculty seminar series, Department of Biological Sciences, University of Texas, El Paso, TX. 1996.

Symposium Speaker (Symposium on Intestinal Parasitism). American Society of Tropical Medicine and Hygiene, Baltimore, MD. 1996.

Invited Speaker: Department of Biological Sciences, Southern University, Baton Rouge, LA. Oct. 1997

Symposium Chair: Symposium on Amebiasis, Trichomoniasis and Giardiasis. The annual meeting of the American Society of Tropical Medicine and Hygiene. Washington D.C. 1999.

Invited Speaker: Anno 2000: A Lipid Milestone. University of Utrecht, Utrecht, Netherlands. October 26-29, 2000.

Invited Seminar Speaker, Department of Biochemistry, University of Calcutta, India, December, 2000.

Invited Seminar Speaker on Waterborne Illness in US/Mexico Border Regions. El Paso, TX. May, 2001.

Invited Speaker: Recent Progress in Colon Cancer. New Mexico State University, Alamogordo, NM. October 2002.

Invited Speaker: Lipid Metabolism and Colorectal Carcinoma. New Mexico State University, 2004

Invited Speaker: International Symposium on Anaerobic Protist, Sardinia, Italy. September 2005.

Invited Speaker: International Center for Diarrheal Disease Research, Bangladesh (ICDDR, B). Host: Dr. R. Haq (Head Parasitology Research Laboratory, ICDDR, B). December 23rd, 2006.

Plenary Speaker: II International Symposium on *Giardia* and *Cryptosporidium*, Mexico City, Mexico. May 14-18, 2007.

Invited Speaker: Department of Biology, Texas Tech University, Lubbock, TX. October 31, 2007.

Member of Professional Societies:

1. American Society for Biochemistry and Molecular Biology.
2. American Society for Tropical Medicine and Hygiene.
3. Biochemical Society (UK).
4. International Society for Protozoologists

Departmental and University committees since 1999:

Organizer: Departmental seminar series, Fall 97-Current.

Member of Faculty Senate (1999-2001).

Faculty Advisory Commt. (1999-2001).

Member, Ad hoc Commt. On Doctoral Program Development, University of Texas at El Paso. (2000-2001).

Chair, Microbiology Search Commt. (2000)

Chair, Virology Search Commt. (2000).

Member, Biological Sciences Chair Search Committee (2005)

Member: Graduate Council (2002-2005).

Advisor: Medical Professional Organization, College of Sciences (2003-current).

Director: Infectious Disease Unit (2003-Current)

Dy. Director: SCORE Program (2003-current).

Chairman: IACUC committee, UTEP (1999-2003)

Member: IACUC committee, UTEP (2004-2005)

Member: Students Grievance committee (2004-current)

Member: Faculty Evaluation committee, Department of Biological sciences, UTEP (2004-2006)

Member: University Task Force Committee-Research (2005).

Chair: Microbiology and Virology Search Committee (2006).

Publications:

1. Hernandez, Y., Zamora, G., Ray, S., Chapoy, J., Chavez, E., Valverde, R., Williams, E., Aley, S., **Das, S.** (2007). Transcriptional analysis of three major putative phosphatidylinositol kinase genes in a parasitic protozoan, *Giardia lamblia*. *J. Euk. Microbiol.* 54, 29-32.
2. Hernandez, Y., Castillo, C., Roychowdhury, S., Hehl, A., and **Das, S.** (2007). Clathrin-dependent pathways and the cytoskeleton-network are involved in ceramide endocytosis by a parasitic protozoan, *Giardia lamblia*. *Int. J. Parasitology.* 37, 21-32 (**Cover Page**).
3. Gutierrez, C., Najera, O., Leony, D., **Das, S** and Roychowdhury, S. Activation of β -adrenergic receptor modulates the interaction between $G\alpha/G\beta\gamma$ and tubulin/microtubules and promotes microtubule assembly in NIH3T3 cells. *Biol. Cell* (submitted after revision), 2007.
4. Montoya, V., Gutierrez, C., Najera, O., Leony, D., Popova, J., **Das, S.** Rasenick, M. M. and Roychowdhury, S. G Protein $\beta\gamma$ Subunits Interact with $\alpha\beta$ and γ Tubulin and Play a Role in Microtubulen Assembly in PC12 Cells. *Cell Mot. Cytoskel* (submitted after revision), 2007.

5. Roychowdhury, S., Martinez, L., Salgado, L., **Das, S.**, and Rasenick, M. The interaction of G proteins with tubulin: Reconstituted heterotrimer $G\alpha\beta\gamma$ blocks $G\alpha$ activation of tubulin GTPase and $G\beta\gamma$ induced assembly. *Biochim. Biophys. Res. commun.* 340, 441-448, 2006.
6. Pope-Delatorre, H., **Das, S.**, Irwin, L.N. Uptake of [3 H]-Gangliosides by *Giardia lamblia*. *Parasitol. Res.* 96, 102-106, 2005.
7. Roychowdhury, S., Salgado, L., Martinez, L., Popova, J., **Das, S.**, and Rasenick, M. $\beta\gamma$ subunit of heterotrimeric G proteins is involved in microtubule assembly in PC12 cells. *Biochemistry*. (submitted). 2005
8. Jones, R., Alfonso-Alvarez, L., Rascon-Alvarez, O., Broaddus, R., and **Das, S.** Arachidonic acid and colorectal carcinogenesis. *Mol. Cellu. Biochem.* 253, 141-149, 2003
9. **Das, S.**, Stevens, T., Castillo, C., Villasenor, A., Arredondo, A., and Reddy, K. Lipid metabolism in amitochondriate protozoa. *Int. J. Parasitol.* 32, 655-675, 2002
10. **Das, S.**, Castillo, C., and Stevens, T. Phospholipid remodeling/generation by *Giardia*: the role of the Lands Cycle. *Trends in Parasitol.* 17, 317-320, 2001 (**Featured in the Cover Page**).
11. Subramanian A .B., Navaro, S., Carrasco, R., Marti, M., and **Das, S.** Role of Phosphatidylinositol in Glycosylphosphatidylinositol anchor synthesis by *Giardia lamblia*, a primitive eukaryote. *Biochim. Biophys. Acta* 1483, 69-80, 2000.
12. Gibson, G. M., Ramirez, D and **Das, S.** *Giardia lamblia*: Incorporation of free and conjugated fatty acids into glycerol-based phospholipids. *Exp. Parasitol.* 92, 1-12, 1999 (**Cover Page**).
13. Jones, R., Ray, S., Macias, S., Roychowdhury, S., Broaddus, and **Das, S.** Short-Term Arachidonic Acid Administration Induces a Cross-Talk Between sPLA₂ and cPLA₂ that is Pre-requisite for Increased cPLA₂ and COX-2 Association, Rapid Metabolism of Cellular Phospholipids by Colonic Epithelial Carcinoma cells, HT29 (submitted), 2007.
14. **Das, S.**, Schteingart, C., Hoffman, A. F., Reiner, D. S., Aley, S., and Gillin, F. D. *Giardia lamblia* :Carrier mediated bile acid uptake and release. *Exp. Parasitol.* 87, 133-141, 1997.
15. Stevens, T., Gibson, G., Allison, M., Adam, R., and **Das, S.** Uptake and cellular localization of exogenous lipids by *Giardia lamblia*, a primitive eukaryote. *Exp. Parasitol.* 86, 133-143, 1997.
16. **Das, S.**, and Gillin, F.D. *Giardia lamblia*: Increased UDP-N-acetyl-D-glucosamine and UDP-N-acetyl-D-galactosamine transferase activities during encystation. *Exp. Parasitol.* 83, 19-29, 1996.
17. Gillin, F. D., Reiner, D. S., Hetsko, M. L., **Das, S.**, Ward, H. D., Faubert, G. M., Meng, T. C., McCaffery, J. M., Aley, S. B., and Que, X. Regulation of *Giardia lamblia* encystation and excystation. *New Dimension in Parasitology (Acta Parasitologica Turcica)*, 175-182, 1996.
18. **Das, S.**, Traynor-Kaplan, A., Kachintorn, U., Aley, S., and Gillin, F. D. GP 49 , An Invariant GPI Anchored Antigen of *Giardia lamblia* in Symposium. on GPI Anchor Proteins : Structure and Function. *Brazilian J. Med.Biol. Res.* 27, 463,1994.
19. Reiner, D. S., Hetsko, M. L., **Das, S.**, Ward, H. D., McCaffery, M., and Gillin, F.D. *Giardia lamblia* : Absence of Cyst Antigen and Reduced Secretory Vesicle Formation and Bile Salt Uptake in an Encystation Deficient Subline. *Exp. Parasitol.* 77, 461, 1993.
20. **Das, S.**, Reiner, D. S., and Gillin, F. D. *Giardia* and its Environment in "New and Emerging Infectious Diseases" (Osburn, B., Castrucci, G., and Schore, C., Eds.) pp. 301-308, UC Davis, 1992.
21. **Das, S.**, Traynor-Kaplan, A., Reiner, D. S., Meng, T. C., and Gillin, F. D. A Surface Antigen of *Giardia lamblia* with a Glycosylphosphatidylinositol Anchor. *J. Biol. Chem.* 266, 21318, 1991.
22. **Das, S.** and Gillin, F.D. Chitin Synthase in Encysting *Entamoeba invadens*. *Biochem. J.* 280, 641, 1991.
23. Gillin, F. D., Cooper, R. W., Reiner, D. S., and **Das, S.** Secretory Defenses Against *Giardia lamblia*. Symposium on Immunology of Milk and Neonate. pp 227-233. (J.Mestecky, C.Blair and P.Ogra, Editors). Plenum Press. NY.1991.
24. Gillin, F. D., **Das, S.** and Reiner, D. S. Non-Immune Secretory Defense Against *Giardia lamblia*. *Giardiasis* (Meyer , E. A., Ed.) Elsevier Press. 1990.

25. **Das, S.**, Reiner., D. S., Zenian, J., Hogan, D. L., Koss, M. A., Wang, C. S., and Gillin, F. D. Killing of *Giardia lamblia* Trophozoites by Human Intestinal Fluid in vitro. J. Infec. Dis. 157, 1257, 1988.
26. Glew, R.H., Saha, A.K., **Das, S.** and Remaley, A.T. Biochemistry of *Leishmania* Species. Microbiological Reviews, 52, 412, 1988.
27. **Das, S.**, Saha, A.K., La Marco , K., Nerad, T., Basu, A., and Glew, R. H. Characterization of β -Glucosidase from *Naegleria fowleri*. J. Protozool. 34, 68, 1987.
28. Gillin, F. D., Reiner, D. S., Gault, M. J., Douglas, H., **Das, S.**, Wunderlich, A., and Sauch, J. Encystation and Expression of Cyst Antigens by *Giardia lamblia* in vitro. Science, 235, 1040, 1987.
29. **Das, S.**, Saha, A.K., Remaley, A.T., Kajioshi, M., Glew, R. H., and Gottlieb, M. Hydrolysis of Phosphoproteins and Inositolphosphates by Cell surface Phosphatase of *Leishmania donovani*. Mol. Biochem. Parasitol. 20: 143, 1986.
30. **Das, S.**, Saha, A. K., Mukopadhyay, N. K., and Glew, R. H. A cyclic-Nucleotide Independent Protein Kinase in *Leishmania donovani*. Biochem. J. 240, 641, 1986.
31. Saha, A. K., Dowling, J. N., LaMarco, K.L., **Das, S.**, Remaley, A.T., Olumu, N and Glew, R. H. Properties of an Acid phosphatase from *Legionella micdadei* which blocks superoxide anion production by human neutrophils. Arch. Biochem Biophys. 243, 150, 1985.
32. Saha, A. K., **Das, S.**, Glew, R. H., and Gottlieb, M. Resistance of Leishmanial Phosphatase to Inactivation by oxygen Metabolites. J. Clin. Microbiol. 260, 29, 1985.
33. Remaley, A. T., **Das, S.**, Campbell, P. I., LaRocca, G. M., Pope, M.T., and Glew, R. H. Characterization of *Leishmania donovani* Acid Phosphatase. J. Biol. Chem. 260, 880, 1985.
34. Olumu, N., Martinez, A. J., La Marco, K. L., Nerad, T. A., Saha, A. K., **Das, S.** and Glew, R. H. Demonstration of various Hydrolases and preliminary Characterization of Acid phosphatase in *Naegleria fowleri*. J. Protozool. 33: 317, 1985.
35. Ghosh, K., **Das, S.**, Chatterjee, R. K., Mukherjee, J. Changes of histone pattern during skin carcinoma induced by methylchloranthene. Ind. J. Exp. Biol. 21. 110. 1983.
36. **Das, S.**, Datta S. C., Guin, A. K., Dey, S., and Sengupta, D. Role of impipramine and desipramine in counteracting diazepam induced changes of adenosinetriphosphatase and cholinesterase of human fetal brain. Ind. J. Exp. Biol. 19, 738, 1981.
37. **Das, S.**, Dey, S., Datta, S. C., Guin, A. K., and Sengupta, D. Developmental pattern of monoamine oxidase activity in cerebral cortex of human fetal brain. IRCS Med. Sci. 7, 613, 1979.
38. **Das, S.**, Dey, S., Datta, S. C., Guin, A. K., and Sengupta, D. In vitro effects of diazepam, desmethyldiazepam, and nitrazepam on ATPase activity of human fetal brain. Ind. J. Exp. Biol. 17, 895, 1979.
39. **Das, S.**, Datta, S. C., Guin, A. K., Dey, S., and Sengupta, D. Studies on the in vivo effect of various benzodiazepines on cholinesterase activity of human fetal brain. Curr. Sci. 20, 979, 1979.
40. Guin, A. K., Dutta, P. K., Datta, S. C., **Das, S.**, and Sengupta, D. Effect of different antiestrogen on glycogen breakdown of cycling rat uterus during estrous and proestrous phases. Ind. J. Biochem. Biophys. 15, 319, 1978.