

# Curriculum Vitae

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## PERSONAL DATA:

C.-K. David Chu, Ph.D.  
Married, two children  
U.S. Citizen

## PROFESSIONAL ADDRESS:

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## EDUCATION:

Seoul National University	1964	B.S.	Pharmacy
Idaho State University	1970	M.S.	Medicinal Chemistry
State University of New York/Buffalo	1974	Ph.D.	Medicinal Chemistry

## PROFESSIONAL AND ACADEMIC POSITIONS:

2008-present	Distinguished Research Professor, Emeritus
1998-2007	Distinguished Research Professor (University of Georgia Chaired Professorship)
1998-1999	Millikan-Reeve Professor of Pharmacy (University of Georgia College of Pharmacy Chaired Professorship)-resigned to accept the above.
1990-1997	Professor (University of Georgia)
1986-present	Director, Drug Discovery Group (University of Georgia)
1987-1989	Associate Professor (University of Georgia)-tenured
1982-1986	Assistant Professor (University of Georgia, Athens, Georgia)
1980-1982	Assistant Professor (Idaho State University)
1976-1980	Research Associate (Memorial Sloan-Kettering Cancer Center, New York)
1974-1975	Postdoctoral Fellow (Memorial Sloan-Kettering Cancer Center, New York- Drs. Fox and Watanabe)

1970-1974	Research Assistant (Suny/Buffalo, Buffalo, New York)
1968-1970	Graduate Assistant (Idaho State University, Pocatello, Idaho)
1965-1968	Korean Navy Officer (retired as Lt. Jr. Gr.)
1964-1965	Research Assistant (Korean NIH, Seoul Korea)

PROFESSIONAL MEMBERSHIPS:

American Chemical Society (Medicinal, Organic, and Carbohydrate Division Member)  
American Association for Cancer Research  
American Association for the Advancement of Science  
American Association of Colleges of Pharmacy  
Korean American Scientists and Engineers Association in U.S.  
The International Society for Antiviral Research  
The Society of Biomedical Research  
International Union of Pure and Applied Chemistry  
International Society for Nucleosides, Nucleotides and Nucleic Acids  
American Society of Microbiology  
International AIDS Society

HONORS, AWARDS AND PROFESSIONAL RECOGNITION:

NIH Advisory Committee Member (AIDS Emphasis panel-AARR3), 1998-2002  
NIH Advisory Committee Member (Bioorganic & Natural Product Chemistry Study Section), 1995-1997  
NIH Advisory Committee ad hoc member (BNP, OIG, NCDDG, SBIR, AIDS), 1987-2010  
NIH Principal Investigator, 1986-2013  
American Chemical Society (Northeast Georgia Section) chemist of the year, 1998  
Member, Board of the University of Georgia Research Foundation (1989-1989)  
University of Georgia Creative Research Medal (1988)  
Dean's Special Award for Research Achievement (1989)  
Triangle Pharmaceuticals, Scientific Advisory Board (1995-2002)  
Pharmasset; Co-Founder & Chair, Scientific Advisory Board, (1998-2013)  
ATEA Pharmaceuticals; Co-Founder & Scientific Advisory Board (2013-present)  
Rho Chi Pharmacy Honor Society (1970-present)  
Sigma Xi Honor Society (1984-present)  
Phi Beta Delta Honor Society for International Scholars (1989-present)  
Editorial Advisory Board (Nucleosides, Nucleotides & Nucleic acids) (1994-Present)  
President, The Society of Biomedical Research (1995-1997)  
Millikan-Reeve Professor of Pharmacy (Pharmacy chaired professor), 1998-1999 (resigned to accept Distinguished Research Professorship)  
University of Georgia Distinguished Research Professor (UGA chaired professor) (1998-2007)  
Marquis Who's Who in the World (2002-present)

Marquis Who's Who in America (2002-present)  
Idaho State University College of Pharmacy Dean's Advisory Council member (2007-2010)  
NIH Merit Award (2001-2011)  
Inventor of the Year Award (University of Georgia) 2002  
Elected Fellow of American Association of Advancement of Science (AAA) 2002  
National Board member of Florida A & M University College of Pharmacy RCMI (2002-2015)  
John A. Montgomery Award (International Society for Nucleosides, Nucleotides & Nucleic Acids) August, 2014  
Seoul National University Distinguished Alumni Award (자랑스러운 서울대인) 2015  
Elected Fellow of National Academy of Inventors 2016  
Antonin Holy Award (International Society of Antiviral Research) 2017  
State University of New York/Buffalo) Distinguished Alumni Award 2017

#### MAJOR ACHIEVEMENTS IN DRUG DISCOVERY

Pseudoisocytidine for cancer (discovered 1975-Phase 1-discontinued)  
AZDU (CS-87) for AIDS (discovered in 1987-Phase I/II-1999-discontinued)  
AZMC (CS-92) for AIDS (discovered in 1988-Phase 1-discontinued)  
Amdoxovir (DAPD) for HBV & AIDS (discovered in 1992- Phase II; currently stop developing)  
Troxatyl (L-OddC) for cancer (discovered in 1993, conducted Phase III; stop developing)  
Clevudine (L-FMAU) for hepatitis B virus (discovered in 1993-Phase III clinical trials in US but discontinued Clevudine, NDA approved in South Korea, Thailand and Philippines)  
DOT for drug resistant mutant HIV (discovered in 2001, Pharmasset conducted preclinical)  
FMCA as anti-HBV agent (discovered in 2010, currently preclinical)  
L-BH DU as anti-VZV agents (discovered 2003, currently preclinical)

#### AREA OF RESEARCH INTERESTS:

Nucleoside and carbohydrate chemistry  
Antiviral chemotherapy (Hiv, hepatitis B & C virus, West Nile virus, VZV and Epstein-Barr virus)  
Cancer chemotherapy  
Structure-based drug design & molecular modeling  
Antiviral drug discovery for bioterrorism (Smallpox, Monkeypox, Ebola virus, etc.)

#### CURRENT RESEARCH PROJECTS:

Drug design and synthesis of antiviral agents against small pox, West Nile, hepatitis B & C viruses  
Drug design and synthesis of anti-AIDS opportunistic infections

Asymmetric synthesis of nucleosides from carbohydrate chiral templates  
Molecular mechanism and drug resistance of HIV & HBV RT  
Antiviral agents discovery for emerging viruses (Ebola, Mers & Chikungya virus).

## **RESEARCH ACTIVITIES:**

### **A. Publications (peer reviewed):**

1. Chu, C.K.; Watanabe, K.A.; Fox, J.J. Nucleosides. XCII. A facile synthesis of 5-( $\beta$ -D-ribofuranosyl)isocytosine ( $\psi$ -Isocytidine). *J. Heterocyclic Chem.* 1975, 12, 817-818.
2. Burchenal, J.H.; Ciovacco, K.; Kalaher, K.; O'Toole, T.; Kiefner, R.; Dowling, M.D.; Chu, C.K.; Watanabe, K.A.; Wempen, I.; Fox, J.J. Antileukemic effects of pseudoisocytidine, a new synthetic pyrimidine C-nucleoside. *Cancer Res.* 1976, 36, 1520-1523.
3. de las Heras, F.G.; Chu, C.K.; Tam, S.Y-K.; Klein, R.S.; Watanabe, K.A.; Fox, J.J. Nucleosides. XCVII. Synthesis of an 8-(D-ribofuranosyl)pyrazo[1,5-a]-1,3,5-triazine, a new type of C-nucleoside. *J. Heterocyclic Chem.* 1976, 13, 175-177.
4. Reichman, U.; Hollenberg, D.H.; Chu, C.K.; Watanabe, K.A.; Fox, J.J. Nucleosides. 98. Direct introduction of an acetamide group into the sugar moiety of nucleoside epoxies. *J. Org. Chem.* 1976, 41, 2042-2043.
5. Chu, C.K.; Wempen, I.; Watanabe, K.A.; Fox, J.J. Nucleosides. 100. General synthesis of pyrimidine C-5 nucleosides related to pseudourine. Synthesis of 5-( $\beta$ -D-ribofuranosyl)isocytosine (pseudoisocytidine), 5-( $\beta$ -D-ribofuranosyl)-2-thiouracil (2-thiopseudouridine) and 5-( $\beta$ -D-ribofuranosyl)uracil (pseudouridine). *J. Org. Chem.* 1976, 41, 2793-2797.
6. Reichman, U.; Chu, C.K.; Hollenberg, D.H.; Watanabe, K.A.; Fox, J.J. Nucleosides, XCIX. 2-Acetoxybenzoyl chloride, a reagent for the direct synthesis of 2,2'-anhydro-pyrimidine nucleosides. *Synthesis* 1976, 8, 533-534.
7. Reichman, U.; Chu, C.K.; Wempen, I.; Watanabe, K.,A.; Fox, J.J. Nucleosides. CIII. Anhydro-pyrimidine-C-nucleosides. Synthesis of 4,2'-anhydro-5-( $\beta$ -D-arabinofuranosyl)- and 5-( $\beta$ -D-arabinofuranosyl)pyrimidine C-nucleosides. *J. Heterocyclic Chem.* 1976, 13, 933-935.
8. Watanabe, K.A.; Chiu, T.M.K.; Reichman, U.; Chu, C.K.; Fox, J.J. Nucleosides. XCV. Total synthesis of pentopyranamine D, the nucleoside moiety of blasticidin H. *Tetrahedron* 1976, 32, 1493-1495.

9. Chu, C.K.; Bardos, T.J. Synthesis and inhibition analysis of 2(4)amino-4(2)amino-2,4-dideoxyriboflavin, a dual antagonist of roboflavin and folinic acid. *J. Med. Chem.*, 1977, 20, 312-314.
10. Levine, E.M.; Chu, C.K.; Bardos, T.J. Pyrimido[5,4-*b*]-quinolines. II. Reactions at the heterocyclic ring carbons and nitrogens. *J. Heterocyclic Chem.*, 1977, 14, 611-614.
11. Chu, C.K.; Bardos, T.J. Pyrimido[5,4-*b*]quinolines. III. Synthesis of 10-alkylsubstituted 10-deaza-alloxazines. *J. Heterocyclic Chem.*, 1977, 14, 1053-1057.
12. Chu, C.K.; Reichman, U.; Watanabe, K.A.; Fox, J.J. Nucleosides. 104. Synthesis of 4-amino-5(*D*-ribofuranosyl)pyrimidine C-nucleosides from 2-(2,3-*O*-trityl-*D*-ribofuranosyl)acetonitrile. *J. Org. Chem.* 1977, 42, 711-714.
13. Reichman, U.; Hirota, K.; Chu, C.K.; Watanabe, K.A.; Fox, J.J. Nucleosides. CVI. Synthesis of 1-*N*-methyl-5(  $\beta$ -*D*-ribofuranosyl)uracil (1-*N*-methyl-<sup>y</sup>-uridine) and its identity with a metabolite elaborated by *Streptomyces platensis* var. *clarensis*. *J. Antibiotics*. 1977, 30, 129-131.
14. Chu, C.K.; Reichman, U.; Watanabe, K.A.; Fox, J.J. Nucleosides. CIX. 2'-Deoxy-<sup>y</sup>-isocytidine, 2'-deoxy-<sup>y</sup>-uridine and 2'-deoxy-1-methyl-<sup>y</sup> uridine. Isoteres of deoxycytidine, deoxyuridine and thymidine. *J. Heterocyclic Chem.* 1977, 14, 1119-1121.
15. Chu, C.K.; Reichman, U.; Watanabe, K.A.; Fox, J.J. Nucleosides. 107. Synthesis of 5-( $\beta$ -*D*-arabinofuranosyl)isocytosine and related C-nucleosides. *J. Med. Chem.* 1978, 21, 96-100.
16. Fox, J.J.; Watanabe, K.A.; Klein, R.S.; Chu, C.K.; Tam, S. Y-K.; Reichman, U. : Hirota, K.; Hwang, J-S.; de las Heras, F.G.; Wempen, I. New C-nucleoside isosteres of some nucleoside antibiotics, in *Chemistry and Biochemistry of Nucleosides and Nucleotides* (R. E. Harmon, R.K. Robins, and L.B. Townsend, eds.) Academic Press, New York, 1978, 415-439.
17. Watanabe, K.A.; Reichman, U.; Chu, C.K.; Fox, J.J. 2,5'-Anhydrouridine and 2,5'-anhydro-5-fluorouridine. One-step conversion of uridine and 5-fluorouridine into their corresponding 2,5'-anhydronucleosides. *Nucl. Acid Chem.* 1978, 1, 343-346.
18. Watanabe, K.A.; Reichman, U.; Chu, C.K.; Fox, J.J. 2,5'-Anhydrodeoxyribosyl pyrimidine nucleosides. Two-step synthesis of 2,5'-anhydronucleosides from thymidine, deoxyuridine and 5-fluorodeoxyuridine. *Nucl. Acid Chem.* 1978, 1, 273.
19. Chou, T-C.; Burchenal, J.H.; Fox, J.J.; Watanabe, K.A.; Chu, C.K.; Phillips, F.S. Metabolism and effects of 5-( $\beta$ -*D*-ribofuranosyl)isocytosine in P815. *Cancer Res.* 1979, 39, 720-728.

20. Chung, W.K.; Chu, C.K.; Watanabe, K.A.; Fox, J.J. Pyrimidines. 16. Novel s-triazine to pyrimidine ring transformation reaction. *J. Org. Chem.* 1979, 44, 3982-3983.
21. Fox, J.J.; Watanabe, K.A.; Klein, R.S.; Chu, C.K.; Tam, S.Y-K.; Reichman, U.; Hirota, K.; Wempen, I.; Lopez, C.; Burchenal, J.H. Some C-and N-nucleosides: Chemistry and Chemotherapy. *Les Colloques de l'INSERM 81* 1979, 241-270.
22. Watanabe, K.A.; Reichman, U.; Chu, C.K.; Hollenberg, D.H.; Fox, J.J. Nucleoside 118. 1-( $\beta$ -D-Xylofuranosyl)-5-fluorocytosines with leaving group on the 3'-position. Double-barreled masked precursors of Anticancer nucleosides. *J. Med. Chem.* 1980, 23, 1088-1094.
23. Chu, C.K.; Watanabe, K.A.; Fox, J.J. Nucleoside 117. Synthesis of 4-Oxo-8-( $\beta$ -D-ribofuranosyl)-3H-pyrazolo(1,5-a)-1,3,5-triazine (OPTR) via 3-Amino-2N-carbamoyl-4-( $\beta$ -D-ribofuranosyl) pyrazole (APCR) Derivatives. *J. Heterocyclic Chem.* 1980, 17, 1435-1439.
24. Matsuda, A.; Chu, C.K.; Reichman, U.; Pankiewicz, K.; Watanabe, K.A.; Fox, J.J. Nucleosides 120. Synthesis of 2'-Deoxy-y-Isocytidine and 2'-Deoxy-1-methyl-y-Uridine from y-Uridine. *J. Org. Chem.* 1981, 46, 3603-3609.
25. Stoeckler, J.D.; Bell, C.A.; Park, R.E., Jr.; Chu, C.K.; Fox, J.J.; Ikehara, M. Substrate activities of adenosine and inosine analogs substituted on C(2') with azide or fluorine. *Biochem. Pharmacol.* 1982, 31, 1723-1728.
26. Watanabe, K.A.; Su, T-L.; Klein, R.S.; Chu, C.K.; Matsuda, A.; Chun, M.W.; Lopez, C.; Fox, J.J. Synthesis of Antiviral nucleosides: 5-Substituted 1-(2'-Deoxy-2'-halogeno- $\beta$ -arabinofuranosyl) cytosines and uracils. Some structure activity relationships. *J. Med. Chem.* 1983, U28, 152-156.
27. Chu, C.K. Acetylation of nucleosides by acetylsalicylic acid (aspirin). *Nucleosides and Nucleotides* 1983, 2, 453-458.
28. Chu, C.K. Acyclopyrimidine C-nucleosides. Synthesis of acyclopseudoisocytidine and its derivatives. *J. Heterocyclic Chem.* 1984, 21, 9-11.
29. Chu, C.K. Synthesis of 3-Amino-2-carbamimidoyl-pyrazole C-nucleosides and its cyclization to 4-aminopyrazolo[1,5-a]-1,3,5-triazine C-nucleosides. *Heterocycles* 1984, 22, 345-351.
30. Chu, C.K.; El-Kabbani, F.M.; Thompson, B.B. Determination of the anomeric configuration of C-nucleosides by  $^1\text{H}$  and  $^{13}\text{C}$  NMR spectroscopy. *Nucleosides and Nucleotides* 1984, 3, 1-31.
31. Chu, C.K. A facile synthesis of 8-( $\beta$ -D-ribofuranosyl)-4-thio-3H-pyrazolo[1,5-a]-1,3,5-triazine and its a-Anomer. *J. Heterocyclic Chem.* 1984, 21, 389-392.

32. Chu, C.K.; Wander, J.D.; Tackett, R.L.; Iturrian, W.B.; Schmitz; Garner, G.E.; Chae, K.A. Novel serotonin antagonist 2,2'-bis [3-(2-N,N Dimethylaminoethyl)indolyl]Sulfide (BDIS). *J. Heterocyclic Chem.* 1984, 21, 1901-1903.
33. Matsuda, A.; Chu, C.K.; Watanabe, K.A. 1-Methyl-5-(2-deoxy- $\beta$ -D-erythropentofuranosyl) uracil (2'-deoxy-1-methyl-pseudouridine), a C-nucleoside isostere of thymidine. *Nucleic Acid Chem.* 1986, 3, 48-52.
34. Chu, C.K.; Cutler, S.J.; Mesbah, M.; Cutler, H.G. Ring Transformation Reactions of C-Nucleosides: A Facile Synthesis of Pyrazolo[1,5-a] Pyrimidine and Pyrazolo[1,5-a] triazine C-nucleosides. *J. Heterocyclic Chem.* 1986, 23, 349-352.
35. Doss, S.L.; Chu, C.K.; Cutler, H.G.; Cole, P.B.; Arrendale, R.; Mesbah, M.K.; Springer, J.T. Isolation of compactin from *Penicillium cyclopium* *J. Natural Products* 1986, 49, 357-358.
36. Mesbah, M.; Chu, C.K.; Doss, S.L. The Flavonoids of *Aureolaria Virginica* L. *J. Natural Products* 1986, 49, 169.
37. Chu, C.K.; Cutler, S.J. Chemistry and antiviral activities of acyclonucleosides. *J. Heterocyclic Chem.* 1986, 23, 289-319.
38. Chu, C.K.; Suh, J.J.; Cutler, H.G. Synthesis of 1-( $\beta$ -D-Ribofuranosyl)-indol-3-acetic Acid. *J. Heterocyclic Chem.* 1986, U23U, 1777-1779.
39. Chu, C.K.; Suh, J.J. Acyclonucleosides: Synthesis of 5-(2,3-Dihydroxy-1-Propoxymethyl) pyrimidines. *J. Heterocyclic Chem.* 1986, 23, 1621-1624.
40. Lin, T.S.; Guo, J.Y.; Schinazi, R.F.; Chu, C.K.; Xing, J.N.; Prusoff, W.H. Synthesis and antiviral Activity of Various 3'-Azido Analogues of Pyrimidine Deoxyribonucleosides Against Human immunodeficiency Virus (HIV-1, HTLV-III/LAV). *J. Med. Chem.* 1988, 31, 336-340.
41. Ullas, G.V.; Chu, C.K.; Ahn, M.K.; Kosugi, Y. Synthesis of C-nucleoside analogue of (S)-DHPA and Related Compounds. *J. Org. Chem.* 1988, 53, 2413-2418.
42. Van Roey, P.; Salerno, J.M.; Duax, W.L.; Chu, C.K.; Ahn, M.K.; Schinazi, R.F. Solid state conformation of anti-HIV-type-1 agents: Crystal structures of three 3'-Azido-3'-deoxythymidine analogues. *J. Am. Chem. Soc.* 1988, 110, 2277-2282.
43. Doboszewski, B.; Chu, C.K.; Van Halbeek, H. Synthesis of C-nucleoside analogues of 2',-3'-dideoxycytidine, 3'-azido-3'-deoxyuridine (CS-87) and 2',3'-dideoxy-2',3'-dideohydrocytidine. *J. Org. Chem.* 1988, 53, 2777-2782.

44. Chu, C.K.; Schinazi, R.F.; Arnold, B.; Doboszewski, B.; Bhadti, V.S. Comparative activity of 2'-3'-dideoxy- and 2',3'-dideoxy-2',3'-dehydro-pyrimidine and purine nucleosides against human immunodeficiency virus type 1 in human peripheral blood mononuclear cells. *Biochem. Pharmacol.* 1988, 37, 3543-3548.
45. Chu, C.K.; Beach, J.W.; Ullas, G.V.; Kosugi, Y. An Efficient synthesis of 3'-azido-3'-deoxythymidine (AZT) and 3'-azido-2',3'-dideoxyuridine (AZddU, CS-87) from *D*-mannitol. *Tetrahedron Lett.* 1988, 29, 5349-5351.
46. Chu, C.K.; Schinazi, R.F.; Ahn, M.K.; Ullas, G.V.; Gu, J.P. Structure-activity relationships of pyrimidine nucleosides antiviral agents for human immunodeficiency virus type 1 in peripheral blood mononuclear cells. *J. Med. Chem.* 1989, 32, 612-617.
47. Chu, C.K.; Matulic-Adamic, J.; Huang, J.T.; Chou, T.C.; Burchenal, J.H.; Fox, J.J.; Watanabe, K.A. Synthesis of some 9-(2-deoxy-2-fluoro- $\beta$ -*D*-arabinofuranosyl)-purines, *Chem. Pharm. Bull.* (Japan), 1989, 32, 336-339.
48. Chu, C.K.; Bhadti, V.S.; Doboszewski, B.; Gu, Z.P.; Kosugi, Y.; Pullaiah, K.C.; Van Roey, P. General synthetic methods of 2',3'-dideoxy- and 2',3'-dihydro-2',3'-dideoxy-nucleosides. *J. Org. Chem.* 1989, 54, 2217-2225.
49. Chu, C.K.; Doboszewski, B.; Schmidt, W.; Van Roey, P. Synthesis of pyrimidine 3'-allyl-2',3'-dideoxyribonucleosides by free radical coupling. *J. Org. Chem.* 1989, 54, 2767-2769.
50. Van Roey, P.; Salerno, J.M.; Chu, C.K. Schinazi, R.F. Conformation between preferred sugar ring conformation and anti-HIV activity of nucleoside analogues. *Proceedings of National Academy of Sciences (USA)*, 1989, 86, 3929-3933.
51. Chu, C.K.; Raghavachari, R.; Beach, J.W.; Kosugi, Y.; Ullas, G.V. A General synthetic method for 2',3'-dideoxynucleosides: Total synthetic approach. *Nucleosides and Nucleotides* 1989, 8, 903-906.
52. Patel, B.A.; Chu, C.K.; Boudinot, F.D. Pharmacokinetics and saturable tubular secretion of zidovudine in rats *J. Pharmaceutical Sciences* 1989, 78, 530-531.
53. Eriksson, B.B.H.; Chu, C.K.; Schinazi, R.F. Phosphorylation of 3'-azido-2',3'-dideoxyuridine (CS-87, AzddU) and preferential inhibition of human and similar immunodeficiency virus reverse transcriptases by its 5'-triphosphate derivative. *Antimicrob. Agents Chemother.* 1989, 33, 1729-1734.
54. Doshi, K. J.; Gallo, J.M.; Boudine, F.D.; Chu, C.K. Comparative Pharmacokinetics of 3'-azido-3'-deoxy-thymidine (AZT) and 3'-azido-2',3'-dideoxyuridine (AZddU, CS-87) in mice. *Drug Metabolism & Disposition* 1989, 17, 590-594.



55. Boudinot, F.D.; Schinazi, R.F.; Gallo, J.N.; McClure, H.; Anderson, D.; Doshi, K.; Chu, C.K. 3'-Azido-2',3'-dideoxyuridine (AZddu): Comparative pharmacokinetics with 3'-azido-3'-deoxythymidine (AZT) in monkeys. *AIDS Res. Human Retro.* 1990, 6, 219-228.
56. Chu, C.K.; Babu, J.R.; Beach, J.W.; Ahn, S.K.; Huang, H.; Jeong, L.S.; Lee, S.J. A highly stereoselective Glycosylation of 2-(Phenylselenenyl)-2,3-dideoxyribose Derivative with Thymine: Synthesis of 3'-deoxy-2',3'-didehydrothymidine and 3'-Deoxythymidine *J. Org. Chem.* 1990, 55, 1418-1420.
57. Chu, C.K.; Ullas, G.V.; Jeong, L.S.; Ahn, S.K.; Doboszewski, B.; Lin, Z.X.; Beach, J.W.; Schinazi, R.F. Synthesis and structure-activity relationships of 6-substituted-2',3'-dideoxypurine nucleosides as anti-HIV agents *J. Med. Chem.* 1990, 33, 1553-1561.
58. Patel, B.A.; Boudinot, F.D.; Schinazi, R.F.; Gallo, J.M.; Chu, C.K. Comparative pharmacokinetics and interspecies scale-up of 3'-azido-3'-deoxythymidine (AZT) in several mammalian species. *J. Pharmacobio Dyn.* 1990, 13, 206-211.
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60. Hirota, K.; Hosono, H.; Kitade, Y.; Maki, Y.; Chu, C.K.; Schinazi, R.F.; Nakane, H.; Uno, K. Synthesis and anti-HIV activity of 3'-deoxy-3'-(triazolo-1-yl)thymidines and 2',3'-dideoxy-3'-(triazol-1-yl)uridine, and inhibition of reverse transcriptase by their 5'-triphosphates. *Chem. Pharm. Bull.* 1990, 38, 2597-2601.
61. Chu, C.K.; Bhadti, V.S.; Doshi, K.; Etse, J.T.; Boudinot, F.D.; Gallo, J.; Schinazi, R.F. Brain targeting of anti-HIV nucleosides: Synthesis and *in vivo* studies of dihydronicotinyl derivatives of 3'-azido-2',3'-dideoxyuridine (AzddU or CS-87) and 3'-azido-3'-deoxythymidine (AZT or Zidovudine) *J. Med. Chem.* 1990, 33, 2188-2192.
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63. Van Roey, P.; Taylor, E.W.; Chu, C.K.; Schinazi, R.F. Correlation of molecular conformation and activity of reverse transcriptase inhibitors, *Ann. New York Acad. Sci.* 1990, 616, 29-40.
64. Williams, G.J.; Colby, C.B.; Schinazi, R.F.; Sommadossi, J.-P.; Chu, C.K.; Johns, D.G.; Mitsuya, H. The cellular metabolism of AzddU: Correlation with *in vitro* anti-HIV and cytotoxic activities and infectious diseases, *Ann. New York Acad. Sci.* 1990, 616, 620-623.

65. Schinazi, R.F.; Chu, C.K.; Eriksson, B.F.; Sommadossi, J.P.; Gallo, J.M.; Boudinot, F.D.; Anderson, D.; McClure, H.M. Antiviral, cytotoxic, biochemical and pharmacokinetic properties of 3'-azido-2',3'-dideoxy-5-methyl-cytidine *Ann. New York Acad. Sci.* 1990, 616, 385-397.
66. Taylor, E.W.; Van Roey, P.; Schinazi, R.F.; Chu, C.K. A Comprehensive stereochemical rationale for the activity of nucleoside analogue V.S. the AIDS Virus, *Antiviral Chem. Chemother.* 1990, 1, 163-173.
67. Zhu, Z.; Schinazi, R.F.; Chu, C.K.; Williams, G.J.; Colby, C.B.; Sommadossi, J.-P. Cellular Metabolism of 3'-azido-2',3'-dideoxyuridine with formation of 5'-O-diphosphohexose derivatives by previously unrecognized metabolism pathways for 2'-deoxyuridine analogs *Molecular Pharmacol.* 1990, 38, 929-938.
68. Chu, C.K.; Bhadti, V.S.; Doshi, K.; Etse, J.T.; Gallo, J.M.; Boudinot, F.D.; Schinazi, R.F. Brain targeting of anti-HIV nucleosides: Synthesis and *in vivo* studies of dihydronicotinyl derivative of AzddU and AZT *Ann. New York Acad. Sci.* 1990, 616, 495-498.
69. Boudinot, F.D.; Ibrahim, S.S.; Qin, Y.; Chu, C.K.; Schinazi, R.F. Pharmacokinetics of 3'-azido-2',3'-dideoxy-5-methylcytidine in rats *Antimicrobial Chem. Chemother.* 1990, 1, 367-371.
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**B. Meeting Abstracts (published):**

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298. Cho, J. and Chu, CK, Development of Efficient Synthetic Methods for a Chiral Cyclopentenol Derivative Employing Ring-closing Metathesis (RCM) Reaction and Synthesis of Unnatural Neplanocin A (NPA) Analogues, Bridging the Sciences-HIV Vaccine Research and Drug Development, May 19-20, 2005, Atlanta, GA.
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304. Yadav, Y; Jin, H-J and Chu, CK, Monophosphorylation Efficiency of Nucleosides by Deoxycytidine Kinase (dCK) and Their Mechanism of Anti-HIV Activity: A Molecular Modeling Study, Bridging the Sciences-HIV Vaccine Research and Drug Development, May 19-20, 2005, Atlanta, GA.
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311. Cho, Jong- Hyun, Chu, C. K., Development of Efficient Synthetic Methods for 3-Deazaadenine and Its Derivatives and Practical Synthesis of 3-Deazaneplanocin A

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  313. Wang, J., Jin, Y. H., Schinazi, R. F., Chu, C. K., Synthesis and Antiviral Activity of L-3'-Fluoror-2', 3'-Unsaturated Carbocyclic Nucleosides, ACS Meeting (Med. Chem. Section), March 26-30, 2006 Atlanta, Georgia
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330. Wang, J.; Jin, Y. H.; Rapp, K. L.; Schinazi, R. F.; Chu C. K. 3'-Fluoro-2', 3' Unsaturated Carbocyclic Nucleosides: Synthesis, Anti-HIV Activity and Molecular Modeling Studies, American Chemical Society Meeting, March 25-29, 2007, Chicago, Ill.
331. Huang, C.; Peng, J.; Chu, C. K.; Murray, M. G.; Huang, Z. Potent and selective inhibition of Hepatitis C Virus replication by 7-Deaza-Neplanocin, 14th International Symposium on Hepatitis C Virus and Related Viruses September 9-13, 2007, Glasgow, Scotland, UK.



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334. Sharon, A.; Chu, C.K. Clevudine (L-FMAU): A Unique Antiviral Agent for the Treatment of Chronic Hepatitis B Virus Infection, 14<sup>th</sup> Symposium on Nucleic Acids Component, June 8-13, 2008, Chesky krumlov, Czech Republic.
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340. De, Chandrav; Chavre, Satish, Chu, Chung. K.: Moffat, Jennifer, Dioxolane L-nucleoside analogs prevent varicella-zoster virus replication in fibroblasts and skin organ culture, ICAR, May 7-11, 2011, Sofia, Bugaria.
341. Chen, N.; Chu, C.K.; Vuyyuru, V.; Cheng, Y.C.; Van Den Oord, J.J.; Duraffour, S.; Snoeck, R.; Andrei, G. HDVD, a novel potent anti-EBV and anti-KSHV agent in vitro and its evaluation in vivo, ICAAC, September, 17-21, 2011, Chicago, Il.
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343. Chandrav De, Uma Singh, Chung. K. Chu and Jennifer Moffat, Varicella-zoster Virus Resistance to L-BH DU, a Dioxolane L-Nucleoside, is dependent on thymidine kinase, ICAR, April 16-19, 2012, Sapporo, Japan.

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346. Singh, U.S.; Mishra, R.; Shankar, R.; Chu, C. K. A convergent synthesis of anti-HBV agent, FMCA and its prodrug (FMCAP), ICAR, May 12-16, 2014, Reigh, NC.
347. De, C.; Singh, U.; Chu, C.K.; Hagen, F.; Moffat, M., dioxolane L-nucleoside analogue, L-BH DU, inhibits VZV replication by depleting the cellular dTTP pool, ICAR, May 12-16, 2014, Reigh, NC.

C. Patents (Listed only US & Japanese patents)

1. U.S. Patent #4074042 - 1978  
“Pseudo-Isocytidine”
2. U.S. Patent #41 71429 - 1979  
“Pyrimidine to Pyrimidine Transformation Process”
3. U.S. Patent #4681933 - 1987  
“2',3'-Dideoxy-5-Substituted Uridines and Related Compounds as Antiviral Agents”
4. U.S. Patent #4751221 - 1988  
“2-Fluoro-arabinofuranosyl purine nucleosides”
5. U.S. Patent #4841 039 - 1989  
“2',3-dideoxy-5-substituted uridines and related compounds as antiviral agents”
6. U.S. Patent #4916122 - 1990  
“3'-azido-2',3'-dideoxyuridine anti-retroviral composition”
7. U.S. Patent #4918179 - 1990  
“2-Fluoro-arabinofuranosyl purine nucleosides”
8. U.S. Patent #4987224 - 1991  
“Method of preparation of 2',3'-dideoxynucleosides”
9. U.S. Patent #5068 320 -1991  
“2-Amino-6-(Cyclopropylamino)Purine-9-β-D-2',3'-Dideoxyribofuranoside and

its Pharmaceutically Acceptable Salts”

10. U.S. Patent #5077279 - 1991  
“3’-Azido-2’,3’-Dideoxy-5-Methylcytidine Anti-Viral Composition”
11. U.S. Patent #5118672 -1992  
“5’-Diphosphohexose Nucleoside Pharmaceutical Compositions”
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“3’-Azido-2’,3’-Dideoxy-5-Methylcytidine”
13. U.S. Patent #5159067 - 1992  
“5’-Diphosphohexose Nucleoside Pharmaceutical Compositions”
14. U.S. Patent #5175267 - 1992  
“Stereoselective Glycosylation of Heterocyclic Bases”
15. U.S. Patent #5179104 - 1993  
“Process for the Preparation of Enantiomerically Pure  $\beta$ -D-(-)-Dioxolane-Nucleosides”
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17. U.S. Patent #5238947-1993  
“Synthetic Piperidinediones with Cytostatic Activity”
18. U.S. Patent #5200514-1993  
“Synthesis of 2’-Deoxypyrimidine Nucleosides”
19. U.S. Patent #5190926-1993  
“3’-Azido-2’,3’-Dideoxypyrimidines and Related Compounds as Antiviral Agents”
20. U.S. Patent #5248776-1993  
“Process for Enantiomerically Pure  $\beta$ -L-1,3- Oxathiolane Nucleosides”
21. U.S. Patent #5384396 -1995  
“Process for the Deoxygenation of Nucleosides”
22. U.S. Patent #5455339 -1995  
“Method for the Preparation of 2’,3’-Dideoxy and 2’, 3’-Dideoxydide-Hydro Nucleosides”
23. U.S. Patent #5565438 - 1996  
“L-Nucleosides for the Treatment of Epstein-Barr Virus”
24. U.S. Patent #5567688 - 1996

- “L-Nucleosides for the Treatment of Hepatitis B-Virus”
25. U.S. Patent #5648489 - 1997  
“Improved Synthesis of Acyclic Guanine Nucleosides”
  26. U.S. Patent #5,767,122 - 1998  
“Enantiomerically Pure b-D-Dioxolane Nucleosides”
  27. U.S. Patent #5,792,773 - 1998  
“L-b-Dioxolane Uridine Analog Administration for Treating Epstein-Barr Virus Infection”
  28. U.S. Patent # 5,817,667 - 1998  
“Compounds and Methods for the Treatment of Cancer”
  29. U.S. Patent # 5,753,789 - 1998  
“Oligonucleotides Containing L-Nucleosides”
  30. U.S. Patent # 5,925,643 - 1999  
“Enantiomerically Pure b-D-Dioxolane Nucleosides”
  31. U.S. Patent # 6,022,876 - 2000  
“L-b-Dioxolane Uridine Analogs and Methods for Treating and Preventing Epstein-Barr Virus Infections”
  32. U.S. Patent # 6,063,787 - 2000  
“Methods for the Treatment of Psoriasis and Genital Warts”
  33. U.S. Patent # 6,197,777 – 2001  
“Synthesis, Anti-Human Immunodeficiency Virus and Anti-Hepatitis B Virus of 1,3-Oxaselenolane Nucleosides”
  34. U.S. Patent #6,274,589 – 2001  
“L-β-Dioxolane Uridine Analogs and their Pharmaceutical Compositions”
  35. U.S. Patent #6,271,212 – 2001  
“Prodrugs Azide Compositions and Compounds”
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“L-Nucleosides Incorporated into Polymeric structures for Stabilization of Oligonucleotides”
  37. U.S. Patent #6,348,587 B1-2002  
“2'-Fluoronucleosides”
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“ Method for the Treatment of Psoriasis and Genital Warts”

39. U.S. patent #6,590,107 B1; 2003  
“Synthesis, Anti-human Immunodeficiency Virus and Anti-hepatitis B Virus Activities of 1,3-Oxathiolane Nucleosides”
40. U.S. patent #6,512,107 B2 ; Jan. 28, 2003  
“Process for the Preparation of 2’-Fluoro-5-methyl-b-L-arabinofuranosyluridine”
41. U.S. patent #6,653,318 B1; Nov. 25, 2003  
“5-(E)-Boromovinyl uracil analogues and related pyrimidine nucleosides as antiviral agents and methods of use”
42. U.S. patent #6,670,342 B2; Dec. 30, 2003  
“Method of treating hepatitis delta virus infection”
43. U.S. patent #6894159 B2; May 17, 2005  
“Process for the preparation of 2’-fluoro-5-methyl-beta-L-arabinofuranosyluridine”
44. U.S. Patent #6800315 B2; May 31, 2005  
“ 2-Amino-9-H-puryn-9-yl-compounds and methods for inhibiting/treating HIV infections and AIDS related symptoms”
45. U.S. patent #6911424 B2; June 28, 2005  
“ 2’-Fluoronucleosides”
46. U.S. patent #6949521 B2; September 27, 2005  
“Therapeutic azide compounds”
47. U.S. patent #7259180; August 21, 2007  
“Methods and compositions for treatment of macular and retinal disease”
48. U.S. patent #7262213 B2; August 28, 2007  
“Compounds and methods for the treatment of cancer”
49. U.S. Patent # 7307065 B2; December 11, 2007  
“ 2’-Fluoronucleosides”
50. U.S. patent #7615542 B2; November 10, 2009  
“Dioxolane thymine and combinations for use against 3TC/AZT resistant strains of HIV”
51. U.S. patent #8,076,347 B2; December 13, 2011  
“Compounds and Methods for the Treatment of Cancer”
52. U.S. patent #8,492,362 B1; July 23, 2013

“5-(E)-Bromovinyl Uracil Analogues and Related Pyrimidine Nucleosides as Anti-Varicella Zoster Virus Agents and Methods of Use”

53. U.S. patent #8,642,602 B2; Feb. 2014  
“Method of Inhibiting Fibrogenesis and Treating Fibrotic Disease”
54. U.S. patent #8,673,926; March 18, 2014  
“Spiro [2.4]heptanes for Treatment of Flaviviridae Infections”
55. U.S. patent #8,816,074 B2; Aug. 26, 2014  
“2'-Fluoro-6'-methylene Carbocyclic Nucleosides and Method of Treating Viral Infections”
56. U.S. patent #8,946,244 B2; Feb. 3, 2015  
“2'-Fluoro-6'-methylene Carbocyclic Nucleosides and Method of Treating Viral Infections”
57. U.S. patent 8,946,242 B2; Feb. 3, 2015  
“Spiro[2.4]heptanes for Treatment of Flaviviridae Infections”
58. U.S. patent # 9,334,273 B1; May 10, 2016  
“An efficient and Stereoselective Synthesis of 2'-Fluoro-6'-Methylene-Carbocyclic Adenosine (FMCA)”
59. PCT Int. Appl. (2017), WO 2017/176392 A1 20171012; May 19, 2019  
“Synthesis of 2'-fluoro-6'-methylene-carbocyclic adenosine (FMCA) and 2'-fluoro-6'-methylene-carbocyclic guanosine (FMCG)”

D. Invited Lectures/Presentations

1. Department of Pharmacology, College of Pharmacy, UGA, 1982.  
“Synthesis and Biological Activities of C-Nucleosides”

2. Department of Chemistry, UGA, 1983.  
“Synthesis of C-Nucleosides”

3. Department of Chemistry, Kennesaw College, 1984.  
“Design of Anticancer and Antiviral Agents”

4. Department of Chemistry, Armstrong State College, 1984.  
“Serotonin Antagonist”

5. Division of Medicinal Chemistry, College of Pharmacy, Seoul National University, 1984.  
“C-Nucleosides: Chemistry and Biology”

6. Korea Research Institute of Chemical Technology, 1984.  
"Ring Transformation of C-Nucleosides"
7. Department of Pharmacology, Medical College of Georgia, 1985.  
"Anticancer Activities of C-Nucleosides"
8. Department of Basic Pharmaceutical Sciences, College of Pharmacy,  
University of South Carolina, 1985.  
"Chemistry and Biology of C-Nucleosides"
9. Ortho Pharmaceuticals (CANADA), 1986.  
"Selective Antiviral Agents for AIDS"
10. Gordon Conference, 1986.  
"Selective Antiviral Agents Against HTLV-III/LAV"
11. Division of Oncology, School of Medicine, Boston University, 1986.  
"Anticancer Activities of C-Nucleosides"
12. BASF Corporation, Research Triangle Park, NC, 1986.  
"Fungal Metabolites from *Penicillium cyclopium*"
13. College of Charleston Department of Chemistry, 1986.  
"Nucleosides as Rich Sources of Biologically Active Compounds: from Antitumor and Antiviral  
Agents to Male Contraceptives"
14. American Chemical Society (Northeast Georgia Sect.), 1986.  
"AIDS and AIDS Chemotherapy"
15. Medical University of South Carolina College of Pharmacy, 1986.  
"Nucleosides as Rich Sources of Biologically Active Compounds: from Antitumor and Antiviral  
Agents to Male Contraceptives"
16. NATO Advanced Study Institute, II Ciocoo, ITALY, 1987.  
"Anti-HIV Activity of CS-87"
17. Institute de Ouimica Medica, National Research Council, Madrid, SPAIN, 1987.  
"Recent Advances in AIDS Research"
18. Universite des Sciences et Techniques du Languedoc, Laboratoire de Chemie &  
bioorganique, Montpellier, FRANCE, 1987. "Chemotherapy of AIDS"
19. University of Konstanz Department of Chemistry, Konstanz, GERMANY, 1987.

"Synthesis and Biology of C-Nucleosides"

20. Bayer AG Pharmaceutical Division, Wuppertal, GERMANY, 1987.

"Recent Advances in AIDS and AIDS Chemotherapy"

21. State University of Gent, Department of Chemistry, Gent, BELGIUM, 1987.

"Recent Advances in AIDS and AIDS Research"

22. Tokyo College of Pharmacy, Tokyo, JAPAN, 1987.

"Synthesis and Biology of C-Nucleosides"

23. Pharmaceutical Society of Japan (Tokyo Sect.), 1987.

"Antiviral Chemotherapy for AIDS"

24. Gifu College of Pharmacy, Gifu, JAPAN, 1987.

"Recent Advances in AIDS and AIDS Chemotherapy"

25. University of Tokyo, Tokyo, JAPAN, 1987.

"Advances in AIDS Chemotherapy"

26. Seoul National University, Seoul, KOREA, 1987.

"AIDS Antiviral Chemotherapy"

27. 10th Science and Technology Symposium, Seoul, KOREA, 1987.

"Recent Advances in AIDS and AIDS Chemotherapy"

28. Korea Research Institute of Chemical Technology, 1987.

"Recent Advances in AIDS and AIDS Chemotherapy"

29. Biotechnology Symposium, Seoul, KOREA, 1987.

"Antiviral Chemotherapy"

30. Drug Discovery Group Symposium, Seoul, KOREA, 1987.

"Drug Development of Antiviral Agents for AIDS"

31. Dong-A Pharmaceutical Company, Seoul, KOREA, 1987.

"Structures of Antiviral Agents Development"

32. University of North Carolina School of Pharmacy, Chapel Hill, NC, 1987.

"AIDS and AIDS Chemotherapy"

33. National Drug Discovery Group for AIDS (Emory-UGA-Yale Group) Annual Meeting, 1987.

"Drug Design and Synthesis of Anti-HIV Agents"

34. Triton Biosciences, Alameda, CA, 1988.



“Drug Design and Synthesis of Anti-HIV Agents”

35. American Chemical Society (Pensacola Sect., FL), Mini-AIDS Symposium, 1988.

“Drug Design and Synthesis of Antiviral Agents for AIDS”

36. Florida A&M University College of Pharmacy, 1988.

“Antiviral Agents for Human Immunodeficiency Virus”

37. University of Florida College of Pharmacy, 1988.

“Antiviral Agents for Human Immunodeficiency Virus”

38. National Institute of Allergy and Infectious Diseases, Bethesda, MD, 1988 (Anti-HIV Nucleosides Workshop).

“Structure-activity Relationships of Pyrimidine and Purine Nucleosides as Anti-HIV Agents”

39. National Cancer Institute, Medicinal Chemistry Section, Developmental Therapeutics Program, Bethesda, MD, 1988.

“Drug Design and Synthesis of Anti-HIV Agents”

40. U.S. Army Medical Research, Institute of Infectious Diseases, Frederic, MD, 1988.

“Structure-activity Relationships of Anti-HIV Nucleosides”

41. University of Southern California School of Pharmacy, Los Angeles, CA, 1988.

“Drug Design, Synthesis, and Biological Activities of Anti-HIV Nucleosides”

42. ICN Pharmaceuticals, Nucleic Acid Research Institute, Los Angeles, CA, 1988.

“Drug Design, Synthesis, and Biological Activities of Anti-HIV Nucleosides”

43. The 5th International Congress of Oriental Medicine, Seoul, KOREA, 1988.

“Recent Advances in AIDS and AIDS Research”

44. University of Uppsala, Symposium on Therapeutic Aspects of HIV Infections, Uppsala, SWEDEN,

1988. “Structure-activity Relationships of Anti-HIV Nucleosides”

45. Georgia Industrial Developers Association Monthly Meeting, Athens, GA, 1988.

“AIDS Research”

46. Seoul National University College of Pharmacy, Seoul, KOREA, 1988.

“Structure-activity Relationships of Anti-HIV Nucleosides”

47. Korea Institute of Chemical Technology, Dae Jeon, KOREA, 1988.

“Drug Design and Structure-activity Relationships of Anti-HIV Nucleosides”

48. Chong Kun Dang Research Center, Seoul, KOREA, 1988.

“Recent Advances in Anti-HIV Agents”

49. Kyung Sung University College of Pharmacy, Pusan, KOREA, 1988.  
"Recent Advances in AIDS and AIDS Research"
50. National Drug Discovery Group Meeting for AIDS, Oakland, CA, 1988.  
"Drug Design and Structure-activity Relationships of Anti-HIV Nucleosides"
51. Triton Biosciences, Alameda, CA, 1988.  
"Structure-activity Relationships of Anti-HIV Agents"
52. University of North Carolina, Department of Medicinal Chemistry, Chapel Hill, NC, 1988.  
"Drug Design of Anti-HIV Nucleosides based on Conformational Studies"
53. Kiwanis Club, Athens, GA, 1989.  
"AIDS and AIDS Research"
54. Medical College of Georgia, Department of Pharmacology, Augusta, GA, 1989.  
"Recent Advances in AIDS Research"
55. University of Alabama School of Medicine, Birmingham, Alabama, 1989.  
"Design and Development of Anti-AIDS Nucleosides"
56. Kiwanis Club, Griffin, GA, 1989.  
"AIDS, a Global Issue"
57. Boehringer Ingelheim Research Center, Ridgefield, Connecticut, 1989.  
"Design, Synthesis and Biological Activities of Anti-HIV Nucleosides"
58. Gordon Research Conference, Salve Regina College, Rhode Island, 1989.  
"Conformational Preference of anti-HIV Nucleosides and Drug Design"
59. Emory University Department of Chemistry, Atlanta, GA 1990.  
"Stereoselective Synthesis of Nucleosides"
60. IAF Biochem., Montreal, Canada, 1990.  
"Design, Synthesis and Biological Evaluation of Anti-HIV Nucleosides"
61. State University of New York at Buffalo. Department of Medicinal Chemistry, Buffalo, New York, 1990.  
"Design, Synthesis and Biological Evaluation of Anti-HIV Nucleosides"
62. Korean Institute of Chemical Technology, Due Jeon, Korea, 1990.  
"Drug Design and Synthesis of Antiviral Agents"
63. Jeil Sugar Research Institute, Seoul, Korea, 1990.  
"2-6-Piperidinediones as Antitumor Agents"

64. Korean Advanced Institute of Technology, Seoul, Korea, 1990.  
"Drug Design and Synthesis of Antiviral Agents"
65. First US-Korean AIDS Symposium, Seoul, Korea, June 14-15, 1990.  
"Drug Design, Synthesis and Evaluation of Anti-HIV Nucleosides"
66. Korean Ginseng-Tobacco Research Institute, Dae-Jeon, Korea, 1990.  
"Drug Design, Synthesis and Evaluation of Anti-HIV Nucleosides"
67. Advances in AIDS Chemotherapy Symposium, Birmingham, Alabama, Sept. 13-14, 1990.  
"Drug Design, Synthesis and Structure-activity Relationships of Anti-HIV Nucleosides"
68. Drug Development Group Meeting for AIDS Consortium of AMPHS, Atlanta, GA, September 7, 1990. "Drug Design, Synthesis and Biological Evaluation of Anti-viral Agents for AIDS"
69. Drug Discovery Group Annual Meeting (Georgia/Emory/Yale), Atlanta, GA, October 25, 1990.  
"Recent Advances in Anti-HIV Nucleoside Synthesis"
70. Michigan Cancer Foundation, Detroit, Michigan, February 1991.  
"Drug Design, Synthesis and Biological Evaluation of Anti-HIV Nucleosides"
71. Korean Scientist & Engineering Society, Western New York Science Symposium, Rochester, New York, March 1991. "Development of Anti-HIV Agents"
72. AIDS and Cancer Symposium Washington, D.C., May 3-4, 1991.  
"Design, Synthesis and Structure-activity Relationships of Anti-HIV Nucleosides"
73. University of Mississippi, Oxford, MS. Sept. 11, 1991.  
"Design, Synthesis and Structure-activity Relationships of Anti-HIV Nucleosides"
74. Gordon Research Conference, Salve Regina College, Rhode Island, July 1991.  
"Stereocontrolled Synthesis of Anti-HIV Nucleosides"
75. University of Georgia College of Veterinary Medicine, October 1, 1991.  
"Recent Advances in AIDS Chemotherapy"
76. Seoul National University, Seoul, Korea, October, 1991.  
"Asymmetric Synthesis of Dioxolane and Thioxolane Nucleosides"
77. Cheil Sugar Research Center, Seoul, Korea, October, 1991.  
"Design and Synthesis of Anti-HIV Nucleosides"

78. Chong-Keun Dung Research Center, October, 1991.  
"Recent Advances in AIDS Chemotherapy"
79. II Dong Research Center, October, 1991.  
"Recent Advances in AIDS Chemotherapy"
80. KSEA 20th Anniversary Symposium: Technological Trends Toward the 21st Century: Recent Advances in Anti-AIDS Chemotherapy, Washington, D.C., Nov. 29-Dec.1, 1991.
81. Gordon Research Conference on AIDS Chemotherapy, Oxnard, CA, March 16-20, 1992,  
"Enantiomeric synthesis of the (+) and (-)-isomers of BCH-189 and their anti-HIV and anti-HBV activity."
82. Lucky Research Center, Tae-Jeon, Korea, June 1992,  
"Development of anti-HBV agents."
83. Korean Advanced Institute of Chemical Technology, Tae-Jeon, Korea, June, 1992,  
"Nucleosides As Anti-HBV Agents."
84. Chong-Keun Dang Research Center, Seoul, Korea, June, 1992,  
"Development of Anti-HBV Agents."
85. Xavier University, New Orleans, LA, June 1993.  
"AIDS Chemotherapy."
86. International Chemotherapy Symposium, Seoul, Korea, August, 1993.  
"Enhanced brain delivery of anti-HIV nucleosides."
87. International Science Symposium, Seoul, Korea, August, 1993.  
"AIDS and hepatitis Chemotherapy."
88. Yamasa Corporation, Joshi, Japan, August, 1994  
"Design and synthesis of anti-HBV Agents"
89. Sankyo Pharmaceutical, Tokyo, Japan, August, 1994  
"Nucleosides as anti-HIV and anti-HBV Agents"
90. Showa University, Tokyo, Japan, August, 1994  
"Nucleosides as anti-HIV and anti-HBV Agents"
91. Emory University/V.A. Medical Center, Atlanta, GA February, 1995  
"Nucleosides as Chemotherapeutic Agents"
92. National Cancer Institute, Frederick, MD, July 19, 1995  
"Nucleosides as Antiviral and Anticancer Agents"

93. University of Pernambuco, Recife, Brazil, February 1996  
“Anti-HIV and Anti-HBV Chemotherapy”
94. LG Biotechnology Center, Dae-Jun, Korea, November 1996  
“Anti-HIBV Chemotherapy”
95. Japanese Nucleic Acid Symposium, Gifu, Japan, November 1996  
“Nucleosides: Inexhaustible Source of Chemotherapeutic Agents”
96. Satellite Symposium of International Society for Antiviral Research  
Emory University, April 5-6, 1997, Atlanta, GA  
“Asymmetric synthesis of nucleosides with antiviral activity”
97. Second International Conference on Therapies for Viral Hepatitis, December 15-19, 1997,  
Kona,  
HI. “Preclinical investigation of L-FMAU (clevudine): chemistry, biochemistry and *in vivo*  
woodchuck studies.”
98. Eleventh International Conference on Antiviral Research, April 5-10, 1998, San Diego, CA.  
A Preliminary lecture entitled “L-Nucleosides: Chemistry and Biology”
99. XIII International Round Table, September 6-10, 1998, Montpellier, France.  
“A Novel Class of Fluorinated L-Nucleosides: Synthesis and Antiviral Activity”.
100. University of Minnesota, Department of Medicinal Chemistry, April 27, 1999, Minneapolis,  
MN.  
“Recent Advances in L-Nucleosides”
101. Gordon Conference, July 4-10, 1999, Newport, RI.  
“Asymmetric Synthesis of Biologically Active Nucleosides”
102. 218th American Chemical Society Annual Meeting, August 22-26, 1999, New Orleans, LA.  
“L-Nucleosides as Anticancer and Antiviral Agents”
103. 3rd International Medicinal Chemistry Symposium, September 12-15, 1999, Beijing, CHINA  
“Antiviral Agents for Hepatitis B Virus”
104. National Institutes of Health (NIAID), November 22, 1999, Bethesda, MD.  
“Nucleosides Prodrugs”
105. University of Mississippi, November 10, 1999, Oxford, MS.  
“Antiviral Agents for Hepatitis B Virus”
106. Gilead Sciences, September 13, 2000, Foster City, CA.  
“L-Nucleosides: Synthesis, Biological Activity and Mechanism”

107. Ankara University, September 13, 2001, Ankara, TURKEY  
“Advances in anti-HBV Agents”
108. Florida A&M University, November 15, 2001, Tallahassee, FL.  
“Recent Advances in Anti-HIV and Anti-HBV Nucleosides”
109. University of Vienna School of Medicine, March 14, 2002, Vienna, Austria  
“Recent advances in antiviral nucleosides”
110. University of London School of Pharmacy, June 28, 2002, London, UK  
“Nucleosides antiviral agents”
111. Tulane University school of Medicine, September 20, 2002, New Orleans, La.  
“ Recent advances in anti-HIV and anti-HBV nucleosides”
112. 1<sup>st</sup> International Meeting on Medicinal and Pharmaceutical chemistry, September 25-28, 2002,  
Ankara, Turkey. “ Recent advances in anti-HIV and anti-HBV nucleosides”
113. University of Istanbul, October 2, 2002, Istanbul, Turkey.  
“Recent advances in anti-HIV and anti-HBV nucleosides”
114. University of Maryland, Baltimore County, March 11, 2003.  
“ Recent advances in anti-HIV and anti-HBV nucleosides”
115. Symposium on Developments of Nucleic Acids, April25-26, 2003, Atlanta, GA.  
“ Anti-HIV and anti-HBV nucleosides:synthesis, antiviral activity, molecular mechanism and drug resitance”
116. International Antiviral symposium and Workshop, Nov. 9-13, 2003, Antalya, Turkey  
“Molecular mechanism and drug resistance of anti-HIV and anti-HBV agents”
117. Yamanouchi Pharmaceuticls, January 19, 2004, Tokyo, Japan  
“Clevudine: A potent and selective anti-HBV agents against hepatitis B virus”
118. Eisai Pharmaceuticals, January 20, 2004, Tokyo, Japan  
“Clevudine: A potent and selective anti-HBV agents against hepatitis B virus”
119. Academia Sinica (Institute of Biomedical Sciences) November 2, 2004, Taipei Taiwan  
“Recent Advances of Nucleosides Antiviral Agents”
120. Athens Regional Medical Center, January 28, 2005, Athens, Ga.  
“Recent Advances in Anti-HIV and anti-HBV agents”
121. Food and Drug Administration (FDA), April 11,, 2006, Washinton, DC.  
“Molecular Mechanism of Drug Resistance of Anti-HIV and Anti-HBV Nucleosides”

122. Konkuk University, May 22, 2006, Seoul, South Korea  
 “Drug Discovery and Development of Anti-HIV and Anti-HBV Nucleosides”
123. Society of Biomedical Research, Oct. 26, 2006, Washington, DC.
124. “Clevudine (L-FMAU) as a Potent Antiviral Agent for the Treatment of Hepatitis B Virus Infection in Human,”
125. International Symposium on Pharmaceutical Chemistry, September, 5, 2007, Istanbul, Turkey.  
 “Clevudine (L-FMAU) as a Potent Antiviral Agent for the Treatment of Hepatitis B Virus Infection in Human”
126. Asian Pacific Conference on Liver Diseases, March 22, 2008, Seoul, Korea.  
 “Preclinical Studies of Clevudine (L-FMAU) as a Unique Anti-HBV Agent”
127. 2<sup>nd</sup> European workshop in drug synthesis, May 28, 2008, Siena, Italy.  
 “Clevudin e (L-FMAU): A Unique Antiviral Agents for the Treatment of Chronic Hepatitis B Virus”
128. Korean Institute of Science and Engineering, September 19, 2008, Seoul, Korea  
 “Clevudine (L-FMAU): A Unique Antiviral Agents for the Treatment of Chronic Hepatitis B Virus”
129. Korea University Biotechnology Institute, October 21, 2008, Seoul, Korea  
 “Clevudine (L-FMAU): A Unique Antiviral Agents for the Treatment of Chronic Hepatitis B Virus
130. The Pharmaceutical Society of Korea, October 15, 2009, Seoul Korea. “Recent advances and future perspectives of antiviral agents”
131. Korean FDA, October 19, 2009. “Recent advances and future perspectives of antiviral agents”
132. Ewha Woman’s University, October 28, 2009. “Recent advances and future perspectives of antiviral agents”
133. Institute of Pasteur Korea, May 27, 2010, Seoul, Korea, Recent advances of anti-HBV agents”
134. Korean American Scientists in Biomedicals and Pharmaceuticals (KASBP) annual meeting, Nov. 5, 2010, Newark, NJ. “Nucleosides: A rich source of antiviral agents” (Achievement Award lecture).
135. Drug Discovery Summit, September 26-28, 2011, RedRock Casino, Las Vegas, NV.  
 “Antiviral Drug Discovery for Drug Resistant Hapatitis B Virus”

136. Ewha Woman's University, May 1, 2012, Seoul Korea, "Recent advances in anti-HBV agents"

137. Seoul National University, May 2, 2012, Seoul Korea, Recent advances in anti-HBV agents"

138. 9<sup>th</sup> IUPAC International Symposium of Chemical Biology and 8<sup>th</sup> International symposium of Chinese Medicinal Chemistry, August 26, 2012, Beijing, China, "Antiviral drug discovery for drug resistant hepatitis B virus: Synthesis and anti-HBV activity of FMCA"

139. Mercer University College of Pharmacy, Nov. 11, 2014, Atlanta, GA "Non-classical nucleosides: Rich sources of antiviral & anticancer agents"

140. Dong Kuk University College of Pharmacy, Seoul Korea, Oct. 13, 2015, "Nucleosides: Rich source of antiviral agents"

141. Anthony Holy Memorial Symposium, Prague, Czech Republic, September 5, 2016, FMCA a Novel Anti-Hepatitis B Virus Agent for Drug Resistant HBV Strains'

E. BOOKS (Edited)

1. Natural Product as Antiviral Agents (Chu & Cutler Edition.)-1992.
2. Nucleosides as Antiviral and Anticancer Agents (Chu & Baker Edition.)-1993.
3. Recent Advances in Nucleosides: Chemistry and Chemotherapy (Chu Edition)-2002
4. Antiviral Nucleosides: Chiral synthesis and Chemotherapy (Chu Edition)-2003

F. Grants:

<u>Date</u>	<u>Proposal Title</u>	<u>Agency</u>	<u>Amount</u>	<u>PI/Co-PI</u>
Research grants only, not including the royalties and licensing fees received by The University of Georgia				
2006-2011	Synthesis and Biotransformation of Anti-HIV Prodrugs (NIH Merit award)-no cost extension until 5/31/2012	NIH		PI
2011-2013	Synthesis of 3-Deazaneplanocin A	NIH		Project reader
1983-1984	Synthesis of C-Nucleosides as Anticancer and Antiviral Agents	UGA Faculty		PI



1984-1985	Chemical Modification of Marine Natural Products	UGA Sea Grants Office	PI
1984-1985	Synthesis of Chemotherapeutic Agents	Yuhan Corporation	PI
1984-1985	Mechanism of Action of the Phytohormone Indole-3-acetic Acid Nucleosides	U.S.D.A.	PI
1985-1985	Isolation of Natural Products	Amideast Fellows. Prog.	PI
1986-1986	Fungal Metabolites Study	Amideast Fellows. Prog.	PI
1986-1987	Training Grant for Dr. Jose Francisco de Mello, University of Pernambuco, Brazi	Partners for Americas	PI
1986-1987	Antiviral Agents for AIDS	UGA Faculty Res. Grant	PI
1986-1989	Acyclonucleosides as Male Contraceptives	NIH	PI
1987-1990	Synthesis and Biotransformation of Anti-HIV Prodrugs	NIH	PI
1988-1989	Synthesis of AzddU	Triton	PI
1988-1989	Synthesis of 3-(N-Phenylacetylaminoperidine)-2,4-dione Analogues	Med. College of Georgia	PI
1989-1990	Synthesis of AzddU	NIH	PI
1987-1990	Chemical Synthesis of Nucleosides as Antiviral Agents	Berlex	PI
1989-1991	Synthesis of Dideoxynucleoside	Triton Biosciences	PI
1989-1990	Synthesis of AzddU-	Triton	PI

	diphosphoglucose and other diphosphohexose derivatives of AzddU	Biosciences	
1986-1991	National Drug Discovery Group for Treatment of AIDS	NIH	Group Leader
1990-1993	National Drug Discovery Group for Cancer	NIH	Project Leader
1992-1994	Synthesis of 2'-Deoxynucleosides: Process Development	Mallinkcrodt Chemicals	PI
1993-1993	Synthesis of cymopol	NIAID	PI
1993-1994	NMR (400 Mhz)	GRA	PI
1990-1994	Synthesis and Biotransformation of Anti-HIV Prodrug	NIH	PI
1994-1998	Synthesis and Biotransformation of Anti-HIV Prodrug	NIH	PI
1995-1996	Mass Spectrometer (High res.)	Georgia Res. Alliance	PI
1993-1997	Asymmetric synthesis of L- Nucleosides as Anti-HBV agents	NIH	PI
1992-1995	Synthesis & Biological Evaluation of Anti-HIV Nucleosides	NIH	PI
1995-1998	Preclinical studies of anti-HBV agent private		PI
1995-1997	Anticancer nucleosides studies	private	PI
1996-1998	Synthesis and Biological Evaluation of Anti-HIV Nucleosides	NIH	PI
1997-2001	Asymmetric synthesis of L- Nucleosides as anti-HBV agents	NIH	PI
1999-2000	Bioterrorism Supplement	NIH	PI
1998-2001	Synthesis and Biological Evaluation of Anti-HIV Nucleosides	NIH	PI

1998-2001	Synthesis and Biotransformation of Anti-HIV Prodrugs	NIH	PI
2000-2003	Anti-HBV and anti-HCV Agents	Private	PI
2000-2004	Anti-orthopoxvirus Drug Discovery	NIH	Project Leader
2003-2004	MCG/UGA Biomedical Collaboration	MCG/UGA	PI
2002-2006	Synthesis and Biological Evaluation of Anti-HIV Nucleosides	NIH	PI
2003-2006	Xanthopyll-mediated Retinal Drug Delivery (MCG collaboration)	NIH	Project leader
2003-2008	Carbocyclic nucleosides for Emerging viral diseases	NIH	Project leader
2004-2008	Chemotherapy & Toxoplasma Adenosine Kinase	NIH	Project leader
2006-2012	Nucleoside Prodrugs	NIH	PI
2010-2013	Epigenetic regulation	NIH	Project leader
2014-2016	Antiviral agents development	private firm	PI
<b>Total</b>			<b>\$17,803,392*</b>

G. Journal Referee:

J. of Carbohydrates Chemistry  
 American J. of Pharmaceutical Education  
 Nucleosides, Nucleotides and Nucleic Acids  
 Carbohydrate Research  
 J. of Organic Chemistry  
 J. of Medicinal Chemistry  
 Pharmaceutical Research  
 Bioorganic & Medicinal Chemistry Letters  
 Tetrahedron Letters

International Journal of Pharmaceutics  
 Biochemical Pharmacology  
 Bioorganic and Medicinal chemistry  
 Antiviral Research  
 Organic Letters  
 Tetrahedron  
 Antiviral Chemistry and Chemotherapy  
 Antimicrobial Agents & Chemotherapy  
 Journal of American Chemical Society

H. Teaching Activities at the University of Georgia (listed only didactic courses)

<u>Year</u>	<u>Quarter/Semester</u>	<u>Subject</u>	<u>No. of Students</u>
1982	Fall	Principle of Drug Action	81
1983	Spring	Principle of Drug Action	80
	Fall	Principle of Drug Action	40
1984	Spring	Principle of Drug Action	48
	Fall	Graduate course	8
1985	Spring	Principle of Drug Action	44
	Fall	Graduate course	9
1986	Fall	Principle of Drug Action	91
	Winter	Graduate course	11
1987	Summer	Chemotherapy	29
	Winter	Graduate course	4
	Fall	Med. Chem. I	91
1988	Summer	Chemotherapy	35
	Fall	Med. Chem. I	113
1989	Fall	Med. Chem. I	96
1990	Summer	Chemotherapy	62
	Fall	Med. Chem. I	68
	Fall	Graduate course	5
1991	Summer	Chemotherapy	50
	Fall	Med. Chem. III	43
1992	Spring	Med. Chem. III	80

	Fall	Graduate course	5
1993	Spring	Med. Chem. III	91
1994	Spring	Chemotherapy	123
	Fall	Graduate course	6
1995	Spring	Graduate course	9
1996	Fall	Chemotherapy	107
	Spring	Graduate course	6
1997	Fall	Chemotherapy of Cancer	110
1998	Spring	Carbohydrates & Nucleosides	4
	Winter	Chemotherapy of Cancer	110
1999	Spring	Chemotherapy of Cancer	94
2000	Spring	Carbohydrates & Nucleosides	4
2002	Spring	Carbohydrates & Nucleosides	3
2004	Spring	Carbohydrate & Nucleosides	2

#### I. Former Graduate Students and Postdoctoral Fellows

1. Dr. Jung J. Suh - Postdoc (1984 - 1985)
2. Dr. Samia Doss- Postdoc (1984 - 1985)
3. Dr. Jyh-Min Lin - Postdoc (1985 - 1986)
4. Dr. Mostafa Mesbah - Postdoc (1984 - 1986)
5. Dr. Kamilia Taha - Postdoc (1985 - 1986)
6. Dr. Jose de Mello - Postdoc (1986 - 1987)
7. Dr. Zhiping Gu - Postdoc (1986 - 1987)
8. Dr. Turan Baykal - Postdoc (1986 - 1987)
9. Dr. Moon K. Ahn - Postdoc (1986 - 1988)
10. Dr. Yoshiyuki Kosugi - Postdoc (1986 - 1988)
11. Dr. B. Doboszewski - Postdoc (1986 - 1988)
12. Dr. Rarnesh Raghavachari- Postdoc (1987-1989)
13. Dr. K. C. Pullaiha - Postdoc- (1987-1989)
14. Dr. V. S. Bhadti Postdoc (1986 - 1989)
15. Dr. G. V. Ullas - Postdoc (1986 - 1989)
16. Dr. Babu Jayaraman - Postdoc (1988 - 1989)
17. Dr. Joseph Etse - Postdoc (1988 - 1989)

18. Dr. Hao Hong - Postdoc (1989-1990)
19. Dr. Yuanxi Qin - Postdoc (1989 - 1990)
20. Dr. H. Q. Huang - Visiting Scholar (1988 - 1989)
21. Mr. S. K. Ahn - Visiting Scholar (1988 - 1990)
22. Ms. Z. X. Lin - Visiting Scholar (1988 - 1990)
23. Dr. Sang-Joa Lee - Postdoc (1989 - 1990)
24. Dr. M. S. Park - Visiting Scholar (1990 - 1991)
25. Dr. Y. Q. Chen - Visiting Scholar (1989 - 1991)
26. Mr. L. Salvador - Visiting Scholar (1990 - 1991)
27. Dr. B. G. Choi - Visiting Scholrs (1990 - 1991)
28. Mr. S. J. Kim-Visiting Scholar (1991 1991)
29. Dr. A. Alves - Visiting Professor (1990 - 1992)
30. Dr. Qamrul Islam - Postdoc (1989 - 1992)
31. Dr. Kokila Doshi- Postdoc (1987- 1992)
32. Dr. J. W. Beach - Research Assistant Professor (1987 - 1992)
33. Dr. L. S. Jeong - Graduate Student (1988 - 1992)
34. Dr. K. Shanmuganathan - Postdoc (1990 - 1993)
35. Dr. S. Nampalli- Postdoc (1990- 1993)
36. Dr. Tatiana Koudriakova-Postdoc (1992-1993)
37. Dr. H. O. Kim - Graduate Student (1989-1993)
38. Dr. J. Eddine-(Fulbright Visiting Professor) (1993-1993)
39. Dr. C.G. Wang-Postdoc (1992-1993)
40. Dr. T.F. Yang -Postdoc (1992-1994)
41. Dr. C. Liang-Postdoc (1993-1994)
42. Ms. Y.F. Zhao-Graduate Student (1993-1994)
43. Dr. I. Federov -Postdoc (1993-1994)
44. Dr. X.J. Xiang-Postdoc (1993-1994)
45. Dr. L. Agrofoglio-Postdoc (1995-1995)
46. Dr. Samir Aly (Fulbright Visiting Professor) (1995-1995)
47. Ms. M. Lee-Graduate Student (1992-1995)
48. Mr.I. Giri-MS Graduate Student (1993-1995)
49. Ms. M.G. Lee-Visiting Scholar (1993-1995)
50. Dr. C.S. Lee-Postdoc (1993-1995)
51. Dr. H.B. Kim-Visiting Professor (1995 1996)
52. Dr. V.A. Boyd-Postdoc (1995-199<sup>48</sup>)
53. Dr. Z.S. Xu-Postdoc (1995-1996)
54. Dr. P. J. Bolon-Postdoc (1995-1996)
55. Dr. S.A. Surzhykov - Postdoc (1995-1996)
56. Mr. F. C. Qu –MS Graduate Student (1994-1996)
57. Dr. K. Manouilov - Postdoc (1993-1997)
58. Dr. C.H. Oh - Postdoc (1996-1997)
59. Dr. X. Chen - Postdoc (1996-1997)
60. Dr. L.P. Kotra-Graduate Student (1992-1997)
61. Dr. T.W. Ma-Graduate Student (1993-1997)
62. Dr. G. Gumina - Visiting Scholar (1997-1997)
63. Dr. B.G. Choi - Visiting Professor (1997-1998)

64. Dr. J.F. Du-Postdoc (1992-1998)
65. Dr. Junbiao Chang - Postdoc (1997-1998)
66. Dr. P.Y. Wang-Graduate Student (1992-1998)
67. Ms. MuYun Gao - Graduate Student (1997-1998)
68. Dr. Claire Pierra - Postdoc (1998-1998)
69. Dr. Christine Huang - Postdoc (1997-1998)
70. Dr. Vincent Paul Swammy - Postdoc (1998-1999)
71. Dr. J.H. Hong-Postdoc (1995-1999)
72. Dr. B.K. Chun-Graduate Student (1993-1999)
73. Dr. J.S. Cooperwood-Graduate Student (1994-1999)
74. Dr. S. Cavalcanti- Graduate Student (1994-1999)
75. Dr. Sureyya Olgen - Postdoc (1998-2000)
76. Dr. Ayse Kocabalkanli - Visiting Researcher (1999 - 1999)
77. Dr. Y.S. Choi - Graduate Student (1995-2000)
78. Ds. K.Y. Lee - Graduate Student (1995-2000)
79. Dr. Hongshan Li - Postdoc (1999-2000)
80. Dr. Shirley Lam-Wong Liong - Postdoc (1999-2000)
81. Dr. Alexander Vorobiev-Postdoc (1999-2000)
82. Mr. Shaojie Wang - Visiting Scholar (2000-2000)
83. Mr. Dong Wu - Graduate Student (1998 -2001)
84. Dr. Gyu Yong Song – Postdoc (1999-present)
85. Dr. Yiu Chung Leung - Postdoc (2000-present)
86. Dr. Ranjeet Nair – Postdoc (2001-2002)
87. Dr. Udayan Das-Postdoc (2001-2002)
88. Mr. Solomon Garner - Graduate Student (1999-2003)
89. Dr. Zhenjun Yang - Postdoc (2000-2002)
90. Dr. Wei Zhu-Postdoc (2001-2003)
91. Dr. Wen Zhou - Postdoc (2000-2002)
92. Dr. Nagaraju Akula-Postdoc (2001-2002)
93. Dr. Youhoon Chong - Graduate Student (1999-2003)
94. Dr. Hyunah Choo - Graduate Student (1999-2003)
95. Dr. Giuseppe Gumina –Postdoc (1998-2003)
96. Mr. Yunho Jin –Graduate student (2000-2004)
97. Ms. Wendy Nix-Research Tech (200-2004)
99. Mr. Yun Ho Jin - Graduate Student (2000-2004)
100. Dr. Manik Pullagurla-postdoc (2004-2004)
101. Dr. Devdutt Chaturvedi-postdoc (2003-2004)
102. Dr. Xin Chen-Postdoc (2002-2005)
103. Dr.Lavanya Bondada-Postdoc (2002-2005)
104. Dr. Andrew Liang-postdoc (2003-2006)
105. Dr. Arumugham Balakumar (2004-2005)
106. Dr. Fredie Hughes- Postdoc (2005-2006)
107. Dr. Marco Radi- Postdoc (2005-2006)
108. Dr. R.J. Rao-Postdoc (2004-2007)
109. Dr. Myung Jung Kim-postdoc (2004-2006)
110. Dr. Janrathanan Narayanasamy-postdoc (2004-2007)

111. Dr. Ragu Ram –postdoc (2003-2006)
112. Dr. Madhan Allu (2004-2006 )
113. Dr. Jong Hyun Cho-postdoc (2003-2007)
114. Mr. Vikas Yadav-Graduate Student (2001-2005)
115. Dr. Hyo Jung Kim –postdoc (2004-2006)
116. Dr. Hongwang Zhang –postdoc (2004-2007)
117. Dr. Srinivas Gadthula-postdoc (2003-2007)
118. Dr. Jagadeeshwar Rao-postdoc (2004-2007)
118. Dr. Jian Guang Lei-postdoc (2006- 2007)
120. Dr. Venkata Ramana Reddy Vuyyuru-postdoc (2006-2007)
121. Dr. Ping Liu-Postdoc (2002- 2008)
122. Dr. YoungAh Kim-postdoc (2004-2008)
123. Dr. Yan-Yan Yang-postdoc (2006-2008)
124. Dr. Jining Wang- graduate student(2002-2008)
125. Dr. Zhang-Ling Cheng-postdoc (2006-2008)
126. Dr. Ashok shoron-Postdoc (2004- 2008)
127. Dr. Chandra Ball-postdoc (2007-2008)
128. Dr. Ashoke kumar Jha-postdoc (2006-2010)
129. Dr. Satis Chavre-postdoc (2009-2010)
130. Dr. Jae Eun Joo-postdoc (2009-2010)
131. Dr. Jakyung Yoo-postdoc (2009-2010)
132. Ms. Helena Smith –Lab. Tech (2005-2011)
133. Dr. Ravindra Rawal-postdoc (2008-2012)
134. Dr. Ravi Shanker-postdoc (2011-2013)
135. Dr. Uma S. Singh-postdoc (2009-2014)
136. Dr. Ram Misra (2011-2017)
137. Dr. Vivek Pandey (2014- 2017)
138. Dr. Yi Zheng (2014- present)
139. Dr. Yan Xing Wang (2014- 2016)
140. Dr. Ananda kumar Konreddy (2014- 2016)
141. Dr. Miridul Mishra (2014-2016)

### **Former Graduate Students and Postdoctoral Fellows**

- |   |  |
|---|--|
| 1. Dr. Jung J. Suh - Postdoc (1984 - 1985)        | 69. Dr. Christine Huang - Postdoc (1997-1998)          |
| 2. Dr. Samia Doss- Postdoc (1984 - 1985)          | 70. Dr. Vincent Paul Swammy - Postdoc (1998-1999)      |
| 3. Dr. Jyh-Min Lin - Postdoc (1985 - 1986)        | 71. Dr. J.H. Hong-Postdoc (1995-1999)                  |
| 4. Dr. Mostafa Mesbah - Postdoc (1984 - 1986)     | 72. Dr. B.K. Chun-Graduate Student (1993-1999)         |
| 5. Dr. Kamilia Taha - Postdoc (1985 - 1986)       | 73. Dr. J.S. Cooperwood-Graduate Student (1994-1999)   |
| 6. Dr. Jose de Mello - Postdoc (1986 - 1987)      | 74. Dr. S. Cavalcanti- Graduate Student (1994-1999)    |
| 7. Dr. Zhiping Gu - Postdoc (1986 - 1987)         | 75. Dr. Sureyya Olgen - Postdoc (1998-2000)            |
| 8. Dr. Turan Baykal - Postdoc (1986 - 1987)       | 76. Dr. Ayse Kocabalkanli - Visiting Researcher (1999) |
| 9. Dr. Moon K. Ahn - Postdoc (1986 - 1988)        | 77. Dr. Y.S. Choi - Graduate Student (1995-2000)       |
| 10. Dr. Yoshiyuki Kosugi - Postdoc (1986 - 1988)  | 78. Dr. K.Y. Lee - Graduate Student (1995-2000)        |
| 11. Dr. B. Doboszewski - Postdoc (1986 - 1988)    | 79. Dr. Hongshan Li - Postdoc (1999-2000)              |
| 12. Dr. Rarnesh Raghavachari- Postdoc (1987-1989) | 80. Dr. Shirley Lam-Wong Liong - Postdoc (1999-2000)   |
| 13. Dr. K. C. Pullaiha - Postdoc- (1987-1989)     | 81. Dr. Alexander Vorobiev-Postdoc (1999-2000)         |
| 14. Dr. V. S. Bhadti Postdoc (1986 - 1989)        | 82. Mr. Shaojie Wang - Visiting Scholar (2000-2000)    |
| 15. Dr. G. V. Ullas - Postdoc (1986 - 1989)       | 83. Mr. Dong Wu- Graduate Student (1998-2001)          |



16.	Dr. Babu Jayaraman - Postdoc (1988 - 1989)	84.	Dr. Gyu Yong Song – Postdoc (1999-present)
17.	Dr. Joseph Etse - Postdoc (1988 - 1989)	85.	Dr. Yiu Chung Leung - Postdoc (2000-present)
18.	Dr. Hao Hong - Postdoc (1989-1990)	86.	Dr. Ranjeet Nair – Postdoc (2001-2002)
19.	Dr. Yuanxi Qin - Postdoc (1989 - 1990)	87.	Dr. Udayan Das-Postdoc (2001-2002)
20.	Dr. H. Q. Huang - Visiting Scholar (1988 - 1989)	88.	Mr. Solomon Garner – Grad. Student (1999-2003)
21.	Mr. S. K. Ahn - Visiting Scholar (1988 - 1990)	89.	Dr. Zhenjun Yang - Postdoc (2000-2002)
22.	Ms. Z. X. Lin - Visiting Scholar (1988 - 1990)	90.	Dr. Wei Zhu – Postdoc (2001-2003)
23.	Dr. Sang-Joa Lee - Postdoc (1989 - 1990)	91.	Dr. Wen Zhou - Postdoc (2000-2002)
24.	Dr. M. S. Park - Visiting Scholar (1990 - 1991)	92.	Dr. Nagaraju Akula-Postdoc (2001-2002)
25.	Dr. Y. Q. Chen - Visiting Scholar (1989 - 1991)	93.	Dr. Youhoon Chong - Graduate Student (1999-2003)
26.	Mr. L. Salvador - Visiting Scholar (1990 - 1991)	94.	Dr. Hyunah Choo - Graduate Student (1999-2003)
27.	Dr. B. G. Choi - Visiting Scholar (1990 - 1991)	95.	Dr. Giuseppe Gumina –Postdoc (1998-2003)
28.	Mr. S. J. Kim-Visiting Scholar (1991 1991)	96.	Mr. Yunho Jin –Graduate student (2000-2004)
29.	Dr. A. Alves - Visiting Professor (1990 - 1992)	97.	Ms. Wendy Nix-Research Tech (200-2004)
30.	Dr. Qamrul Islam - Postdoc (1989 - 1992)	98.	Mr. Yun Ho Jin - Graduate Student (2000-2004)
31.	Dr. Kokila Doshi- Postdoc (1987- 1992)	99.	Dr. Manik Pullagurli-postdoc (2004-2004)
32.	Dr. J. W. Beach - Research Asst Professor (198 -1992)	100.	Dr. Devdutt Chaturvedi-postdoc (2003-2004)
33.	Dr. L. S. Jeong - Graduate Student (1988 - 1992)	101.	Dr. Xin Chen-Postdoc (2002-2005)
34.	Dr. K. Shanmuganathan - Postdoc (1990 - 1993)	102.	Dr.Lavanya Bondada-Postdoc (2002-2005)
35.	Dr. S. Nampalli- Postdoc (1990- 1993)	103.	Dr. Andrew Liang-postdoc (2003-2006)
36.	Dr. Tatiana Koudriakova-Postdoc (1992-1993)	104.	Dr. Arumugham Balakumar (2004-2005)
37.	Dr. H. O. Kim - Graduate Student (1989-1993)	105.	Dr. Fredie Hughes- Postdoc (2005-2006)
38.	Dr. J. Eddine-(Fulbright Visiting Professor) (1993-1993)	106.	Dr. Marco Radi- Postdoc (2005-2006)
39.	Dr. C.G. Wang-Postdoc (1992-1993)	107.	Dr. R.J. Rao-Postdoc (2004-2007)
40.	Dr. T.F. Yang -Postdoc (1992-1994)	108.	Dr. Myung Jung Kim-Postdoc (2004-2006)
41.	Dr. C. Liang-Postdoc (1993-1994)	109.	Dr. Janrathanan Narayanasamy-Postdoc (2004-2007)
42.	Ms. Y.F. Zhao-Graduate Student (1993-1994)	110.	Dr. Ragu Ram –Postdoc (2003-2006)
43.	Dr. I. Federov -Postdoc (1993-1994)	111.	Dr. Madhan Allu - Postdoc (2004-2006 )
44.	Dr. X.J. Xiang-Postdoc (1993-1994)	112.	Dr. Jong Hyun Cho-Postdoc (2003-2007)
45.	Dr. L. Agrofoglio-Postdoc (1995-1995)	113.	Mr. Vikas Yadav-Graduate Student (2001-2005)
46.	Dr. Samir Aly (Fulbright Visiting Professor-1995-1995)	114.	Dr. Hyo Jung Kim –Postdoc (2004-2006)
47.	Ms. M. Lee-Graduate Student (1992-1995)	115.	Dr. Hongwang Zhang –Postdoc (2004-2007)
48.	Mr.I. Giri-MS Graduate Student (1993-1995)	116.	Dr. Srinivas Gadthula-Postdoc (2003-2007)
49.	Ms. M.G. Lee-Visiting Scholar (1993-1995)	117.	Dr. Jagadeeshwar Rao-Postdoc (2004-2007)
50.	Dr. C.S. Lee-Postdoc (1993-1995)	118.	Dr. Jian Guang Lei-Postdoc (2006- 2007)
51.	Dr. H.B. Kim-Visiting Professor (1995-1996)	119.	Dr. Rondra Ramu-Postdoc (2006-2007)
52.	Dr. V.A. Boyd-Postdoc (1995-1996)	120.	Dr. Peng Liu-Postdoc (2002- 2008)
53.	Dr. Z.S. Xu-Postdoc (1995-1996)	121.	Dr. YoungAh Kim-Postdoc (2004-2008)
54.	Dr. P. J. Bolon-Postdoc (1995-1996)	122.	Dr. Yan-Yan Yang-Postdoc (2006-2008)
55.	Dr. S.A. Surzhykov - Postdoc (1995-1996)	123.	Dr. Jining Wang- Graduate Student(2002-2008)
56.	Mr. F. C. Qu –MS Graduate Student (1994-1996)	124.	Dr. Zhang-Ling Cheng-Postdoc (2006-2008)
57.	Dr. K. Manouilov - Postdoc (1993-1997)	125.	Dr. Ashok Sharon-Postdoc (2004- 2008)
58.	Dr. C.H. Oh - Postdoc (1996-1997)	126.	Dr. Chandra Ball-Postdoc (2007-2008)
59.	Dr. X. Chen - Postdoc (1996-1997)	128.	Dr. Ashoke kumar Jha-postdoc (2006-2010)
60.	Dr. L.P. Kotra-Graduate Student (1992-1997)	129.	Dr. Satis Chavre-postdoc (2009-2010)
61.	Dr. T.W. Ma-Graduate Student (1993-1997)	130.	Dr. Jae Eun Joo-postdoc (2009-2010)
62.	Dr. G. Gumina - Visiting Scholar (1997-1997)	131.	Dr. Jakyung Yoo-postdoc (2009-2010)
63.	Dr. B.G. Choi - Visiting Professor (1997-1998)	132.	Ms. Helena Smith –Lab. Tech (2005-2011)
64.	Dr. J.F. Du-Postdoc (1992-1998)	133.	Dr. Ravindra Rawal-postdoc (2008-2012)
65.	Dr. Junbiao Chang - Postdoc (1997-1998)	134.	Dr. Ravi Shanker-postdoc (2011-2013)
66.	Dr. P.Y. Wang-Graduate Student (1992-1998)	135.	Dr. Uma.S. Singh –postdoc (2009-2014)
67.	Ms. MuYun Gao - Graduate Student (1997-1998)	136.	Dr. Hassan Lazrek-visiting professor (2015)
68.	Dr. Claire Pierra - Postdoc (1998-1998)		

## J. Current Research Group:

Dr. Uma Singh (2015- present)- Research Assistant Professor

Dr. Varuhese Alexander Mulamootil (2014- present)- Post Doctoral Fellow

Dr. Ananda Konnred (2019-present)-Post Doctoral Fellow

K. UGA Graduate Faculty Appointment:

Appointed (1984 - 1990)  
Renewed (1991 - 1998)  
Renewed (1998 - 2005)  
Renewed (2006- 20012)

L. PROFESSIONAL ACTIVITIES:

1. American Chemical Society  
Elected as an Executive Committee Member (1989 - 1991)  
(Carbohydrate Chemistry Division)
2. Korean Scientists and Engineers Association - Georgia Chapter President  
1984/1985,1991/1992
3. Society of Biomedical Research-Executive Committee Member, 1994-present

M. SERVICE ACTIVITIES:

1. Public Service (National level)

National Institute of Health Advisory Committee (Special Study Section) 1988  
National Institute of Health Advisory Committee (Special Study Section) 1989  
National Institute of Health Advisory Committee (Special Study Section) 1990  
National Institute of Health Advisory Committee (Special Study Section) 1991  
National Institute of Health Advisory Committee (Special Study Section) 1992-1993  
National Institute of Health Advisory Committee (Bioorganic and Natural Products)1994 - 1997  
The National Science Foundation (Grant Review) 1989 - 1990  
The State of Idaho (Grant Review) 1989-1990  
National Institutes of Health Advisory Committee (AIDS related Study Section AARR3) 1998-2002.  
National Institute Health advisory Committee (Special Study Section) 2003  
National Institute Health advisory Committee (Special Study Section) 2004  
National Institute Health advisory Committee (SBIR Study Section) 2005

2. Public Service (State level)

Georgia Science Fair judge - 1985,1986

3. Public Service (University related)

Member, Accreditation Steering Committee for the Preparation of Southern Association of Colleges and Schools (1989)  
Member, The University Area Promotion Committee 1991/1993  
Member, The University Area Promotion Committee 1998/1999  
Member, The University Area Promotion Committee 1999/2000  
UGA Research Space Task Force (1999)  
Life Sciences Area Committee for Graduate Faculty Appointment & Reappointment Committee (1999-2001)  
UGA Promotion Committee (Health Sciences) (1999-2001)

4. Committees:

College of Pharmacy-

Admissions Committee (1983 - 1985)  
Seminar Committee (1982 - 1985)  
Curriculum Committee (1985 - 1988)  
Academic Committee (1988 - 1992)  
Promotion and Tenure Committee (present)  
PBS Head Search Committee Chair (2001)

Graduate School -

Reading Committee - Greg Thomas (Med. Chem.)  
Paul Poropatic (Chem.)  
John Shilstone (P'col)  
Abdul Alobaid (Med. Chem.)  
Bela Patel (Pharmaceutics)

Preliminary Examination Committee -

Dale Hart (Chem.)  
Karen Quinn (Med. Chem.)  
Paul Darby (Chem.)  
Kenneth Hull (Chem.)  
Myung Soo Kim (Med. Chem.)  
Steve Cutler (Med. Chem.)  
Tae Kyun Rho (Med. Chem.)

Department -

Chairman, Graduate Program Evaluation - 1982  
Chairman, Department Seminar Program- 1982-1985  
Chairman, Development of Graduate Brochure - 1983  
Chairman, Evaluation of Graduate Preliminary Exam - 1984  
Active participation in Graduate Students Recruitment

5. Miscellaneous Services (Summer Research Program)
  - High School Science Training Program
  - Aaron Shechter - Summer, 1983
  - Marcie Mandelbaum - Summer, 1985
  - Mark Schultz-Summer, 1995
  - Antionette Higgs-Summer, 1996
  - Lindsay Eaton-Summer, 1998
  - Krystal Lynn-Summer, 1998
  - Kandice Boutte-Summer, 1999
  - Crystal Jackson-Summer, 2001
  - Bruce Pier-Summer, 2003

N. SYMPOSIUM (Organized or Scientific Advisory Committee)

1. Korean-American AIDS Symposium, Seoul, Korea, June 14-15, 1990.
2. American Chemical Society-Natural productAntiviral agents(Agricultural & Food  
Chemistry Division), New York, N.Y., August, 1991, (Co-organizer).
3. American Chemical Society (Carbohydrate Division), Spring, San Francisco, CA,  
April 7, 1992, (co-organizer).
4. 5th International Symposium on Antiviral Agents, Seoul, Korea, June 21 -25,  
1992 (co-chairman).
5. 6th International Symposium on Antiviral Agents, Nice, France, June 7 - 10, 1994  
(International Scientific Advisory Board).
6. International Conference on Therapies for Viral Hepatitis, Honolulu, Hawaii, Dec.  
16-22, 1995 (International Scientific Advisor).
7. International Society for Antiviral Research, Atlanta, Ga, 1997 (Local organizing  
committee).
8. 7th International Antiviral Symposium, Sydney, Australia, Feb. 15-19, 1997  
(International Scientific Advisor).
9. Satellite Symposium of International Society for Antiviral Research  
Emory University, April 5-6, 1997, Atlanta, GA (Co-Chair).
10. 2nd International Conference on Therapies for Viral Hepatitis, Kona, Hawaii,  
Dec. 15-19, 1997 (International Scientific Advisor).
11. The Jack Fox Symposium, San Francisco, CA, September 10, 2000 (Organizer).

12. Frontiers in Drug Development for Viral hepatitis, Maui, Hawaii, Dec. 16-20, 2001 (Scientific Advisory Committee).
13. 1<sup>st</sup> International Meeting on Medicinal and Pharmaceutical chemistry, Ankara, Turkey, September 25-28, 2002 (Scientific Advisory Committee).
14. 9<sup>th</sup> International Antiviral Conference and Workshop, Antalya, Turkey, November 14-18, 2003 (Scientific Advisory Committee).
15. DART 2003:Frontiers in Drug Development for Viral Hepatitis, Dec. 14-18, 2003 (Scientific Advisory Committee).
16. 9<sup>th</sup> National Conference on Bioactive Heterocycles and Drug Discovery Paradigm, Jan 8-10, 2005, Saurashtra University, Gujarat, India (Scientific Advisory Committee).
17. 5<sup>th</sup> International Symposium on Pharmaceutical Chemistry, Sept. 5-7, 2007 (Scientific Advisory member),
18. International Drug Discovery Symposium, May 24-26, 2016, Athens, GA USA (Co-organizer)

O. NATIONAL/INTERNATIONAL MEETING CHAIRS

1. American Chemical Society Carbohydrate Division, New York National Meeting, 1990.
2. American Chemical Society Carbohydrate Division, Washington, D.C. National Meeting, September, 1990.
3. American Chemical Society Carbohydrate Division, Atlanta National Meeting, April, 1991.
4. American Chemical Society Nucleoside Symposium, San Francisco, CA, April 1992.
5. 5th International Symposium on Antiviral Agents, Seoul, Korea, June, 1992.
6. American Chemical Society Carbohydrate Division, Washington, D.C., August, 1992.
7. American Chemical Society Carbohydrate Division, Denver, CO., March, 1993.
8. American Chemical Society Carbohydrate Division, Chicago, IL, August, 1993.
9. International Symposium on Recent Advances in Chemotherapeutic Agents, Seoul, Korea, August, 1993.
10. American Chemical Society Carbohydrate Division, San Diego, CA., March, 1994.

11. 10th International Conference on Antiviral Research: Satelite Symposium, Atlanta, GA, April, 1997
12. Eighth International Antiviral Symposium and Workshop, Nov. 19-21, 2000, Kagoshima, JAPAN
13. XIV International Roundtable, September 10-14, 2000, San Francisco, CA.
14. 10Th International Symposium on Purines and Pyrimidines in Man: Basic and Clinical Aspects, May14-19, 2000, Tel Aviv, ISRAEL.
15. 13th International Conference on Antiviral Research, April 16-21, 2000, Baltimore, MD.
16. 14th International Conference on Antiviral Research, April 16-21, 2000, Baltimore, MD.
17. Frontiers in Drug Development for Viral Hepatitis, December 16-20, 2001, Maui, Hawa
18. Frontiers in Drug Development for Viral Hepatitis, December 14-18, 2003, Kauai, Hawaii
19. Society of Biomedical Research annual Symposium, August 5-8, 2003, Washington, D.C.
- 20.** International Symposium on Pharmaceutical Chemistry, September 5-7, 2007, Istanbul, Turkey.
21. 2<sup>nd</sup> European workshop in drug synthesis, May 28, 2008, Siena, Italy.