

SHIBO JIANG

Laboratory of Viral Immunology
The Lindsley F. Kimball Research Institute
New York Blood Center, 310 East 67th Street, New York, N.Y. 10021
Tel: (212) 570-3058, Fax: (212) 570-3099, Email: sjiang@nybloodcenter.org

EDUCATION

- 1974-78 The First Medical University of PLA, Guangzhou, China. Major: Medicine.
1980-83 The First Medical University of PLA, Guangzhou, China. Major: Immunology. Degree: M.S.
1985-95 The Fourth Medical University of PLA, Xian, China. Major: Virology. Degree: Ph.D.

PROFESSIONAL APPOINTMENTS

- 1978-80 **Teaching Instructor**, Microbiology Dept., the First Medical University of PLA, Guangzhou, China.
1983-85 **Lecturer**, Immunology Dept., the First Medical University of PLA, Guangzhou, China.
1985-87 **Ph.D. Candidate**, the Fourth Medical University of PLA, Xian, China.
1987-90 **Research Fellow**, Laboratory of Cellular Physiology and Immunology, the Rockefeller University, New York City, USA.
1990- **Assistant Member** (1990-1997), **Associate Member** (1997-2006), **Member** (2006-), and **Lab Head** (2002-), Lindsley F. Kimball Research Institute of the New York Blood Center, NYC, USA.
2000-04 **Visiting Professor**, the First Medical University of PLA, Guangzhou, China.
2000- **Visiting Professor**, the Fourth Medical University of PLA, Xian, China.
2001- **Senior Visiting Scholar**, Tsinghua University, Beijing, China
2003-06 **Visiting Professor**, Wuhan University, Wuhan, China.
2004- **Visiting Professor**, Beijing Institute of Pharmacology and Toxicology, Beijing, China.
2004-09 **Oversea Assessor**, Chinese Academy of Sciences, Beijing, China.
2004- **Adjunct Professor**, the Antiviral Research Center, Southern Medical University, Guangzhou, China.
2005-08 **Visiting Professor**, Fudan University, Shanghai, China.

CURRENT RESEARCH PROJECTS

1. Rational design and identification of HIV entry inhibitors targeting gp41 as novel anti-HIV drugs.
2. Structure and function of the HIV-1 gp41: implication for anti-HIV vaccine development.
3. Identification and development of microbicides for preventing sexual transmission of HIV.
4. Development of therapeutics, immunotherapeutics and subunit vaccines against SARS-CoV.
5. Development of therapeutics, antibodies and vaccines against avian flu virus H5N1.
6. Development of protein-based adjuvants.

FELLOWSHIPS, GRANTS AND AWARDS

- 1978 Award for the Best Medical Graduate Student, the First Medical University of PLA.
1983 Award for the Best Postgraduate Student, the First Medical University of PLA.
1985 Research Excellence Award, Academic Committee of the First Medical University of PLA.
1985 Young Scientist Award, Guangzhou Youth Medical Worker Association.
1986 Research Excellence Award, Academic Committee of the First Medical University of PLA.
1987 World Health Organization (WHO) Fellowship.
1988 Cancer Research Institute (USA) Fellowship.
1993 NY Community Trust grant for the project "Peptides from HIV-1 gp41 for chemotherapy of AIDS" (PI).
1997 R21 NIH grant supporting the project "Antibodies targeting the HIV-1 gp41 core structure" (PI).
1998 Award for the Special Contribution to International Understanding and Friendship by People to People Ambassador Programs founded by former US President Dwight D. Eisenhower.
2000 Oversea Outstanding Young Scientist Award from National Nature Science Foundation of China (PI).

- 2000 R01 NIH grant supporting the project "Rational design of anti-HIV compounds to the gp41 core" (PI).
- 2001 P01 NIH grant supporting the project "Anti-HIV microbicide: cellulose acetate phthalate (CAP)" (PL).
- 2002 R21 NIH grant supporting the project "HIV-1 entry inhibitors targeting Phe43 cavity in gp120" (Co-PI).
- 2003 New York Blood Center President Award for Special Recognition as Investigator in Research.
- 2004 U19 NIH grant supporting the project "Anti-HIV composite cellulose acetate phthalate film" (PI & PL).
- 2004 R21 NIH grant supporting the project "Rational design of anti-HIV compounds targeting gp41" (PI).
- 2005 R21 NIH grant supporting project "Rational design of CCR5 antagonists as anti-HIV-1 drug" (Co-PI).
- 2005 NYBC MIRC Award supporting the project "Development of anti-HIV drugs targeting gp41" (PI).
- 2005 The Outstanding Overseas Chinese Scholars Fund of Chinese Academy of Sciences (2005-2-6) (PI).
- 2006 R01 NIH grant to support the project "Rational design of HIV fusion inhibitors targeting gp41" (PI).
- 2006 New York Blood Center President Award for Special Recognition as Investigator in Research.
- 2007 R01 NIH grant to support project "SARS-CoV S protein receptor-binding domain-based vaccines" (PI).
- 2007 The Siemens Science & Technology Competition Mentor Award.

PATENTS

1. Jiang, S., Lin, K., and Neurath, A.R. Synthetic peptides as inhibitors of HIV-1. *US Patent 5,444,044*. Filed March 26, 1992; Issued August 22, 1995 (exclusively licensed to Trimeris for developing T20).
2. Neurath, A.R., Strick, N., Haberfield, P., and Jiang, S. Method for the prescreening of drugs targeted to the V3 hypervariable loop of the HIV-1 envelope glycoprotein gp120. *US Patent 5,230,998*. Issued July 27, 1993.
3. Neurath, A.R., Debnath, A.K., Jiang, S., Li, Y.-Y., and Strick, N. Methods for screening of test compounds for inhibiting binding of a CD4-HIV-1 complex to a chemokine receptor. *US Patent 5,798,206*. Filed January 10, 1997; Issued August 25, 1998.
4. Jiang, S., Lin, K., and Neurath, A.R. Synthetic peptides as inhibitors of HIV-1 (continuation patent). *US Patent 5,840,843*. Filed June 7, 1995; Issued on November 24, 1998 (exclusively licensed to Trimeris for developing T20).
5. Neurath, A.R., Debnath, A.K., and Jiang, S. Beta-Lactoglobulin modified with aromatic anhydride compound for preventing HIV infection. *US Patent 5,985,275*. Filed August 28, 1996, Issued November 16, 1999.
6. Neurath, A.R., Debnath, A.K., and Jiang, S. Methods for preventing the transmission of or treating patients infected with herpesvirus. *US Patent 5,952,009*. Filed August 28, 1996; Issued September 14, 1999.
7. Neurath, A.R., Jiang, S. and Debnath, A.K. Methods for preventing HIV-1 or HIV-2 infection. *US Patent 6,727,240 B1*. Filed Oct. 21, 1994. Issued Apr. 27, 2004.
8. Neurath, A.R., Debnath, A.K., Jiang, S., Strick, A., and Dow, G.J. Methods for decreasing the frequency of transmission of viral infection using cellulose acetate phthalate or hydroxypropyl methylcellulose phthalate excipients. *US Patent 5,985,313*. Filed July 8, 1998. Issued November 16, 1999.
9. Neurath, A.R., Debnath, A.K., Jiang, S., Strick, A., and Dow, G.J. Methods and composition for decreasing the frequency of transmission of HIV, herpesvirus and sexually transmitted bacterial infection. *US Patent 6,165,493*. Filed October 20, 1998. Issued December 26, 2000.
10. Jiang, S., and Debnath, A.K. Screening of antiviral compound targeted to the HIV-1 gp41 core structure. *US Patent 6,596,497*. Filed March 14, 2000. Issued July 22, 2003 (non-exclusively licensed to Japan Tobacco Company for screening HIV entry inhibitors).
11. Jiang, S., and Debnath, A.K. Compounds for inhibition of HIV infection by blocking HIV entry. *US Patent 7,241,803*. Filed November 21, 2002. Issued July 10, 2007.
12. Jiang, S., He, Y., and Liu, S. SARS vaccines and method to produce highly potent antibodies. Filed June 2, 2004. *US Serial No. 60/576,118 (WO/2005/120565)*.

13. Jiang, S., and He, Y. SARS-CoV neutralizing monoclonal antibodies. Filed February 7, 2005. *US Serial No. 60/651,046*.
14. Jiang, S., Debnath, A.K., and Lu, H. Anti-viral compositions comprising heterocyclic substituted phenyl furans and related compounds. Filed June 6, 2006. *US Serial No. 60/691,120. (WO/20060/287319)*
15. Neurath, A.R., Stone, A., Strick, N., Jiang, S. Rapidly dispersible vaginal tablet that provides a bioadhesive. Filed May 24, 2007. *US Serial No. 60/931,548*.
16. Jiang, S., Pan, C. Bifunctional molecules for inactivating HIV and blocking HIV entry. Filed June 27, 2008. *US Provisional Application No. 61/056,580*.
17. Jiang, S., Pan, C. Anti-HIV peptides targeting gp41. Filed August 12, 2008. *US Provisional Application No. to be assigned*.

SELECTED PUBLICATIONS (2008) (IF = Impact Factor in 2007)

1. Ma, C., Rong, Y., Radloff, D.R., Datto, M. B., Centeno, B., Bao, S., Cheng, A.W. M., Lin, F., Jiang, S., Yeatman, T.J., Wang, X.F. (2008). Extracellular matrix protein β ig-h3/TGFBI promotes metastasis of colon cancer by enhancing cell extravasation. *Gene Dev.* 22, 308-321. IF: **14.795**
2. He, Y., Cheng, J., Lu, H., Li, J., Hu, J., Qi, Z., Liu, Z., Jiang, S., Dai, Q. (2008). Potent HIV fusion inhibitors against Enfuvirtide-resistant HIV-1 strains *Proc. Nat. Acad. Sci. USA*. In press. IF: **9.598**
3. Chien, M.P., Jiang, S., Chang, D.K. (2008). The function of coreceptor as a basis for the kinetic dissection of human immunodeficiency virus type 1 envelope protein mediated cell fusion. *FASEB J.* 22, 1179-1192. IF: **6.791**
4. Du, L., Zhao, G., Lin, Y., Sui, H., Chan, C., Ma, S., He, Y., Jiang, S., Wu, C., Yuen, K.Y., Jin, D.Y., Zhou, Y., Zheng, B.J. (2008). Intranasal vaccination with recombinant adeno-associated virus encoding coronavirus (SARS-CoV) spike protein induces strong mucosal immune responses and provides long-term protection against SARS-CoV infection. *J. Immunol.* 180, 948-956. IF: **6.068**
5. He, Y., Xiao, Y., Song, H., Liang, Q., Ju, D., Chen, X., Lu, H., Jing, W., Jiang, S., Zhang, L. (2008). Design and evaluation of sifuvirtide, a novel HIV-1 fusion inhibitor. *J. Biol. Chem.* 283 (17), 11126-11134. IF: **5.581**
6. Huang, J.H., Qi, Z., Wu, F., Kotula, L., Jiang, S., Chen, Y.H. (2008). Interaction of HIV-1 gp41 core with NPF motif in Epsin: implication in endocytosis of HIV-1. *J. Biol. Chem.* 283(22), 14994-5002. IF: **5.581**
7. Lu, L., Zhu, Y., Huang, J., Chen, X., Yang, H., Jiang, S., Chen, Y.H. (2008). Surface exposure of the HIV-1 env cytoplasmic tail LLP2 domain during the membrane fusion process: interaction with gp41 fusion core. *J. Biol. Chem.* 283(24), 16723-16731. IF: **5.581**
8. Qi, Z., Shi, W., Xue, N., Pan, C., Jing, W., Liu, K., Jiang, S. (2008). Rationally designed anti-HIV peptides containing multi-functional domains as molecule probes for studying the mechanisms of action of the first and second generation HIV fusion inhibitors. *J. Biol. Chem.* July 28. [Epub ahead of print]. IF: **5.581**.
9. He, Y., Chen, J., Li, J., Qi, Z., Lu, H., Dong, M., Jiang, S., and Dai, Q. (2008). Identification of a critical motif for the human immunodeficiency virus type 1 (HIV-1) gp41 core structure: implications for designing novel anti-HIV fusion inhibitors. *J. Virol.* 82(13), 6349-6358. IF: **5.332**
10. Zhang, M. Y., Vu, B.K., Choudhary, A., Lu, H., Humbert, M., Ong, H., Alam, M., Ruprecht, R., Quinnan, G., Jiang, S., Montefiori, D.C., Mascola, J.R., Broader, C.C., Haynes, B.F., Dimitrov, D.S. (2008). Cross-

reactive human immunodeficiency virus type 1-neutralizing human monoclonal antibody that recognizes a novel conformational epitope on gp41 and lacks reactivity against self-antigens. *J. Virol.* 82, 6869-6879. IF: 5.332.

11. He, Y., Liu, S., Li, J., Lu, H., Qi, Z., Liu, Z., Debnath, A. K., Jiang, S. (2008). Conserved salt-bridge between the N- and C-terminal heptad repeat regions of HIV-1 gp41 core structure is critical for virus entry and inhibition. *J. Virol.* Sept 3. [Epub ahead of print]. IF: 5.332
12. Du, L., Zhao, G., Lin, Y., Chan, C., He, Y., Jiang, S., Wu, C. Jing, D.Y., Yuen, K.Y., Zhou, Y., Zheng, B.J. (2008). Priming with rAAV encoding RBD of SARS-CoV S protein and boosting with RBD-specific peptides for T cell epitopes elevated humoral and cellular immune responses against SARS-CoV infection. *Vaccine.* 26, 1644-1651. IF: 3.337
13. Xiao, W., Du, L., Liang, C., Guan, J., Jiang, S., Lustigman, S., He, Y., Zhou, Y. (2008). Evaluation of recombinant *Onchocerca volvulus* activation associated protein-1 (ASP-1) as a potent Th1-biased adjuvant with a panel of protein or peptide-based antigens and commercial inactivated vaccines. *Vaccine.* 26, 5022-5029. IF: 3.337
14. Li, J., Chen, X., Huang, J., Jiang, S., Chen, Y.H. (2008). Identification of critical antibody-binding sites in the HIV-1 gp41 six-helix bundle core as potential targets for HIV-1 fusion inhibitors. *Immunobiol.* In press. IF: 2.886
15. Shi, W., Qi, Z., Pan, C., Xue, N., Debnath, A., Qie J, Jiang, S., Liu, K. (2008). Novel anti-HIV peptides containing multiple copies of artificially designed heptad repeat motifs. *Biochem. Biophys. Res. Commun.* 374, 767-772. IF: 2.749
16. Li, J., Chen, X., Jiang, S., Chen, Y.H. (2008). Deletion of fusion peptide or destabilization of fusion core of HIV gp41 enhances antigenicity and immunogenicity of 4E10 epitope. *Biochem. Biophys. Res. Commun.* Aug 30 [Epub ahead of print]. IF: 2.749
17. Teixeira, C., Barbault, F., Rebehmed, J., Liu, K., Xie, L., Lu, H., Jiang, S., Fan, B., Maurel, F. (2008). Molecular modeling studies of N-substituted pyrrole derivatives--potential HIV-1 gp41 inhibitors. *Bioorg. Med. Chem.* 16, 3039-3048. IF: 2.662
18. Wang, J., Jiang, S., Shi, H., Lin, Y., Wang, J., Wang, X. (2008). Prolongation of corneal xenotransplant survival by T cell vaccination-induced T regulatory cells. *Xenotransplantation.* 15(3):164-73. IF: 2.588
19. Du, L., He, Y., Jiang, S., Zheng, B.J. (2008). Development of subunit vaccines against severe acute respiratory syndrome (review). *Drugs Today.* 44, 63-73. IF: 1.250
20. Wang, J., Zhang, L., Tang, J., Jiang, S., Wang, X. (2008). Adoptive transfer of transplantation tolerance mediated by CD4+CD25+ and CD8+CD28- regulatory T cells induced by anti-donor specific T cell vaccination. *Transplant Proc.* 40(5), 1612-1617. IF: 1.027
21. Su, J., Liu, Y., Zheng, Z.B., Xiao, J.H., Lu, H., Jiang, S., Li, S. (2008). Synthesis of aromatic-linked polyamine macrocyclic derivatives as HIV-1 entry inhibitors. *Chin. Chem. Lett.* In press. IF: 0.336
22. Li, L., Jiang, S., Liu, S. (2008). Microbicides in clinical trials for prevention of sexual transmission of HIV (review in Chinese). *Chin. J. Prev. Med.* 42(9), 1-4.

23. Sun, W., Wang, H.T., Xia, C.L., Wu, S.G., Jiang, S.B., Jiang, Z.H., Liu, S.W. (2008). 1,2,6-Tri-O-galloyl- -D-glucopyranose inhibits HIV-induced cell fusion by targeting gp41 (in Chinese). *Nan Fang Yi Ke Da Xue Xue Bao*. 28(7):1127-1131.
24. Liu, S., Li, W., Ding, X., Jiang, S. (2008). Microbicides for preventing the sexual transmission of HIV (in Chinese). *Chin. J. Family Planning*. In press.
25. Du, L., He, Y., Zhou, Y., Liu, S., Zheng, B., Jiang, S. (2008). Development of vaccines and therapeutics targeting the spike protein of SARS-CoV (invited review). *Nature Review Microbiology*. In revision.
26. He, Y., MacDonald, A.J., Cao, L., Li, J., Parhar, R., Heck, S., Hartmann, S., Golenbock, D.T., Jiang, S., Sara Lustigman. (2008). Ov-ASP-1, a Th1-biased Protein Adjuvant Derived from the helminth *Onchocerca volvulus*, binds primarily to antigen-presenting cells and induces pro-inflammatory cytokines via the activation of Toll-like receptor 2 and 4. *J. Immunol*. In revision.
27. Xie, L., Guo, H., Lu, H., Zhuang, X., Zhang, A., Wu, G., Ruan, J., Zhou, T., Yu, D., Qian, K., Lee, K. H., Jiang, S., (2008). Development and preclinical studies of broad-spectrum anti-HIV agent (3'R,4'R)-3-cyanomethyl-3',4'-di-O-(S)-camphanoyl-4-methyl-(+)-cis-khellactone (3-cyanomethyl-DCK). *J. Med. Chem*. In revision.
28. Liu, K., Lu, H., Hou, L., Qi, Z., Teixeira, C., Barbault, F., Jiang, S., Xie, L., (2008). Design, Synthesis, and Biological Evaluation of N-Carboxyphenylpyrrole Derivatives as Potent HIV Fusion Inhibitors Targeting gp41. *J. Med. Chem*. In revision.
29. Ma, L., Guo, Y., Yuan, L., Sun, J., Qu, S., Yu, X., meng, Z., He, X., Jiang, S., Shao, Y. (2008). Phenotypic and Genotypic Characterization of Human Immunodeficiency Virus Type 1 CRF07_BC Circulating in China. *J. AIDS*. Under review.
30. Kim, K., Yolamanova, M., Roan, N., Jiang, S., Greene, W.C., Kirchoff, K., Münch, J. (2008). Enhancement of HIV infection by semen. *J. Virol*. Under review.
31. Zhang, M. Y., Borges, A. R., Ptak, R. G., Mankowski, M. K., Lu, H., Prado, I., Dimitrov, A. S., Alam, S. M., Wiczorek, L., Fouts, T., Jiang, S., Polonis, V. R., Haynes, B., Montefiori, D., Dimitrov, D.S. (2008). Exceptionally Potent and Broad Neutralizing Activity of a Single Chain Antibody Fragment against Cell-Free and Cell-Associated HIV-1. *J. Infect. Dis*. Under review.

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

- 1988- Member (life-time), Society of Chinese Bioscientists in American (SCBA).
- 1999-01 Member, American Association for Advancement of Science (AAAS).
- 2000- Member, International Society for Antiviral Research (ISAR).
- 2000- Member, International AIDS Society (IAS).

PROFESSIONAL ACTIVITY

Institutional Service:

- 1999- Member, the Internal Review Board (IRB) of the NYBC.
- 2002- Member, the Patent Committee of the NYBC.
- 2004- Member, the Core Facility Review Committee of the LFKRI.

- 2002-03 Member, the Space Committee of the LFKRI.
- 2001-02 Chair, the Research Committee of the LFKRI.
- 1990-02 Member, *Ad hoc* peer review committees the LFKRI (for faculty promotion).
- 1996-97 Chair, the Seminar Committee of the LFKRI.
- 1991-99 Member, the P3 Committee of the LFKRI.

Service to Professional Publications:

1. Editorial Consultant, *The Lancet*, 2005.3.14- (<http://www.thelancet.com/about/consultants>)
2. Executive Guest Editor, *Current Pharmaceutical Design*, 2002.11.12- (<http://www.bentham.org/cpd/EBM.htm>)
3. Member of Editorial Board, *International Journal of Virology*, 2005.9.2- (<http://www.academicjournals.net/2/eb.php?id=2&theme=2&jid=ijv>)
4. Member of Editorial Board, *Electronic Journal of Biology (eJBio)*, 2005.2.2-2008.2.1 (http://www.ejbio.com/board_05-08.html)
5. Member of International Editorial Board, 2006.8.24- (http://www.world-eye.cn/xsnews/News_View.asp?NewsID=5420)
6. Journal of Medical Universities of PLA in English (Editorial Board Member, 1986-1990).
7. Nature Medicine (*ad hoc* referee)
8. Journal of Experimental Medicine (*ad hoc* referee)
9. Journal of Immunology (*ad hoc* referee)
10. Journal of Virology (*ad hoc* referee)
11. Journal of Biochemistry (*ad hoc* referee)
12. Antiviral therapy (*ad hoc* referee)
13. Journal of Pathology (*ad hoc* referee)
14. AIDS (*ad hoc* referee)
15. Virology (*ad hoc* referee)
16. Journal of Virology Methods (*ad hoc* referee)
17. Journal of General Virology (*ad hoc* referee)
18. Journal of Molecular Biology (*ad hoc* referee)
19. Genes and Immunity (*ad hoc* referee)
20. FEBS Letter (*ad hoc* referee)
21. Journal of Pharmaceutical Science (*ad hoc* referee)
22. Journal of Infectious Diseases (*ad hoc* referee)
23. Peptides (*ad hoc* referee)
24. Vaccines (*ad hoc* referee)
25. Gene Therapy (*ad hoc* referee)
26. Retrovirology (*ad hoc* referee)
27. BBA-General Subjects (*ad hoc* referee)
28. Clinical Chemistry (*ad hoc* referee)
29. Current Medicinal Chemistry (*ad hoc* referee)
30. Virus Research (*ad hoc* referee)
31. AIDS Research and Human Retroviruses (*ad hoc* referee)
32. IUBMB Life (*ad hoc* referee)
33. Cell Physiology and Biochemistry (*ad hoc* referee)
34. Virus Immunology (*ad hoc* referee)
35. Clinical Microbiology Review (*ad hoc* referee)
36. Applied and Environmental Microbiology (*ad hoc* referee)
37. Medical Research Review (*ad hoc* referee)
38. Journal of Virology Methods (*ad hoc* referee)
39. Clinical and Vaccine Immunology (*ad hoc* referee)
40. Journal of Orthopedic Research (*ad hoc* referee)

Other Professional Service:

- *Ad hoc* Member, grant review study section on Innovative AIDS Vaccines, Center for Scientific Review Special Emphasis Panel, NIH (1998).
- *Ad hoc* Member, grant review study section on *In vitro* Test Systems for Evaluating Chemotherapies against AIDS, Center for Scientific Review Special Emphasis Panel, NIH (2002).
- Member of Abstract Review Committee for the XIV International AIDS Conference at Barcelona, Spain (2002).
- Member of Abstract Review Committee for the XV International AIDS Conference at Bangkok, Thailand (2004).
- Member, the Scientific Advisory Committee of the International Virology Workshop, Wuhan, China (2004).
- *Ad hoc* Member, grant review study section on Innovative Research Topic in Virology, Center for Scientific Review Special Emphasis Panel, NIH (2004).
- Member, Overseas Assessor Board for Chinese Academy of Sciences (CAS) (2004 -).
- External Reviewer for Canadian Institutes of Health Research (CIHR) (2004).
- External Reviewer for Chinese National Sciences Foundation (CNSF) (2005 -).
- Member, the Scientific Advisory Committees of IDDST-2006, World AIDS Day-2006, IDDST-2007, IDDST-2008, WSA-2008, 2008 Vaccine Summit (2006-2008).
- Regular Member, AIDS Discovery and Development of Therapeutics (ADDT) Study Section, NIH (2007-2011)(http://www.csr.nih.gov/Roster_proto/meeting_roster.asp?startdate=3/5/2008&enddate=3/5/2008&rcode=&srg=ADDT&SRGDISPLAY=ADDT&agsqnum=197706).

GRANTS AWARDED (Peer-reviewed)

Agency:NIH (1R01 AI68002)(http://crisp.cit.nih.gov/crisp/crisp_query.generate_screen)

Role: Principle Investigator
Title: SARS-CoV S Protein Receptor-binding Domain-based Vaccines.
Award: \$1,578,000
Dates: March 2007 ó January 2011.

Agency:NIH (2R01 AI46221-05A2)(http://crisp.cit.nih.gov/crisp/crisp_query.generate_screen)

Role: Principle Investigator
Title: Rational Design of HIV Fusion Inhibitors Targeting gp41.
Award: \$1,958,250
Dates: February 2006 ó January 2011.

Agency:NIH (U19 AI076964)(http://crisp.cit.nih.gov/crisp/crisp_query.generate_screen)

Role: Program Director and Principle Investigator
Title: Anti-HIV Composite Cellulose Acetate Phthalate Film.
Award: \$6,435,658
Dates: September 2004 ó August 2009.

Agency:The Outstanding Overseas Chinese Scholars Fund of Chinese Academy of Sciences

Role: Principle Investigator
Title: Mechanism of Action of the Anti-HIV Compounds Targeting the gp41 Core Structure.
Award: ¥400,000
Dates: February 2006 ó January 2009.

Agency:Guangzhou Science and Technology Key Project Foundation (2005Z2-E4041)

Role: Principle Investigator
Title: Screening and Identification of leading compound of HIV entry inhibitors targeting the gp41.
Award: ¥500,000
Dates: July 1, 2005 ó June 30, 2008.

Agency: MIRC of NYBC (33212146)

Role: Principle Investigator
Title: Development of anti-HIV drug candidates targeting gp41.
Award: \$194,000
Dates: August 2005 ó July 2007.

Agency: NIH (R21 AI62402-05A1)

Role: Co-PI (PI: Asim K. Debnath)
Title: Rational Design of CCR5 Antagonists as Anti-HIV-1 Drugs.
Award: \$402,836
Dates: June 2004 ó January 2006.

Agency: NIH (R21 AI046221-05A1)

Role: Principle Investigator
Title: Rational design of anti-HIV compounds targeting gp41.
Award: \$312,176
Dates: July 2004 ó June 2005.

Agency: NIH (PO1 HD41761)

Role: Project Leader of the Project I (Program Director: A. Robert Neurath)
Title: *In vitro* Anti-HIV-1 Activity of CAP (Program title: Anti-HIV Microbicide: Cellulose Acetate Phthalate).
Award: \$1,035,596 (total program budget: \$4,470,356)
Dates: September 2001 ó July 2005.

Agency: NIH (RO1 AI46221-04)

Role: Principle Investigator
Title: Rational Design of Antiviral Compounds to the gp41 Core.
Award: \$1,161,334
Dates: April 2000 ó March 2004.

Agency: NIH (R21 AI54147)

Role: Co-PI (PI: Asim K. Debnath)
Title: HIV-1 entry inhibitors targeting Phe43 cavity in gp120.
Award: \$390,000
Dates: September 2002 ó August 2004.

Agency: National Nature Science Foundation of China (Outstanding Young Scientist Award: 30028021)

Role: Principle Investigator
Title: Identification of small cyclic anti-HIV peptides using phage display systems.
Award: ¥400,000
Dates: December 2000 ó November 2003.

Agency: NIH (R21 AI42693)

Role: Principle Investigator
Title: Antibodies targeting the HIV-1 gp41 Core Structure.
Award: \$389,712

Dates: September 1997 - September 1999.

Agency: The New York Community Trust

Role: Principle Investigator

Title: Peptides from HIV-1 gp41 for Chemotherapy of AIDS.

Award: \$100,000

Dates: January 1993 - December 1994.

Agency: NIH (RO1 CA43315)

Role: Co-investigator (PI: A. Robert Neurath)

Title: HIV-1 ENV Proteins: Targets for antiviral Chemotherapy

Award: \$1,211,297

Dates: December 1992 - November 1996.

Agency: NIH (RO1 AI29373)

Role: Co-investigator (PI: A. Robert Neurath)

Title: Epitope Mapping of HIV-1 Enhancing Antibodies

Award: \$802,563

Dates: August 1990 - July 1994.

Note: Grants from pharmaceutical companies and foundations are not listed.