CURRICULUM VITAE

Full Name: Mei-Yun Zhang
Position Title: Assistant Professor
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Education:

1997-2000	Ph. D. (Natural Science), Institute of Biology I, Aachen University, Aachen, Germany
1986-1989	M. Sc. (Biochemistry), Faculty of Biology, China Agricultural University, Beijing, China
1982-1986	B. A. (Genetics), Faculty of Agronomy, China Agricultural University, Beijing, China

Professional Experiences:

2009-present	Assistant Professor, The University of Hong Kong, Hong Kong
2004-2009	Scientist II, NCI-Frederick, NIH, Frederick, MD
2002-2004	Scientist I, NCI-Frederick, NIH, Frederick, MD
2001-2002	Postdoctoral Fellow, NCI-Frederick, NIH, Frederick, MD
1997-2000	Visiting Scientist, Ph.D. candidate, Antibody Engineering Group, Institute of Biology I, Aachen University, Aachen, Germany
1996	Associate Professor, Division of Immunodiagnostics, R&D, National Vaccine and Serum Institute (NVSI), Beijing, China
1992-1995	Assistant Professor, Group leader, Division of Immunodiagnostics, R&D, NVSI, Beijing, China
1989-1991	Research Associate, Division of Virology, R&D, NVSI, Beijing, China

Honors & Other Special Scientific Recognition:

2011	Awarded travel grant and young investigator scholarship. *AIDS Vaccine 2011 Conference*, Bangkok, Thailand, September 12-15, 2011
2010	Awarded travel grant by The Office of AIDS Research (OAR), NIH. *AIDS Vaccine 2010 Conference*, Atlanta, Georgia, USA, Sep. 27-Oct. 2, 2010
2010	Awarded travel grant by The Office of AIDS Research (OAR), NIH. *The 18th International AIDS Conference*, Vienna, Austria, July 17-24, 2010
2010	Invited young investigator, *AIDS Vaccine for Asia Network (AVAN) Annual Meeting/Workshop* in Thailand, June, 2010. The meeting was jointly funded by WHO/UNAIDS, The Global HIV Vaccine Enterprise, the NIH, and MHRP.
2002-2008	Federal Technology Transfer Award, National Cancer Institute, NIH
2004, 2006	Awarded fellow travel grants for attending *the 4th and 6th International Meeting of the Institute of Human Virology*, Baltimore, MD
2003-2004	Annual Performance Award, SAIC Frederick for consistent outstanding performance and exceptional achievement

2003, 2005	Awarded a fellow travel grant for attending *the 11th and 12th Conferences on Retroviruses and Opportunistic Infections*, February 8-11, 2004, San Francisco, CA; February 22-25, 2005, Boston, MA
2003	Awarded a fellow travel grant for attending *International AIDS Vaccine 2003 Conference*, September 18-21, New York City
1996	Awarded a scholarship by Ministry of Education, China for outstanding research - Financial support for advanced study abroad
1989	Prize of Outstanding Master Degree Thesis in China Agricultural University, Agricultural Ministry of China, China
1986	Awarded for the First Place in study and finishing undergraduate study for four years with exceptional success - accepted as a postgraduate student without entry examinations

Research areas and long-term goal:

1) Mechanisms of the interplay of antibodies and viruses in humans; 2) B-cell development and antibody affinity maturation; 3) Development of antibody therapeutics for infectious diseases and cancer. Major long-term goal is to develop clinically useful vaccines and therapeutics against infectious diseases and cancer.

Professional Membership:

Member, AIDS Vaccine for Asia Network (AVAN)
Member, American Society for Virology (ASV)
Member, Chinese Biopharmaceutical Association (CBA)
Editorial board member, Journal of Bioanalysis & Biomedicine
Editorial board member, Journal of Bioequivalence & Bioavailability
Editorial board member, ISRN Preventive Medicine

Supervision experience:

4 postdoc fellows, 1 research technician, 3 summer students, 2003-2009, NCI, NIH
2 postdocs, 6 Ph.D. students, 3 research assistants, 2009-date, HKU

Oral Presentation at International/National Conferences:

1. Is Rhesus Macaque a Good Model for Testing HIV-1 Vaccine to Elicit Broadly Neutralizing Antibodies? *The 5th China AIDS Vaccine Initiative (CAVI)-International AIDS Vaccine Initiative (IAVI) Network Meeting*, Beijing, China, November, 2010
2. Is an Effective HIV-1 Vaccine possible? *Research Center for Inflammation and Infectious Diseases (RCII) seminar*, The University of Hong Kong, Hong Kong, China, June, 2010
3. Development of an Effective HIV-1 Vaccine, *The 2nd China AIDS Vaccine Forum*, Shanghai, China, May, 2010
4. Characterization of a Chimeric Monoclonal Antibody against the Insulin-like Growth Factor-I Receptor, *The 7th Annual Congress of International Drug Discovery Science and Technology*, Shanghai, China, 2009
5. Cross-Reactive HIV-1-Neutralizing Human Monoclonal Antibodies, *The 1st International Congress of Antibodies,* Beijing, China, 2009

6. HIV-1 neutralizing antibody interactions with viral envelope glycoprotein, *Retroviral Anatomy: From Assembly, to Structure, to Function*, Frederick, Maryland, 2007
7. Identification of human monoclonal antibodies specific for CCR5 from an antibody library derived from HIV-infected long-term non-progressors. *2006 International Meeting of the Institute of Human Virology*, Baltimore, Maryland, 2006
8. Exceptional breadth and potency of HIV neutralizing human monoclonal antibody m9. *AIDS Structural Biology Meeting*, NIH, Bethesda, 2006
9. Novel broadly cross-reactive HIV-1 neutralizing human monoclonal antibodies against gp41. *9th Think Thank Meeting*, Frederick, Maryland, 2005
10. Novel cross-reactive HIV-1 neutralizing human monoclonal antibodies. *National Symposium on Structure and Function of AIDS Related Systems*, NIH, Bethesda, 2004
11. Mapping and analysis of conserved epitopes of new HIV-1 neutralizing anti-gp120 antibodies. *AIDS Vaccine 2003*, New York City, 200311. Novel broadly cross-reactive HIV neutralizing human monoclonal antibodies. *National Symposium on Structure and Function of AIDS Related Systems*, NIH, Bethesda, 2002

Journal Publications: (* corresponding author)

1. Mei-Yun Zhang*, Tingting Yuan, Jingjing Li, Andrew Rosa Borges, Jennifer D. Watkins, Javier Guenaga, Zheng Yang, Yanping Wang, Richard Wilson, Yuxing Li, Victoria R. Polonis, Seth H. Pincus, Ruth M. Ruprecht, Dimiter S Dimitrov. Identification and Characterization of a Broadly Cross-Reactive HIV-1 Human Monoclonal Antibody that Binds to Both gp120 and gp41. PLoS One. 2012
2. Fu Xiao-Yang, Chen Chao, Pan Hua-Xiong, Zhou Bin, Li Wen-Yi, Huang Tao, Zhang Mei-Yun, Zheng Hong. Inhibition of breast cancer cell proliferation and migration by monoclonal antibody m590 specific for insulin-like growth factor receptor type I. Chinese Journal of Experimental Surgery 29(5): 824-826, 2012
3. Yuan T, Li J, Zhang Y, Wang Y, Streaker E, Dimitrov DS, Zhang M-Y*. Putative rhesus macaque germline predecessors of human broadly HIV-neutralizing antibodies: differences from the human counterparts and implications for HIV-1 vaccine development. Vaccine 29: 6903–6910, 2011
4. Yuan T, Li J, Zhang M-Y *. A single mutation turns a non-binding germline-like predecessor of broadly neutralizing antibody into a binding antibody to HIV-1 envelope glycoproteins. MAbs 3(4), 2011
5. Gift SK, McFadden K, Zentner IJ, Rajagopal S, Zhang MY, Dimitrov DS, Chaiken IM. Monoclonal Antibody m18 Paratope Leading to Dual Receptor Antagonism of HIV-1 gp120. Biochemistry 50(14):2769-79, 2011
6. Gift SK, Zentner IJ, Schön A, McFadden K, Umashankara M, Rajagopal S, Contarino M, Duffy C, Courter JR, Zhang MY, Gershoni JM, Cocklin S, Dimitrov DS, Smith AB, Freire E, Chaiken IM. Conformational and Structural Features of HIV-1 gp120 Underlying the Dual Receptor Antagonism by Cross-Reactive Neutralizing Antibody m18. Biochemistry 50(14): 2756-68, 2011
7. Zhang M-Y*, Rosa Borges A, Ptak RG, Mankowski MK, Wang Y, Dimitrov AS, Alam M, Wieczorek L, Bouma P, Fouts T, Jiang S, Polonis VR, Haynes BF, Quinnan GV, Montefiori DC, Dimitrov DS. Potent and Broad Neutralizing Activity of a Single Chain Antibody Fragment against Cell-Free and Cell-Associated HIV-1. MAbs 2(3): 266-74, 2010

8. Chen L., Do Kwon Y, Zhou T, Wu X, O'Dell S, Hessell AJ, Tang M, Xu L, Yang Z-Y, Zhang M-Y, Arthos J, Burton DR, Dimitrov DS, Nabell GJ, Ponser M, Sodroski J, Wyatt R, Mascola JR, Kwong PD. Structural basis of immune evasion at the site of CD4 attachment on HIV-1 gp120. Science 326(5956): 1123-7, 2009
9. Zhang M-Y*, Feng Y, Wang Y, Dimitrov DS. Characterization of a chimeric monoclonal antibody against the Insulin-like Growth Factor-I Receptor. MAbs 1(5): 475-480, 2009
10. Xiao X, Chen W, Feng Y, Zhu Z, Prabakaran P, Wang Y, Zhang M-Y, Longo NS, Dimitrov DS. Germline-like predecessors of broadly neutralizing antibodies lack measurable binding to HIV-1 envelope glycoproteins: Implications for evasion of immune responses and design of vaccine immunogens. Biochem Biophys Res Commun. 390 (3): 404-9, 2009
11. Zhang M-Y*, Dimitrov DS. Sequential Antigen Panning for Selection of Broadly Cross-Reactive HIV-1-Neutralizing Human Monoclonal Antibodies. Methods Mol. Biol. 562: 143-54, 2009
12. Zhang M-Y*, Dimitrov DS. Competitive antigen panning for selection of HIV-1 neutralizing human monoclonal antibodies specific for gp41. Methods Mol. Biol. 525: 175-86, 2009
13. Zhang M-Y*, Wang Y, Mankowski MK, Ptak RG, Dimitrov DS. Cross-reactive HIV-1-neutralizing activity of serum IgG from a rabbit immunized with gp41 fused to IgG1 Fc: Possible role of the prolonged half-life of the immunogen. Vaccine 27(6): 857-863, 2009
14. Zhang M-Y*, Vu BK, Choudhary A, Lu H, Humbert M, Ong H, Alam M, Ruprecht R, Quinnan G, Jiang S, Montefiori D, Mascola JR, Broder CC, Haynes BF, Dimitrov DS. Cross-reactive human immunodeficiency virus type 1-neutralizing human monoclonal antibody which recognizes a novel conformational epitope on gp41 and lacks reactivity against self antigens. J. Virol. 82(14): 6869-79, 2008
15. Polonis VR, Brown BK, Rosa Borges A, Zolla-Pazner S, Dimitrov DS, Zhang M-Y, Barnett SW, Ruprecht RM, Scarlatti G, Fenyö E-M, Montefiori DC, Cutchan FE, Michael NL. Recent advances in the characterization of HIV-1 neutralization assays for standardized evaluation of the antibody response to infection and vaccination (mini-review). Virology 375(2): 315-20, 2008
16. Zhang M-Y, Zimmermann S, Fischer R, Schillberg S. Generation and evaluation of movement protein specific single-chain antibodies for reducing *Tomato spotted wilt virus* infection in tobacco. Plant Pathology, Doi: 10.1111/j.1365-3059.2008.01863.x
17. Zhou T, Xu L, Dey B, Hessell AJ, Van Ryk D, Xiang SH, Yang X, Zhang M-Y, Zwick MB, Arthos J, Burton DR, Dimitrov DS, Sodroski J, Wyatt R, Nabel GJ, Kwong PD. Structural definition of a conserved neutralization epitope on HIV-1 gp120. Nature 445(7129): 732-737, 2007
18. Choudhry V[#], Zhang M-Y[#], Sidorov IA, Bouma P, Cham F, Choudhary A, Rybak SM, Montefiori DC, Broder CC, Quinnan Jr. GV, Dimitrov DS. Cross-Reactive Monoclonal Antibodies Selected by Screening of an Immune Human Phage Library against an Envelope Glycoprotein (gp140) Isolated from a Patient (R2) with Broadly HIV-1 Neutralizing Antibodies. Virology 363(1): 79-90, 2007 ([#] Co-first author)
19. Zhang M-Y, Dimitrov DS. Novel approaches for identification of broadly cross-reactive HIV-1 neutralizing human monoclonal antibodies and improvement of their potency (review). Current Pharmaceutical Design 13: 203-212, 2007
20. Zhang M-Y, Choudhry V, Sidorov IA, Tenev V, Vu BK, Choudhary A, Lu H, Stiegler GM, Katinger HWD, Jiang S, Broder CC, Dimitrov DS. Selection of a novel gp41-specific HIV-1

neutralizing human antibody by competitive antigen panning. J. Immunol. Methods 317: 21-30, 2006

21. Zhang M-Y, Vu B, Huang CC, Sidorov I, Choudhry V, Kwong PD, Dimitrov DS. Identification of human monoclonal antibodies specific for CCR5 from an antibody library derived from HIV-infected long-term non-progressors. Retrovirology, 2006, 3 Suppl 1: S61
22. Choudhry V, Zhang M-Y, Harris I, Sidorov IA, Vu B, Dimitrov AS, Fouts T, Dimitrov DS. Increased efficacy of HIV-1 neutralization by antibodies at low CCR5 surface concentration. Biochem. Biophys. Res. Commun. 348(3): 1107-1115, 2006
23. Choudhry V, Zhang M-Y, Dimitrova D, Prabakaran P, Dimitrov AS, Fouts TR, Dimitrov DS. Antibody-based Inhibitors of HIV Infection (review). Expert. Opin. Biol. Ther. 6(5): 523-531, 2006
24. Prabakaran P, Gan J, Wu Y-Q, Zhang M-Y, Dimitrov DS, Ji X. Structural mimicry of CD4 by a cross-reactive HIV-1 neutralizing antibody with CDR-H2 and H3 containing unique motifs. J. Mol. Biol. 357(1): 82-99, 2006
25. Zhu Z, Dimitrov AS, Bossart KN, Crameri G, Bishop KA, Choudhry V, Mungall BA, Feng Y-R, Choudhary A, Zhang M-Y, Feng Y, Wang L-F, Xiao X, Eaton BT, Broder CC, Dimitrov DS. Potent neutralization of hendra and nipah viruses by human monoclonal antibodies. J. Virol. 80(2): 891-899, 2006
26. Zhang M-Y, Choudhry V, Xiao X, Dimitrov DS. Human monoclonal antibodies to the S glycoprotein and related proteins as potential therapeutics for SARS (review). Curr. Opin. Mol. Ther. 7(2): 151-156, 2005
27. Huang CC, Tang M, Zhang M-Y, Majeed S, Montabana E, Stanfield RL, Dimitrov DS, Korber B, Sodroski J, Wilson IA, Wyatt R, Kwong PD. Structure of a V3-containing HIV-1 gp120 core. Science 310: 1025-1028, 2005
28. Zhang M-Y, Xiao X, Sidorov IA, Choudhry V, Cham F, Shang PF, Bouma P, Zwick M, Choudhary A, Montefiori DC, Broder CC, Burton DR, Quinnan GV Jr, Dimitrov DS. Identification and characterization of a new cross-reactive human immunodeficiency virus type 1-neutralizing human monoclonal antibody. J. Virol. 78(17): 9233-9242, 2004
29. Zhang M-Y, Shu Y, Sidorov I, Dimitrov DS. Identification of a novel CD4i human monoclonal antibody Fab that neutralizes HIV-1 primary isolates from different clades. Antiviral Res. 61(3): 161-164, 2004
30. Zhang M-Y, Shu Y, Rudolph D, Prabakaran P, Labriji AF, Zwick MB, Lal RB, Dimitrov DS. Improved breadth and potency of an HIV-1-neutralizing human single-chain antibody by random mutagenesis and sequential antigen panning. J. Mol. Biol. 335(1): 209-219, 2004
31. Huang C-C, Venturi M, Majeed S, Moore MM, Phogat S, Zhang M-Y, Dimitrov DS, Hendrickson WA, Robinson J, Sodroski J, Wyatt R, Choe H, Farzan M, Kwong PD. Structural basis of tyrosine sulfation and VH-gene usage in antibodies that recognize the HIV-1 coreceptor binding site on gp120. Proc. Natl. Acad. Sci. 101(9): 2706-2711, 2004
32. Darbha R, Phogat S, Labrijn AF, Shu Y, Gu Y, Andrykovitch M, Zhang M-Y, Pantophlet R, Vita C, Burton DR, Dimitrov DS, Ji, X. Crystal structure of the broadly cross-reactive HIV-1 neutralizing Fab X5 and fine mapping of it's epitope. Biochemistry 43(6): 1410-1417, 2004
33. Zhang M-Y, Shu Y, Phogat S, Xiao X, Cham F, Bouma P, Choudhary A, Feng Y-R, Sanz I, Rybak S, Broder CC, Quinnan Jr. GV, Evans T, Dimitrov DS. Broadly cross-reactive HIV neutralizing human monoclonal antibody Fab selected by sequential antigen panning of a phage display library. J. Immunol. Methods 283(1-2): 17-25, 2003

34. Moulard M, Phogat S, Shu Y, Xiao X, Binley JM, Zhang M-Y, Robinson J, Parren PWHI, Burton DR, Dimitrov DS. Broadly cross-reactive neutralizing human monoclonal antibody to HIV-1 selected for binding to gp120-CD4-CCR5 complexes. Proc. Natl. Acad. Sci. 99 (10): 6913-6918, 2002
35. Zhang M-Y, Schillberg S, Zimmermann S, Breuer G, Liao Y-C, Fischer R. GST fusion proteins cause false positives during selection of viral movement protein specific single chain antibodies. J. Virol. Methods 91(2): 139-147, 2001
36. Schillberg S, Zimmermann S, Zhang M-Y, Fischer R. Antibody-based resistance to plant pathogens (review). Transgenic Research 10: 1-12, 2001
37. Zhang M-Y, Schillberg S, Prins M, Fischer R. Optimizing expression of a rare codon-rich viral protein in Escherichia coli using the IMPACT system. Analytical Biochemistry 271: 202-204, 1999
38. Zhang M-Y, Yang Q, Zhao L, Kong J. Construction of the prokaryotic secretary expression vector and the expression of anti-CEA single chain antibody gene. Chinese J. Microbiology and Immunology 18: 72-75, 1998
39. Zhang M-Y, Kong J. Selection of high affinity anti-CEA single chain antibodies by phage display. Progress in Biochemistry and Biophysics 23: 470-474, 1996
40. Kong J, Zhang M-Y. Differentiation of wild type 1 poliovirus from vaccine-related polioviruses by PCR-RFLP. Chinese J. Microbiology and Immunology 16: 381-384, 1996
41. Kong J, Li Y-J, Zhang M-Y, Xu A-Q, Ze W-Y. RT-PCR for differentiation between polioviruses and enteroviruses. Chinese J. Vaccine and Immunology 2: 120-123, 1996
42. Zhang M-Y, Kong J, Yang N, Huang H-L. Cloning and sequence analyses of the VL and VH genes from anti-CEA C50 hybridoma cell line. Chinese J. Microbiology and Immunology 15: 437-440, 1995
43. Zhang M-Y, Sun X-L, Zhang Y-Q, Wang G-Q, Wang Y-J. Establishment of HCMV detection by PCR amplification. Chinese J. Microbiology and Immunology 13: 267, 1993
44. Zhang M-Y, Sun X-L, Wang G-Q. Detection of HCMV by using polymerase chain reaction. Interferon and Virology IFV-033: 357, 1992

Book Chapter:

1. Moulard M, Zhang M-Y, Dimitrov DS. Novel HIV neutralizing human monoclonal antibodies selected from phage display libraries, In: Antibodies Vol. 2 (Subramanian, G., ed), Kluwer, New York, 2004, pp.105-117
2. Zhang M-Y., Dimitrov DS. Sequential Antigen Panning for Selection of Broadly Cross-Reactive HIV-1-Neutralizing Human Monoclonal Antibodies. In: Methods in Molecular Biology: Antibody phage display: methods and protocols (second edition) Vol. 562, Humana Press, USA. 2009, pp.143-54
3. Zhang M-Y, Dimitrov DS. Competitive antigen panning for selection of HIV-1 neutralizing human monoclonal antibodies specific for gp41. In: Methods in Molecular Biology: therapeutic antibodies Vol. 525, Humana Press, USA. 2009, pp.175-86

Patent and Patent Applications:

1. Zhang, M-Y., Schillberg, S., Zimmermann, S., Di Fiore, D., Emans, N., and Fischer, R.: Immunoglobulin having particular framework scaffold and methods of making and using. PCT/US02/29003, European Patent Application EP1434800

2. Dimitrov, D. S., Moulard, M., Xiao, X., Shu, Y., Phogat, S., Zhang, M-Y., and Burton, D. R.: Broadly cross-reactive neutralizing antibodies against Human Immunodeficiency Virus selected by Env-CD4-co-receptor complexes. PCT/US02/33165, US patent 7,223,844. May 29, 2007
3. Dimitrov, D. S. and Zhang, M-Y: Human immunodeficiency virus-neutralizing human antibodies with improved breadth and potency. PCT/US03/14095. US patent 7,566,451
4. Dimitrov, D. S. and Zhang, M-Y.: Identification of novel broadly cross-reactive neutralizing human monoclonal antibodies using sequential antigen panning of phage display libraries. US patent 7,803,913. September 28, 2010

Grants Awarded:

1. General Research Fund (GRF) (RGC Ref: 785112): Guiding the immune response: a novel approach for HIV-1 vaccine development. Principle investigator, $1,200,000. 12/01/2012-11/30/2015
2. Research Fund for the Control of Infectious Diseases (RFCID) (Ref: 12111112): A novel strategy for prevention and treatment of HIV-1 infection. Principle investigator, $998,088. 12/01/2012-11/30/2014
3. Seed Funding Programme for Applied Research (201109160012): Development of intrabodies targeting eukaryotic translation initiation factor 5A2 for cancer treatment. Principle investigator, $100,000. 01/06/2012-31/05/2013
4. URC/CRCG - Conference Grants for Teaching Staff (201107170205): The 8th Annual Protein Engineering Summit. $16,500. 04/29/2012-05/4/2012. Poster presentation: Identification and Characterization of a Cross-Reactive HIV-1-Neutralizing Human Monoclonal Antibody that Binds to Both gp120 and gp41.
5. 12th 5-year Mega project for HIV/AIDS (2012ZX10001006): Biomarkers for disease progression of HIV-1-infected individuals under drug treatment. $870,000. 05/15/2012-05/14/2015
6. Research Fund for the Control of Infectious Diseases (RFCID) (Ref: 11101052): Reconstitution and Characterization of HIV-specific Antibody Repertoires in vitro: Implications for Passive Immunization. Principle investigator, $999,632. 08/01/2011-07/31/2013
7. Innovation and Technology Fund (ITS106/11): Development of a “Two-in-One” Dual Specific Antibody Therapeutics for Treatment of Breast Cancer. Principle investigator, $988,663. 11/01/2011-04/30/2013
8. Innovation and Technology Fund General Support Programme for Internship (ITS106/11): Development of a “Two-in-One” Duel Specific Antibody Therapeutics for Treatment of Breast Cancer. Principle investigator, $216,000. 11/01/2011-04/30/2013
9. General Research Fund (GRF) (RGC Ref: 785210M): Identification of HIV-1-specific broadly neutralizing human monoclonal antibodies from the B-cell genomic DNA antibody gene repertoires of HIV-1 infected individuals. Principle investigator, $1,250,000. 12/01/2010-11/30/2013
10. Small Project Funding (201007176258): Development of yeast display technology for antibody engineering. Principle investigator, $68,000. 01/10/2010-30/09/2011
11. Seed Funding Programme for Applied Research (201002160016): Development of “Two-in-One (TiO)” dual specific antibodies targeting both IGF-IR and Her 2. Principle investigator, $100,000. 01/04/2010-31/03/2011

12. Seed Funding Programme for Basic Research (200912159009): Identification of HIV-1 vaccine immunogens by antibody in vitro maturation. Principle investigator, $240,000. 26/12/2009-25/12/2011
13. URC/CRCG - Conference Grants for Teaching Staff (200907170093): 20th Annual Antibody Engineering Conference, Construction and characterization of a chimeric monoclonal antibody against the Insulin-like Growth Factor-I Receptor. $16,408. 06/12/2009-10/12/2009