CURRICULUM VITAE

JI-PING ZHENG

（ 郑 继 平 ）

Family Name	Zheng（ 郑 ）
First Name	Ji Ping（ 继 平 ）
Place of Birth	Xuchang City, Henan Province, PR China
Date of Birth	13. Sept. 1973
Sex	Male
Marital Status	Married since Jan, 1999; 1 Kid, Boy
Present Nationality	Chinese
Present Residence	Beijing, China
Email:	zheng999119@yahoo.com

EDUCATIONAL BACKGROUND

Ph.D., Genetics(7/2004)**.** Lab of Gene Engineering, Beijing Institute of Biotechnology, China

M.S., Plant Pathology(7/1998) **.** Lab of Plant Molecular Biology, University of Agriculture and Animal science, China

B.S., Biology (7/1995)**.** Department of Bioengineering, College of Life Science, Henan University, China

RESEARCH AREAS

- Molecular biology
- Molecular Genetics
- Microbiology
- Immunology

CURRENT RESEARCH INTERESTS

- Understanding the mechanism of MYH9-related disorders.

  MYH9-related disorders are autosomal dominant syndromes, variably affecting platelet formation, hearing, and kidney function, and result from mutations in the human nonmuscle myosin-IIA heavy chain gene.
- Developing human vector Vaccine against *Streptococcus suis* capsular type 2.

  Streptococcus suis capsular type 2 is an important etiological agent of swine meningitis, and it is also a zoonotic agent. But now there are lack of effective vaccines to control *Streptococcus suis* infection and the lack of a rapid and reliable molecular diagnostic assay to detect its infection.

RELEVANT EXPERIENCE AND RESEARCH

8/2005 – present **Associate Professor**
Hainan University(Haikou, China). Development of an effective vaccine against *Streptococcus suis* serotype 2. Supervisor. Pro.Wei-Dong Wu.

7/2004 – 8/2005 **Technologist-in-charge**
Erpao Zong Hospital (Beijing, China). Study on Molecular nuclear medicine. Supervisor: Dr Qi-Sheng Jiang.

9/2001 – 7/2004 **PhD Student**
Beijing Institute of Bio-technology (Beijing, China). Study on a live multivalent oral vaccine against human enterotoxigenic Escherichia coli. Advisor: Pro. Zhao-Shan Zhang

7/1998 – 9/2001 **Assistant Agronomist**
Erpao Office of Agro-technology Popularization. (Beijing, China). Supervisor: Senior Agronomist Chao-Pu Liu.

9/1995 – 7/1998 **MS Student**
Changchun University of Agriculture and Animal science (Chuanchun, China). Cloning and characterization of one PAPD marker linked with the nuclear restoration gene Rf1 in CMS sunflower. Advisor: Dr. Jing Ji.

9/1991 – 7/1995: **Undergraduate Research**
Henan University(Henan, China). The function of superoxide dismutase (SOD) in the senescence of soybean seed. Supervisor: Dr. Fa-Cai Dong.

TEACHING EXPERIENCE

8/2005 – present Teaching for microbiology, Immunology
Hainan University (Haikou,China).

9/1994 –7/1995 Pedagogical training in Henan University(Henan, China).
that included teaching practice at Kaifeng Highschool (Kaifeng, China), Coordinator: Professor. Shu-Xiang Lu.

KEY LABORATORY SKILLS

Well known of safe laboratory practice and the ability to carry out each task independently.

Gene Level: DNA and RNA purification, heterologous expression (bacterial and yeast systems), site-directed mutagenesis, transgenic plant generation, two-hybrid system.

Protein Level: membrane purification, protein (native and recombinant) purification, enzyme activity assay, in vivo phosphorylation. SDS-PAGE, chromatography (conventional, ion exchange, gel-filtration, and affinity), western blot. immuno- and co-immunoprecipitations.

Cell Level: Immunofluorescence and electron microscopy. flow cytometry microscopy,

Computer: DNA and protein sequence comparison, database searches,

homepage design, bibliographic survey.

COMPUTER SKILLS

Operating Systems: Windows, MS DOS

Software: databases (MySQL), statistical software (SAS, Minitab), Matlab, HTML editing, publication editors, graphics editors (e.g. Adobe Photo Shop, Corel Draw, etc), Microsoft Office, Adobe Acrobat, etc

LANGUAGES SKILLS

Mother Tongue: Chinese

English: Fluent speaking, reading and writing.

MANAGEMENT AND ORGANIZATION

- Grant writing (business / research grants)
- Planning of studies
- Coordination of research collaborations

AWARDS / GRANTS/HONORS

9/2005 support from Specialized Research Fund for the Doctoral Program of Hainan University, for the studies of vaccine against Streptococcus suis. Haikou, China

1/2005 "Commendation" award from Erpao Hospital for science research in molecular nuclear medicine.

8/2004 Grant from Erpao Hospital program, for studies of radiation resistance of *Deinococcus radiodurans*. Beijing, China

5/2004 "Excellent doctoral dissertation" award from Beijing Institute of Biotechnology, for the paper " Study on a multivalent live oral vaccine against human enterotoxigenic *Escherichia coli* "

1/2003 "Commendation" award from Beijing Institute of Biotechnology for Ph D work.

5/2002 Support from the National High Technology Research and Development Program of China (863 Program), for " vaccine against ETEC ". Beijing, China

2/1999 "Second prize" award at Changchun University of Agriculture and Animal science, for the MS science research " Studies of RAPD marker on CMS maintenance gene *rf* 1 in sunflower "

5/1996 Support from National Natural Science Found Program of China, for studies of CMS genes in sunflower, Changchun, China

PROFESSIONAL AFFILIATION

2005 – present Member of **Society for Biochemistry and Molecular Biology of China.**

2005 – present Member of **Society for Biochemistry and Molecular Biology of Hainan.**

2005 – present Member of **Society for Genetics of Hainan.**
1995 – present Member of **Society for Genetics of Jilin.**

HOBBIES

- Swimming
- Table Tennis
- Aerobics
- Reading

PUBLICATIONS

1. **Zheng JP,** Wang LC, Wang P, Luo G, Li SQ, Duan HQ, Huang CF, Zhang ZS. Co-expression of CFA/I and CS6 of Enterotoxigenic Escherichia coli (ETEC) in Shigella flexneri 2a T32 Derivative Strain FWL01. Sheng Wu Hua Xue Yu Sheng Wu Wu Li Xue Bao (Shanghai, China). 2003, 35(11):1005-10. PMID: 14614538

   ABSTRACT Among the known colonization factors of enterotoxigenic Escherichia coli (ETEC) , CFA/ I and CS6 (the common antigen in the CFA/ IV fimbrial antigens) are two of the most prevalent fimbriae found in clinical isolates but are never expressed by the same wild2type st rains. In this study, CFA/ I and CS6 of ETEC were co-expressed in S higella f lex neri 2a T32 derivative st rain FWL01 by using a host2plasmid lethal balancing system based on asd gene. The result s indicate that the recombinant plasmid carrying CFA / I and CS 6 could be stably integrated in FWL01. Expression of the two antigens did not interfere the host growth. The result s of immunofluorescence analysis showed that CFA/ I and CS6 were localized on the surface of the st rain FWL01. In Balb/ c mice orally immunized with the recombinant st rain , the immune responses against CFA/ I and CS6 were observed. Those observations show the feasibility of a multivalent vaccine expressing different fimbrial antigens in attenuated S higella f lex neri .

2. **Zheng JP**, Zhang ZS, Liu XX, Wang P, Yuan SL, Zhan DW, Duan HQ, Wang LC, Li SQ, Huang CF. Construction of a novel *shigella* live-vector strain co-expressing CS3 and LTB/STm of enterotoxigenic E.coli. World Journal of Gastroenterology (Beijing, China) 2005, 11(22): 3411-3418. PMID: 15948247

   ABSTRACT **METHODS:**By using a host-plasmid balanced lethal system based on asd gene, a polyvalent recombinant strain was constructed to highly express CS3 and regularly express fusion enterotoxin of LTB subunit and mutant ST (LTB/STm) in a vaccine strain Shigella flexneri 2a T32 with specific deletion of asd gene. Fimbria CS3 was observed by immunofluorescence and electron microscopyassay. The security of LTB/STm was examined by ileal loop assay and suckling mouse assay. To evaluate this new candidate vaccine, it was compared with a previous vaccine strain in plasmid and protein level, growth assay and immunogenicity in Balb/c mice. **RESULTS:** The newly constructed vaccine expressed CS3 and grew better than the previously constructed vaccine except for the lower expression of LTB/STm. Serum IgG and mucosal IgA against CS3, LTB, ST, and host lipopolysaccharide (LPS) were produced after

immunization of Balb/c mice by oral route with the new strain. The titers were not significantly different from the Balb/c mice with the previous strain. **CONCLUSION:** This novel candidate diarrheal vaccine can effectively induce serum and mucosal antibody responses against ETEC and Shigella.

3. **Zheng JP**, Wang LC, Wang P, Luo G, Li SQ, Duan HQ, Zhang ZS, Huang CF. Comparison of immunogenicity between an attenuated Shigella flexneri 2a T32 strain co-expressing CFA/I and CS6 of enterotoxigenic Escherichia coli (ETEC) and a mixture of two attenuated Shigella flexneri 2a T32 strain expressing CFA/I and CS6 repectively. Chin J Microbiol Immunol (Beijing, China). 2004, 24(3):209-213.

   ABSTRACT Objective To select and develop an effective and safe attenuated vaccine against ETEC. **Methods** A recombinant attenuated *Shigella flexneri* 2a T32 deleted asd gene strain FWL01(pZCF16) carries a plasmid co2expressing colonization factor antigen Ⅰ(CFA/ Ⅰ) and coli surface antigen 6 (CS6) of ETEC , two mixed recombinant strains FWL01(pZHY21) expressing CFA/ Ⅰand FWL01(pZLG6) expressing CS6 were com pared and evaluated their immune responses. **Results** Animals immunized with above strains developed specific serum antibodies and secretory immunoglobulin A(sIgA) aganist CFA/ Ⅰand CS6 of ETEC. The antibody titers of the group only immunized with attenuated *Shigella flexneri* strain FWL01 (pZCF16) are similar or higher than the group immunized with the mixture of two strains FWL01(pZHY21) and FWL01(pZLG6) . **Conclusion** These results show the feasibility of a multivalent vaccine expressing different fimbriae antigens in a live carrier.

4. **Zheng JP**, Wang LC, Wang P, Li SQ, Luo G, Huang CF， Zhang ZS. Comparison of immunogenicity between the recombinant candidate vaccines co-expressing CFA/I and CS6 of enterotoxigenic Escherichia coli (ETEC) and respectively expressing CFA/I and CS6 by a derivative strain FWL01 of attenuated Shigella flexneri 2a T32. Bull Acad Mil Sci .(Beijing, China), 2004,28(3):235-238.

   ABSTRACT Objective To select and develop an effective and safe live multivalent candidate vaccine against ETEC by comparing and evaluating the immune responses of the three recombinant candidate strains. **Methods** Three recombinant strains, the attenuated *Shigella flexneri* 2a T32 derivative strain FWL01(pZCF16) co-expressing colonization factor antigen I(CFA/I) and coli surface antigen 6 (CS6) , the FWL01(pZHY21) expressing CFA/I and the FWL01(pZLG6) expressing CS6, were orally administered to BALB/c mice at same dose, repectively. **Results** All animals immunized with above strains developed specific serum antibodies and secretory immunoglobulin A (IgA) against CFA/I and/or CS6 of ETEC. The serum immune reponses of the group immunized with the strain FWL01(pZCF16) were higher than that of the group immunized with the strain FWL01(pZHY21) in anti-CFA/I IgG titer and that of the group immunized with the strain FWL01(pZLG6) in anti-CS6 IgG titer,

though in sIgA level, no statisticallysignificant differences were observed. **Conclusion** These results demonstrated the feasibility of a multivalent vaccine expressing different fimbriae antigens in a live carrier.

5. **Zheng JP**, Liu XX, Wang LC, Wang P, Li SQ, Zhang ZS. Construction of enterotoxigenic Escherichia coli heat-stable enterotoxin fusion protein with glutathione S-transferase and detection of antibody against heat-stable enterotoxin. Chinese Journal of Immunology. (Changchun, China). 2005, 21(8) :617-618.

   ABSTRACT Objective: To detection antibody against heat2stable enterotoxin by fusion protein.**Methods:** Mutant heat2stable enterotoxin precursor gene was ligated in vector pGEX24T22 to inductively express as a fusion protein GST/ proSTm with glutathione S2transferase (GST) . To investigate the antigenic action ,serum and fecal antibodies against heat2stable enterotoxin was detected with this fusion protein. **Results:** The fusion protein was a about 32 kD protein. All the samples contain the antibody against ST.**Conclusion**: Such strategy was a promising method to detect antibody against heat-stable enterotoxin.

6. **Zheng JP**, Liu XX, Wang LC, Li SQ, Fang MZ, Zhang ZS. Immunogenicity evaluation of a mixed live Vaccine against human enterotoxigenic Escherichia coli. Courrent Immunlolgy. (Shanghai, China). 2004, 24(6):482-485.

   ABSTRACT: In the present study , a mixed live multivalent oral vaccine against human enterotoxigenic Escherchia coli (ETEC) comprising of two Shigella vector strains harboring different ETEC antigens genes was developed on the basis of construction of the mixed live vector vaccines to express the ETEC fimbrial antigen CFA/ 1 , CS6 , CS3 and fusion entero2 toxin LTB/ STm1 Following intragastric immunization into BALB/ c mice with the mixed vaccines , the serum and mucosal antibody reactions against ETEC antigens could be elicited , The identical immunogenicity was obtained as the individual vaccine strains , while that immunogenicity of the Shigella vector vaccine still maintained.

7. **Zheng JP**, Zhang ZS. Progress toward develop a vaccine against enterotoxigenic Escherichia coli (review). Progress in Microbiology and Immunology. (Lanzhou, China), 2003, 31(1):51-54.
8. Zheng JP. Gap-PCR. In Huang LY(ed), Contemporary PCR Technology. Chemical Industry Press (China) First ed. 2004. p: 348-351.
9. Wang LC, **Zheng JP**, Li SQ, Zhang DW, Fang MZ, Zheng ZS. Influences of various media on fimbrial expression of enterotoxigenic E. coli(ETEC) for Vaccine Production. Chin J Biologicals March, (Beijing, China) 2005, 18(2): 152-154.

   ABSTRACT Objective To compare the influences of various media on the fimbrial expression of enterotoxigenic E. coli (ETEC) used for the production of vaccine and to obtain a cheap medium beneficial to both the growth of bacterial strain and the expression of fimbrial antigen.**Methods** Observe the regularity of growth of bacterial strain by determining the density of culture ,and detect the expression of fimbri2 al antigen by dot ELISA and whole cell ELISA. Results LB medium was

beneficial to both the growth of bacterial strain and the expression of fimbrial antigen. **Conclusion** LB medium may be used for pilot and large2scale cultures of ETEC strain for vaccine production.

10. Ji J, **Zheng JP**, Zhang YH, Wang G. Studies of CMS genes in sunflower. Letters in Biotechnology(Beijing, China). 1997, 8(3-4): 99-100
11. Ji J, **Zheng JP**, Wang P, Zhang YH, Wu Y, Wang G. Studies of RAPD marker on CMS maitenance gene rf 1 in sunflower. Hereditas (Beijing, China) 1998, 20 (supplement) : 19～21.
12. Wang P, Yuan SL, **Zheng JP**, Li SQ, Duan HQ, Zheng ZS. A quick and precise method to construct Escherichia coli histidine auxotroph. Microbiology (Beijing, China) 2004,31(2): 95-99.

    ABSTRACT :λRed in vivo recombination is a new kind of genetic engineering technique based on homologous recombination1 In this work , plasmid pKD46 which expresses Red recombination proteins is transferred into *Escherichia coli* strain DH5α 1The kanamycine resistant gene is generated by PCR by using primers with homology to *hisDCB* gene of *E*1*coli* chromosome1 Thus , the *hisDCB* gene was replaced with kanamycine resistant gene by the plasmid recombination system, then the resistant gene was eliminated by a helper plasmid encoding the FLP recombinase1 At last , a *E*1*coli* histidine auxotroph which is sensitive to kanamycine was got1 The results indicate that Red *in vivo* recombination is a convenient.
13. Liu TT, Li SQ, Zhang ZS, **Zheng JP**, Liu XL, Luo G, Huang CF. Simultaneous expression of CS3 colonization factor antigen and LT-B/ST fusion enterotoxin antigen of enterotoxigenic Escherichia coli by attenuated Shigella flexneri 2a. Sheng Wu Hua Xue Yu Sheng Wu Wu Li Xue Bao (Shanghai China). 2003, 35(1):49-54. PMID: 12518227.

    ABSTRACT Enterotoxigenic Escherichia coli (ETEC) causes watery dehydrating diarrhea in infants in developing countries, and is the most common cause of travelers diarrhea. It has been known that the colonazition factor antigens (CFAs) and enterotoxins are important virulence factors of ETEC, and these two kinds of proteins should be included in any effective vaccine against ETEC. In this study, a host-plasmid lethal balancing system was constructed based on asd gene in an avirulent strain of S.flexneri to express CS3 antigens and the fusion LT-B/ST enterotoxins of Escherichia coli. Both of these antigens were expressed steadily in the S. flexneri vector without any antibiotic markers. Antibodies against CS3, LT, ST and LPS of Shigella were detected in sera of mice that were immunized with recombinant bacteria either oragastrically (o.g.) or intranasally (i.n.). SIgA against CS3 and enterotoxins were detected simultaneously in feces of mice. This work is helpful for constructing multivalent recombinant vaccine for prevention of bacterial diarrhea.
14. Luo G, Li SQ, Wang LC, Zhao Y, **Zheng JP**, Duang HQ, Zhang ZS. Expressing CS6 of enterotoxigenic Escherichia by attenuated Shigella flexneri 2a. Prog.Biochem.Biophys (Beijing, China). 2004, 31(2): 154-158.ISSN1000-3282

ABSTRACT A host2plasmid lethal balancing system was constructed based on asd gene in an avirulent strain of S . flexneri to express coli surface antigen 6 of enterotoxigenic Escherichia coli . The results of Western2blotting demonstrated that avirulant strain of S . flexneri FWL01 expressed CS6 steadily. Immunofluorescence analysis showed that S . flexneri FWL01 carrying the plasmid pZLG6 can be excited fluorescence on its surface. Antibodies against CS6 and LPS of Shigella can be detected in sera of mice immunized with recombinant bacteria either orogastrically (o. g.)or intranasally (i . n.) ;simultaneously sIgA against CS6 can also be detected in the intestine. This is helpful for constructing multivalent recombinant vaccine for prevention of bacterial diarrhea.

MANUSCRIPTS IN PROGRESS

1. **Zheng JP**, Guo GY, Wei SS, Zhou HL, Zhang ZS. Influences of culture condition on vector vaccine against enterotoxigenic E. coli (ETEC). Immunology (Chongqing, China).- in review.

   ABSTRACT **Objective** To compare and select a much cheaper, more convenient and more effective medium to cultule vector vaccine strain against enterotoxigenic *E. coli* (ETEC). **Methods** CFA agar and Luria broth (LB) were assayed for antigens expression by whole cell ELISA, antigens immunogenicity by detection of IgG and sIgA after oral immunizatin to mice Balb/c. **Results** LB medium was beneficial to both the expression and immune response of the ETEC antigens and *S.flexneri* lipopolysaccharide. **Conclusion** LB is effective for production of vector vaccine against ETEC.

2. **Zheng JP,** Wei SS, Zhou HL, Zhang ZS. Progress toward the development of a vaccine against Streptococcus suis capsular type 2(review). Chin J Microbiol Immunol (Beijing, China).- in review.

   ABSTRACT *Streptococcus suis* capsular type 2 is an important worldwide swine pathogen which causes sepsis, meningitis, arthritis and other serious infections in pigs, and also as a zoonotic agent in humans who occupationally exposed to pigs or pig products. As the most prevalent and the most virulent serotype of the 35 reported *Streptococcus suis* serotypes in diseased animals, Knowledge on the pathogenesis of the infection is poorly understood and the virulence-factor antigens is limited. To date several candidate vaccines against *Streptococcus suis* capsular type 2, that is killed vaccine, live avirulent vaccine and protein subunit vaccine have been proposed, but no effective vaccine is available.

REFERENCES

1. **Prof Zhao-Shan Zhang**
   Beijing Institute of Biotechnology.
   20 Dongdajie, Fengtai
   Beijing 100071
   China
   Fax: 86-10- 63833521
   Phone: 86-10-63834140

Email: ZhangZS@ nic.bmi.ac.cn

2. **Associate professor Hai-Qing Duan**
   Beijing Institute of Biotechnology.
   20 Dongdajie, Fengtai
   Beijing 100071
   China
   Fax: 86-10- 63833521
   Phone: 86-10-63834140
   Email: Duanhq@ nic.bmi.ac.cn

3. **Associate professor Chun-Jie Liu**
   Beijing Institute of Biotechnology.
   20 Dongdajie, Fengtai
   Beijing 100071
   China
   Fax: 86-10-63833521
   Phone: 86-10-63834140
   Email: Liucj@ nic.bmi.ac.cn

4. **Associate professor Hua Tang**
   Department of Biotechnology
   College of Life Science and Agriculture
   Hainan University
   Haikou 570228
   China
   Phone: 86-10-66279271
   Email: thtigher@163.com