

# CURRICULUM VITAE

QIFA ZHANG

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**Sex:** Male

**Date and Place of Birth:** December 19, 1953; Hubei, China.

## **Education:**

B. S. Agronomy, August 1976, Huazhong Agricultural College, China.

Ph. D. Genetics, June 1985, University of California, Davis, California, USA.

Post-doctoral fellow, July, 1985--July, 1986, University of California, Davis, California, USA.

## **Current research interests:**

The major interest in recent years is rice genomics and genetic improvement. The research areas include functional genomics, biotechnology and molecular and genetic basis of heterosis.

## **Positions held:**

1976-1982 Assistant teacher, Huazhong Agricultural College.  
1986 Lecturer, Huazhong Agricultural University.  
1987 Associate professor, Huazhong Agricultural University.  
1987-1994 Director, Biotechnology Center, Huazhong Agricultural University.  
1991- Professor, Huazhong Agricultural University.  
1992-1999 Associate Director, National Key Laboratory of Crop Genetic Improvement at Huazhong Agricultural University.  
1994-1998 Adjunct Professor, Virginia Polytechnic Institute and State University, USA.  
1994- Dean, College of Life Science and Technology, Huazhong Agricultural University.  
1998- Guest Professor, China Agricultural University, Beijing.  
1999- Director, National Key Laboratory of Crop Genetic Improvement.  
2002- Director, National Center of Crop Molecular Breeding.  
2002- Director, National Center of Plant Gene Research (Wuhan).

### **Services in scientific committees:**

- 1990-1995 Member, Science and Technology Advisory Committee of Hubei Province.  
1991-1994 Member, Expert Committee of The China National Program on Plant and Animal Biotechnology.  
1992-1995 Member, Scientific Board of The China Rice Genome Project.  
1992-1995 Member, Biotechnology Advisory Committee, Ministry of Agriculture, China.  
1993-2001 Member, Oversight Committee of McKnight Foundation's International Programs in Plant Biology.  
1995-1999 Member, Science Advisory Committee of the Rockefeller Foundation's International Program on Rice Biotechnology.  
1996- Member, Steering Committee of the Asian Rice Biotechnology Network.  
1996- Panel member, Life Science, National Natural Science Foundation of China.  
1997-1998 Member, Expert Committee of Biotechnology, Consultative Group for International Agricultural Research (CGIAR).  
1997- Chair, Group of Basic Biology, Oversight Committee of Higher Agricultural Education in China.  
1997- Chair, Biology Group II, the Academic Degree Committee of State Council of PRC.  
1998- Member, Consultative Group, Life Science, National Natural Science Foundation of China.  
1999-2000 Chairman, Steering Committee of the Asian Rice Biotechnology Network.  
1999- Member, Committee of Science and Technology, the Ministry of Agriculture of PRC.  
2002- Chairman, the Oversight Committee, The National Base for Training of Talents in Biological Sciences and Technology, the Ministry of Education of China.  
2003- Member, Committee for TWAS Prize in Agricultural Sciences.  
2005- Scientific Advisor, International Foundation for Sciences, Sweden.  
2006- Member, Project Advisory Committee of HarvstPlus.  
2011-2012 Member, Advisory Committee, National Program on Basic Research.

### **Services in editorial boards**

Journal of Huazhong Agricultural University  
Euphytica (1995-2003)  
Journal of Agricultural Biotechnology  
Acta Botanica Sinica (Advisory Board)  
Acta Genetica Sinica (Advisory Board)  
Acta Agronomica Sinica (1995-)  
Plant Breeding (2000-2005)  
Theoretical and Applied Genetics (2001-)  
Science in China (2003-2008)  
Plant Physiology and Biochemistry (Advisory Board, 2001-)  
Current Opinion in Plant Biology (2008-)  
BMC Genomics (2008-)  
Molecular Plant (2008-, advisory board)  
Rice (2008-, advisory board)  
Annual Review of Plant Biology (2011-)

## **Organization of Scientific conferences**

Chairman, Plant Genomics in China I- (an annual meeting series starting 2000)  
Chairman, International Symposium on Genomics and Crop Genetic Improvement (meeting series) (Wuhan, 2002, 2010)  
Chairman, First International Symposium on Rice Functional Genomics (Shanghai, 2003)

## **Grant review and panels**

National Science Foundation (USA)  
Deutsche Forschungsgemeinschaft (DFG)  
Israel Science Foundation  
International Foundation for Science (Sweden)  
Netherlands Organization for Scientific research (ALW)

## **Honors and awards:**

- 1987 Award for reformation of teaching materials and methods, Huazhong Agricultural University.
- 1988 Award for quality teaching, Huazhong Agricultural University.
- 1988 New Stars in Science and Technology named by Association of Science and Technology, Wuhan, China.
- 1989 Award for quality teaching, Huazhong Agricultural University.  
Best Young Scientists in Hubei Province named by Hubei Provincial Government, China.
- 1990 Biotechnology Career Fellowship Award, The Rockefeller Foundation.
- 1991 Award for Outstanding Contributions to Higher Education in China, the State Council of PRC.
- 1992 Outstanding Scientist, awarded by the Ministry of Agriculture of PRC.
- 1993 King Baudouin Prize, awarded by the International Foundation for Science, Sweden.
- 1994 Outstanding Scientist, awarded by the Ministry of Personnel of PRC.
- 1995 Distinguished Young Investigator Award, by Chinese National Natural Science Foundation.
- 1996 A Prize for Significant Contributions to the National High Technology Research Program, awarded by the Commission of Science and Technology of PRC.
- 1997 Superior Returning Scientist from Overseas, awarded jointly by the Ministry of Personnel and Education Commission of PRC.
- 1997 Award for Significant Contributions to Agricultural Science in China, by the China Foundation for Agricultural Science and Education.
- 1998 Young Scientist of China, awarded jointly by the Central Committee of Chinese Youth League, the Organizing Department of the Central Committee of the Chinese Communist Party, the Ministry of Personnel and the Ministry of Science and Technology.
- 1999 Cheung Kong Professor, awarded by the Cheung Kong Scholars Program, The Ministry of Education, PRC.
- 1999 Election as a Academician, the Chinese Academy of Sciences.
- 2000 Election as a Fellow, the Third World Academy of Sciences.
- 2002 First Award in Natural Science, Hubei Provincial Government.

- 2003 First Award in Natural Science, Hubei Provincial Government.
- 2003 Award for Advancement in Science and Technology, Ho Leung Ho Lee Foundation (Hong Kong).
- 2005 Cal Aggie Alumni Association Emil M. International Award, University of California, Davis.
- 2007 Election as a Foreign Associate, The National Academy of Sciences, USA.
- 2007 First Award in Natural Science, Hubei Provincial Government.
- 2008 Distinguished Career Award in Science and Technology, Hubei Provincial Government.
- 2012 Outstanding Scientist Award, International Society of Crop Science.

### **Membership in Academic Societies**

China Association of Science and Technology (Vice Chairman, 2001-2011)  
 China Association of Agricultural Science Societies (Vice President, 2002-)  
 Genetics Society of China (Vice President, 2002-)  
 Agro-Biotechnology Society of China  
 Chinese Society of Botany  
 Chinese Society of Bioengineering

American Society of Plant Biologists  
 International Plant Molecular Biology Society (President, Board of Directors, 2012-)  
 International Rice Genetics Cooperative (Member of Standing Committee)

### **Publications in refereed journals**

1. Yu YJ, Zhang Q (1978) A preliminary study on the combining ability of six parents with diallel crosses in wheat. *Acta Genetica Sinica* 5:281-292 (in Chinese with English Abstract).
2. Zhang Q, Allard RW (1986) Sampling variance of the genetic diversity index. *J Heredity* 77:54-55.
3. Zhang Q, Geng S (1986) A method of estimating varietal stability for data of long-term trials. *Theor Appl Genet* 71:810-814.
4. Geng S, Zhang Q, Bassett DM (1987) Stability of yield and fiber quality of California cotton. *Crop Science* 27:1004-1010.
5. Zhang Q, Webster RK, Allard RW (1987) Geographical distribution and associations of resistance to four races of *Rhynchosporium secalis*. *Phytopathology* 77:352-357.
6. Zhang Q, Tibayrenc M, Ayala FJ (1988) Linkage disequilibrium in natural populations of *Trypanosoma cruzi* (Flagellate), the agent of Chagas' disease. *J Protozool* 35:81-85.
7. Neale DB, Saghai-Marroof MA, Allard RW, Zhang Q, Jorgensen RA (1988) Chloroplast DNA diversity in population of wild and cultivated barley. *Genetics* 120:1105-1110.
8. Jana S, Zhang Q, Saghai-Marroof MA (1989) Influence of environments on the development of multivariate structure in a barley composite cross at three locations. *Genome* 32:40-45.
9. Dai X, Zhang Q (1989) Genetic diversity of six isozyme loci in cultivated barley of Tibet. *Theor Appl Genet* 78:281-286.
10. Chen M, Zhang Q, Liao Y (1989) Similarity of genetic background between barley isogenic lines carrying various genes for powdery mildew resistance as determined by analyzing seven quantitative characters. *Journal of Huazhong Agricultural University* 8:311-31 (in Chinese with English Abstract).
11. Yang G, Zhang Q (1990) Construction of a cDNA library from germinated barley seed and isolation of an  $\alpha$ -amylase gene. *Journal of Huazhong Agricultural University* 9:315-318.
12. Yang G, Zhang Q (1990) Polymorphism of  $\alpha$ -amylase activity in landraces and cultivars of barley from China. *Euphytica* 48:245-251.

13. Zhang Q, Saghai Maroof MA, Allard RW (1990) Worldwide pattern of multilocus structure in barley determined by discrete log-linear multivariate analyses. *Theor Appl Genet* 80:121-128.
14. Allard RW, Saghai-Maroof MA, Zhang Q, Jorgensen RA (1990) Genetic and molecular organization of ribosomal DNA (rDNA) variants in wild and cultivated barley. *Genetics* 126:743-751.
15. Saghai Maroof, MA, Allard RW, Zhang Q (1990) Genetic diversity and ecogeographical differentiation among ribosomal DNA (rDNA) alleles in wild and cultivated barley. *Proc Natl Acad Sci USA* 87:8486-8490.
16. Zhang Q, Saghai Maroof MA, Allard RW (1990) Effects on adaptedness of variations in ribosomal DNA copy number in populations of wild barley *Hordeum vulgare* ssp. *spontaneum* Koch. *Proc Natl Acad Sci USA* 87:8741-8745.
17. Zhang Q, Saghai Maroof MA, Webster RK (1991) Spatial and temporal patterns of associations between quantitative characters and resistance to scald in barley. *Hereditas* 115:1-8.
18. Liao Y, Zhang Q, Zheng Y (1991) Two-dimensional electrophoresis of proteins associated with powdery mildew infection in barley isogenic lines. *Acta Genetica Sinica* 18:431-436.
19. Zhang Q, Saghai Maroof MA, Lu TY, Shen BZ (1992) Genetic diversity and differentiation of indica and japonica rice detected by RFLP analysis. *Theor Appl Genet* 83:495-499.
20. Saghai Maroof MA, Zhang Q, Neale DB, Allard RW (1992) Associations between nuclear loci and chloroplast DNA genotypes in wild barley. *Genetics* 131:225-231.
21. Zhang Q, Saghai Maroof MA, Yang GP (1992) Ribosomal DNA spacer-length polymorphisms and the Oriental-Occidental differentiation in cultivated barley. *Theor Appl Genet* 84:682-687.
22. Zhang Q, Webster RK, Crandall BA, Jackson LF, Saghai Maroof MA (1992) Race composition and pathogenicity associations of *Rhynchosporium secalis* in California. *Phytopathology* 82:798-803.
23. Zhang Q, Duan G, Yang G (1992) Restriction fragment length polymorphism of chloroplast DNA and rDNA intergenic spacer region in barley from China. *Chinese Journal of Genetics* 19:111-118, Allerton Press, Inc., New York.
24. Zhang Q, Dai X, Saghai Maroof MA (1992) Comparative assessment of isozyme diversity in barley from Ethiopia and Tibet. *Chinese Journal of Genetics* 19:119-126, Allerton Press, Inc., New York.
25. Liu A, Li H, Zhang Q, Shi S, Jiang X, Yang G (1992) Mapping a wide compatibility gene in rice in relation to RFLP markers. *Journal of Huazhong Agricultural University* 11:213-219.
26. Cao M, Zheng Y, Zhang Q (1992) A two dimensional electrophoretic analysis of proteins associated with photoperiod sensitive male sterility in rice. *Journal of Huazhong Agricultural University* 11:305-311.
27. Saghai Maroof MA, Zhang Q (1992) Interrelationships of allozymes and ribosomal DNA alleles in wild barley. *Euphytica* 61:113-122.
28. Allard RW, Zhang Q, Saghai Maroof MA, Muona OA (1992) Evolution of multilocus genetic structure in an experimental barley population. *Genetics* 131:957-969.
29. Liu A, Zhang Q, Li H (1992) Location of a gene for wide-compatibility in the RFLP linkage map. *Rice Genetics Newsletter* 9:134-136.
30. Zhang Q, Jana S, Saghai Maroof MA (1993) A diagnostic analysis of genetic differentiation among subpopulations of a barley composite cross using isozyme markers. *Hereditas* 118:63-70.
31. Zhang Q, Saghai Maroof MA, Kleinhofs A (1993) Comparative diversity analysis of RFLPs and isozymes within and among populations of *Hordeum vulgare* ssp. *spontaneum*. *Genetics* 134:909-916.
32. Zhang Q, Shen B, Dai X, Mei M, Saghai Maroof MA, Li Z (1993) An RFLP-based genetic analysis of photoperiod sensitive male sterility in rice. *Rice Genetics Newsletter* 10:94-97.
33. Zhang Q, Gao YJ, Yang SH, Ragab RA, Saghai Maroof MA, Li ZB (1994) A diallel analysis of heterosis in elite hybrid rice based on RFLPs and microsatellites. *Theor Appl Genet* 89:185-192.
34. Saghai Maroof MA, Biyashev RM, Yang GP, Zhang Q, Allard RW (1994) Extraordinarily polymorphic microsatellite DNA in barley: species diversity, chromosomal location, and population dynamics. *Proc Natl Acad Sci USA* 91:5466-5470.
35. Saghai Maroof MA, Zhang Q, Biyashev RM (1994) Molecular marker analysis of powdery mildew resistance in barley. *Theor Appl Genet* 88:733-740.

36. Zhang Q, Yang GP, Dai XK, Sun JZ (1994) A comparative analysis of genetic polymorphism in wild and cultivated barley from Tibet using isozyme and ribosomal DNA markers. *Genome* 37:631-638.
37. Zhang Q, Shen BZ, Dai XK, Mei MH, Saghai Maroof MA, Li ZB (1994) Using bulked extremes and recessive class to map genes for photoperiod sensitive genic male sterility in rice. *Proc Natl Acad Sci USA* 91:8675-8679.
38. Yang GP, Saghai Maroof MA, Xu CG, Zhang Q, Biyashev RM (1994) Comparative analysis of microsatellite DNA polymorphism in landraces and cultivars of rice. *Mol. Gen. Genet.* 245:187-194.
39. Saghai Maroof MA, Zhang Q, Chojeck J I (1994) RFLPs in cultivated barley and their application in evaluation of malting quality cultivars. *Hereditas* 121:21-29.
40. Zhang Q, Gao YJ, Saghai Maroof MA, Yang SH, Li JX (1995) Molecular divergence and hybrid performance in rice. *Molecular Breeding* 1:133-142.
41. Saghai Maroof MA, Zhang Q, Biyashev R (1995) Comparison of restriction fragment length polymorphisms (RFLPs) in wild and cultivated barley. *Genome* 38:298-306.
42. Liu KD, Zhang Q, Zhang DP, Xie Y (1995) Genetic variation and indica-japonica differentiation in Yunnan indigenous rice. *Acta Bot Sin* 37:718-724.
43. Saghai Maroof MA, Yang GP, Biyashev R, Maughan PJ, Zhang Q (1996) Analysis of barley and rice genomes by comparative RFLP linkage mapping. *Theor Appl Genet* 92:541-551.
44. Liu KD, Zhou ZQ, Xu CG, Zhang Q, Saghai Maroof MA (1996) An analysis of hybrid sterility in rice using a diallel cross of 21 parents involving indica, japonica and wide compatibility varieties. *Euphytica* 90:275-280.
45. Zhang Q, Zhou ZQ, Yang GP, Xu CG, Liu KD, Saghai Maroof MA (1996) Molecular marker heterozygosity and hybrid performance in indica and japonica rice. *Theor Appl Genet* 93:1218-1224.
46. Liu KD, Yang GP, Zhu SH, Zhang Q, Wang XM, Saghai Maroof MA (1996) Extraordinarily polymorphic ribosomal DNA in wild and cultivated rice. *Genome* 39:1109-1116.
47. Lin XH, Zhang DP, Xie YF, Gao HP, Q Zhang (1996) Identifying and mapping a new gene for bacterial blight resistance in rice based on RFLP markers. *Phytopathology* 86:1156-1169.
48. Li C, Zhou C, Yang H, Li X, Zhang Q (1996) Development and molecular identification of pollen-somatic hybrid plants in *Brassica* spp. *Chinese Science Bulletin* 41:1564-1567.
49. Li C, Zhou C, Yang H, Li X, Zhang Q (1996) Studies on pollen-somatic protoplast fusion between *Brassica chinensis* and *B. juncea*. *J. Wuhan Botanical Research* 14:289-293.
50. Li HB, Zhang Q, Liu AM, Zou JS, Chen ZM (1996) A genetic analysis of low-temperature-sensitive sterility in indica-japonica rice hybrids. *Plant Breeding* 115:305-309.
51. Saghai Maroof MA, Yang GP, Zhang Q, Gravois KA (1997) Correlation between molecular marker distance and hybrid performance in U.S. Southern long grain rice. *Crop Science* 37:145-150.
52. Zhang Q, Liu KD, Yang GP, Saghai Maroof MA, Xu CG, Zhou ZQ (1997) Molecular marker diversity and hybrid sterility in indica-japonica rice crosses. *Theor Appl Genet* 95:112-118.
53. Wang S, Zhang Q, Maughan PJ, Saghai Maroof MA (1997) Copia-like retrotransposons in rice: heterogeneity, diversity and chromosomal locations. *Plant Molecular Biology* 33:1051-1058.
54. Liu KD, Wang J, Li HB, Xu CG, Liu AM, Li XH, Zhang Q (1997) A genome-wide analysis of wide compatibility in rice and the precise location of the *S<sub>5</sub>* locus in the molecular map. *Theor Appl Genet* 95:809-814.
55. Yu SB, Li JX, Xu CG, Tan YF, Gao YJ, Li XH, Zhang Q, Saghai Maroof MA (1997) Importance of epistasis as the genetic basis of heterosis in an elite rice hybrid. *Proc Natl Acad Sci USA* 94:9226-9231.
56. Yao FY, Xu CG, Yu SB, Li JX, Gao YJ, Li XH, Zhang Q (1997) Mapping and genetic analysis of two fertility restorer loci in the wild-abortive cytoplasmic male sterility system of rice. *Euphytica* 98:183-187.
57. Li HB, Wang J, Liu AM, Liu KD, Zhang Q, Zou JS (1997) Genetic basis of low-temperature-sensitive sterility in indica-japonica hybrids of rice as determined by RFLP analysis. *Theor Appl Genet* 95:1092-1097.
58. Wang FP, Mei MH, Xu CG, Zhang Q (1997) *pms1* genomic region does not cause fertility difference between the photoperiod-sensitive male sterile rice Nongken 58S and normal Nongken 58. *Acta Bot Sin* 39:922-925.

59. Xiong LZ, Liu KD, Dai XK, Wang SW, Zhang DP, Saghai Maroof MA, Sasaki T, Zhang Q (1997) A high density RFLP map based on the F<sub>2</sub> population of a cross between *Oryza sativa* and *O. rufipogon* using Cornell and RGP markers. Rice Genetic Newsletter 14:110-116.
60. Wang S, Liu KD, Wang J, Zhang Q (1998) Identifying candidate disease resistance genes in rice by sequence homology and chromosomal locations. Acta Bot Sin 40:42-50.
61. Xiong LZ, Yang GP, Xu CG, Zhang Q, Saghai Maroof MA (1998) Relationships of differential gene expression in leaves with heterosis and heterozygosity in a rice diallel cross. Molecular Breeding 4:129-136.
62. Yu SB, Li JX, Xu CG, Tan YF, Gao YJ, Li XH, Zhang Q, Saghai Maroof MA (1998) Epistasis plays an important role as the genetic basis of heterosis in rice. Science in China (Ser. C) 41:293-302.
63. Wang S, Zhang Q (1998) Retrotransposons in the genomes of higher plants. Acta Bot Sin 40:291-297.
64. Xiong L, Wang S, Liu K, Dai X, Saghai Maroof MA, Hu J, Zhang Q (1998) Distribution of simple sequence repeat and AFLP markers in molecular linkage map of rice. Acta Bot Sin 40:605-614.
65. Wang J, Liu KD, Xu CG, Li XH, Zhang Q (1998) The high level of wide-compatibility of 'Dular' has a complex genetic basis. Theor Appl Genet 97:407-412.
66. Tu J, Ona I, Zhang Q, Mew TW, Khush GS, Datta SK (1998) Transgenic rice variety 'IR72' with Xa21 is resistant to bacterial blight. Theor Appl Genet 97:31-36.
67. Peng KM, Zhang HB, Zhang Q (1998) A BAC library constructed to the rice cultivar "Minghui 63" for cloning genes of agronomic importance. Acta Bot Sin 40:1108-1114.
68. Zhu S, Zhang Q, Wang M (1998) Ribosomal DNA polymorphisms of the common wild rice from China. Acta Genetica Sinica 25:531-537.
69. Xiong LZ, Liu KD, Dai XK, Xu CG, Zhang Q (1999) Identification of genetic factors controlling domestication-related traits of rice using an F<sub>2</sub> population of a cross between *Oryza sativa* and *O. rufipogon*. Theor Appl Genet 98:243-251.
70. Xiong LZ, Xu CG, Saghai Maroof MA, Zhang Q (1999) Patterns of cytosine methylation in an elite rice hybrid and its parental lines detected by a methylation-sensitive amplification polymorphism technique. Mol Gen Genet 261: 439-446.
71. Peng K, Zhang Q (1999) A cosmid library constructed to the elite rice cultivar "Minghui 63". Acta Bot Sin 41:337-339.
72. Zhao MF, Li XH, Yang JB, Xu CG, Hu RY, Liu DJ, Zhang Q (1999) Relationship between molecular marker heterozygosity and hybrid performance in intra- and inter-subspecific crosses of rice. Plant Breeding 118:139-144.
73. Wang S, Liu N, Peng K, Zhang Q (1999) The distribution and copy number of *copia*-like retrotransposons in rice (*Oryza sativa* L.) and their implications in the organization and evolution of the rice genome. Proc Natl Acad Sci USA 96:6824-6828.
74. Tan YF, Li JX, Yu SB, Xing YZ, Xu CG, Zhang Q (1999) The three important traits for cooking and eating quality of rice grains are controlled by a single locus in an elite rice hybrid, Shanyou 63. Theor Appl Genet 99:642-648.
75. He YQ, Yang J, Xu CG, Zhang Z, Zhang Q (1999) Genetic bases of instability of male sterility and fertility reversibility in photoperiod-sensitive genic male sterile rice. Theor Appl Genet 99:683-693.
76. Mei MX, Dai XK, Xu CG, Zhang Q (1999) Mapping and genetic analysis of the genes for photoperiod-sensitive male sterility in rice using the original mutant Nongken 58S. Crop Science 19:1711-1715.
77. Mei M, Chen L, Zhang ZH, Li ZY, Xu CG, Zhang Q (1999) *pms3* is the locus causing the original photoperiod-sensitive male sterility mutation of 'Nongken 58S'. Science in China (series C) 42:316-322.
78. Wang S, Wang J, Jiang J, Zhang Q (2000) Mapping of centromeric regions on the molecular linkage map of rice (*Oryza sativa* L.) using centromere-associated sequences. Mol Gen Genet 263:165-172.
79. Chen S, Lin XH, Xu CG, Zhang Q (2000) Improvement of bacterial blight resistance of 'Minghui 63', an elite restorer line of hybrid rice, by molecular marker-assisted selection. Crop Science 239-244.

80. Chen S, Zhang Q (2000) Improvement of bacterial blight resistance of hybrid rice by molecular marker-assisted selection. *J Huazhong Agric Univ* 19:183-189.
81. Li JX, Yu SB, Xu CG, Tan YF, Gao YJ, Li XH, Zhang Q (2000) Analyzing quantitative trait loci for yield using a vegetatively replicated F<sub>2</sub> population from a cross between the parents of an elite rice hybrid. *Theor Appl Genet* 101:248-254.
82. Tu J, Datta K, Khush GS, Zhang Q, Datta SK (2000) Field performance of *Xa21* transgenic indica rice (*Oryza sativa* L.), IR72. *Theor Appl Genet*. 101:15-20.
83. Chen S, Zhang Q (2000) Molecular marker-assisted selection for improving bacterial blight resistance of hybrid rice. *Scientific Agriculture (Taiwan)* 48:111-119.
84. Tan YF, Xing YZ, Li JX, Yu SB, Xu CG, Zhang Q (2000) Genetic bases of appearance quality of rice grains in Shanyou 63, an elite rice hybrid. *Theor Appl Genet* 101:823-829.
85. Tu J, Zhang G, Datta K, Xu C, He Y, Zhang Q, Khush GS, Datta SK (2000) Field performance of transgenic elite commercial hybrid rice expressing *Bacillus thuringiensis*  $\delta$ -endotoxin. *Nature Biotechnology* 18:1101-1104.
86. Wang S, Liu K, Zhang Q (2000) Segmental duplications are common in the rice (*Oryza sativa* L.) genome. *Acta Bot Sin* 42:1150-1155.
87. Huang Z, He G, Shu L, Li X, Zhang Q (2001) Identification and mapping of two brown planthopper resistance genes in rice. *Theor Appl Genet* 102:929-934.
88. Chen S, Xu CG, Lin XH, Zhang Q (2001) Improving bacterial blight resistance of '6078', an elite restorer line of hybrid rice, by molecular marker-assisted selection. *Plant Breeding* 120:133-137.
89. Tan YF, Zhang Q (2001) Correlation of SSR variants in the leader sequence of the *Waxy* gene with amylose content of the grain in rice. *Acta Bot Sin* 43:146-150.
90. Li X, Lu Q, Wang F, Xu C, Zhang Q (2001) Separation of the two-locus inheritance of photoperiod sensitive genic male sterility in rice and precise mapping the *pms3* locus. *Euphytica* 119:343-348
91. Chen HL, Chen BT, Zhang DP, Xie YF, Zhang Q (2001) Pathotypes of *Pyricularia grisea* in rice fields of central and southern China. *Plant Disease* 85:843-850.
92. Liu N, Shan Y, Wang FP, Xu CG, Peng KM, Li XH, Zhang Q (2001) Identification of an 85 kb DNA fragment containing *pms1*, a locus for photoperiod-sensitive genic male sterility in rice. *Mol Genet Genomics* 266:271-275.
93. Tan YF, M Sun, Xing, YZ, Hua JP, Sun XL, Zhang QF, Corke H (2001) Mapping quantitative trait loci for milling quality, protein content and color characteristics of rice using a recombinant inbred line population derived from an elite rice hybrid. *Theor Appl Genet* 103:1037-1045.
94. Yu SB, Li JX, Xu CG, Tan YF, Li XH, Zhang Q (2002) Identification of quantitative trait loci and epistatic interactions for plant height and heading date in rice. *Theor Appl Genet* 104:619-625.
95. Chen HL, Wang S, Zhang Q (2002) New gene for bacterial blight resistance in rice located on chromosome 12 identified from Minghui 63, an elite restorer line. *Phytopathology* 92:750-754.
96. Xing YZ, Tan YF, Hua JP, Sun XL, Xu CG, Zhang Q (2002) Characterization of the main effects, epistatic effects and their environmental interactions of QTLs in the genetic basis of yield traits in rice. *Theor Appl Genet* 105:248-257.
97. Han YP, Xing YZ, Chen ZX, Gu SL, Pan XB, Chen XL, Zhang Q (2002) Mapping QTLs for horizontal resistance to sheath blight in an elite rice restorer line, Minghui 63. *Acta Genetica Sinica* 29:622-626.
98. Zhou B, Peng K, Chu Z, Wang S, Zhang Q (2002) The defense responsive genes showing enhanced and repressed expression after pathogen infection in rice (*Oryza sativa* L.). *Science in China* 45:449-467.
99. Xiong M, Wang S, Zhang Q (2002) Coincidence in map positions between pathogen-induced defense-responsive genes and quantitative resistance loci in rice. *Science in China* 45:518-526.
100. Li R, Zhang Z, Zhang Q (2002) Transformation of japonica rice with *RHL* gene and salt tolerance of the transgenic rice plant. *Chin Scie Bull* 47:998-1002.
101. Cui KH, Peng SB, Xing YZ, Xu CG, Yu SB, Zhang Q (2002) Molecular dissection of seedling vigor and associated physiological traits in rice. *Theor Appl Genet* 105:745-753.
102. Hua JP, Xing YZ, Xu CG, Sun XL, Yu SB, Zhang Q (2002) Genetic dissection of an elite rice hybrid revealed that heterozygotes are not always advantageous for performance. *Genetics* 162:1885-1895.



103. McCouch SR, Teytelman L, Xu Y, Lobos KB, Clare K, Walton M, Fu B, Maghirang R, Li Z, Xing Y, Zhang Q, Kono I, Yano M, Fjellstrom R, DeClerck G, Schneider D, Cartinhour S, Ware D, Stein L (2002) Development and mapping of 2240 new SSR markers for rice (*Oryza sativa* L.). *DNA Res* 9:199-207.
104. Zhou PH, Tan YF, He YQ, Xu CG, Zhang Q (2003) Simultaneous improvement for four quality traits of Zhenshan 97, an elite parent of hybrid rice, by molecular marker-assisted selection. *Theor Appl Genet* 106:326-331.
105. Cui KH, Peng SB, Xing YZ, Xu CG, Yu SB, Zhang Q (2003) Molecular dissection of the genetic relationships of source, sink and transport tissue with yield traits in rice. *Theor Appl Genet* 106:649-658.
106. Chen H, Wang S, Xing Y, Xu C, Hayes PM, Zhang Q (2003) Comparative analyses of genomic locations and race specificities of loci for quantitative resistance to *Pyricularia grisea* in rice and barley. *Proc Natl Acad Sci USA* 100:2544-2549.
107. Hua J, Xing Y, Wu W, Xu C, Sun X, Yu S, Zhang Q (2003) Single-locus heterotic effects and dominance by dominance interactions can adequately explain the genetic basis of heterosis in an elite rice hybrid. *Proc Natl Acad Sci USA* 100:2574-2579.
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6. Zhang, Q. 1996. Molecular diversity of rice germplasm and correlation between marker divergence and heterosis. Crop Research in Asia: Achievements and Perspective, Proceedings of the 2nd Asian Crop Science Conference, Fukui, Japan, August 21-23, 1995, edited by R. Ishii and T. Horie, pp 314-319.
7. Zhang, Q., M. A. Saghai Maroof, G. P. Yang, K. D. Liu, Z. Q. Zhou, K. A. Gravois, C. G. Xu and Y. J. Gao. 1995. Relationship between molecular marker polymorphism and hybrid performance in rice. In Rice Genetics III edited by G. S. Khush, Proceedings of the 3rd International Rice Genetics Symposium, Manila, Philippines, October 16-20, 1995, pp 317-326.
8. Zhang, Q. and N. Huang. 1996. Mapping and molecular marker-based genetic analysis of fertility related genes for efficient hybrid rice breeding. In: Advances in Hybrid Rice Technology edited by S. S. Virmani, E. A. Siddiq and K. Muralidharah, Proceedings of 3rd International Symposium on Hybrid rice. November 14-16, 1996, Hyderabad, India, pp. 243-256.
9. Zhang, Q. and J. Li. 1998. Progresses in the studies of genetic and molecular bases of heterosis in rice. Proceedings of the Symposium on Crop Breeding, Crop Science Society of China, April 13-14, Beijing, edited by L. Z. Wang and J. R. Dai, Agricultural Science and Technology Press of China, pp. 1-10.
10. Zhang, Q. 1999. Agricultural biotechnology opportunities to meet the challenges of food production. In: Agricultural Biotechnology and the Poor edited by G. J. Persley and M. M. Lantin, Proceedings of an International Conference, Consultative Group on International Agricultural Research and US National Academy of Sciences, Washington DC, October 21-22, 1999, pp. 45-50.
11. Zhang, Q., J. Hua, S. Yu, L. Xiong and C. Xu. 2001. Genetic and molecular basis of heterosis in rice. In: Rice Genetics IV edited by G. S. Khush, D. S. Brar and B. Hardy, International Rice Research Institute, Los Baños, Philippines, pp 173-185.
12. Zhang, Q. and Z. Li. 2003. Advances in the understanding of the genetic basis of heterosis in rice. In Hybrid Rice for Food Security, Poverty Alleviation, and Environmental Protection edited by SS Virmani, C.X. Mao and B. Hardy, International Rice Research Institute, Los Baños, Philippines, pp 119-134.

### **Plenary and invited presentations in international meetings**

1. Zhang Q (1994) Molecular marker based genetic analysis of male sterility and heterosis in rice. Plenary session speech, Seventh Meeting of the Rockefeller Foundation's International Program on Rice Biotechnology, May 16-20, 1994, Bali, Indonesia.
2. Zhang Q (1995) Molecular diversity of rice germplasm and correlation between marker divergence and heterosis. Invited speech, 2nd Asian Crop Science Conference, August 21-23, 1995, Fukui, Japan.
3. Zhang Q (1995) Predicting heterosis in rice using molecular markers. Invited speech, FPU Symposium on Bioscience II, August 24, Fukui, Japan.
4. Zhang, Q., M. A. Saghai Maroof, G. P. Yang, K. D. Liu, Z. Q. Zhou, K. A. Gravois, C. G. Xu and Y. J. Gao. 1995. Relationship between molecular marker polymorphism and hybrid performance

- in rice. Plenary session speech, 3rd International Rice Genetics Symposium, October 16-20, 1995, Manila, Philippines.
5. Zhang Q (1996) Genetic and molecular basis of indica-japonica hybrid sterility in rice. Plenary speech (invited but unable to attend), Fifth International symposium on rice molecular biology. October 14-15, 1996, Taipei, Taiwan.
  6. Zhang Q, Huang N (1996) Mapping and molecular marker-based genetic analysis of fertility related genes for efficient hybrid rice breeding. Plenary session speech, 3rd International Symposium on Hybrid rice. November 14-16, 1996, Hyderabad, India.
  7. Yu, S. B., J. X. Li, C. G. Xu, Y. F. Tan, Y. J. Gao, X. H. Li, Q. Zhang and M. A. Saghai Maroof. 1997. Evaluation of epistasis as the genetic basis of heterosis in rice. Plenary session speech. General Meeting of the Rockefeller Foundation's International Program on Rice Biotechnology, September 16-19, 1997, Malacca, Malaysia.
  8. Zhang Q (1998) Genome studies and rice genetic improvement. Invited speech, 14th Australasian Biotechnology Conference. April 19-23, 1998, Adelaide, Australia.
  9. Zhang Q (1998) Genetic and molecular basis of heterosis in rice. Invited Symposium Speech, 18<sup>th</sup> International Genetics Congress. August 10-15, 1998, Beijing.
  10. Zhang Q (1998) Genome research and rice genetic improvement. Invited plenary session speech, 6<sup>th</sup> International Symposium on rice molecular biology, October 31-November 2, 1998, Shanghai and Hangzhou.
  11. Zhang Q (1999) Progresses in map-based cloning of *pms1*, *S5* and *Xa22* genes. Invited workshop speech, Plant & Animal Genome IV. The International Conference on the Status of Plant & Animal Genome Research, January 17-21, 1999, San Diego.
  12. Hua, J. P., Y. Z. Xing, C. G. Xu, X. L. Sun and Q. Zhang. 1999. Mapping heterosis using an immortalized F<sub>2</sub> population. Plenary session speech, General Meeting of the Rockefeller Foundation's International Program on Rice Biotechnology, September 21-25, 1999, Phuket, Thailand.
  13. Zhang Q (1999) Meeting the challenges of food production: the opportunities of agricultural biotechnology in China. Invited speech, Ensuring Food Security, Protecting the Environment, and Reducing Poverty in Developing Countries: Can Biotechnology Help? –An International Conference on Biotechnology, October 21-22, 1999, The World Bank, Washington DC.
  14. Zhang Q (2000) Improvement of hybrid rice by molecular breeding. China-ASEN Workshop on Transgenic Plants. July 30-August 5, 2000, Beijing.
  15. Zhang Q (2000) Biotechnology for crop improvement – The Chinese rice program. Keynote speech, US/China Conference on Cooperation in Agriculture, September 25-26, 2000, Riverside, California.
  16. Zhang, Q. J. Hua, S. Yu, L. Xiong, and C. Xu. 2000. Genetic and molecular basis of heterosis in rice. Plenary session speech, 4<sup>th</sup> International Rice Genetics Symposium, October 23-27, 2000, IRRI, Philippines.
  17. Zhang Q (2001) Improvement of hybrid rice by molecular breeding. Plant & Animal Genome IX, The International Conference on the Status of Plant & Animal Genome Research, January 13-17, 2001, San Diego.
  18. Zhang Q (2001) Functional genomics and crop improvement for sustainable agriculture. Sino-Germen Workshop on Sustainable Agricultural Production in China, December 12-15, 2001, Beijing.
  19. Zhang Q, Li Z (2002) Advances in the understanding of the genetic basis of heterosis in rice. Plenary session speech, 4<sup>th</sup> International Symposium on Hybrid Rice, May 14-17, 2002, Hanoi.
  20. Zhang Q (2002) Progresses in genetic and molecular understanding of drought tolerance for the improvement of irrigated rice under drought stressed conditions in central and southern China. Invited speech, An International Workshop on Progress Toward Developing resilient Crops for Drought-Prone Areas, May 27-30, 2002, IRRI, Philippines.
  21. Zhang Q (2002) A national initiative of China on rice functional genomics. Invited symposium speech, International Rice Congress, September 16-19, 2002, Beijing.
  22. Zhang Q (2002) Advances in understanding the genetic basis of heterosis in rice. Invited speech, 1<sup>st</sup> International Symposium on Crop Genomics and Improvement, September 21-24, 2002, Wuhan.
  23. Zhang Q (2002) Genomics-based genetic understanding and improvement of hybrid rice. Invited speech, A Symposium on Plant Breeding Aspects of Genomics. Korean Society of Breeding, October 24-25, 2002, Suanbo, Korea.



24. Zhang Q (2003) Progresses on rice functional genomics in China. The First International Symposium on Rice Functional Genomics. November 19-21, 2003, Shanghai.
25. Zhang Q (2004) An Overview of Rice Functional Genomics Research in China. Invited Plenary speech, Crop Functional Genomics 2004. April 7-10, Jeju, Korea.
26. Yue B, Zhang ZL, Jin DM, Cui KH, Xue WY, Xiong L, Zhang Q (2004) Genetic and molecular understanding of drought tolerance for the improvement of irrigated rice under drought stressed conditions in central and southern China. Plenary talk, Resilient Crops for Water Limited Conditions. May 23-28, 2004, Cuernavaca, Mexico.
27. Xu Y, Zhang Q (2004) The Rice Genome: Implications for breeding rice and other cereals. Invited symposium speech, 4<sup>th</sup> International Crop Science Congress. September 26-October 1, Brisbane, Australia.
28. Zhang Q, Lian X, Zhou Z, Zhao Z, Xu C, Wang S, Zhang J, Yuan D, Li X (2004) Genomics approaches to improving nitrogen use efficiency of rice. Plenary speech, 2<sup>nd</sup> International Symposium on Rice Functional Genomics, November 15-17, 2004, Tucson, USA.
29. Zhang Q (2005) Why does China need GM crops? Invited keynote speech, A Workshop on Genetically Modified Organisms in Crops: Present Status and Perspectives, January 25, 2005, Bologna, Italy.
30. Zhang Q (2005) In search of genetic and molecular basis of heterosis in rice. Invited speech, Heterosis in Plants, 20<sup>th</sup> Colloquium, University Hohenheim, January 27, 2005, Stuttgart, Germany.
31. Zhang Q (2005) The Chinese program on rice functional genomics. Invited keynote speech, 2<sup>nd</sup> UK Small Grain Cereals Workshop, March 9-11, 2005, Aberdeen, UK.
32. Zhang Q (2005) Integration of germplasm, functional genomics and rice genetic improvement. Invited speech, International Symposium on Genomics-Based Plant Germplasm Research, April 25-28, 2005, Beijing, China.
33. Zhang Q (2005) Genomics approaches to improving nitrogen use efficiency in rice. The Annals of Botany Lecture, 15<sup>th</sup> International Plant Nutrition Colloquium, September 14-19, 2005, Beijing, China.
34. Zhang Q (2005) Genomics-based strategies for the development of “green super rice”. Invited plenary speech, 5<sup>th</sup> International Rice Genetics Symposium and 3<sup>rd</sup> International Symposium on Rice Functional Genomics, November 19-23, 2005, Manila, Philippines.
35. Zhang Q (2006) Why heterosis is low in grain weight of cereals? Invited keynote speech, A Symposium 'Heterosis in Plants', May 18-20, 2006, Max-Planck-Institute of Molecular Plant Physiology in Potsdam/Golm, Germany.
36. Zhang Q (2006) Genomics-based strategies toward the development of “green super rice”. Invited plenary speech, 11<sup>th</sup> International Congress of Plant Tissue Culture and Biotechnology, August 15-18, 2006, Beijing, China.
37. Zhang Q (2006) Progresses in research and development of transgenic crops in China. Invited speech, The First International Forum on Agricultural GMOs. September 20-21, 2006, Beijing, China.
38. Zhang Q (2006) A rice mutant library developed using an enhancer trap construct and its utilization in functional analysis of the rice genome. Invited speech, 4<sup>th</sup> International Rice Functional Genomics Symposium. October 9-11, 2006, Montpellier, France
39. Zhang Q (2006) Genomics-based strategies toward the development of “green super rice”. Invited plenary speech, 5<sup>th</sup> Plant Genomics European Meeting. October 11-14, 2006, Venice, Italy.
40. Zhang Q (2007) Progresses in rice functional genomic research in China. Invited speech, Gordon Research Conference in Agricultural Sciences, March 11-16, Ventura, CA, USA.
41. Zhang, Q. 2007. Genomics-based strategies for the development of “green super rice”. Invited plenary speech, Second International Conference of Plant Molecular Breeding, March 23-25, Sanya, China
42. Zhang Q (2007) A major QTL simultaneously controlling yield, plant height and heading date. Invited plenary speech, 18<sup>th</sup> International Congress on Arabidopsis Research, June 21-24, Beijing, China.
43. Zhang Q (2007) Genetic basis of heterosis in crop plants. Invited plenary speech, 3<sup>rd</sup> International Congress of Quantitative Genetics, August 20-24, Hangzhou, China.

44. Zhang Q (2008) Cloning and characterization of QTLs for yield traits in rice. Invited talk, Plant & Animal Genome XVI, The International Conference on the Status of Plant & Animal Genome Research, January 12-16, 2008, San Diego.
45. Zhang Q (2008) Functional Genomics and Green Super Rice. Invited plenary speech, Fifth International Crop Science Congress, April 13-18, 2008, Jeju, Korea.
46. Zhang Q (2008) Genomic based strategies and practice toward the development of Green Super Rice. Invited plenary talk, The 5th International Hybrid Rice Symposium, September 12-14, 2008, Changsha.
47. Zhang Q (2008) Cloning and analysis of QTLs for yield traits in rice. Invited plenary talk, The 6th International Symposium of Rice Functional Genomics, November 10-12, 2008, Jeju, Korea.
48. Zhang Q (2009) Genetic and molecular characterization of inter-subspecific hybrid sterility and wide compatibility in rice. Invited talk, The International Conference on the Status of Plant & Animal Genome Research, January 10-14, 2009, San Diego.
49. Zhang Q (2009) Strategies and practice toward the development of Green Super Rice. Invited opening plenary talk, International Conference on Plant Vascular Biology and Agriculture, June 21-24, 2009, Chongqing.
50. Zhang Q (2009) Rice functional genomics research in China. Invited talk: ASPB (American Society of Plant Biologists) 2009, ASPB-CSPP (Chinese Society of Plant Physiology) joint symposium, Hawaii.
51. Zhang Q (2009) Maintaining food production under environmental challenge: the biologists response. Invited plenary talk, INTERDROUGHT-III, October 12-16, 2009, Shanghai.
52. Zhang Q (2009) Current status of transgenic rice in China. Invited symposium talk, 9<sup>th</sup> International Congress Plant Molecular Biology, October 12-16, 2009, St Louis, USA.
53. Zhang Q (2009) Genetic and molecular basis of yield and heterosis: progresses from the analyses of an elite hybrid. Invited plenary talk, 6<sup>th</sup> International Symposium on Rice Genetics/7<sup>th</sup> International Symposium on Rice Functional Genomics, November 16-18, 2009, Manila, Philippines.
54. Zhang Q (2010) Ultra-high density molecular markers for dissecting quantitative variations in a rice RIL population. Invited talk, The International Conference on the Status of Plant & Animal Genome Research, January 9-14, 2010 San Diego.
55. Zhang Q (2010) Green Super Rice: progress and perspectives. Invited Keynote presentation First International Symposium on Molecular Strategies for Crop Improvement, May 29-30, 2010, Beijing.
56. Zhang Q (2010) Rice functional genomics: progress and implications for crop genetic improvement. Invited plenary talk, 21 International Conference of Arabidopsis Research, June 6-10, Yokohama, Japan.
57. Zhang Q (2010) Rice functional genomics: progress and implications for crop genetic improvement. Invited plenary talk, 3<sup>rd</sup> International Conference on Crop Molecular Breeding, September 6-8, 2010, Beijing
58. Zhang Q (2010) Genomics, transgenics and rice genetic improvement. Invited main lecture, 14th International Biotechnology Symposium and Exhibition, September 14-16, 2010, Rimini, Italy.
59. Zhang Q (2011) Rice functional genomics research: progress and implications for crop genetic improvement. Opening Key Note Lecture, Status Seminar, March 15-17, 2011, Potsdam.
60. Zhang Q (2011) Using the rice hybrid Shanyou 63 as a model for systems biology studies. Invited Plenary talk, 2nd International Conference on Plant Metabolism, June 30-July 1-3, 2011, Qingdao.
61. Zhang Q (2011) Genetic and molecular characterization of grain size. Plenary talk, 9<sup>th</sup> International Symposium on Rice Functional Genomics, November 7-9, 2011, Taipei.
62. Zhang Q (2012) Genetic and molecular understanding of sub-specific reproductive isolation between *indica* and *japonica* rice. Invited plenary talk, Plant Reproduction for Food XXII International Congress on Sexual Plant Reproduction, February 13-17, Melbourne, Australia.
63. Zhang Q (2012) Genetic composition of yield heterosis in an elite rice hybrid. Invited talk, China-JIC Symposium, April 26-27, Shanghai.
64. Zhang Q (2012) Plant breeding in coming years. Invited talk, Nature Conference Frontiers in plant biology: From discovery to applications. October 3-5, 2012, Aula Ghent University, Ghent, Belgium

65. Zhang Q (2012) Understanding reproductive isolation based on the rice model. Invited talk, Symposium of the Zurich-Basel Plant Science Center: Trends and advances in plant biology, October 19, 2012, Zurich, Switzerland.
66. Zhang Q (2012) Genetic composition of yield heterosis in an elite rice hybrid. Invited talk (concurrent session), 10th International Congress on Plant Molecular Biology, October 21-26, 2012, Jeju, Korea.
67. Zhang Q (2012) Rice2020. Invited plenary talk, 10th International Symposium on Rice Functional Genomics. November 26-29, 2012, Chiangmai, Thailand.
68. Zhang Q (2012) A killer-protector system regulates hybrid sterility and segregation distortion in rice. Invited talk (concurrent session), 10th International Symposium on Rice Functional Genomics. November 26-29, 2012, Chiangmai, Thailand.
69. Zhang Q (2013) Rice genomics and biotechnology: feeding the billions. Plenary talk, Joint Conference of HGM 2013 and 21st International Congress of Genetics. April 13-18, 2013, Singapore.
70. Zhang Q (2013) Rice genetic improvement in the post genomics era. Invited talk, Korean Breeding Society Symposium: Strategies on Genomics-assisted breeding and Seed biotechnology. July 4-5, 2013, Cheongju City, Korea
71. Zhang Q (2013) Understanding reproductive isolation based on the rice model. Plenary talk, SCBA 14th International Conference, July 19-22, 2013, Xi'an.
72. Zhang Q (2013) Crop genomics and biotechnology: feeding the billions -- a rice case. Invited Opening lecture, The 10th International Congress of Plant Pathology, August 25-30, 2013, Beijing.
73. Zhang Q (2013) Understanding reproductive isolation based on the rice model. Plenary talk, 11th International Symposium on Rice Functional Genomics. November 20-23, 2013, New Delhi.