

CURRICULUM VITAE

ZHU, Heng

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DEMOGRAPHIC INFORMATION

Current Appointments:

Assistant Professor, Department of Pharmacology
Johns Hopkins University School of Medicine, Baltimore, MD 21205
Investigator, Center for High-throughput Biology
Johns Hopkins University School of Medicine, Baltimore, MD 21205

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Education And Training (in chronological order):

	<u>Degrees/Year</u>	<u>Institution</u>	<u>Discipline</u>
• Undergraduate	BS/1990	Peking University	Chemistry
• Doctoral/graduate	PhD/1999	Clemson University	Genetics
• Postdoctoral	99-04	Yale University	Proteomics

Professional Experience (in chronological order):

<u>Dates</u>	<u>Positions</u>	<u>Institutions</u>
• 09/90-12/93	Research Assistant	Institute of Genetics, CAS
• 01/94-02/99	Ph. D. Candidate	Clemson University
• 03/99-02/04	Postdoctoral Fellow	Yale University
• 02/04-present	Assistant Professor	Johns Hopkins University School of Medicine

RESEARCH ACTIVITIES

Publications

- Peer-reviewed original research articles
1. **Zhu H** & Zhu L-H. A novel DNA purification method from fungi. *Acta Mycologia* 1993; 45: 354-9.
 2. **Zhu H** & Zhu L-H. DNA fingerprinting of the field isolates of the rice blast fungus in East Asia. *Mycologia* 1993; 5: 56-61.
 3. **Zhu H**, Qu F, Zhu L-H. A novel DNA isolation method using benzyl chloride. *Nucl. Acids Res.* 1993; 34: 1156-7.
 4. **Zhu H**, Chen ML, Zhu L-H, Jiang WR, Wang JL, Lei CL, Ling ZZ. DNA fingerprinting the pathogenicity in the rice blast fungus. *Acta Agronomica Sinica* 1994; 20: 257-63.

5. DM Li, Wang DL, Li RY, **Zhu H**, Zhu L-H. Fingerprinting the clinical isolates of *Candida albican* using RAPD markers. *Acta Mycologica Sinica* 1995; 14: 123-9.
6. YB Xu, Shen ZT, Xu JC, **Zhu H**, Chen Y, Zhu L-H. Interval mapping quantitative-trait loci using molecular markers in rice (*Oryza sativa* L.). *Science in China* (Series B) 1995; 38: 971-6.
7. **Zhu H**, Zhang Q, Wang CL, Yang WC, Zhu L-H. RAPD fingerprints of the rice blight pathogen, *Xanthomonas oryzae* pv. *oryzae*. *Chinese Journal of Biotechnology* 1995; 11: 281-4.
8. **Zhu H**, Zhai W, Chen M, Wang J, Lei CL, Ling ZZ, Zhu L-H. Fingerprinting field isolates using a repetitive element POR6 in *Pyricularia oryzae*. *Acta Mycologica Sinica* 1995; 14: 218-25.
9. **Zhu H**, Whitehead DS, Lee Y-H, Dean RA. Genetic analysis of developmental mutants and rapid chromosome mapping of *APP1*, a gene required for appressorium formation in *Magnaporthe grisea*. *Mol. Plant-Microbe. Interact.* 1996; 9: 767-74.
10. **Zhu H**, Choi SD, Johnston AK, Wing RA, Dean RA. A large-insert (130 kbp) bacterial artificial chromosome library of the rice blast fungus *Magnaporthe grisea*: genome analysis, contig assembly, and gene cloning. *Fungal Gen. Biol.* 1997; 21: 337-47.
11. **Zhu H** & Dean RA. A novel method increases the transformation efficiency by 70-fold in the construction of a bacterial artificial chromosome (BAC) library. *Nucl. Acids Res.* 1999; 27: 910-1.
12. **Zhu H**, Blackmon BP, Sasinowski M, Dean RA. Physical map and organization of chromosome 7 in the rice blast fungus, *Magnaporthe grisea*. *Genome Res.* 1999; 9: 751-62.
13. **Zhu H**, Klemic JF, Chang S, Bertone P, Casamayor A, Klemic KG, Smith D, Gerstein M, Reed MA, Snyder M. Analysis of yeast protein kinases using protein chips. *Nat. Genet.* 2000; 26: 283-9.
14. **Zhu H**, Bilgin M, Bangham R, Hall D, Casamayor A, Bertone P, Lan N, Jansen R, Bidlingmaier S, Houfek T, Mitchell T, Miller P, Dean RA, Gerstein M, Snyder M. Global analysis of protein activities using proteome chips. *Science* 2001; 293:2101-5.
15. Kafadar KA, **Zhu H**, Snyder M, Cyert MS. Negative regulation of calcineurin signaling by Hrr25p, a yeast homolog of casein kinase I. *Genes Dev.* 2003; 17:2698-708.
16. Hall DA, **Zhu H**, Zhu X, Royce T, Gerstein M, Snyder M. Regulation of gene expression by a metabolic enzyme. *Science* 2004; 306:482-4.
17. Huang J, **Zhu H**, Haggarty SJ, Spring DR, Hwang H, Snyder M, Schreiber SL. Finding new genetic modifiers of the TOR signaling pathway through chemical genetics and proteome chips. *Proc Natl Acad Sci U S A* 2004; 101:16594-9.

• Review articles

1. **Zhu H** & Snyder M. Protein arrays and microarrays. *Curr. Opin. Chem. Biol.* 2001; 5:40-5.
2. **Zhu H** & Snyder M. Biochemical assays in a chip format. *Curr. Drug Disc.*

- 2001; 6:31-4.
3. **Zhu H** & Snyder M. 'Omic' approaches for unraveling signaling networks. *Curr. Opin. Cell Biol.* 2002; 14:173-9.
 4. **Zhu H**, Bilgin M, Snyder M. Proteomics. *Ave. Rev. Biochem.* 2003; 72:783-812.
 5. Phizicky E, Bastiaens PI, **Zhu H**, Snyder M, Fields S. Protein analysis on a proteomic scale. *Nature* 2003; 422:208-15.

- Editorials
- Letters, correspondence
- Book Chapters, Monographs
- 1. Dean RA, Gilbert RW, Liu SH, Mitchell TK, **Zhu H**. Signal transduction in appressorium formation. In: *Fungal Molecular Biology*. Ed Edward, RS, APS Academy.1996; pp. 328-47.
- Books, Textbooks
- Other media

Inventions, Patents, Copyrights (pending, awarded):

<u>Date</u>	<u>Title</u>
2001	Global analysis of protein activities using proteome chips.
2001	Protein chips for high-throughput screening of protein activity.

Extramural Sponsorship:

- Grants

RFA RM-04-005 09/01/04-08/31/09
 NIH/NTCNP
 Networks and Pathways of Lysine Modification
 The major goals of this project are to identify posttranslational modifications on lysine residues, including acetylation, methylation, ubiquitylation and sumoylation, and their corresponding enzymes and function.
 Role: Co-Investigator
- Contracts

EDUCATIONAL ACTIVITIES

Teaching:

Protein Bioinformatics

Mentoring:

Mr. Jian Zhu

Editorial Activities:

CLINICAL ACTIVITIES

N/A

RECOGNITION

Awards, Honors:

Postdoctoral fellowship, 2000-2004, Damon Runyon Cancer Research Foundation Chair's Award, June 2000, the Gordon Research Conference Chair's Award, July 1998, the Gordon Research Conference Member of Gamma Sigma Delta, 1994-1999, the Honor Society of Agriculture

Invited Talks, Panels:

1. Applications of functional protein chips. November 2004, Emory University, Atlanta, GA.
2. Applications of functional protein microarrays. September 2004, IBC's Chips to Hits 2004, Boston, MA.
3. Global analysis of protein activities using proteome chips. November 2002, Biochip Technologies 2002, Beijing, China.
4. Global analysis of protein activities using proteome chips. February 2002, Seminar at North Carolina State University, Raleigh, NC.
5. Global analysis of protein activities using proteome chips. March 2002, IBC's Enzyme Technologies, San Francisco, CA.
6. Global analysis of protein activities using proteome chips. March 2002, IBC's Emerging Microarray Technologies, San Diego, CA.
7. Global analysis of protein activities using proteome chips. October 2001, the Chips to Hits Conference, San Diego, CA.
8. Global analysis of protein activities using proteome chips. September 2001, Microarray Technology Summit, Princeton, NJ.
9. Global analysis of protein activities using proteome chips. September 2001, CHI Nanotechnology Conference, Columbus, OH.
10. Analysis of yeast protein kinases using protein chips. June 2001, the CFBS Annual Meeting, Ottawa, Canada.
11. Analysis of yeast protein kinases using protein chips. March 2001, IBC's Protein Microarray Technology Conference, San Diego, CA.
12. Analysis of yeast protein kinases using protein chips. July 2000, Yeast Genetics & Molecular Biology Meeting, Seattle, WA.
13. Localization and expression profiling of genes expressed during appressorium formation on chromosome 7 in *Magnaporthe grisea*. March 1999, 20th Fungal Genetic Conference, Asilomar, CA.
14. Physical map construction of chromosome 7 in the rice blast fungus, *Magnaporthe grisea*. July 1998, the 49th International Genetics Conference, Beijing, China.
15. BAC library and Physical map construction of chromosome 7 in the rice blast fungus, *Magnaporthe grisea*. July 1998, 10th Xiangshan Scientific Symposium, Beijing, China.

16. A physical map and gene expression profile of *M. grisea* chromosome 7. November 1998, Annual Meeting of American Phytopathology Society, Las Vegas, NV.
17. A large-insert (130 kbp) bacterial artificial chromosome library of the rice blast fungus *Magnaporthe grisea*: genome analysis, contig assembly, and gene cloning. August 1997, Annual Meeting of American Phytopathology Society, Rochester, NY.