

CURRICULUM VITAE

Revised 10/2012

TUAN-HUA DAVID HO (賀端華)

Education:

B.S. in Botany, 1970
Department of Botany
National Taiwan University
Taipei, Taiwan

Ph.D. in Biochemistry, 1976
Department of Biochemistry and
MSU/DOE Plant Research Laboratory
Michigan State University
East Lansing, MI
USA

Professional Experience:

1. 1975 - 1976 Research Associate, Department of Biology
Washington University, St. Louis, USA
2. 1976 - 1978 Jane Coffin Childs Memorial Foundation
Postdoctoral Fellow, Department of Biology
M.I.T., USA
3. 1978 - 1984 Assistant Professor, Department of Botany
University of Illinois, USA
4. 1990 Visiting Professor, Institute of Molecular Biology
Academia Sinica, Taiwan
5. 1984 -1992 Associate Professor, Department of Biology
Washington University, St. Louis, USA
6. 1993- Professor, Department of Biology
Washington University, St. Louis, USA
7. 1998-2003 Associate Chair, Dept of Biology, Washington Univ,
St. Louis, USA
8. 2003-2008 Distinguished Research Fellow and Director,
Inst of Plant and Microbial Biology, Academia Sinica,
Taiwan
9. 2004-2008 Director-General, National Science and Technology
Program—Agricultural Biotechnology, Taiwan
10. 2004- Adjunct professor, National Chung Hsing Univ,
National Central Univ & National Cheng Kung Univ,
Taiwan
11. 2009- Distinguished Visiting Scholar, Academia Sinica,
Taiwan
12. 2009- Distinguished Chair Professor (part time), College of
Life Sciences, National Taiwan Univ, Taiwan

13. 2008- Distinguished Chair Professor (part time), College of Life Sciences, National Tsing Hua Univ, Taiwan
14. 2012- Distinguished Research Fellow, Inst of Plant and Microbial Biology, Academia Sinica

Other Professional Activities:

a. Honors:

Samuel Reader Scholarship, 1977, Alton Jones Cell Science Center, Lake Placid, New York, USA
 Jane Coffin Childs Fund Fellowship, 1976-1978, M.I.T., USA
 Fellow, Center for Advanced Study, University of Illinois, USA 1982-1983.
 Robert H. and Katherine Burris Distinguished Lecturer, South Dakota State Univ, 1993
 UNESCO Professorship, Peking University, China, 1994
 Academician (elected member), Academia Sinica, Taipei, Taiwan, elected 2002
 ISI Most-cited researcher in Animal and Plant Sciences, since 2003
 Elected Fellow, American Association for the Advancement of Science (AAAS), 2004
 Elected member, TWAS, the Academy of Sciences for the Developing World, 2004
 President-Elect, President and Immediate Past President, American Society of Plant Biologists (ASPB), 2008-2011

b. Review panel member/manager for US federal funding agencies:

Panel Member, USDA-CRGO, Genetic Mechanism Program, 1981-1982.
 Panel Member, USDA-CRGO, Stress Biology Program, 1985-1986
 Panel Member, US National Science Foundation, Developmental Biology Program, (1987-1990)
 Manager, USDA-National Research Initiative, Plant Response to Stress Program (1992/93)
 Panel Member, US National Research Council, NSF Fellowship (1993, 1994)
 Panel Member, USDA-NRI, Special Grants Panel (1994)
 Panel Chair, USDA OSQR NP302, Plant Mol Biology (2000/2001)
 Panel member, USDA NP302 Plant Mol Biol review panel (2004)
 Chair, USDA National Program-302 Plant Mol Biol review panel (2009)
 Panel member, US National Science Foundation, Signaling Process, 2011-
 Panel member, University Research Council, Hong Kong, 2010-

c. Journal editor:

Member of Editorial Board, PLANT PHYSIOLOGY (1983-1992)
 Member of Editorial Board, DEVELOPMENTAL GENETICS (1984-1990).
 Member of Editorial Board, JOURNAL OF PLANT GROWTH REGULATION (1989-2004)
 Member of Editorial Board, BOTANICAL STUDIES (BBAS)(1988-)
 Member of Editorial Board, TAIWANIA (1992-2002)
 Monitoring Editor, PLANT PHYSIOLOGY (1995-2000)
 Member, Editorial Board, PLANT CELL PHYSIOLOGY (2004-2008)

d. Others:

Director, Plant Biology Program, Division of Biology and Biomedical Sciences, Washington University, USA 1987-1989, 1994/95, 2009/2010
 Member, Program Committee, 14th International Conference on Plant Growth Substances, Amsterdam, The Netherlands, 1991

Member, Program Committee, American Society of Plant Physiologists, USA 1994-1998
Chair, Corresponding Member Committee, American Society of Plant Biologists, 2001-2005

Member, International Committee, American Society of Plant Biologists, 1999-2008

Executive Committee, American Society of Plant Biologists, 2008-2011

Director, Missouri Center of Plant Sciences and Biotechnology (1994-95)

Member of Advisory Board, Botany Inst, Academia Sinica, Taiwan (1995-2003)

Member of Advisory Board, Inst of BioAgricultural Sciences, Academia Sinica, Taiwan (1999-2004)

Director, Life Science Promotion Center, National Science Council, Taiwan, 2004-2008

Member of Advisory Board, Inst of Molecular Biology, Academia Sinica Taiwan (2004-)

Scientific Advisory Board, Danforth Plant Science Center, St. Louis (2008-2011)

>20 review committees at National Taiwan Univ, National Chung Hsing Univ, National Tsinghua Univ, National Chaotung Univ, and National Central Univ (since 2004)

Training:

Supervised 18 Ph.D. students, 6 Masters students, 23 postdoctoral fellows and several dozens of undergraduate students

Invited Seminars/lectures:

More than 300 invited seminars or symposium lectures since 1976.

Publications:

131 papers and one edited book

Patents:

4 US patents and 7 patent applications pending

Publications:

1. Ho, T-H. D. and J. E. Varner. (1974) Hormonal control of mRNA metabolism in barley aleurone layers. **Proc. Nat. Acad. Sci.** 71, 4783-4786.
2. Ho, T-H. D. and J. G. Scandalios. (1975) Regulation of alcohol dehydrogenase in maize scutellum during germination. **Plant Physiol.** 56, 56-59.
3. Ho, T-H. D. and J. E. Varner. (1976) The response of barley aleurone layers to abscisic acid. **Plant Physiol.** 57, 175-178.
4. Varner, J. E. and T-H. D. Ho. (1976) The role of hormone in the integration of seedling growth. in the Molecular Biology of Hormone Action. J. Papaconstantinou (ed.), p.713-794.
5. Varner, J. E. and T-H. D. Ho. (1976) Hormones. in Plant Biochemistry. J. Bonner and J. E. Varner (eds.), 3rd edition, Academic Press, p.714-770.
6. Varner, J. E. and T-H. D. Ho. (1977) Hormonal control of enzyme activity in plant tissues. in Regulation of Enzyme Synthesis and Activity in Higher Plants, by H. Smith, Academic Press, p.83-92.
7. Ho, T-H. D. and J. E. Varner. (1978) Density labeling of proteins with ¹³C-labeled amino acids; no accumulation of an inactive α -amylase precursor in barley aleurone cells. **Arch. Biochem. Biophys.** 187, 441-446.
8. Ho, T-H. D. (1979) Hormone control of enzyme formation in barley aleurone layers. in Molecular Biology of Plants. I. Rubinstein et al. (eds.), Academic Press, p. 217-240.
9. Ho, T-H. D. (1979) Hormonal control of gene expression. in Physiological Genetics. J. G. Scandalios (ed.), Academic Press, p. 110-139.
10. Ho, T-H. D. (1980) Hormonal and genetic regulation of α -amylase synthesis in barley aleurone layers. in Genome Organization and Expression in Plants. C. J. Leaver (ed.), Plenum Press, p. 147-158.
11. Ho, T-H. D., S-C. Shih and A. Kleinhofs. (1980) Screening for barley mutants with altered hormone sensitivity in their aleurone layers. **Plant Physiol.** 66, 153-157.
12. Ho, T-H. D., R. C. Nolan and D. A. Shute. (1981) Characterization of gibberellin-insensitive dwarf wheat, D6899: Evidence for regulatory step common to many diverse responses to gibberellins. **Plant Physiol.** 67, 1206-1231.
13. Ho, T-H. D., J. Abrams and J. E. Varner. (1982) Effect of ethylene on the release of α -amylase through cell walls of barley aleurone layers. **Plant Physiol.** 69, 1128-1131.
14. Ho, T-H. D. (1982) The mechanism of abscisic acid during seed germination. in The Physiology and Biochemistry of Seed Development, Dormancy and Germination. A. A. Khan (ed.), p. 299-321.
15. Ho, T-H. D., S. J. Uknes. (1982) Regulation of abscisic acid metabolism in the aleurone layers of barley seeds. **Plant Cell Reports**, 1, 270-273.
16. Cooper, P. and T-H. D. Ho. (1983) Heat shock proteins in maize. **Plant Physiol.** 71, 215-222.

17. Callis, J., and T-H. D. Ho. (1983) Multiple molecular forms of the gibberellic acid-induced α -amylase in barley aleurone layers. **Arch. Biochem. Biophys.** 224, 224-234.
18. Ho T-H. D. (1983) Biochemical mode of action of abscisic acid. *in* **Abscisic Acid**. F. A. Addicott (ed.), p. 147-170.
19. Melhado, L. L., A. M. Jones, T-H. D. Ho and N. J. Leonard. (1984) Azido auxins: Photolysis in solution and covalent attachment in soybean. **Plant Physiol.** 74, 289-294.
20. Jones, A. M., L. L. Melhado, T-H. D. Ho and N. J. Leonard. (1984) Azido auxins: Quantitative binding data in maize. **Plant Physiol.** 74, 295-301.
21. Cooper, P., T-H. D. Ho and R. M. Hauptmann. (1984) Tissue specificity of the heat shock response in maize. **Plant Physiol.** 75, 431-441.
22. Jones, A. M., L. L. Melhado, T-H. D. Ho, C. J. Pearce and N. J. Leonard. (1984) Azido auxins: Photoaffinity labeling of auxin binding proteins in maize coleoptile with tritiated 5-azidoindole-3-acetic acid. **Plant Physiol.** 75, 1111-1116.
23. Uknes, S. J. and T-H. D. Ho. (1984) Mode of action of abscisic acid in barley aleurone layers: Abscisic acid induces its own conversion to phaseic acid. **Plant Physiol.** 75, 1126-1132.
24. Ho, T-H. D. (1985) Hormonal and genetic regulation of α -amylase synthesis in the aleurone layers of cereal grains. *in* **New Approaches to Research on Cereal Carbohydrates**. R.D. Hill and L. Munck (ed.) p. 121-128.
25. Grantz, D.A., T-H.D. Ho, S.J. Uknes, J.M. Cheeseman and J.S. Boyer. (1985) Metabolism of abscisic acid in guard cells of Vicia faba L. and Commelina communis L. **Plant Physiol.** 78, 51-56.
26. Ho, T-H, R.C. Nolan, S.J. Uknes. (1985) On the mode of action of abscisic acid in barley aleurone layers. *In* **Current Topics in Plant Biochemistry and Physiology** Vol. 4, p. 118-125.
27. Lin, L.S., T-H. D. Ho and J.R. Harlan. (1985) Rapid amplification and fixation of a new restriction site in the ribosomal DNA repeats in the derivatives of a cross between maize and Tripsacum dactyloides. **Devel. Genet.**, 6, 101-112.
28. Belanger, F.A., M.R. Brodl, T-H.D. Ho (1986) Heat shock causes destabilization of endoplasmic reticulum and destruction of mRNA in barley aleurone cells. **Proc. Natl. Acad. Sci.**, 83, 1354-1358.
29. Hammerton, R.W., T-H.D. Ho. (1986) Hormonal regulation of the development of protease activity in barley aleurone layers. **Plant Physiol.**, 80, 692-697.
30. Sachs, M.M., T.-H. D. Ho. (1986) Alteration of gene expression during environmental stress in plants. **Ann. Rev. Plant Physiol.**, 37, 363-376.
31. Lin, L.-S., T.-H. D. Ho. (1986) Mode of action of abscisic acid in barley aleurone layers: Induction of new proteins by ABA. **Plant Physiol.**, 82, 289-297.
32. Brown, P., T.-H. D. Ho. (1986) Barley aleurone layers secrete a nuclease in response to gibberellic acid. Purification and partial characterization of the associated ribonuclease, deoxyribonuclease, and 3'-nucleotidase activities. **Plant Physiol.**, 82, 801-806.

33. Nieto-Sotelo, J., T.-H. D. Ho. (1986) Effect of heat shock on the metabolism of glutathione in maize roots. **Plant Physiol.**, 82, 103-1035.
34. Ho, T.-H.D. (1986) "Heat stress responses in plants: basic research and applications" in "Development and Application of Biotechnology in Agriculture", Council of Agriculture, Taiwan
35. Nolan, R.C., L.-S. Lin, T.-H. D. Ho. (1987) The effect of abscisic acid on the differential expression of α -amylase isozymes in barley aleurone layers. **Plant Mol. Biol.**, 8, 13-22.
36. Ho, T.-H. D., R.C. Nolan, L.-S. Lin, M.R. Brodl, P.H. Brown. (1987) Regulation of gene expression in barley aleurone layers. in Molecular Biology of Plant Growth Control. J.E. Fox and M. Jacobs (ed.), p 35-50.
37. Lin, J.-J., D.B Dickinson, T.-H. D. Ho. (1987) Phytic acid metabolism in lily (Lilium longiflorum Thunb.) pollen. **Plant Physiol.**, 83, 408-413.
38. Ho, T.-H. D. (1987) Heat stress responses in plants in Models in Plant Physiology, Biochemistry and Technology. Vol. III. D. Newman and K. Wilson (ed.), p. 85-89.
39. Cooper, P., T.-H. D. Ho. (1987) Intracellular localizations of heat shock proteins in maize. **Plant Physiol.** 84, 1197-1203.
40. Brown, P.H., T.-H. D. Ho. (1987) Biochemical properties and hormonal regulation of barley nuclease. **Eur. J. Biochem.** 168, 357-364.
41. Nieto-Sotelo, J., T.-H. David Ho. (1987) Absence of heat shock protein synthesis in isolated mitochondria and plastids in maize. **J. Biol. Chem.** 262, 12288-12292.
42. Nolan, R.C. and Ho, T.-H.D. (1988) "Hormonal regulation of gene expression in barley aleurone layers: Induction and suppression of specific genes", **Planta**, 174, 551-560.
43. Koehler, S. and Ho, T.-H.D. (1988) "Purification and characterization of gibberellic acid-induced cysteine endoproteases in barley aleurone layers" **Plant Physiol.**, 87, 95-103.
44. Lanahan, M.B. and Ho, T.-H.D. (1988) "Slender barley: a constitutive gibberellin-response mutant", **Planta**, 175, 107-114.
45. Brown, P.H., Mecham, R.P., and Ho, T.-H.D. (1988) "Hormonal regulation of barley nuclease. Investigation using a monoclonal antibody" **Plant, Cell, and Environment**, 11, 747-753.
46. Nolan, R.C., and Ho, T.-H.D. (1988) "Hormonal regulation of α -amylase expression in barley aleurone layers: The effect of abscisic acid and midcourse gibberellic acid removal", **Plant Physiol.**, 88, 588-593.
47. Hong, B., Uknes, S.J., and Ho, T.-H.D. (1988) "Cloning and characterization of a cDNA encoding a mRNA rapidly induced by ABA in barley aleurone layers", **Plant Mol. Biol.**, 11, 495-506.
48. Ho, T.-H.D. and Sachs, M.M. (1989) "Stress induced proteins; characterization and the regulation of their synthesis" in "Treatise of Plant Biochemistry" Vol. 11 "Molecular Biology" (A. Marcus, ed.), p. 347-378.

49. Ho, T.-H.D. (1989) "Hormonal and stress regulation of gene expression in cereal aleurone layers", *in* "Plant Biotechnology" ed. by S.D. Kung and C.J. Arntzen, p. 207-228.
50. Dure, L., Crouch, M., Harada, J., Ho, T.-H.D., Mundy, J., Quatrano, R., Thomas, T., Sung, Z.R. (1989) "Common amino acid sequence domains among the Lea proteins of higher plants", **Plant Mol. Biol.**, 12, 475-486.
51. Ho, T.-H.D., Sachs, M.M. (1989) "Environmental control of gene expression and stress protein" *in* "Plant under stress: physiology and ecology and their adaptation to plant improvement" ed. by H.G. Jones, T.J. Flowers and M.B. Jones, p. 157-180.
52. Brodl, M.R., Belanger, F.A., Ho, T.-H.D. (1990) "Heat shock proteins are not required for the observed degradation or reformation of α -amylase mRNA and ER lamellae in heat shocked and recovered barley aleurone layers", **Plant Physiol.**, 93, 1133-1141.
53. Nieto-Sotelo, J., Vierling, E., Ho, T.-H.D. (1990) "Cloning, sequence analysis and expression of a chloroplast localized heat shock protein in maize", **Plant Physiol.**, 93:1321-1328.
54. Ho, T.-H.D., Hong, B., Nolan, R., Uknes, S.J. and Lin, L.-S. (1990) "Regulation of gene expression by abscisic acid in barley aleurone layers", *in* "Plant Growth Substances 1988" ed. by R. Pharis, p.138-144.
55. Koehler, S.M., Ho, T.-H.D. (1990) "A major gibberellic acid-induced barley aleurone cysteine proteinase which digests hordein: purification and characterization", **Plant Physiol.**, 94:251-258.
56. Koehler, S.M., Ho, T.-H.D. (1990) "Hormonal regulation, processing, and secretion of cysteine proteinases in barley aleurone layers", **Plant Cell**, 2:769-783.
57. Lin, Jih-Jing, Dickinson, D.B., Ho, T.-H.D. (1990) "Partial purification and characterization of phytases from pollen of lily (*Lilium longiflorum* Thumb.)", **Plant Cell Report**, 9:211-215.
58. Brodl, M.R., Ho, T.-H.D. (1991) "Heat shock causes selective destabilization of secretory protein mRNAs in barley aleurone cells", **Plant Physiol**, 96:1048-1052
59. Ho, T.-H.D. (1991) "Hormonal regulation of gene expression in the aleurone layers of cereal grains", **J. Iowa Acad Sci**, 98:72-76.
60. Holstein, S., Kobert, B. Hillmer, S., Brown, P.H., Ho, T.-H.D., Robinson, D.G. (1991) "Subcellular localization of nuclease in barley aleurone", **Physiol Plant**, 83:255-265
61. Hong, B., Barg, R, T.-H.D. Ho (1992) "Developmental and organ-specific expression of an ABA- and stress-induced protein in barley", **Plant Mol. Biol.**, 18:663-674.
62. Lanahan, M.B., Ho, T.-H.D., Rogers, S.W., Rogers, J.C. (1992) "The gibberellin response complex in cereal α -amylase gene promoters: convergence of developmental and hormonal regulation of transcription", **Plant Cell**, 4:203-211.
63. Ho, T.-H.D., Hong, B., Barg, R. (1992) "Developmental regulation of an ABA- and stress-induced protein in barley", *in* "Plant Growth Substances, 1991", ed. C. Karssen and L.C. van Loon, Springer-Verlag., p.493-499.

64. Jorgensen, J.A., Weng, J., Ho, T.-H.D., Nguyen, HT. (1992) "Genotype-specific HSPs are synthesized in a heat tolerant maize inbred Mo17", **Plant Cell Report**, 11:576-580.
65. Brodl, M.R., Ho, T.-H.D. (1992) "Heat shock in mechanically wounded carrot root disks causes destabilization of stable secretory protein mRNA and dissociation of endoplasmic reticulum lamellae", **Physiol Plant**, 86:253-262.
66. Heck, G.R., Chamberlain, A, Ho, T.-H.D. (1993) "Barley embryo globulin 1 gene, Beg1: characterization of cDNA, chromosome mapping and regulation of expression", **Mol Gen Genet**, 239:209-218.
67. Sutliff, T.D, Lanahan, M.B., Ho, T.-H.D. (1993) "Gibberellin treatment stimulates nuclear factor binding to the gibberellin response complex in a barley α -amylase promoter", **Plant Cell**, 5:1681-1692.
68. Martila, S., Porali, I, Ho, T.H.D., Mikkonen, A. (1993) "Expression of the 30 kD cysteine endoprotease B in germinating barley seeds", **Cell Biol International Reports**, 17:205-212.
69. Shen, Q., Uknes, S.J., Ho, T.H.D. (1993) "Hormone response complex in a novel abscisic acid and cycloheximide-inducible barley gene", **J. Biol. Chem**, 268:23652-23660.
70. Ho, T.H.D., Hagen, G. (1993) "Hormonal regulation of gene expression", **J. Plant Growth Regul.**, 12:197-205.
71. Ho, T.H.D. (1993) "Hormone and stress-regulated gene expression in cereal plants", **Bot. Bull. Acad. Sin.** (now **Botanical Studies**), 34:103-113.
72. Sutliff, T.D., Cercos, M., Lanahan, M., Ho, T.H.D. (1993) "Regulation of gibberellin-responsive α -amylase and protease genes in germinating barley seeds", in *The Past, Present and Future of Plant Biology*, ed. Ho, T.H.D. and Pakrasi, H., p. 123-126.
73. Straub, P.F., Shen, Q., Ho, T.H.D. (1994) "Structure and promoter analysis of an ABA and stress regulated barley gene, *HVA1*", **Plant Mol. Biol.**, 26:617-630.
74. Shen, Q, Ho, T.H.D. (1995) "Functional dissection of an ABA-inducible gene reveal two independent ABA responsive complexes each containing a G-box and a novel cis-acting element", **Plant Cell**, 7:295-307.
75. Saab, I.N., Ho, T.H.D., Sharp, R.E. (1995) "Translatable RNA populations associated with maintenance of primary root elongation and inhibition of mesocotyl elongation by abscisic acid in maize seedlings at low water potentials", **Plant Physiol**, 109:593-601.
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78. Mikkonen, A., Porali, I., Cercos, M., Ho, T.H.D. (1996) "A major cysteine proteinase, EPB, in germinating barley seeds: structure of two intronless genes and regulation of expression", **Plant Mol. Biol.**, 31:239-254.

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82. Su, J., Shen, Q., Ho, T.-H. D., Wu, R. (1998) "Dehydration-stress regulated transgene expression in stably transformed rice plants", **Plant Physiol.**, 117:913-922.
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86. Shen, Q., Ho, T.-H. D. (1999) "Abscisic acid- and stress-induced promoter switches in the control of gene expression", in "Inducible Gene Expression in Plants", ed. Reynolds, P.H.S, CABI Publishing, pp. 187-218.
87. Cercós· M., Gómez-Cadenas, A., Ho, T.H. D. (1999) "Hormonal Regulation of a Cysteine Proteinase gene, EPB1, in the Aleurone Cells of Germinating Barley Seeds: Cis- and Trans-acting Elements Involved in the Gibberellin Induction", **Plant Journal**, 19:107-118.
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single DNA binding repeat mediate sugar and hormone regulation of α -amylase gene expression”, **Plant Cell**, 14:1963-1980.

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1. “Production of Water Stress or Salt Stress Tolerant Transgenic Cereal Plants”
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2. “Method of Making Water Stress or Salt Stress Tolerant Transgenic Cereal Plants”
US Patent No: 6,951,971
Patent date: Oct 4, 2005

3. “Novel Thermostable Cellulases and Uses Thereof”
US patent No: 7,927,856 B2
Patent date: April 19, 2011

4. “Novel Thermostable Cellulases and Uses Thereof”
US patent No: 8,129,14, B2
Patent date: March 6, 2012
[This patent has a different set of claims from #3 above]

5. “Use of Rice Polypeptides/Nucleic Acids for Plant Improvement”
US Patent (pending)
Filing date: May 1, 2009

6. “Use of Rice Polypeptides/Nucleic Acids for Plant Improvement”
World Patent (pending)
International Publication No: WO 2009/135/130 A2
Filing date: November 5, 2009

7. “Abiotic Stress Tolerance Transgenic cereals”
US Patent (pending)
Filing date: Nov 19, 2007

8. “Novel *Rigidoporus microporus* laccase”
US patent (pending)
Filing date: Jan 22, 2010

9. “Novel β -Glucosidase and Uses Thereof”
US Patent (pending)
Filing date: Jan 28, 2010

10. "Napier Grass and Uses Thereof"

Taiwan Patent (pending)

Filing date: Apr 20, 2010

11. "Napier Grass and Uses Thereof"

China Patent (pending)

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