

9th INTERNATIONAL GLUTEN WORKSHOP 2006

September 14 to September 16, 2006.

Renaissance Parc 55 Hotel, San Francisco, California, USA.

Thursday, September 14, 2006

3:00–5:30 p.m. Registration Open

5:30-8:00 p.m. Opening Reception and Poster Viewing

Welcome by George Lookhart and Perry Ng

Friday, September 15, 2006

8:00–10:00 a.m. Registration Open

8:45 a.m.-12:00 p.m. Biotechnology and Genetics: Methodology, Genetics, Environment and Gluten Quality
Co-Chairs: Ann Blechl and Peter Shewry

12:00-1:30 p.m. Lunch

1:30-5:00 p.m. Structure Characterization and Functional Relationships Among Gluten Monomers and Polymers
Co-Chairs: Fin MacRitchie and Herbert Wieser

7:00-9:30 p.m. Banquet MC- Frances DuPont

Saturday, September 16, 2006

8:45 a.m.-12:00 p.m. Rheology: Application and Prediction of Gluten Qualities and Properties Co-Chairs: Steve Mulvaney and Clyde Don

12:00-1:30 p.m. Lunch

1:30-3:00 p.m. Health and Nutritional Aspects of Gluten Proteins
Co-Chairs: Michael Tilley, Scott Bean, and Rob Hamer.

3:30-5:00 p.m. Proteomics and Transcriptomics
Co-chairs: Frances DuPont and Gerard Branlard

5:00-5:30 p.m. Closing Remarks and General Discussion Moderator -Jerry Bietz

**SESSION 1. BIOTECHNOLOGY AND GENETICS: METHODOLOGY, GENETICS,
ENVIRONMENT AND GLUTEN QUALITY**

(Co-Chairs: **Ann Blechl** and **Peter Shewry**)

Oral Presentations FRIDAY September 15, 2006 AM

1. **8:45- 9:00** Mapping Approach Relating Quantitative Trait Loci to Dough Rheology in an Australian Doubled Haploid Population. **Mann, G.**, Diffey, S., Rampling, L., Nath, Z., Kutty, I., Leyne, P.E., Azanza, F., Quail, K.J., Cullis, B., and Smith, A.
2. **9:00- 9:15** Allelic Variation of Low-Molecular Weight Glutenin Subunits and its Functional Importance. **Ikeda, T.M.**, Yanaka, M., and Takata, K.
3. **9:15- 9:30** Development and Application of Fast Immunological Selection Methods for High Molecular Weight Glutenin Subunits in Wheat Breeding. **Gruber, H.** and Killermann, B.
4. **9:30- 9:45** Structure, Evolution, and Expression of the Wheat Prolamine Loci. **Anderson, O.** and Gu, Y. Q.
5. **9:45- 10:00** A Simple Integration Pattern Observed by Transformation with 1Dx5 Gene Cassettes in Wheat Yao, Q., Cong, L., **He, G.Y.**, Chang, J.L., Li, K.X., Yang, G.X., and Shewry, P.R..

BREAK 10:00 to 10:30

6. **10:30 – 10:45** Transgenic Wheats with Elevated Levels of Dx5 and/or Dy10 Glutenin Subunits: Agronomic, Biochemical and End-use Quality Properties. **Blechl, A.E.**, Lin, J.W., Nguyen, S., Dupont, F. M., Vensel, W.H., Chan, R., Anderson, O.D., Bregitzer, P., and Fielder, D.
7. **10:45- 11:00** Inhibition of α -Gliadins in Hexaploid Bread Wheat. **Becker, D.**, Folck, A., Pnies, P., Lorz, H., and Wieser, H.
8. **11:00- 11:15** Using Epitope Tagging to Explore the Trafficking, Location and Functional Properties of Wheat Gluten Proteins. **Shewry, P.R.**, Freeman, J., Jones, H.D., Sparks, C., Gritsch, C., Funatsuki, W., Niwa, K., Huttly, A., Napier, J.A., and D'Ovidio, R.
9. **11:15- 11:30** Effects of Mineral Nutrition and Temperature on Accumulation of Gluten Proteins is Related to Their Content of Cys and Met. **Dupont, F.M.**, Hurkman, W.J., Vensel, W.H., Chan, R., Tanaka, C.K., Altenbach, S.B.

DISCUSSION 11:30 to 12:00

Poster Presentations for Session 1.

1. Frequencies of Gluten-Protein Alleles in a Worldwide Collection of Over 4,600 Wheat Genotypes. Bekes, F., **Wrigley, C.W.**, Uthayakumaran, S., Cavanagh, C.R., Batey, I.L., and Bushuk, W.
2. Polymorphism of High-Molecular-Weight Glutenin Subunit in Tibetan Wheat (*Triticum aestivum* ssp. *tibetanum* Shao). Liu, Y., **Zhang, C.E.**, Zhang, J.R., Li, K.X., Chen, M.J., Yang, G.X., Shewry, P.R., and He, G.
3. Chromosome Location of Genes Controlling High Molecular Weight (HMW) Glutenin Locus in Species Related to Wheat and their Effect on Bread Making Quality. **Garg, M.**, Tanaka, H., and Tsujimoto, H.
4. Effects of Genotype and Environment on HMW-GS Expression and Its Relationship with Steamed Bun and Bread-Baking Quality, **Deng, Z.**, Tian, J., Hu, R., Zhang, Y., Wang, Y., and Sun, G.

5. The Quality Implication of Changing Glutenin Alleles in a Century of Australian Wheat Breeding. **Cornish, G.B.**
6. Physico-Chemical and Molecular Analysis of Bread Making Quality Traits in Indian Hexaploid Wheat. **Elangovan, M.**, Rai, R., Dholakia, B.B., Oak, M.D., Tirawi, R., Gupta, R.A., Lagu, M.D., Tamhankar, S.A., Rao, V.S., and Roder, M.S.
7. A Glutenin Composition Necessary to the Extra-Strong Dough. **Maruyama-Funatsuki, Y.**, Takata, K., Tabiki, T., Ito, M., Nishio, Z., Funatsuki, H., and Yamauchi, H.
8. Characterization of Wheat with Strongly Reduced α -Gliadin Content. **Wieser, H.**, Koehler, P., Folck, A., and , Becker, D.
9. Over-expression of transgenes 1Dx5 and 1Ax1 in Elite Chinese Varieties of Wheat (*Triticum aestivum* L). Wang, Y.S., Shewry, P.R., and **He, G.Y.**
10. Integration and Expression of Gluten Strength and Grain Hardness Genes by Crossing Transgenic Plants with Elite Wheat Varieties. **Zhang, J.R** and He, Guangyuan .
11. Functionality of Glutenin Subunits Produced by Transgenic Yeast. **Kieffer, R.**, Wieser, H., Bauer, I., Hoffman, R., and Meuser, F.
12. Functional Studies of Wheat Storage Proteins in Model System. Oszvald, M., **Tomoskozi, S.**, Tamas, L., and Bekes, F.
13. Overexpression of a defence gene effective in limiting fungal infection does not alter the expression of gluten components. **Janni, M.**, Lin, J.W., Blechl, A., Masci, S., and D'Ovidio, R.
14. Identifying Transcriptional Networks that Determine Carbon Flux into Starch in Developing Wheat Caryopsis. **Stamova, B.**, Laudencia-Chincuanco, D., You, F., Beckles, D., and Anderson, O.D.
15. Transcriptional Profiling of Caryopsis Development by cDNA Microarray Analysis. **Laudencia-Chincuanco, D.**, Stamova, B., You, F., Lazo, G., Beckles, D., and Anderson, O.D.
16. Biochemical Composition and Transcript Profile of Wild and cultivated wheat Endosperms. **Beckles, Diane.**
17. Transcription of the Glu-1Bx HMW Glutenin Subunit Gene During Grain Filling in Several Wheat Cultivars. **M. Gárdonyi**, P. Szűcs, J. Bányai, Z. Bedő and L. Tamás
18. Considerations About The Effect of Incorporation of Two Rare LMW-GS In Durum Wheat In Comparison to Bread Wheat Doughs, **P. Ferrante**, M.C. Gianibelli, Larroque, R. D'Ovidio, D. Lafiandra, S. Masci
19. Differential Processing of Low Molecular Weight Glutenin Subunits Met- and Ser types at Their N-Terminal End. **Ferrante, P.**, D'Ovidio, R., Lafiandra, D., Ceriotti, A., Vensel, W.H., Kasarda, D.D., and Masci, S.
20. Characterisation of B- and C-type Low Molecular Weight Glutenin Subunits in Durum Wheat. **Margiotta, B.**, Colaprico, G., Mucilli, V., Saletti, R., Foti, S., and Lafiandra, D.
21. Characterization of Expressed and Unexpressed Y-Type Genes in Diploid and Polyploid Wheat. Sestili, F., Mattei, C., D'Ovidio, R., and **Lafiandra, D.**
22. Effect of D-Genome Associated Gluten Proteins on Durum Wheat Quality. **Lafiandra, D.**, Margiotta, B., Urbano, M., Colaprico, G., D'Egidio, M.G., Carozza, R., and Ceoloni, C.
23. Protein Alteration in *Triticum durum* by *Eurygaster* and *Aelia* Insect Species. Salis, L., Alvarez, C., and **Gordun, E.**
24. Lipid Selectivity of Puroindolines and the Relationship to Endosperm Hardness. **Clifton, L.A.**, Green, R.J., and Frazier, R. A.
25. Interaction of Thioredoxin h with Gluten Proteins. **Cazalis, R.**
26. Novel Puroindoline B Alleles in *Aegilops* Species. **Chen, M.J.**, Fang, T., Chang, J.L., Luo, L.T., Li, K.X., Yang, G.X., Wilkinson, M., Tosi, P., Shewry, P.R., and He, G.

27. The Molecular Evolution and Genome Sequence of Grain Hardness Genes in Genera of Triticeae dumort. Luo, L., **Chen, M.**, Wang, J., Yang, G., Li, K., Chang, J., Shewry, P.R., and He, G.
28. Interaction of the Starch Granule Surface and Associated Proteins. **Bako, A.**, Gardonyi, M., and Tamas, L.
29. Puroindoline a Enhancing the Resistance of Leaf Rust Disease in Transgenic Durum Wheat. Luo, L.T., Zhang, J.R., Li, Y., Shewry, P., and **He, G.Y.**
30. Survey of Brachypodium distachyon Species as a Possible Model System for Wheat. **Lazo, G.R.**, Laudencia-Chincuanco, D., Gu, Y.Q., V, and Anderson, O.D.

SESSION 2. STRUCTURE CHARACTERIZATION AND FUNCTIONAL RELATIONSHIPS AMONG GLUTEN MONOMERS AND POLYMERS

(Co-Chairs: **Fin MacRitchie** and **Herbert Wieser**)

Oral Presentations FRIDAY September 15, 2006 PM

1. **1:30- 1:45** On-the-spot Analysis of All Gluten Polypeptides by Lab-on-a-chip Capillary Electrophoresis. **S. Uthayakumaran**, I.L. Batey, C.W. Wrigley
2. **1:45- 2:00** Solid State Spectroscopies for Assessing the Structural Features of Gluten Proteins in Wheat Flour and Semolina. **S. Iametti**, F. Bonomi, N.A. Pagani, E. Ragg
3. **2:00- 2:15** Comparison of Analytical Methods for Breadmaking Quality Prediction in a Genotype by Environment Study: SE-HPLC versus Spectrophotometric Measurement of HMW Glutenin. **H.A. Naeem**, H.D. Sapirstein
4. **2:15- 2:30** Non-aqueous Fractionation of Wheat Flour – Method to Prepare Native Gluten Proteins. **P. Koehler**, S. Hartmann
5. **2:30- 2:45** Redox Agents Impact Gliadin-Glutenin Cross-linking during Hydrothermal Treatment. **B. Lagrain**, K. Brijs, J.A. Delcour
6. **2:45- 3:00** Tyrosine Cross-Linking of Wheat Gluten Proteins and its Functional Importance. **A.R. Mateos**, S.J. Millar, D.G. Bhandari, R.A. Frazier

BREAK 3:00 to 3:30

7. **3:30- 3:45** Analysis of the First Steps of Prolamin Assembly and Polymerization during Wheat Grain Development. **C. Mangavel**, L. Dubreil, C. Loussert, J. Barbot, Y. Popineau
8. **3:45- 4:00** The Origin of Glutenin Particles. **R.J. Hamer**, T.W.J.M. Van Herpen
9. **4:00- 4:15** Wheat Gluten-based Biomaterials: Composites and Nanocomposites. **S. Guilbert**, E. Gastaldi, H. Angelier, P. Menut, T. Kuanopparat, N. Gontard

DISCUSSION 4:15 to 5:00

Poster Presentations for Session 2.

1. Ultra-fast Separation of Wheat Glutenin Subunits by Reversed-Phase HPLC using a Superficially Porous Silica Support Column. **H.A. Naeem**, H.D. Sapirstein
2. A Rapid Spectrophotometric Assay for Measuring Functional Protein in Wheat. **O.M. Lukow**, J. Suchy, D. Brown, R.M. Depauw, S.Fox, G. Humphreys, S. Woods

3. Study of Glutenin Functionality using a Transgenic Wheat System. **O.M. Lukow**, J. Suchy, S. Uthayakumaran, M. Jordan, S. Cloutier
4. Effect of Low Molecular Weight Glutenin Subunit Composition of Wheat on Dough Properties. **O.M. Lukow**, J. Suchy, K. Adam, G. Humphreys
5. Elucidating the Role of Low Molecular Weight Glutenin Subunits in determining Wheat Quality. **J. Lambourne**, D. Bhandari, R.A. Frazier, P. Tosi, P.R. Shewry
6. Differentiation of Allelic Variations of the HMW Glutenin Subunits of Wheat Flours by Use of Mixing Parameters and Polymeric Protein Content. H. Akdogan, **M. Tilley**, S.R. Bean, R. Graybosch
7. Probing Protein-Lipid Interactions in Gluten-Acetic Acid Fractionation Approach. **T.H. McCann**, I.L. Batey, L. Day
8. Distribution of Protein Composition in Bread Wheat Flour Mill Streams and Relationship to Breadmaking Quality. **Y.G. Wang**, K. Khan, G. Hareland, G. Nygard
9. Influence of Sulfur Fertilization on the Technological Properties of Wheat Flour. **P. Koehler**, H. Wieser, S.V. Tucher
10. Studies on the Degradation of Gluten Proteins during Germination of Wheat. **P. Koehler**, H. Wieser, G. Hartmann
11. Relationships of Glutenin Macropolymer Quantity and Properties to Strength and Composition of Gluten Proteins for Diverse Durum Wheat Genotypes. **N.M. Edwards**, R.J. Hamer and J.Dexter
12. Effect of Seeding Time on Gluten Strength and Protein Composition of Italian Durum Wheat Cultivars Harvested in Sardinia in 2004 and 2005. S. Fois, L. Schlichting, **B. Marchylo**, J. Dexter, R. Motzo, F. Giunta
13. Quality and Protein Characterization of Triticale Lines with the Pair of Subunits 5+10 and 2+12. **R. Jonnala** and F. MacRitchie
14. Potentials and Method Improvements of Capillary Zone Electrophoresis for Use in Spelt Breeding Programs. **T. Schober**, S.R. Bean
15. Puroindoline Synthesis in Developing Seeds of Common Wheat Cultivars with Contrasting Grain Texture Characteristics. L. Gazza, F. Taddei, **N.E. Pogna**, S. Conti, P.K.W. Ng.
16. Conferring Gluten-like Properties on Soy Proteins to Improve Soy-Wheat Bread Quality. **S. Uthayakumaran**, E. Maforimbo, G. Skurray, C.W. Wrigley

SESSION 3. RHEOLOGY: APPLICATION AND PREDICTION OF GLUTEN QUALITIES AND PROPERTIES

(Co-Chairs: **Steve Mulvaney** and **Clyde Don**)

Oral Presentations SATURDAY September 16, 2006 AM

1. **8:45- 9:00** Status of Global Wheat Quality Test Methods. **Chinnaswamy, R.**, Freese, L.D., Burden, W. C., Norden, T.D., and Funk, D.B.
2. **9:00- 9:15** Elastic Recovery and Plastic Flow in "5 + 10" Glutens. **Mulvaney, S.J.**, Rayas-Duarte, P., Chinnaswamy, R., Allvin, B. and Zhou, D.
3. **9:15- 9:30** Gluten, GMP, Glutenin Particles, Models and Practical Reality "Connecting Science and Practical Reality". **Don, C.** and Weegels, P.

4. **9:30- 9:45** Fourteen Years Strain Hardening as an Indicator of Bread-Baking Performance, Questions Still to be Solved. **Van Vliet, T.**, and Hamer, R.J.
5. **9:45- 10:00** On the Mechanism of Gluten Network Development in Flour-Water Batter Doughs. **Auger, F.**, Redl, A., Lefebvre, J., and Morel, M.H.

BREAK 10:00 to 10:30

6. **10:30- 10:45** Rheological Properties of Low-Hydrated Starch Gluten Blends Affected by Their Quality and Quantity. **Chanvrier, H.** and Uthayakumaran, S.
7. **10:45- 11:00** Rheology of Gluten Film Around Gas Cells in Bread Making. **Sroan, B.S.** and MacRitchie, F.
8. **11:00- 11:15** Determination of Wheat and Breadmaking Quality with Small-scale Methods – An Overall Comparison Study. **Tomoskozi, S.**, Nadosi, M., Ercsey, K., Haraszi, R., Bekes, F., and Salgo, A.
9. **11:15- 11:30** Changes in HMW-GS Composition of German Wheat Varieties 1994 – 2005 and Impact on Breadmaking Quality. **Killermann, B.** and Zimmermann, G.
10. **11:30- 11:45** The Impact of Nutrition on the Metabolome, Protein Composition and End-Use Quality of Wheat. Godfrey, D. D., Shewry, P.R. and Hawkesford, M. J.

DISCUSSION 11:45 to 12:00

Poster Presentations for Session 3.

1. Rheological properties of doughs and breadmaking qualities of several wheat cultivars grown in Japan. **Hung, P.V.**, Maeda, T., and Morita, N.
2. Effects of Oxygen Ozonation Process On Bread Dough Quality and Protein Composition. **Violleau, F.**, Surel, O., Dubois, M., Despres, A.G., Coste, C., and Kleiber, D.
3. Measuring the Rheology of Grain Hardness. **Haraszi, R.** and Anderssen, R.S.
4. Contribution of Glutenin Alleles to Dough Rheological Parameters. **Appelbee, M.** and Cornish, G.B.
5. Study on the Quality Change of Wheat Flour During Storage in Controlled Condition. **Sun, H.**, Jiang, W.L, Tian, X.H., Lin, J.Y., and Ling, J.Y.
6. Influence of the fatty acid on the baking activity of phosphatidylcholine. **Fischer, B.** and Koehler, P.
7. Modification of gluten by emulsifiers and effects on dough stabilization. **Kieffer, R.** and Wieser, H.
8. Use of the Reconstitution Method to Elucidate the Role of Gluten Proteins in Controlling Durum Semolina Dough Properties and Pasta Quality **M.J. Sissons**, H.N. Soh, N. Egan, M.C. Gianibelli , and M.A. Turner

SESSION 4. HEALTH AND NUTRITIONAL ASPECTS OF GLUTEN PROTEINS

(Co-Chairs: **Michael Tilley, Scott Bean, and Rob Hamer**)

Oral Presentations SATURDAY September 16, 2006 PM

1. **1:30- 1:45** Post-anthesis fertilizer influences expression of genes encoding allergenic proteins. **Altenbach, S.B.** and Kothari, K.
2. **1:45- 2:00** Alpha-gliadin Genes from the A, B, and D Genomes of Bread Wheat contain Different Sets of Celiac Disease Epitopes. **Van Herpen, T.W.**, Goryunova, S.V., Van Der Shoot, J., Mitreva, M., Salentijn, E., Vorst, O., Schenk, M, Van Veelen, P.A., Koning, F., and Van Soest, L.
3. **2:00- 2:15** The Dog as a Model for Assessing Food Allergens in Wheat. **Buchanan, B.B.**
4. **2:15- 2:30** Problems in Detecting Prolamin Contaminants in Oat-based Foods by Commercial ELISA Kits. Kanerva, P.M., and **Sontag-Strohm, T.S.**
5. **2:30- 2:45** Degradation of Celiac Toxic Peptides by Cereal Proteases. **Hartmann, G.**, Koehler, P., and Wieser, H.

DISCUSSION 2:45 to 3:00

BREAK 3:00 to 3:30

Poster Presentations for Session 4.

1. Gluten Antigens In Celiac Patients. **Florian, F.**, Vecchiet, M., Modonut, M., Siciliano, R., Masci, S., and Marzari, R.
2. Development of Gluten-Free Bread. **Polenghi, O.**, **Kuktaite, R.**, and Cerne, V.

SESSION 5. PROTEOMICS AND TRANSCRIPTOMICS

(Co-chairs: **Frances DuPont** and **Gerard Branlard**)

Oral Presentations SATURDAY September 16, 2006 PM

1. **3:30- 3:45** Mass Spectrometry Based Identifications of LMW Glutenin Subunits. **Vensel, W.**, DuPont, F., Chan, R., and Hurkman, W.
2. **3:45- 4:00** Comparative Transcriptional and Proteomic Profiling of Bread Wheat cv. Bobwhite and its Derived Transgenic Line Over-Expressing a LMW-GS Gene. **Scossa, F.**, Laudencia-Chincuanco, D., Anderson, O.D., Vensel, W.H., Kasarda, D.D., Lafiandra, D., D'Ovidio, R., and Masci, S.
3. **4:00- 4:15** Wheat proteomics in the HEALTHGRAIN project. Laugeson, S., Laubin, B., Merlino, M., Branlard, G., and **Svensson, B.**
4. **4:15- 4:30** Proteomics Studies on Wheat Developmental and Mature Kernel. **Branlard, G.**, Bancel, E., Allain, E., Girousse, C., Merlino, M., Laubin, B., Nadaud, I., Debiton, C., Bronner, G., and Martre, P.

DISCUSSION 4:30 to 5:00

All posters must be removed starting at 5:30 PM.