

**Agaricus bisporus Genome Sequence -- Community Annotation Plans**

|                         |
|-------------------------|
| Possibles / offered     |
| Tentative / unconfirmed |
| Confirmed               |

**Basic Features of the Genome Team**

|   |   |
|---|---|
| Sequencing, Assembly, Machine Annotation                                    | JGI team  |
| Linkage Mapping, Genetic Markers  | Sonnenberg, Marie Foulongne-Oriol, Kerrigan                                       |
| Gene structure, synteny   | Warwick systems students  |
| Multigene families (including Duplications / Tandem duplications)           | - novel algorithms/software to identify orthologous genes                         |
| CAZy - Carbohydrate-Active enZymes  | - mating-type genes synteny   |
| FOLy - Fungal Oxidative Lignin enzymes                                      | - non-coding sequences, transcriptional regulation                                |
| Secretome   | F Martin  |
| Secreted non-enzymatic proteins   | Ronald de Vries / CAZy team - Pedro Coutinho, Bernard Henrissat                   |
|   | Kristiina Hildén / Bernard Henrissat and colleagues                               |
|   | F Martin  |
|   | Wösten et al. (Utrecht), Jan de Jong, Wieke Teertstra                             |
| Transcriptome   | Other groups & students?  |
| Transcriptional regulators (including those involved in mushroom formation) | Wösten (Utrecht)/ Robin Ohm / Luis Lugones  |
| SSR, genetic diversity  | Sonnenberg, Kerrigan, Callac  |
| SSR distribution, frequency in coding / non coding sequences, composition   | Marie Foulongne-Oriol   |
| EST analysis and construction of the corresponding MySQL database           | F Martin (can construct MySQL/PHP/BLAST database similar to LaccariaDB) if needed |
| telomeric and subtelomeric regions  | ? Pisabarro, Ramirez (Navarra)  |
| Mitochondrial genome  | Gérard Barroso  |
| Nuclear genes targetted towards mitochondria                                | JP Xu   |
| Repeat elements   | Kerrigan, Sonnenberg  |

**Chromatin Assembly, DNA Repair & Recombination & Gene Regulation**

|   |                      |
|---|----------------------|
| Transcription & Translation Factors     |                      |
| DNA repair & processing, Silencing, RIP |                      |
| non coding RNAs                         |                      |
| Transposable Elements                   | Kerrigan, Sonnenberg |
| Chromatin & Histone                     |                      |
| RNA splicing                            |                      |

**Metabolic Processes & Transport**

|  |   |            |       |
|--|---|------------|-------|
| Transporters   |   | Sharma     |       |
| Sugar transporters (mono and disaccharide sugar transporters)            | Malloy / Burton   |            |       |
| Nitrogen Metabolism  | Eastwood (Warwick)  |            |       |
| Carbohydrate Metabolism  |   |            |       |
| CAZy - Carbohydrate-Active enZymes                                       | CAZy team   |            |       |
| Sugar catabolic pathways   | Ronald de Vries (and colleagues)                            |            |       |
| Lipid (lipid biosynthesis)   | Bailey?   |            |       |
| Secondary metabolism   | CS Raman? (Texas)   |            |       |
| secondary metabolism, particularly polyketide and nonribosomal, terpenes | Bailey / Foster (Bristol)                                   |            |       |
| Sulphate and Iron uptake and metabolism                                  | Bailey (Bristol)  |            |       |
| Sterol biosynthesis  | Bailey (Bristol)  |            |       |
| Proteases  | Lilly / Gathman (SEMO), Burton (Warwick)                    |            |       |
| polyphenol oxidases and associated enzymes                               | Jurriaan Mes/Harry Wichers                                  |            |       |
| phenol synthase pathway  | Jurriaan Mes/Harry Wichers                                  |            |       |
| Mitochondrion & Energy   | Barroso?  |            |       |
| Redox Genes (thioredoxins, ...)  | ? Pisabarro, Ramirez (Navarra)                              |            |       |
| Metal homeostasis (MT, chaperone)  | Eastwood (Warwick)  |            |       |
| two component systems transductions mechanisms                           | ? Pisabarro, Ramirez (Navarra)                              |            |       |
| P450 hemoproteins  | Harsha V. Doddapaneni / Venkat Subramanian                  |            |       |
| <b>Miscellaneous</b>   |   |            |       |
| Phallotoxins   | Hallen-Adams, Walton  |            |       |
| 1-octen-3-ol volatile formation pathway (DOX, COX, LOX)                  | Combet Asprey, Burton                                       |            |       |
| Antisense RNAs   | Eastwood?   | Saville    |       |
| GSTs (Glutathione-S-transferases)  | Griffith / Malik  |            |       |
| <b>Environmental Sensing</b>   |   |            |       |
| Signal Transduction Pathways & Kinases                                   | Erika Kothe 'Signalling' / Sebastien Duplessis (INRA-Nancy) |            |       |
| Heat Shock protein and Oxidative Stress                                  | Michele Largeteau / Marie Foulongne-Oriol                   |            |       |
| Photobiology & Circadian Rhythms   | Corrochano (Seville)  |            |       |
| <b>Growth &amp; Reproduction</b>   |   |            |       |
| Developmental Genes  | Billette  |            |       |
| Intitiation genes  | Burton et al. Warwick                                       |            |       |
| Cell Wall Proteins   |   |            |       |
| Differentiation / development  |   | Sharma     |       |
| Extracellular oxidative enzymes  | Cullen  | Mooibroek? |       |
| Laccases   | Billette  | Mooibroek? | Kues? |
| Fungal oxido-reductases  | Lundell   |            |       |
| Cell Cycle Genes   |   |            |       |
| Mating type Genes/Sexual Sporulation                                     | James, Kues, Challen, Casselton                             |            |       |

|   |                            |
|---|----------------------------|
| /vegetative incompatibility                           | Corrochano (Seville)?      |
| Reproductive trait loci / Bsn                         | Kerrigan / Callac          |
| genes regulating sporulation (Aspergillus/Neurospora) | Corrochano (Seville)       |
| Meiosis control genes                                 | Claire Burns               |
| Senescence  | Burton, Eastwood (Warwick) |

### Pathogenesis

|   |   |
|---|---|
| RNA processing, antiviral systems         | Kerrigan, Romaine, Foster                           |
| Pathogenicity (viral, mycopathogens) ESTs | Challen et al. (Warwick), Bailey / Foster (Bristol) |

### Post-genomics activities

|  |                               |
|--|-------------------------------|
| Libraries for yeast functional complementation | Warwick, Agilent et al.       |
| Whole-genome expression arrays                 | Magnusson / Baker (PNL)?      |
| Proteomics                                     | Xu                            |
| Secondary metabolites                          | Xu                            |
| Mating-type diversity                          | Callac, James, Challen et al? |