

**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 Saville
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?