

Genomics to target fungal lung disease

The European Science Foundation (ESF) has announced the start of a new pan-European collaboration, FUMINOMICS, to study the opportunistic pathogen *Aspergillus fumigatus*. This saprophytic filamentous fungus causes severe nosocomial infections that are increasingly problematic for clinicians; invasive aspergillosis is now the leading cause of early death in many transplant centres in Europe.

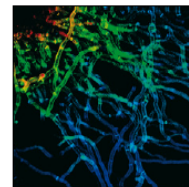
At a meeting in Giens, France (Sept 18–21), Thomas Bruhn (ESF; Strasbourg, France) told delegates “The project will run for 4 years and will be a multidisciplinary effort by researchers from most of the leading laboratories across seven European countries”. Understanding how the fungal pathogen perceives and adapts to its host environment, he said, requires fundamental research into

fungal gene expression and regulation. Jean-Paul Latgé (Institut Pasteur, Paris, France), chair of the new FUMINOMICS steering committee, added, “Our ability to carry out research into this pathogen has only become feasible recently because of the publication of the complete *A fumigatus* genome and new molecular and biochemical tools that make it possible to genetically modify the fungus in order to undertake large-scale studies including proteomic, transcriptomic analysis and the construction of mutant libraries”.

Aspergillosis mainly affects patients with a compromised immune system or lung impairment. People with cystic fibrosis and those undergoing organ transplants or cancer treatment are at high risk. Mortality is high—between 60% and 90%. Latgé explains why the

project will concentrate its efforts on *A fumigatus*: “There are worries about *Aspergillus terreus* because it is more resistant to drug treatment but this and other non-*fumigatus* species do not occupy a central position in the hospital setting; *A fumigatus* remains the major threat”. One of the main clinical objectives will be to investigate how the fungus grows in vivo, to discover the mechanisms that enable it to gain a foothold to establish disease. Another is to develop methods for better early diagnosis—aspergillosis is currently diagnosed very late and drug treatment fails because fungal burden is too high. “We also hope to identify new drug targets to tackle this opportunistic but deadly pathogen more effectively”, Latgé said.

Kathryn Senior



Anne Bravais, Institut Pasteur

The invasive hyphae of *Aspergillus fumigatus*

For more on FUMINOMICS see <http://www.esf.org/fuminomics>