21 November 2006

New research published on novel enzyme involved in producing antifungal compound in oats

New research led by Professor Anne Osbourn at the John Innes Centre (Norwich UK) has recently been published in the Proceedings of the National Academy of Sciences (PNAS Dec 5, 2006, vol 103, no 49, pp18,848-18,853) describing a novel cytochrome P450 enzyme found in oats, called Sad2, that is involved in the synthesis of a compound in the roots which protects the plant against the fungal disease "take-all."

Oat root producing avenacin

The antifungal compound, called "avenacin", is synthesized via a multi-step process, involving a cluster of genes encoding different enzymes including Sad2. The researchers have already identified five genes in the pathway, and are currently isolating others.

These genes could be used in the future to protect major cereal crops against fungal diseases such as take-all, which alone is estimated to affect more than 50% of the UK's wheat crops, and to cost the agricultural industry up to £60m per annum.

The Sad2 gene technology is the subject of a pending worldwide patent application (Publication Number WO 2006/044508) assigned to PBL, who are working closely with the AgBiotech company Dupont to develop further and commercially exploit various applications of the technology. Further commercial partners are also being sought for certain other applications of the technology.

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