

Title (en)  
TOTAL SYNTHESIS AND FUNCTIONAL OVEREXPRESSION OF A \$(CANDIDA RUGOSA) LIP1 GENE CODING FOR A MAJOR INDUSTRIAL LIPASE

Title (de)  
TOTALSYNTHESE UND FUNKTIONELLE UBEREXPRESSION EINES CANDIDA RUGOSA LIP1 GENS, DAS FÜR DIE, IN DER INDUSTRIE AM MEISTEN VERWENDETE LIPASE KODIERT

Title (fr)  
SYNTHESE TOTALE ET SUREXPRESSION FONCTIONNELLE D'UN GENE CANDIDA RUGOSA LIP1 CODANT POUR UNE LIPASE INDUSTRIELLE MAJEURE

Publication  
**EP 1012301 A1 20000628 (EN)**

Application  
**EP 97940483 A 19970916**

Priority  
NL 9700524 W 19970916

Abstract (en)  
[origin: WO9914338A1] The dimorphic yeast *Candida rugosa* has an unusual codon-usage which hampers the functional expression of genes derived from this yeast in a conventional heterologous host. Lipases produced by this yeast are extensively used in industrial bioconversions, but commercial lipase samples contain several different isoforms encoded by the LIP genes family. In a first laborious attempt the LIP1 gene, encoding the major isoform of the *C. rugosa* lipases (CRLs), was systematically modified by site-directed mutagenesis to gain functional expression in *S. cerevisiae*. As alternative approach, the gene (1688 bp) was completely synthesised with an optimised nucleotide sequence in terms of heterologous expression in yeast and simplified genetic manipulation. The synthetic gene was functionally overexpressed in *Pichia pastoris*. The recombinant CRL was produced at high level and purity, accounting for 90-95 % of the secreted proteins. The physical-chemical and catalytic properties of the recombinant lipase were compared with those of a commercial, non-recombinant *C. rugosa* lipase preparation.

IPC 1-7  
**C12N 15/55**; **C12N 1/19**; **C12N 9/20**

IPC 8 full level  
**C12N 9/20** (2006.01); **C12N 15/55** (2006.01); **C12N 15/67** (2006.01)

CPC (source: EP)  
**C12N 9/20** (2013.01); **C12N 15/67** (2013.01)

Citation (search report)  
See references of WO 9914338A1

Designated contracting state (EPC)  
BE DE DK FR GB NL SE

DOCDB simple family (publication)  
**WO 9914338 A1 19990325**; AU 4224997 A 19990405; EP 1012301 A1 20000628

DOCDB simple family (application)  
**NL 9700524 W 19970916**; AU 4224997 A 19970916; EP 97940483 A 19970916