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(71) Applicant *(for all designated States except US)*: **PHARMACIA CORPORATION** [US/US]; Corporate Patent Department, 800 N. Lindbergh Boulevard, Mail Zone O4E, St. Louis, MO 63127 (US).

(71) Applicants and
(72) Inventors: **BOLTEN, Suzanne** [US/US]; 809 E. Monroe, Kirkwood, MO 63122 (US). **CLAYTON, Robert** [US/US]; 777 Dietrich, Foristell, MO 63348 (US). **EASTON, Alan** [US/US]; 2317 Seven Pines Drive #7, Maryland Heights, MO 63146 (US). **ENGEL, Leslie** [US/US]; 15 Briarbrook Trail, Des Peres, MO 63131 (US). **MESSING, Dean** [US/US]; 1107 Tamm Ave., St. Louis, MO 63139 (US).

(72) Inventors; and
(75) Inventors/Applicants *(for US only)*: **NG, John, S.** [US/US]; 399 Medea Creek Lane, Oak Park, CA 91362 (US). **REITZ, Beverly** [US/US]; 14814 Pleasant Ridge Court, Chesterfield, MO 63014 (US). **WALKER, Mark, C.** [US/US]; 1361 White Road, Chesterfield, MO 63017 (US). **WANG, Ping, T.** [US/US]; 513 Tenby Terrace, Manchester, MO 63011 (US).

(74) Agent: **LUCKOW, Verne, A.**; Pharmacie Corporation, Corporate Patent Dept., 800 N. Lindbergh, Mail Zone O4E, St. Louis, MO 63167 (US).

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ACTION

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(54) Title: ASPERGILLUS OCHRACEUS 11 ALPHA HYDROXYLASE AND OXIDOREDUCTASE

(57) Abstract: The present invention relates to a novel cytochrome P450-like enzyme (*Aspergillus ochraceus*) isolated from cDNA library generated from the mRNA of *Aspergillus ochraceus* spores. When the cDNA encoding the 11 alpha hydroxylase was co-expressed in*Spodoptera frugiperda* (Sf-9) insect cells with the cDNA encoding human oxidoreductase as an electron donor, it successfully catalyzed the conversion of the steroid substrate 4-androstene-3,17-dione (AD) to 11 alpha-hydroxy-AD as determined by HPLC analysis. The invention also relates to nucleic acid molecules associated with or derived from these cDNAs including complements, homologues and fragments thereof, and methods of using these nucleic acid molecules, to generate, for example, polypeptides and fragments thereof. The invention also relates to the generation of antibodies that recognizes the *A. ochraceus* 11 alpha hydroxylase and oxidoreductase and methods of using these antibodies to detect the presence of these native and recombinant polypeptides within unmodified and transformed host cells, respectively. The invention also provides methods of expressing the *Aspergillus* 11 alpha hydroxylase gene separately, or in combination with human or *Aspergillus*oxidoreductase, in heterologous host cells, to facilitate the bioconversion of steroid substances to their 11 alpha hydroxy-counterparts.