US005474919A

United States Patent [19]

Chartrain et al.

[11] **Patent Number: 5,474,919**

[45] **Date of Patent: Dec. 12, 1995**

[54] **BIOCONVERSION PROCESS FOR THE SYNTHESIS OF TRANSHYDROXY SULFONE BY *RHODOTORULA RUBRA* OR *RHODOTORULA PILIMINAE***

[75] Inventors: **Michel M. Chartrain**, Westfield; **Lorraine G. Katz**, Springfield; **Steven A. King**, Summit, all of N.J.

[73] Assignee: **Merck & Co., Inc.**, Rahway, N.J.

[21] Appl. No.: **305,110**

[22] Filed: **Sep. 13, 1994**

[51] **Int. Cl.**[6] **C12P 17/16**; C12N 1/16; C12N 1/00

[52] **U.S. Cl.** **435/118**; 435/911; 435/255.1

[58] **Field of Search** 435/118, 911, 435/255.1

[56] **References Cited**

U.S. PATENT DOCUMENTS

4,797,413	1/1989	Baldwin et al.	514/432
4,968,814	11/1990	Blacklock et al.	549/66
4,968,815	11/1990	Blacklock et al.	549/66
5,091,409	2/1992	Baldwin et al.	514/434
5,157,129	10/1992	Blacklock et al.	549/23
5,352,579	10/1994	Milliman	435/6
5,356,812	10/1994	Matsayama et al.	435/280
5,371,014	12/1994	Matsayama et al.	435/280

FOREIGN PATENT DOCUMENTS

590549	4/1994	European Pat. Off. .
WO94/05802	3/1994	WIPO .

Primary Examiner—Marian C. Knode
Assistant Examiner—Mike Meller
Attorney, Agent, or Firm—Sylvia A. Ayler; Mark R. Daniel

[57] **ABSTRACT**

There is disclosed a novel microbial bioconversion process for the synthesis of a trans-hydroxy sulfone intermediate, which is the precursor to topical carbonic anhydrase inhibitors (TCAI's). TCAI's are effective in the treatment of glaucoma and ocular hypertension. The bioconversion process is carried out in the presence of the microorganism *Rhodotorula rubra*, or *Rhodotorula piliminae* and results in a trans-hydroxy sulfone which exhibits a diastereomeric excess of greater than 95%.

7 Claims, No Drawings