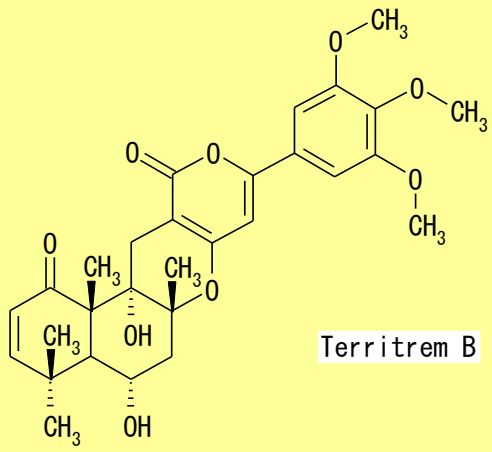
Territrem B,	Cat.# BLK-0600

Structure



Origin: *Asperigillus terreus*

CAS Registry Number: 70407-20-4

Appearance: off-white solid

Molecular Formula/ Weight: $C_{29}H_{34}O_9$=526.58

Purity: 95.0% by HPLC

Solubility: Soluble in MeOH, chloroform
Insoluble in water

Background Information:

Territrem B was isolated from *Asperigillus terreus* as a tremorgenic mycotoxin[1)]. Futhrmore, the very similar compounds, arisugacins A and B were isolated from *Penicillium* sp. FO-4259 in the course of screening for selective acetylcholinesterase inhibitors[2)].

Their structures are comprised of a highly oxygenated trans decalin system and an α-pyrone moiety which belong biogenetically to the mixed polyketide-terpenoid group (meroterpenoid) (Figure 1)[3)]. The first total synthesis of arisugacins was achieved by Sunazuka –Ōmura[4)].

Arisugacins A, B and territrem B possess inhibitory activities against AChE (from human erythrocyted) in vitro, with IC50 values of 1, 26, and 8 nM, respectively (Figure 2)[5)]. And the activity against AChE was more than 20,000 times higher than that against butyrylcholinesterase (BChE, from horse serum) (Table 1). The studies on the effects of arisugacin A on an animal model of scopolamine-induced amnesia showed that arisugacin A protected against amnesia and exhibited very weak effects on mouse salivation and hypothermia, a peripheral cholinergic response and central cholinergic response[6)].

Effects of territrem B on the central neuron of the snail Achatina fulica were studied electrophysiologically[7)]. It was predicted that an optimal territrem B-AChE binding would position a narrowing connection of the territrem B structure at a constricted area near the entrance of the gorge, thereby providing a structural basis for the observed irreversible binding (Figure 3, 4). Territrem-B potentiated the acetylcholine (ACh) induced current of the neuron, while it had no effect on GABA or L-glutamate elicited currents. Territrem B increased the peak amplitude of the response elicited by the first perfusion of ACh and depressed the increase in current produced by a second perfusion[7)]. They could be potentially excellent drugs for the treatment of AD

Handling and Storage:

Store at -20℃.

References:

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3. T. Simpson et al., J. Chem. Soc. Rev. **16**, 123 (1987).
4. T. Sunazuka et al., Org. Lett. **4**, 367 (2002).
5. F. Kuno et al., J. Antibiot. **49**, 742 (1996).
6. K. Otoguro et al., Pharmacol. Ther. **76**, 45 (1997).
7. J. W. Chen et al., J Biol Chem. **274**, 34916 (1999).

Synthesized by Organic Chemistry Group, The Kitasato Institute. (ID#: FO-4259s)

Table 1