

## -Supporting Information-

# Geranyl-phenazine-diol: an Acetylcholinesterase Inhibitor Produced by a *Streptomyces* Species

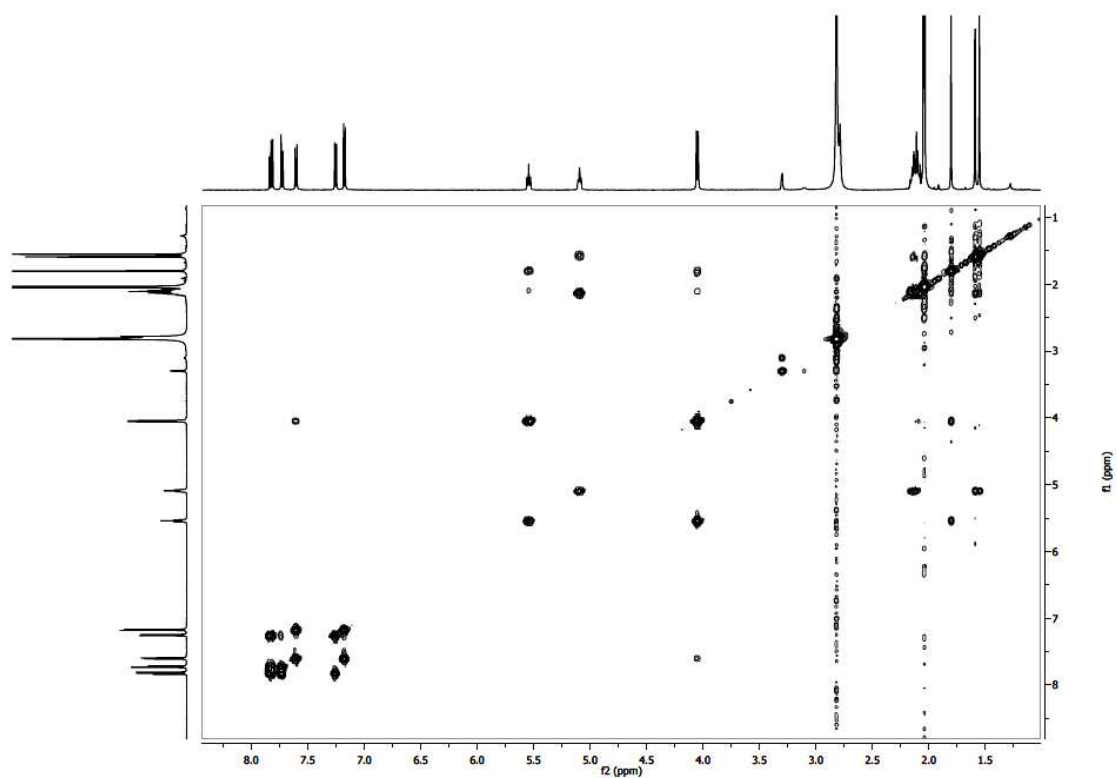
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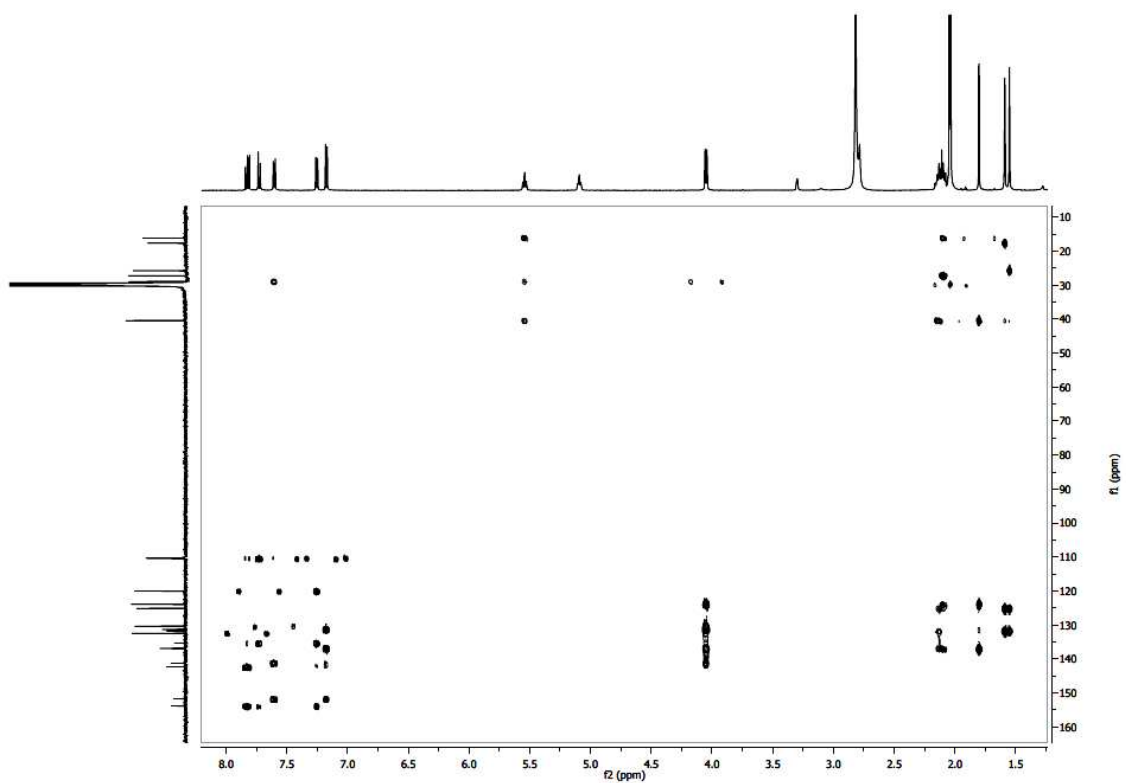
- S1.**  $^1\text{H}$  NMR spectrum of geranyl-phenazine-diol (**1**) in acetone- $d_6$  (500 MHz)
- S2.**  $^{13}\text{C}$  NMR spectrum of geranyl-phenazine-diol (**1**) in acetone- $d_6$  (125 MHz)
- S3.**  $^1\text{H}$ - $^1\text{H}$  COSY spectrum of geranyl-phenazine-diol (**1**) in acetone- $d_6$  (500 MHz)
- S4.**  $^1\text{H}$ - $^{13}\text{C}$  HMBC spectrum of geranyl-phenazine-diol (**1**) in acetone- $d_6$  (500 MHz)
- S5.**  $^1\text{H}$  NMR spectrum of diacetyl-geranyl-phenazine-diol (**2**) in acetone- $d_6$  (500 MHz)
- S6.** Detail of the  $^1\text{H}$ - $^1\text{H}$  NOESY spectrum of diacetyl-geranyl-phenazine-diol (**2**) in acetone- $d_6$  (500 MHz)
- S7.**  $\text{IC}_{50}$  values [ $\mu\text{M}$ ] for inhibition of acetylcholinesterase activity, growth of *B. subtilis* and fibroblast (KIF) proliferation.
- S8.** Spore chain of *Streptomyces* sp. strain LB173 (scanning electron microscopic photograph)



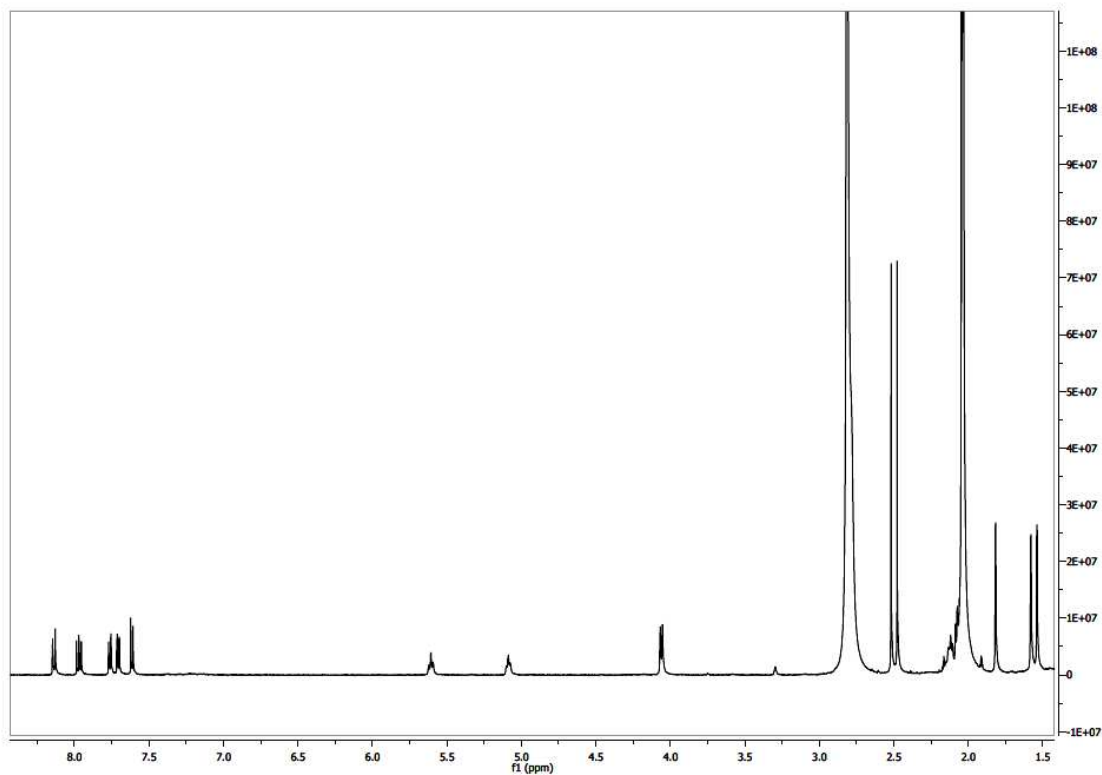
S3.  $^1\text{H}$ - $^1\text{H}$  COSY spectrum of geranyl-phenazine-diol (**1**) in acetone- $d_6$  (500 MHz)



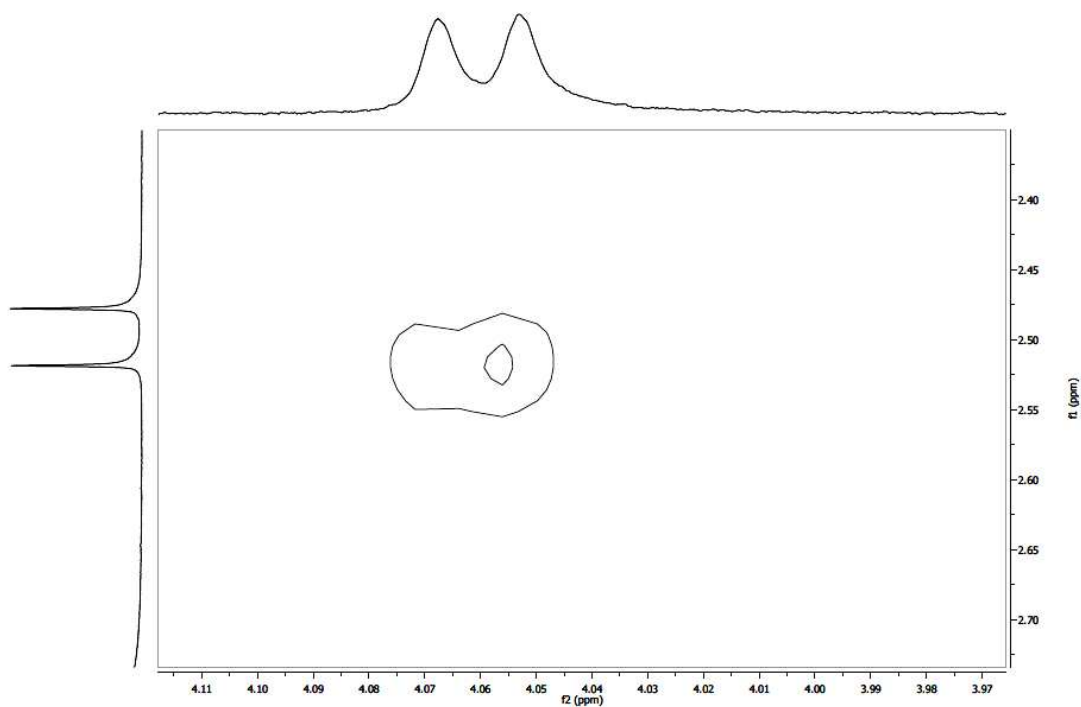
S4.  $^1\text{H}$ - $^{13}\text{C}$  HMBC spectrum of geranyl-phenazine-diol (**1**) in acetone- $d_6$  (500 MHz)



S5.  $^1\text{H}$  NMR spectrum of diacetyl-geranyl-phenazine-diol (**2**) in acetone- $d_6$  (500 MHz)



S6. Detail of the  $^1\text{H}$ - $^1\text{H}$  NOESY spectrum of diacetyl-geranyl-phenazine-diol (**2**) in acetone- $d_6$  (500 MHz)

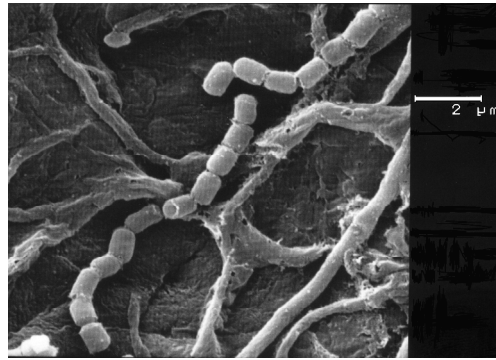


**S7.** IC<sub>50</sub> values [ $\mu$ M] for inhibition of acetylcholinesterase activity, growth of *B. subtilis* and fibroblast (KIF) proliferation.

	AChE	<i>B. subtilis</i>	KIF (fibroblasts)
	IC <sub>50</sub> [ $\mu$ M]		
geranyl-phenazine-diol ( <b>1</b> )	2.62 $\pm$ 0.35	24 $\pm$ 3	>50
diacetyl-geranyl-phenazine-diol ( <b>2</b> )	2.01 $\pm$ 0.02	13 $\pm$ 1	>50
1,6-phenazine-diol	4.52 $\pm$ 0.46	22 $\pm$ 2	>50
2-hydroxy-phenazine	>50	75 $\pm$ 4	>50
phenazine-1-carboxylic acid	>50	>150	>50
endophenazine A	>50	111 $\pm$ 2	>10
endophenazine B	>50	>150	>50
huperzine A	0.012 $\pm$ 0.001	n. d.	n. d.
chloramphenicol	n. d.	1.45 $\pm$ 0.13	n. d.
tamoxifen	n. d.	n. d.	23.75 $\pm$ 0.57

n. d.: not determined

**S8.** Spore chain of *Streptomyces* sp. strain LB173 (scanning electron microscopic photograph)



Morphological characteristics and genetic sequence information of the 16S rRNA gene designated the strain as belonging to the genus *Streptomyces*. The most closely related type strains according to the 16S rRNA gene sequence (1199bp) analysis were *Streptomyces luridiscabiei* S63<sup>T</sup> (GenBank/ EMBL/ DDBJ acc. No. AF361784) and *Streptomyces flavogriseus* strain CBS 101.34<sup>T</sup> (GenBank/ EMBL/ DDBJ acc. No. AJ494864), both with a sequence similarity of 99.5 %. As can be seen on the scanning electron microscopic picture DB620 produces cylindrical spores with a smooth surface, which fits well to the description of the spores of *Streptomyces luridiscabiei* S63<sup>T</sup>.