

-Supporting Information-

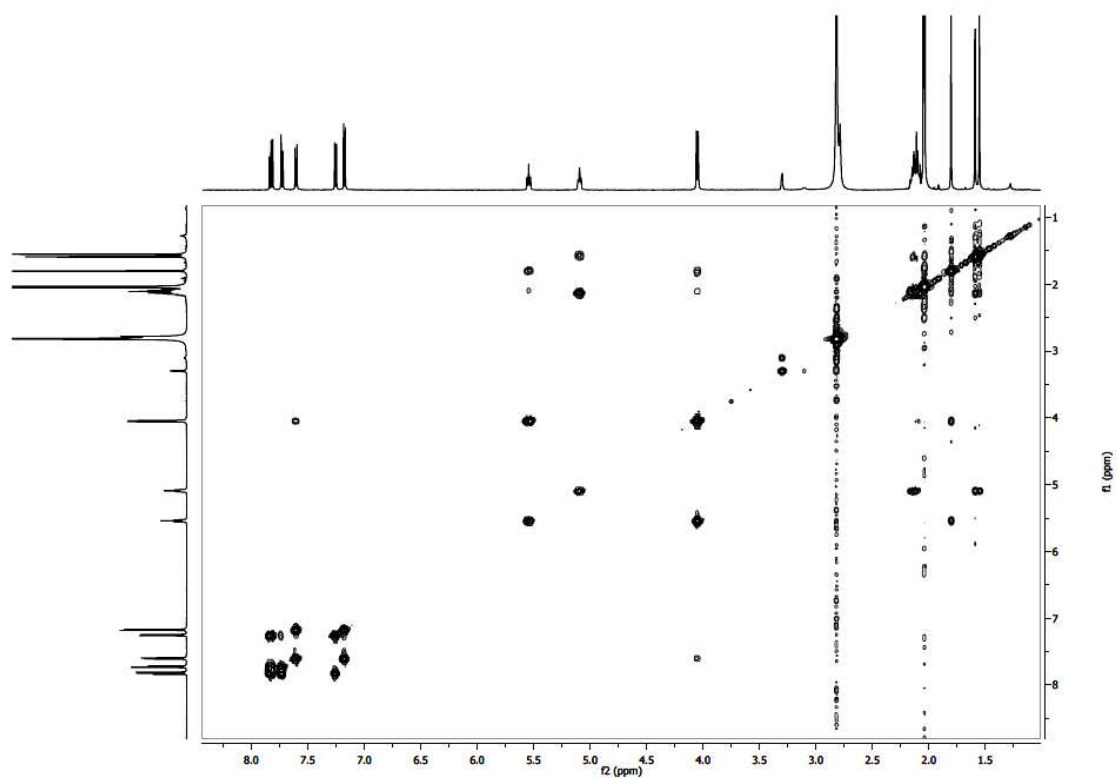
Geranyl-phenazine-diol: an Acetylcholinesterase Inhibitor Produced by a *Streptomyces* Species

*Birgit Ohlendorf, Dirk Schulz, Arlette Erhard, Kerstin Nagel and Johannes F. Imhoff**

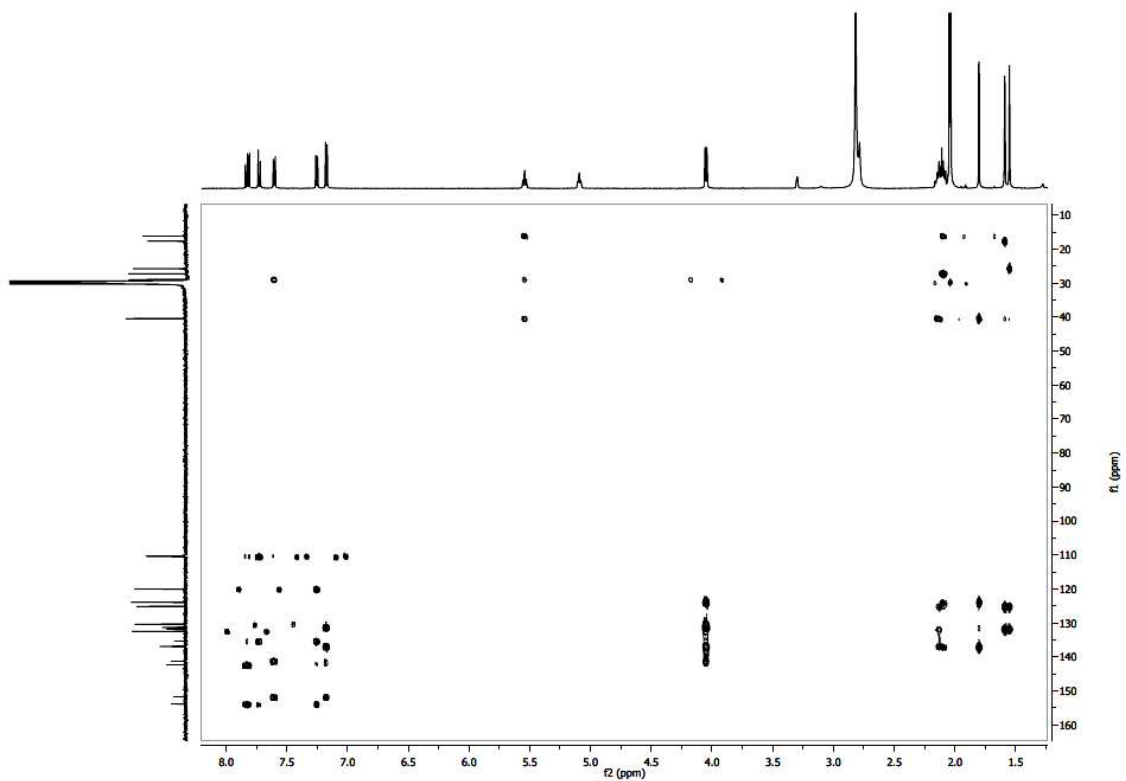
Kieler Wirkstoff-Zentrum (KiWiZ) at the Helmholtz-Zentrum für Ozeanforschung GEOMAR,
Am Kiel-Kanal 44, 24106 Kiel, Germany

- S1.** ^1H NMR spectrum of geranyl-phenazine-diol (**1**) in acetone- d_6 (500 MHz)
- S2.** ^{13}C NMR spectrum of geranyl-phenazine-diol (**1**) in acetone- d_6 (125 MHz)
- S3.** ^1H - ^1H COSY spectrum of geranyl-phenazine-diol (**1**) in acetone- d_6 (500 MHz)
- S4.** ^1H - ^{13}C HMBC spectrum of geranyl-phenazine-diol (**1**) in acetone- d_6 (500 MHz)
- S5.** ^1H NMR spectrum of diacetyl-geranyl-phenazine-diol (**2**) in acetone- d_6 (500 MHz)
- S6.** Detail of the ^1H - ^1H NOESY spectrum of diacetyl-geranyl-phenazine-diol (**2**) in acetone- d_6 (500 MHz)
- S7.** IC_{50} values [μM] 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)

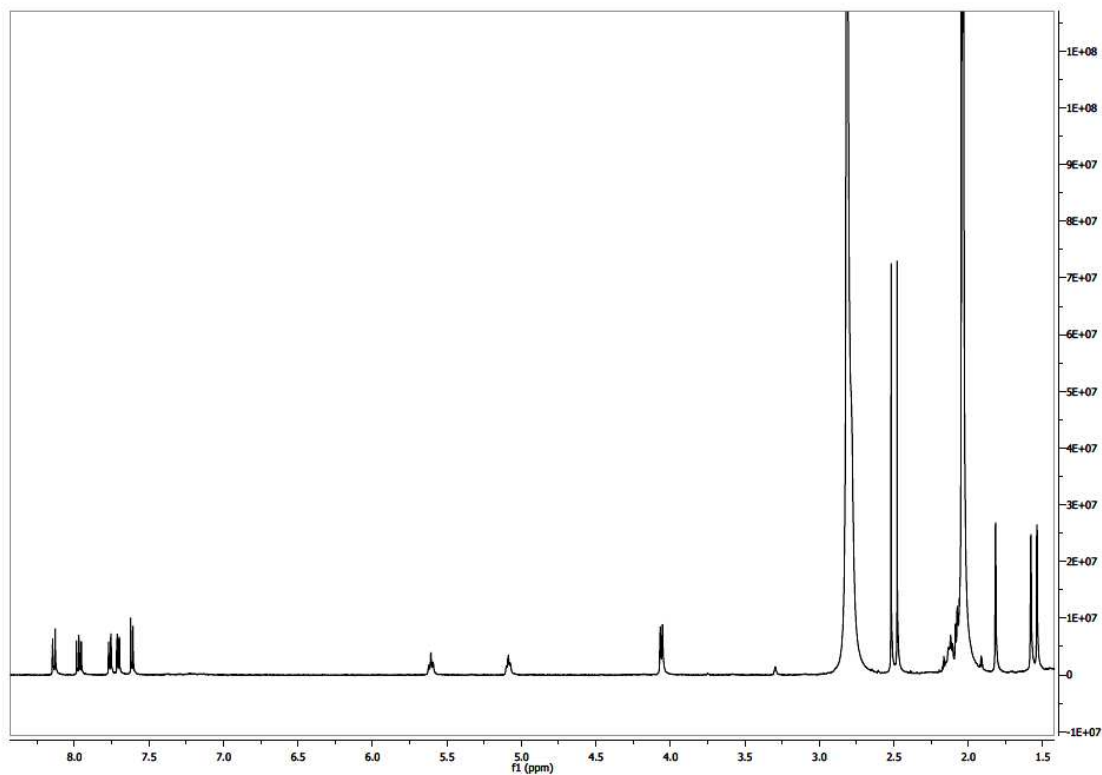
S3. ^1H - ^1H COSY spectrum of geranyl-phenazine-diol (**1**) in acetone- d_6 (500 MHz)



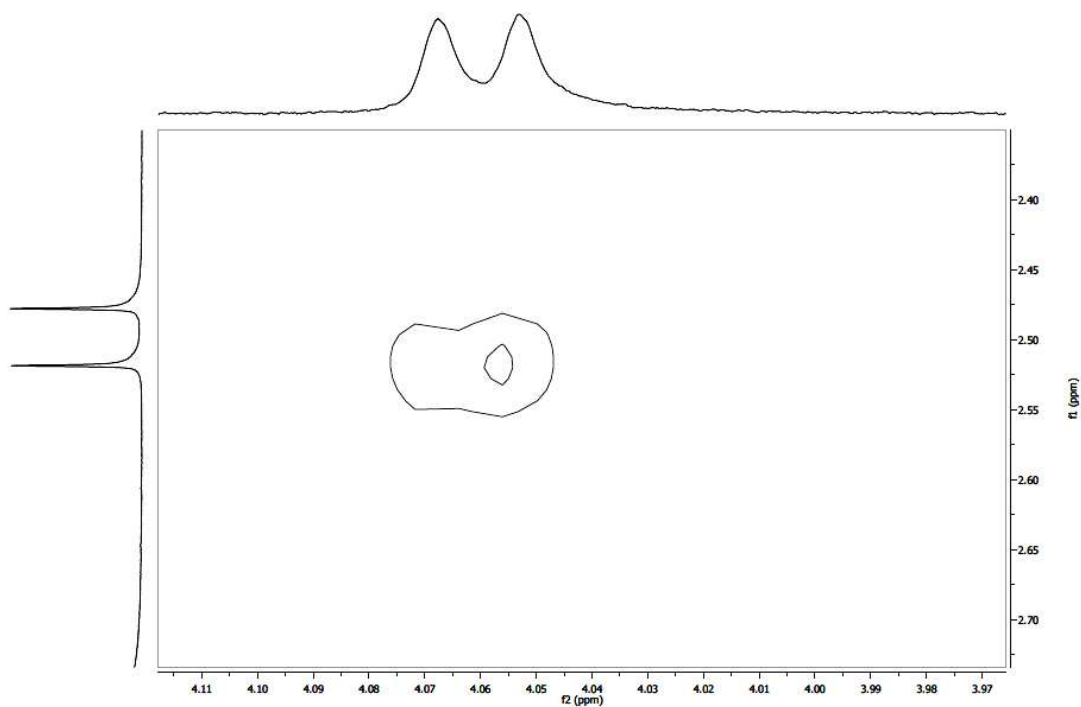
S4. ^1H - ^{13}C HMBC spectrum of geranyl-phenazine-diol (**1**) in acetone- d_6 (500 MHz)



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



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

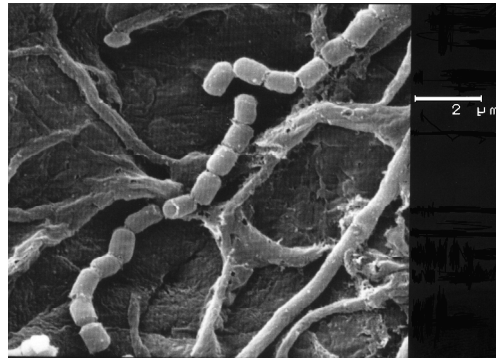


S7. IC₅₀ values [μ M] for inhibition of acetylcholinesterase activity, growth of *B. subtilis* and fibroblast (KIF) proliferation.

	AChE	<i>B. subtilis</i>	KIF (fibroblasts)
	IC ₅₀ [μ M]		
geranyl-phenazine-diol (1)	2.62 \pm 0.35	24 \pm 3	>50
diacetyl-geranyl-phenazine-diol (2)	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^T (GenBank/ EMBL/ DDBJ acc. No. AF361784) and *Streptomyces flavogriseus* strain CBS 101.34^T (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^T.