

Effects of lysine *N*- ζ -methylation in ultrashort tetrabasic lipopeptides (UTBLPs) on the potentiation of rifampicin, novobiocin, and niclosamide in Gram-negative bacteria

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Table S1. Antibacterial activity of UTBLPs **1-8** against MDR GNB and clinically relevant GPB.

Organism	MIC (µg/mL)							
	1	2	3	4	5	6	7	8
<i>P. aeruginosa</i> PA259-96196	>128	>128	>128	>128	128	>128	>128	>128
<i>P. aeruginosa</i> PA262-101856	128	>128	>128	>128	>128	>128	>128	>128
<i>A. baumannii</i> AB027	128	>128	>128	>128	128	>128	128	>128
<i>A. baumannii</i> AB92247	64	>128	>128	>128	32	32	32	128
<i>E. coli</i> 94393	>128	>128	>128	>128	32	64	64	128
<i>E. coli</i> 94474	>128	>128	>128	>128	128	>128	128	>128
<i>E. cloacae</i> 118564	>128	>128	>128	>128	>128	>128	>128	>128
<i>K. pneumoniae</i> 113250	>128	>128	>128	>128	>128	>128	>128	>128
MRSE 61589	32	64	>128	>128	8	16	32	128
MSSE 81388	32	64	>128	>128	16	16	32	128

Table S2. Synergy evaluation of UTBLPs 1-8 combined with RIF, NOV, NIC, or CHL against wild-type GNB.

Organism	UTBLP	Antibiotic	MIC _{UTBLP} [MIC _{Combo}] (μg/mL)	MIC _{Antibiotic} [MIC _{Combo}] (μg/mL)	FIC Index	Interpretation
<i>P. aeruginosa</i> PAO1	1	Rifampicin	>128 [4]	16 [2]	0.125<x<0.156	Synergy
	2		>128 [8]	16 [8]	0.5<x<0.563	Additive
	3		>128 [0.25]	16 [16]	1<x<1.002	Additive
	4		>128 [0.25]	16 [16]	1<x<1.002	Additive
	5		>128 [16]	8 [0.5]	0.0625<x<0.188	Synergy
	6		>128 [16]	16 [1]	0.0625<x<0.188	Synergy
	7		>128 [16]	8 [4]	0.5<x<0.625	Additive
	8		>128 [0.25]	16 [16]	1<x<1.002	Additive
	1	Novobiocin	>128 [16]	512 [32]	0.063<x<0.188	Synergy
	2		>128 [16]	1024 [256]	0.25<x<0.375	Synergy
	3		>128 [16]	1024 [512]	0.5<x<0.675	Additive
	4		>128 [16]	1024 [512]	0.5<x<0.675	Additive
	5		>128 [16]	512 [8]	0.016<x<0.141	Synergy
	6		>128 [16]	512 [32]	0.063<x<0.188	Synergy
	7		>128 [16]	512 [128]	0.25<x<0.375	Synergy
	8		>128 [0.25]	512 [512]	1<x<1.002	Additive
	1	Niclosamide	>128 [0.25]	1024 [1024]	1<x<1.002	Additive
	2		>128 [0.25]	1024 [1024]	1<x<1.002	Additive
	3		>128 [0.25]	1024 [1024]	1<x<1.002	Additive
	4		>128 [0.25]	1024 [1024]	1<x<1.002	Additive
	5		>128 [4]	1024 [4]	0.004<x<0.035	Synergy
	6		>128 [16]	1024 [2]	0.002<x<0.127	Synergy
	7		>128 [0.25]	1024 [1024]	1<x<1.002	Additive
	8		>128 [0.25]	1024 [1024]	1<x<1.002	Additive
	1	Chloramphenicol	>128 [2]	32 [4]	0.125<x<0.141	Synergy
	2		>128 [8]	32 [8]	0.25<x<0.313	Synergy
	3		>128 [8]	16 [8]	0.5<x<0.563	Additive
	4		>128 [16]	16 [16]	1<x<1.002	Additive
	5		>128 [2]	16 [2]	0.125<x<0.141	Synergy
	6		>128 [16]	16 [2]	0.125<x<0.25	Synergy
	7		>128 [8]	16 [8]	0.5<x<0.563	Additive
	8		>128 [0.25]	16 [16]	1<x<1.002	Additive
<i>A. baumannii</i> ATCC 17978	1	Rifampicin	>128 [8]	2 [0.125]	0.063<x<0.125	Synergy
	2		>128 [16]	1 [0.031]	0.031<x<0.156	Synergy
	3		>128 [8]	2 [0.5]	0.25<x<0.313	Synergy
	4		>128 [16]	1 [0.5]	0.5<x<0.625	Additive
	5		64 [1]	2 [0.031]	0.031	Synergy
	6		64 [2]	2 [0.031]	0.047	Synergy
	7		128 [4]	2 [0.125]	0.094	Synergy
	8		>128 [16]	2 [0.25]	0.125<x<0.25	Synergy
	1	Novobiocin	>128 [16]	32 [0.125]	0.004<x<0.129	Synergy
	2		>128 [8]	32 [0.5]	0.016<x<0.078	Synergy
	3		>128 [8]	16 [1]	0.063<x<0.125	Synergy
	4		>128 [16]	32 [4]	0.125<x<0.25	Synergy
	5		64 [2]	8 [0.125]	0.047	Synergy
	6		64 [4]	8 [0.25]	0.063	Synergy
	7		128 [4]	16 [0.5]	0.063	Synergy
	8		>128 [16]	16 [4]	0.063<x<0.189	Synergy
	1	Niclosamide	>128 [8]	512 [0.5]	0.001<x<0.126	Synergy
	2		>128 [8]	1024 [2]	0.002<x<0.064	Synergy
	3		>128 [0.25]	1024 [1024]	1<x<1.002	Additive
	4		>128 [0.25]	1024 [1024]	1<x<1.002	Additive
	5		64 [0.5]	>1024 [1]	x<0.009	Synergy
	6		64 [1]	>1024 [4]	x<0.020	Synergy
	7		128 [4]	>1024 [4]	x<0.035	Synergy
	8		>128 [2]	>1024 [16]	x<0.031	Synergy
	1	Chloramphenicol	>128 [32]	64 [32]	0.5<x<0.75	Additive
	2		>128 [0.25]	128 [64]	0.5<x<0.502	Additive
	3		>128 [16]	128 [64]	0.5<x<0.625	Additive
	4		>128 [0.25]	128 [128]	1<x<1.002	Additive
	5		64 [4]	64 [32]	0.563	Additive
	6		64 [8]	64 [32]	0.625	Additive
	7		128 [0.25]	64 [64]	1.002	Additive
	8		>128 [0.25]	64 [64]	1<x<1.002	Additive
<i>E. coli</i> ATCC 25922	1	Rifampicin	>128 [8]	4 [0.125]	0.031<x<0.094	Synergy
	2		>128 [16]	4 [0.125]	0.031<x<0.156	Synergy
	3		>128 [16]	4 [1]	0.25<x<0.375	Synergy
	4		>128 [8]	4 [2]	0.5<x<0.563	Additive
	5		64 [2]	2 [0.063]	0.063	Synergy
	6		32 [4]	2 [0.063]	0.156	Synergy
	7		64 [8]	2 [0.125]	0.188	Synergy
	8		>128 [16]	2 [1]	0.5<x<0.625	Additive
	1	Novobiocin	>128 [8]	32 [0.25]	0.008<x<0.070	Synergy
	2		>128 [8]	64 [1]	0.016<x<0.078	Synergy
	3		>128 [16]	64 [4]	0.063<x<0.188	Synergy
	4		>128 [16]	64 [16]	0.25<x<0.375	Synergy

	5		64 [1]	32 [0.5]	0.031	Synergy
	6		32 [2]	32 [0.5]	0.078	Synergy
	7		64 [2]	32 [2]	0.094	Synergy
	8		>128 [16]	32 [2]	0.063<x<0.188	Synergy
	1	Niclosamide	>128 [8]	>128 [0.5]	x<0.133	Synergy
	2		>128 [4]	>128 [2]	x<0.133	Synergy
	3		>128 [16]	>128 [8]	x<0.188	Synergy
	4		>128 [ND]	>128 [ND]	ND	ND
	5		64 [0.5]	>256 [2]	0.008<x<0.016	Synergy
	6		32 [1]	>256 [2]	0.031<x<0.039	Synergy
	7		64 [4]	>256 [1]	0.063<x<0.066	Synergy
	8		>128 [8]	>256 [8]	x<0.094	Synergy
	1	Chloramphenicol	>128 [32]	4 [1]	0.25<x<0.5	Synergy
	2		>128 [0.25]	2 [2]	1<x<1.002	Additive
	3		>128 [0.5]	2 [2]	1<x<1.004	Additive
	4		>128 [1]	2 [2]	1<x<1.008	Additive
	5		64 [16]	8 [0.25]	0.281	Synergy
	6		32 [8]	8 [2]	0.5	Synergy
	7		64 [16]	4 [0.5]	0.375	Synergy
	8		>128 [8]	8 [2]	0.313	Synergy

Table S3. Synergy evaluation of UTBLPs 1-8 combined with RIF or NOV against MDR GNB.

Organism	UTBLP	Antibiotic	MIC _{UTBLP} [MIC _{combo}] (µg/mL)	MIC _{antibiotic} [MIC _{combo}] (µg/mL)	FIC Index	Interpretation
<i>P. aeruginosa</i> PA259-96196	1	Rifampicin	>128 [16]	16 [0.5]	0.031<x<0.156	Synergy
	2		>128 [16]	16 [4]	0.25<x<0.375	Synergy
	3		>128 [16]	16 [16]	1<x<1.002	Additive
	4		>128 [0.25]	16 [16]	1<x<1.002	Additive
	5		>128 [8]	16 [0.5]	0.0938	Synergy
	6		>128 [16]	16 [2]	0.125<x<0.25	Synergy
	7		>128 [16]	16 [8]	0.5<x<0.625	Additive
	8		>128 [16]	16 [16]	1<x<1.002	Additive
	1	Novobiocin	>128 [8]	2048 [128]	0.063<x<0.125	Synergy
	2		>128 [16]	2048 [512]	0.25<x<0.375	Synergy
	3		>128 [0.25]	2048 [2048]	1<x<1.002	Additive
	4		>128 [0.25]	2048 [2048]	1<x<1.002	Additive
	5		128 [4]	1024 [16]	0.094	Synergy
	6		>128 [16]	1024 [128]	0.125<x<0.25	Synergy
	7		>128 [16]	1024 [512]	0.5<x<0.625	Additive
	8		>128 [16]	1024 [1024]	1<x<1.002	Additive
<i>P. aeruginosa</i> PA262-101856	1	Rifampicin	128 [16]	1024 [256]	0.375	Synergy
	2		>128 [0.25]	512 [512]	1<x<1.002	Additive
	3		>128 [0.25]	512 [512]	1<x<1.002	Additive
	4		>128 [0.25]	512 [512]	1<x<1.002	Additive
	5		>128 [16]	512 [32]	0.063<x<0.125	Synergy
	6		>128 [16]	512 [256]	0.5<x<0.625	Additive
	7		>128 [16]	512 [512]	1<x<1.002	Additive
	8		>128 [16]	512 [512]	1<x<1.002	Additive
	1	Novobiocin	128 [16]	>1024 [64]	0.125<x<0.188	Synergy
	2		>128 [16]	1024 [512]	0.5<x<0.625	Additive
	3		>128 [8]	2048 [1024]	0.5<x<0.563	Additive
	4		>128 [16]	1024 [1024]	1<x<1.125	Additive
	5		>128 [16]	1024 [16]	0.016<x<0.141	Synergy
	6		>128 [16]	1024 [128]	0.125<x<0.5	Synergy
	7		>128 [16]	1024 [512]	0.5<x<0.625	Additive
	8		>128 [16]	1024 [1024]	1<x<1.002	Additive
<i>A. baumannii</i> AB027	1	Rifampicin	128 [8]	1 [0.063]	0.125	Synergy
	2		>128 [16]	1 [0.063]	0.063<x<0.188	Synergy
	3		>128 [4]	1 [0.5]	0.5<x<0.531	Additive
	4		>128 [0.25]	1 [1]	1<x<1.002	Additive
	5		128 [2]	1 [0.016]	0.031	Synergy
	6		>128 [16]	1 [0.002]	0.002<x<0.127	Synergy
	7		128 [8]	1 [0.063]	0.125	Synergy
	8		>128 [16]	1 [0.25]	0.25<x<0.375	Synergy
	1	Novobiocin	128 [8]	8 [0.125]	0.078	Synergy
	2		>128 [16]	16 [0.25]	0.125<x<0.141	Synergy
	3		>128 [16]	16 [2]	0.125<x<0.25	Synergy
	4		>128 [16]	16 [4]	0.25<x<0.375	Synergy
	5		128 [1]	16 [0.25]	0.023	Synergy
	6		>128 [16]	16 [0.031]	0.002<x<0.127	Synergy
	7		128 [4]	16 [0.5]	0.063	Synergy
	8		>128 [16]	16 [2]	0.125<x<0.25	Synergy
<i>A. baumannii</i> 92247	1	Rifampicin	64 [4]	1 [0.125]	0.188	Synergy
	2		>128 [16]	2 [0.063]	0.031<x<0.156	Synergy
	3		>128 [16]	1 [0.25]	0.25<x<0.375	Synergy
	4		>128 [0.25]	1 [1]	1<x<1.002	Additive
	5		32 [2]	1 [0.063]	0.125	Synergy
	6		32 [0.5]	1 [0.063]	0.078	Synergy
	7		32 [8]	1 [0.125]	0.375	Synergy
	8		128 [16]	1 [0.5]	0.063	Synergy
	1	Novobiocin	64 [4]	2 [0.25]	0.188	Synergy
	2		>128 [16]	4 [0.25]	0.063<x<0.188	Synergy
	3		>128 [8]	4 [1]	0.25<x<0.313	Synergy
	4		>128 [1]	4 [4]	1<x<1.008	Additive
	5		32 [1]	4 [0.125]	0.063	Synergy
	6		32 [1]	2 [0.125]	0.094	Synergy
	7		32 [1]	2 [0.25]	0.156	Synergy
	8		128 [16]	2 [0.125]	0.188	Synergy
<i>E. coli</i> 94393	1	Rifampicin	>128 [8]	4 [0.031]	0.004<x<0.066	Synergy
	2		>128 [16]	4 [0.125]	0.031<x<0.156	Synergy
	3		>128 [16]	4 [1]	0.25<x<0.375	Synergy
	4		>128 [0.25]	4 [4]	1<x<1.002	Additive
	5		32 [4]	4 [0.125]	0.156	Synergy
	6		64 [4]	4 [0.25]	0.125	Synergy
	7		64 [8]	4 [0.5]	0.25	Synergy
	8		128 [16]	4 [20]	0.625	Additive
	1	Novobiocin	>128 [8]	128 [0.5]	0.004<x<0.066	Synergy
	2		>128 [16]	64 [1]	0.016<x<0.141	Synergy
	3		>128 [16]	64 [8]	0.125<x<0.25	Synergy
	4		>128 [0.25]	64 [32]	0.5<x<0.502	Additive
	5		32 [1]	64 [2]	0.063	Synergy
	6		64 [4]	64 [1]	0.078	Synergy

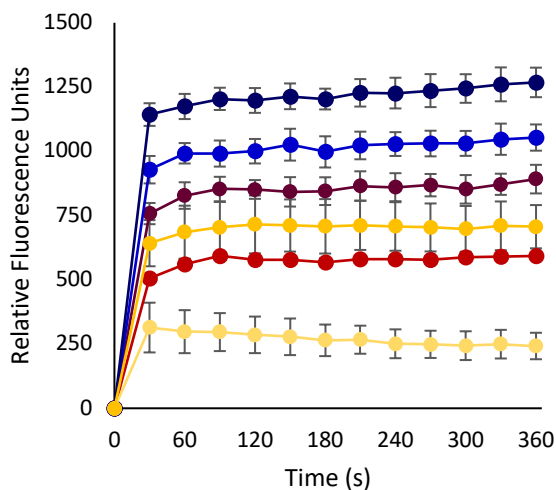
	7		64 [4]	64 [2]	0.093	Synergy
	8		128 [16]	64 [16]	0.375	Synergy
<i>E. coli</i> 94474	1	Rifampicin	>128 [8]	4 [0.125]	0.031<x<0.094	Synergy
	2		>128 [16]	8 [0.5]	0.063<x<0.188	Synergy
	3		>128 [16]	4 [2]	0.5<x<0.625	Additive
	4		>128 [16]	4 [4]	1<x<1.002	Additive
	5		128 [2]	8 [0.25]	0.047	Synergy
	6		>128 [16]	4 [0.125]	0.031<x<0.156	Synergy
	7		128 [16]	4 [1]	0.375	Synergy
	8		>128 [16]	8 [4]	0.5<x<0.625	Additive
	1	Novobiocin	>128 [8]	256 [4]	0.016<x<0.078	Synergy
	2		>128 [16]	256 [4]	0.016<x<0.141	Synergy
	3		>128 [16]	256 [32]	0.125<x<0.25	Synergy
	4		>128 [16]	256 [128]	0.5<x<0.625	Additive
	5		128 [4]	128 [1]	0.039	Synergy
	6		>128 [16]	128 [1]	0.008<x<0.133	Synergy
	7		128 [8]	256 [16]	0.125	Synergy
	8		>128 [8]	256 [64]	0.25<x<0.313	Synergy
<i>E. cloacae</i> 118564	1	Rifampicin	>128 [8]	8 [0.125]	0.016<x<0.078	Synergy
	2		>128 [16]	8 [0.2]	0.031<x<0.156	Synergy
	3		>128 [8]	8 [2]	0.25<x<0.313	Synergy
	4		>128 [16]	8 [4]	0.5<x<0.625	Additive
	5		>128 [8]	8 [0.5]	0.063<x<0.125	Synergy
	6		>128 [16]	8 [0.5]	0.063<x<0.188	Synergy
	7		>128 [16]	8 [1]	0.125<x<0.25	Synergy
	8		>128 [16]	8 [4]	0.5<x<0.563	Additive
	1	Novobiocin	>128 [8]	256 [2]	0.008<x<0.070	Synergy
	2		>128 [16]	256 [8]	0.031<x<0.094	Synergy
	3		>128 [16]	256 [16]	0.063<x<0.188	Synergy
	4		>128 [16]	256 [128]	0.5<x<0.563	Additive
	5		>128 [16]	256 [0.5]	0.002<x<0.127	Synergy
	6		>128 [16]	256 [1]	0.004<x<0.129	Synergy
	7		>128 [16]	256 [4]	0.016<x<0.141	Synergy
	8		>128 [16]	256 [32]	0.125<x<0.25	Synergy
<i>K. pneumoniae</i> 113250	1	Rifampicin	>128 [16]	16 [0.5]	0.031<x<0.156	Synergy
	2		>128 [16]	16 [4]	0.125<x<0.188	Synergy
	3		>128 [16]	16 [4]	0.25<0.313	Synergy
	4		>128 [0.25]	8 [8]	1<x<1.002	Additive
	5		>128 [8]	8 [0.5]	0.063<x<0.125	Synergy
	6		>128 [16]	8 [1]	0.125<x<0.25	Synergy
	7		>128 [16]	8 [2]	0.25<x<0.375	Synergy
	8		>128 [16]	16 [4]	0.25<x<0.375	Synergy
	1	Novobiocin	>128 [8]	256 [16]	0.063<x<0.094	Synergy
	2		>128 [16]	256 [4]	0.016<x<0.141	Synergy
	3		>128 [16]	256 [32]	0.125<x<0.25	Synergy
	4		>128 [16]	256 [128]	0.5<x<0.625	Additive
	5		>128 [16]	64 [1]	0.016<x<0.141	Synergy
	6		>128 [16]	64 [2]	0.031<x<0.156	Synergy
	7		>128 [8]	128 [8]	0.063<x<0.125	Synergy
	8		>128 [16]	128 [32]	0.25<x<0.375	Synergy

Table S4. Synergy evaluation of UTBLPs 1-8 combined with CHL against GPB.

Organism	UTBLP	MIC _{UTBLP} [MIC _{Combo}] (µg/mL)	MIC _{Chloramphenicol} [MIC _{Combo}] (µg/mL)	FIC Index	Interpretation
<i>S. aureus</i> ATCC 29213	1	64 [0.25]	8 [8]	1.004	Additive
	2	128 [0.25]	16 [16]	1.002	Additive
	3	>128 [0.25]	16 [16]	1<x<1.002	Additive
	4	>128 [0.25]	16 [16]	1<x<1.002	Additive
	5	64 [16]	8 [2]	0.5	Additive
	6	128 [16]	8 [4]	0.625	Additive
	7	>128 [0.25]	8 [8]	1<x<1.002	Additive
	8	>128 [0.25]	8 [8]	1<x<1.002	Additive
MRSA ATCC 33592	1	128 [0.25]	64 [64]	1.002	Additive
	2	>128 [0.25]	64 [64]	1<x<1.002	Additive
	3	>128 [0.25]	64 [64]	1<x<1.002	Additive
	4	>128 [0.25]	64 [64]	1<x<1.002	Additive
	5	64 [0.25]	64 [64]	1<x<1.004	Additive
	6	>128 [0.25]	64 [64]	1<x<1.002	Additive
	7	>128 [0.25]	64 [64]	1<x<1.002	Additive
	8	>128 [0.25]	64 [64]	1<x<1.002	Additive
MRSE 61589	1	32 [16]	8 [2]	0.75	Additive
	2	64 [0.25]	16 [16]	1.004	Additive
	3	>128 [0.25]	16 [16]	1<x<1.002	Additive
	4	>128 [0.25]	16 [16]	1<x<1.002	Additive
	5	8 [4]	8 [4]	1	Additive
	6	16 [8]	8 [4]	1	Additive
	7	32 [0.25]	8 [8]	1.008	Additive
	8	128 [0.25]	8 [8]	1.002	Additive
MSSE 81388	1	32 [0.25]	4 [4]	1.008	Additive
	2	64 [0.25]	8 [8]	1.004	Additive
	3	>128 [0.25]	8 [8]	1<x<1.002	Additive
	4	>128 [0.25]	8 [8]	1<x<1.002	Additive
	5	16 [8]	4 [0.25]	1.063	Additive
	6	16 [0.25]	4 [4]	1.016	Additive
	7	32 [0.25]	4 [4]	1.008	Additive
	8	128 [0.25]	4 [4]	1.002	Additive
<i>E. faecalis</i> ATCC 29212	1	128 [16]	4 [2]	0.625	Additive
	2	>128 [0.25]	8 [8]	1<x<1.002	Additive
	3	>128 [0.25]	8 [8]	1<x<1.002	Additive
	4	>128 [0.25]	8 [8]	1<x<1.002	Additive
	5	32 [4]	8 [4]	0.625	Additive
	6	32 [4]	8 [4]	0.625	Additive
	7	64 [8]	8 [4]	0.625	Additive
	8	128 [16]	8 [4]	0.625	Additive
<i>E. faecium</i> ATCC 27270	1	64 [0.25]	8 [8]	1.004	Additive
	2	>128 [0.25]	8 [8]	1<x<1.002	Additive
	3	>128 [0.25]	8 [8]	1<x<1.002	Additive
	4	>128 [0.25]	8 [8]	1<x<1.002	Additive
	5	32 [8]	4 [2]	0.75	Additive
	6	64 [4]	4 [4]	1.004	Additive
	7	128 [0.25]	4 [4]	1.002	Additive
	8	>128 [0.25]	4 [4]	1<x<1.002	Additive

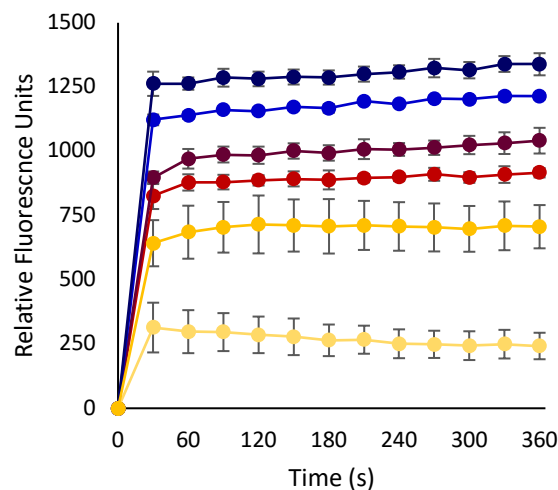
Figure S1. Dose-dependent increase in fluorescence of NPN in the presence of (A) UTBLP 1, (B) UTBLP 2, (C) UTBLP 3, (D) UTBLP 4, and PMBN (control) in *E. coli* ATCC 25922.

A



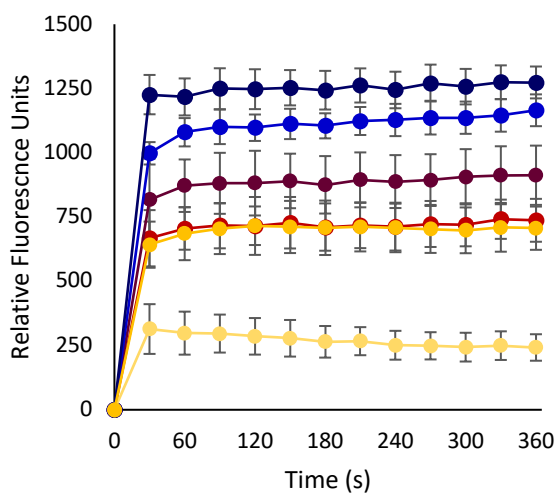
—●— 3.5 uM UTBLP 1 —●— 7 uM UTBLP 1
—●— 14 uM UTBLP 1 —●— 28 uM UTBLP 1
—●— 7 uM PMBN —●— 14 uM PMBN

B



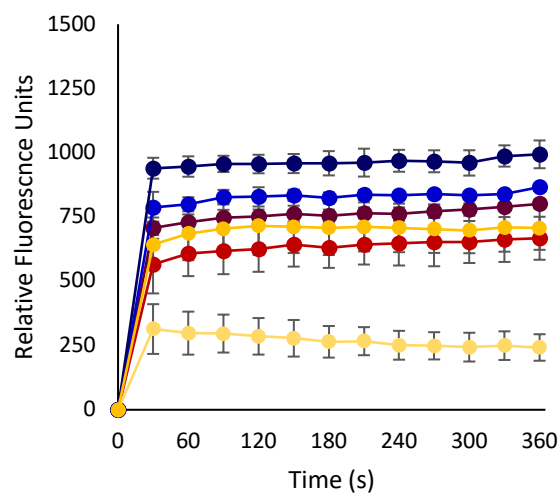
—●— 3.5 uM UTBLP 2 —●— 7 uM UTBLP 2
—●— 14 uM UTBLP 2 —●— 28 uM UTBLP 2
—●— 7 uM PMBN —●— 14 uM PMBN

C



—●— 3.5 uM UTBLP 3 —●— 7 uM UTBLP 3
—●— 14 uM UTBLP 3 —●— 28 uM UTBLP 3
—●— 7 uM PMBN —●— 14 uM PMBN

D



—●— 3.5 uM UTBLP 4 —●— 7 uM UTBLP 4
—●— 14 uM UTBLP 4 —●— 28 uM UTBLP 4
—●— 7 uM PMBN —●— 14 uM PMBN

Figure S2. Dose-dependent increase in fluorescence of NPN in the presence of (A) UTBLP 5, (B) UTBLP 6, (C) UTBLP 7, (D) UTBLP 8, and PMBN (control) in *A. baumannii* ATCC 17978.

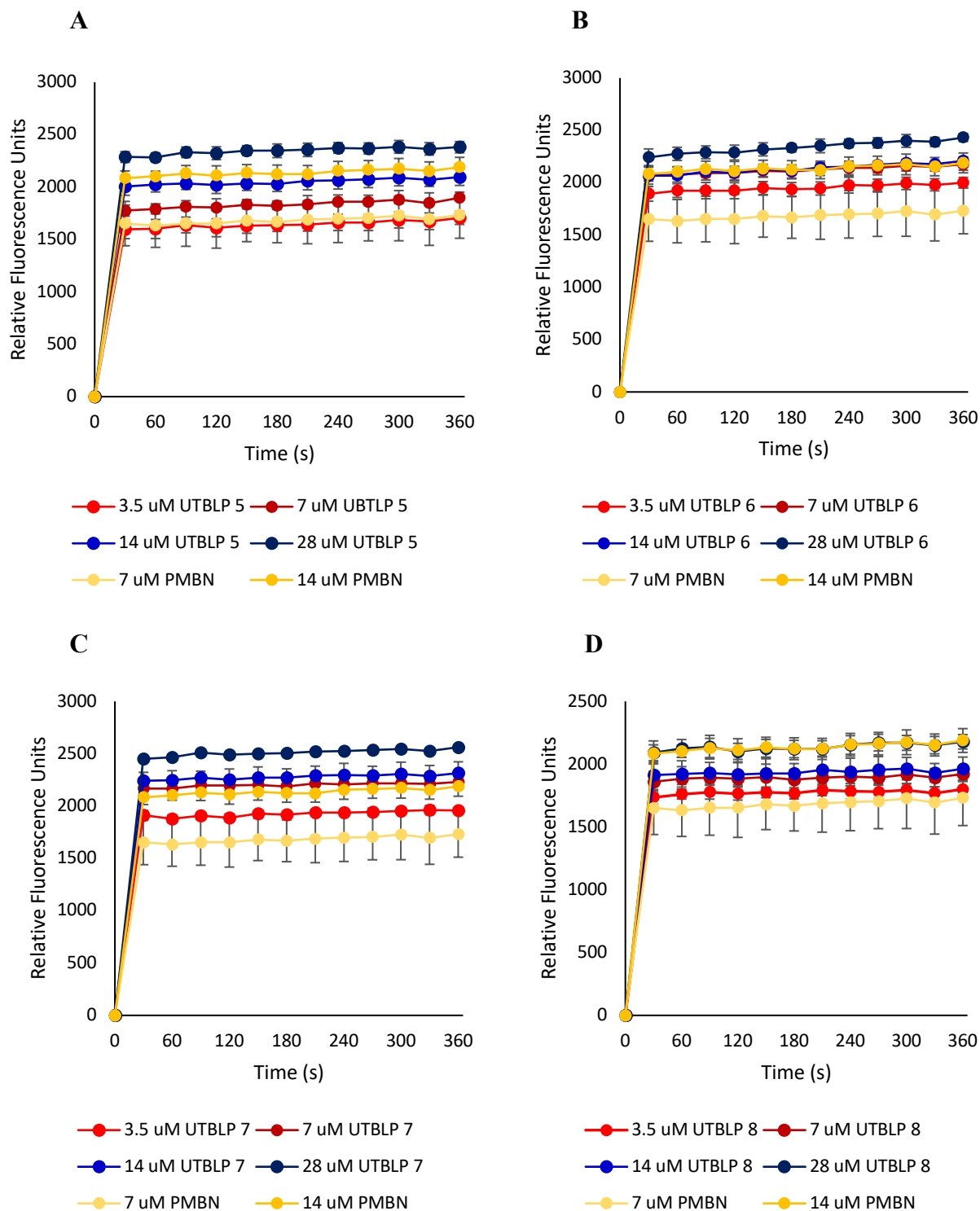
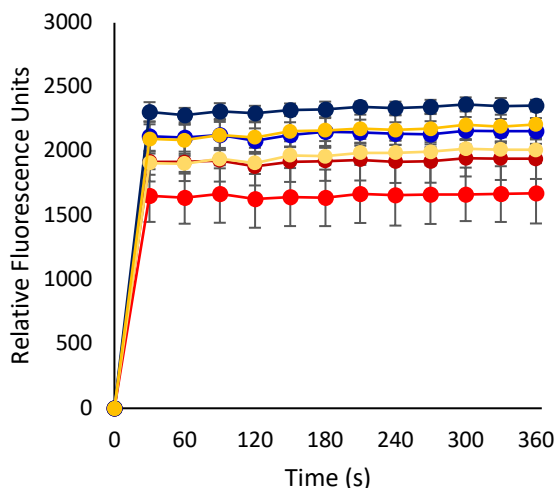


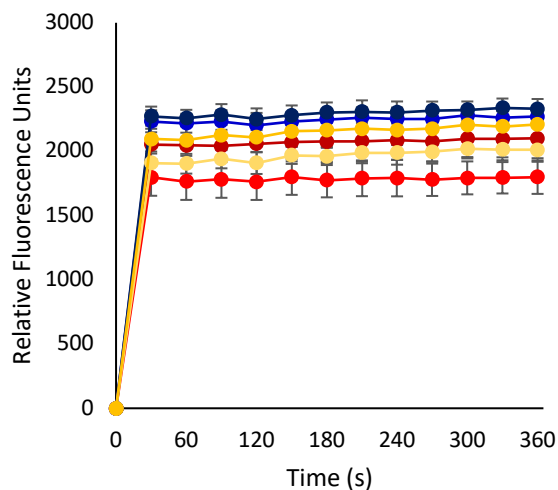
Figure S3. Dose-dependent increase in fluorescence of NPN in the presence of (A) UTBLP 5, (B) UTBLP 6, (C) UTBLP 7, (D) UTBLP 8, and PMBN (control) in *E. coli* ATCC 25922.

A



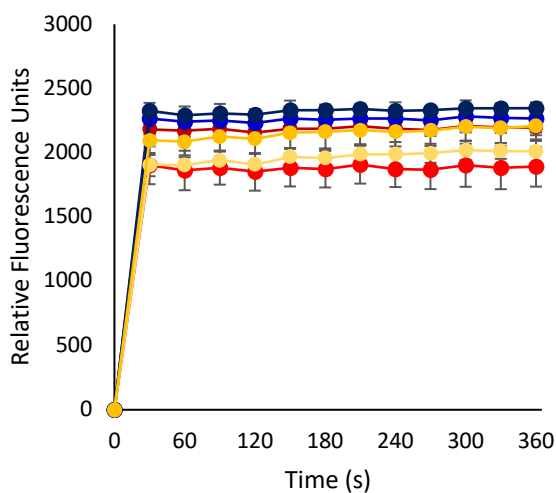
—●— 3.5 uM UTBLP 5 —■— 7 uM UTBLP 5
—●— 14 uM UTBLP 5 —■— 28 uM UTBLP 5
—●— 7 uM PMBN —■— 14 uM PMBN

B



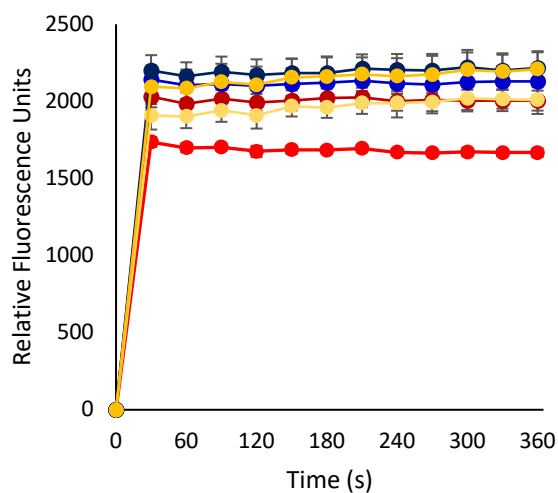
—●— 3.5 uM UTBLP 6 —■— 7 uM UTBLP 6
—●— 14 uM UTBLP 6 —■— 28 uM UTBLP 6
—●— 7 uM PMBN —■— 14 uM PMBN

C



—●— 3.5 uM UTBLP 7 —■— 7 uM UTBLP 7
—●— 14 uM UTBLP 7 —■— 28 uM UTBLP 7
—●— 7 uM PMBN —■— 14 uM PMBN

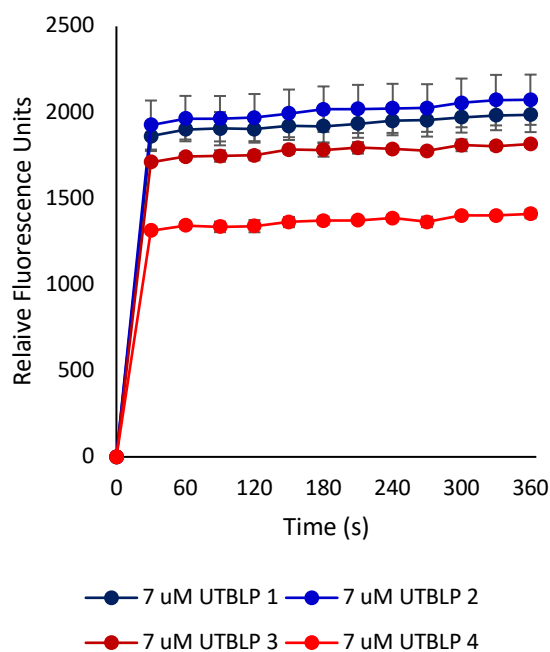
D



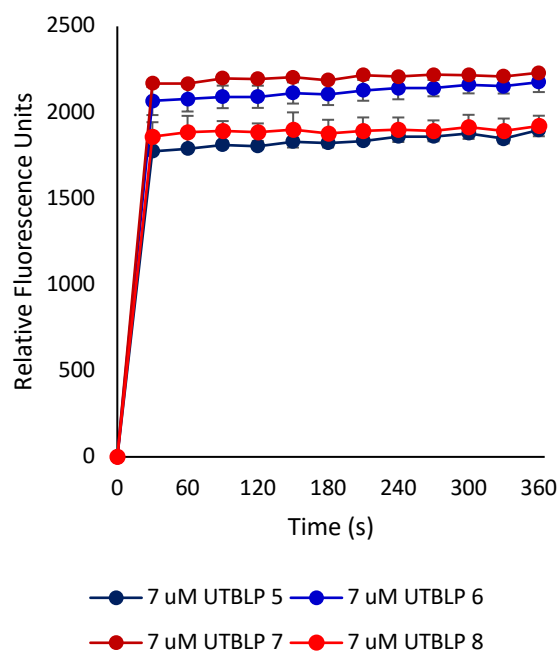
—●— 3.5 uM UTBLP 8 —■— 7 uM UTBLP 8
—●— 14 uM UTBLP 8 —■— 28 uM UTBLP 8
—●— 7 uM PMBN —■— 14 uM PMBN

Figure S4. Comparison of UTBLP-induced fluorescence of NPN at 7 μ M of (A) UTBLPs 1-4 and (B) UTBLPs 5-8 in *A. baumannii* ATCC 17978, and 7 μ M of (C) UTBLPs 1-4 and (D) UTBLPs 5-8 in *E. coli* ATCC 25922.

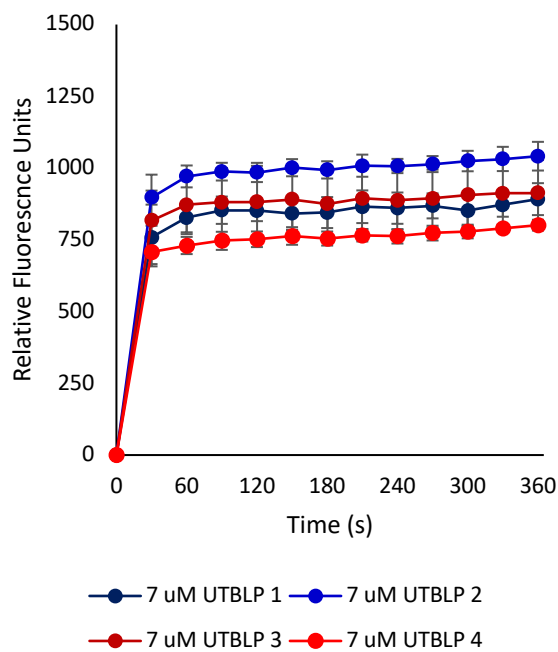
A



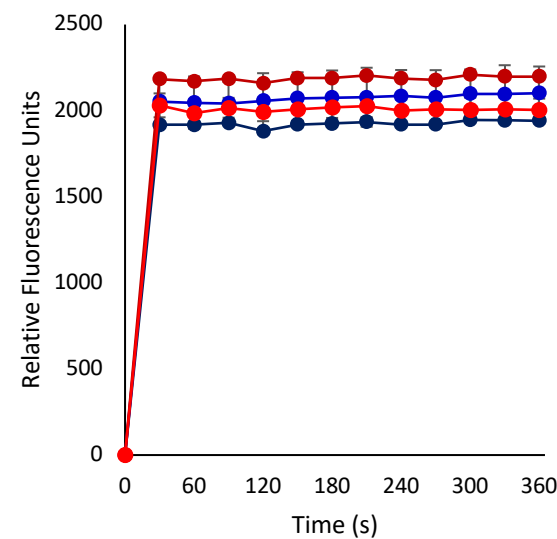
B



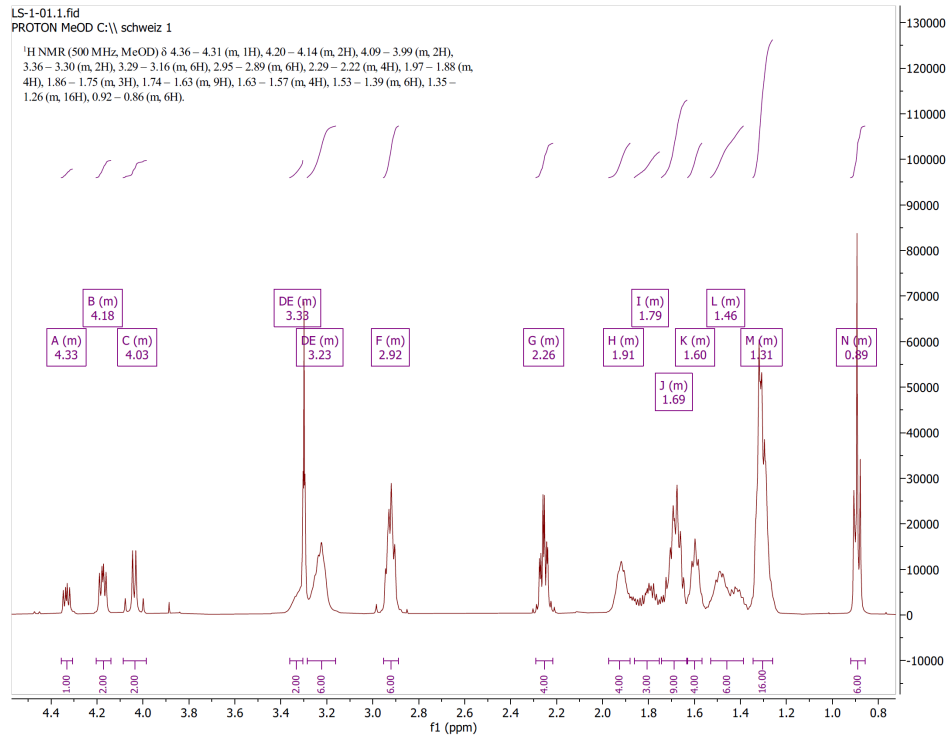
C



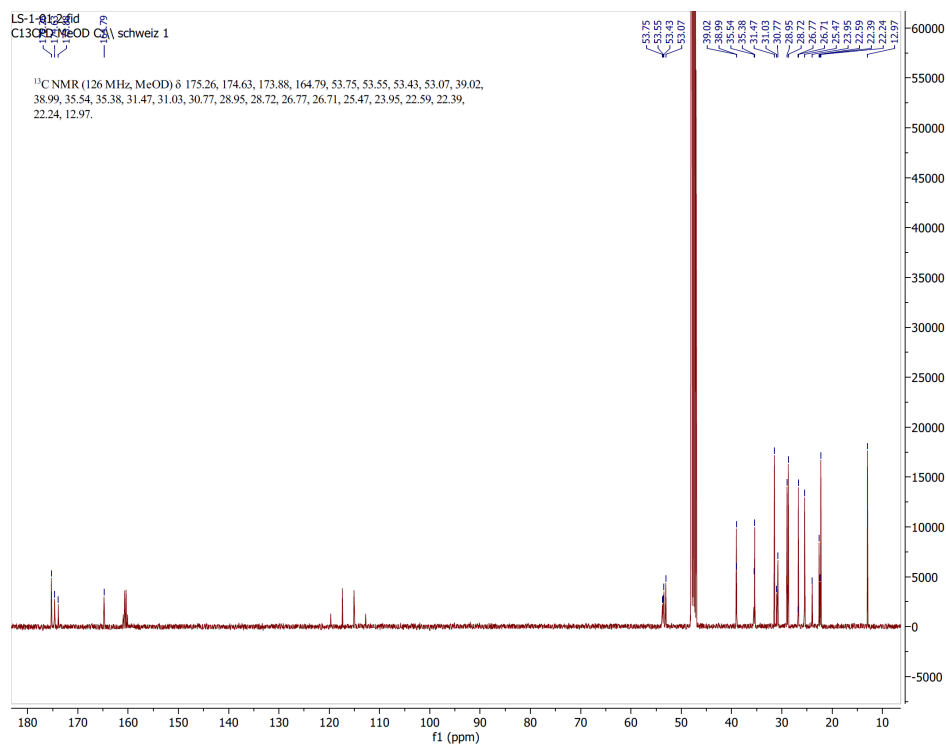
D



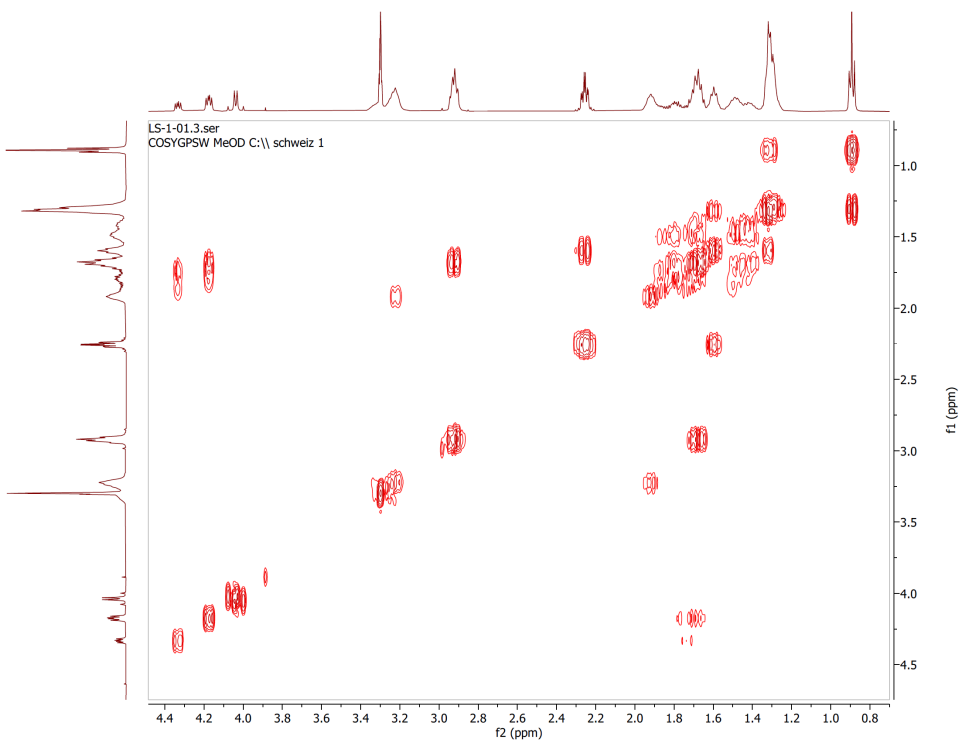
NMR Spectra (^1H , ^{13}C , COSY, HSQC and HMBC) of UTBLPs 1-8



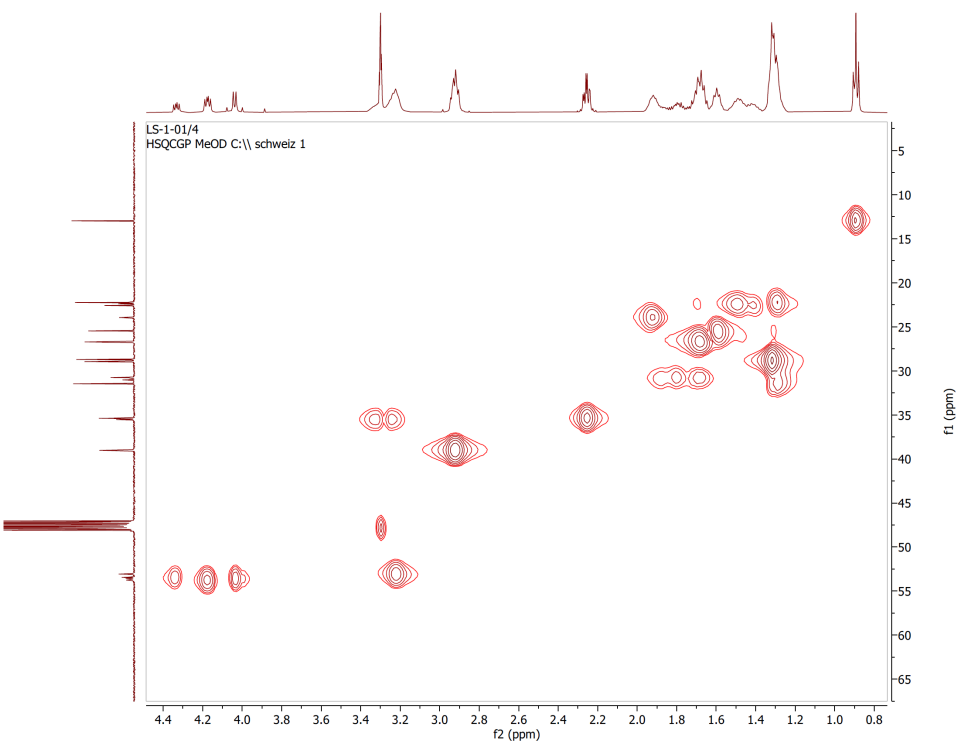
^1H spectrum of UTBLP 1.



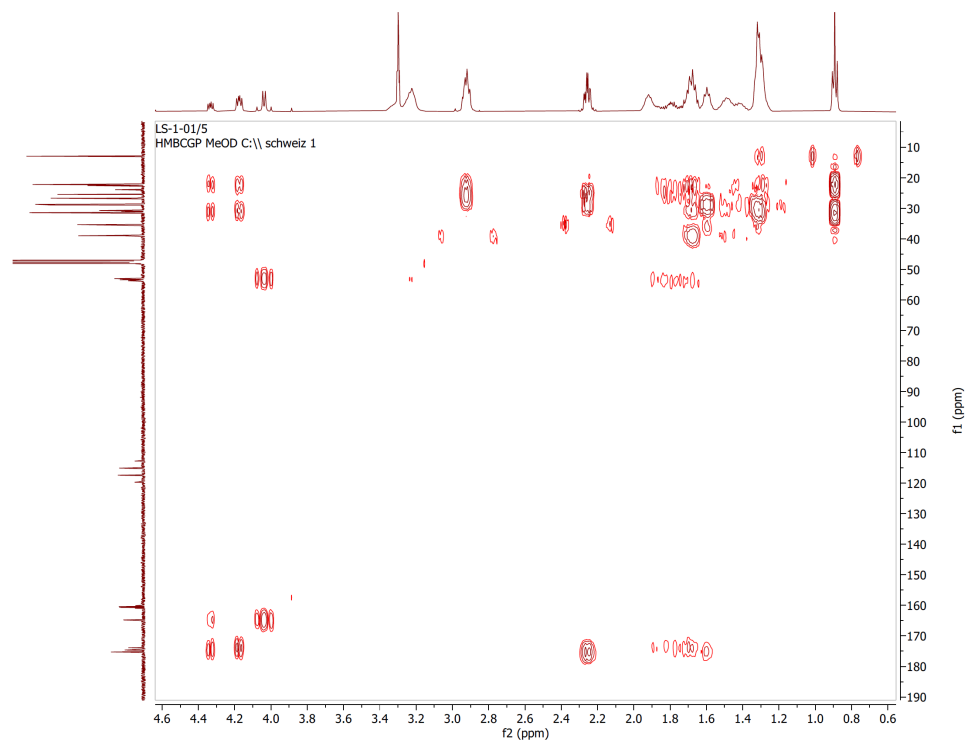
^{13}C spectrum of UTBLP 1.



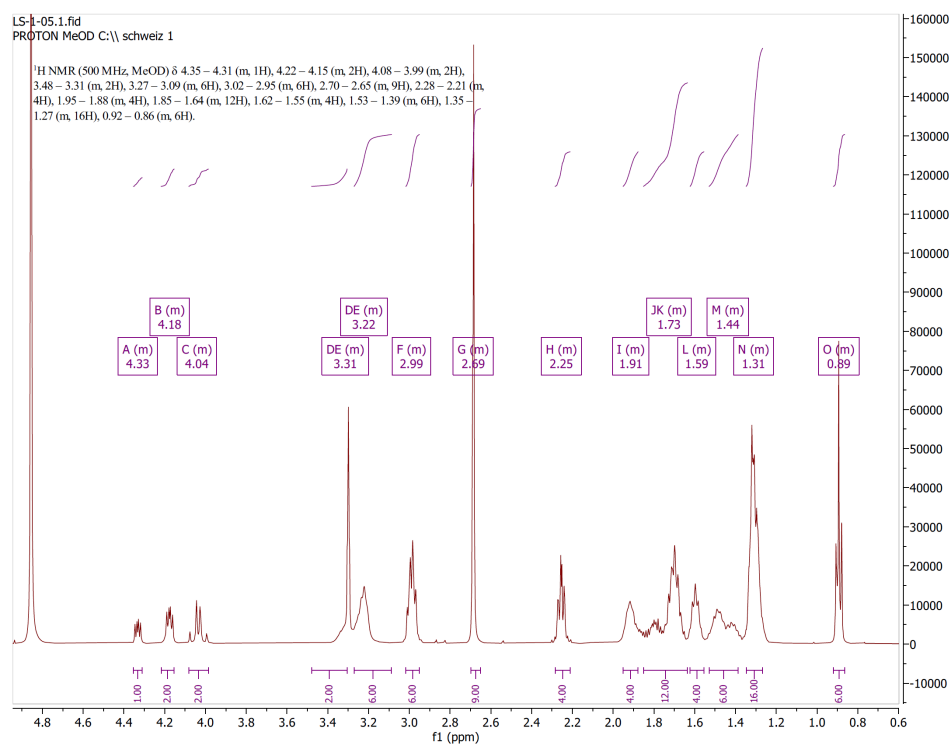
COSY spectrum of UTBLP 1.



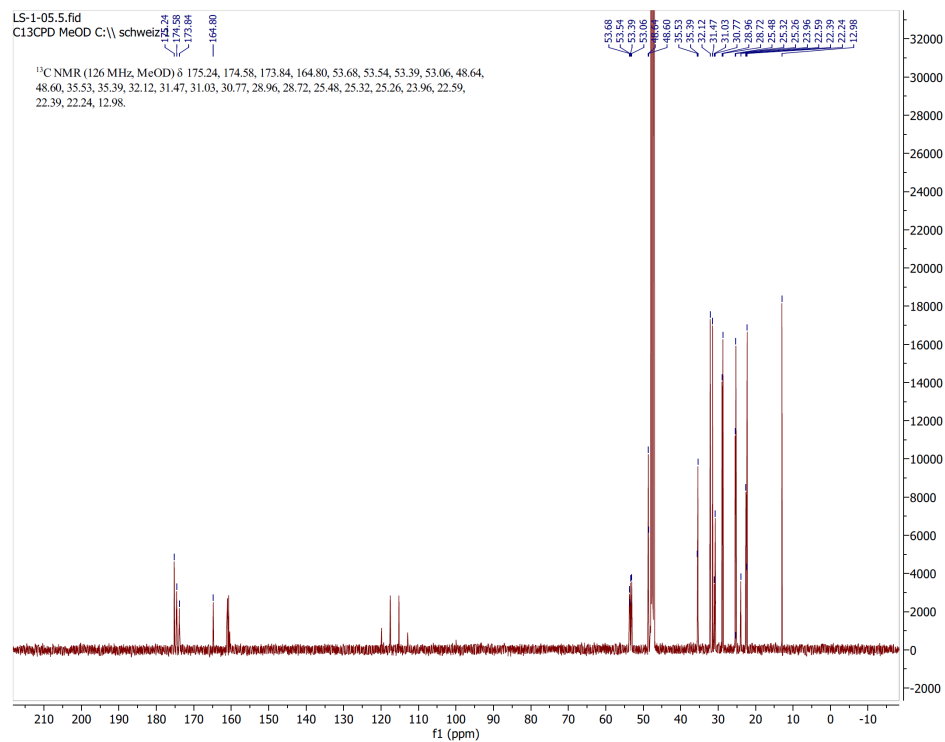
HSQC spectrum of UTBLP 1.



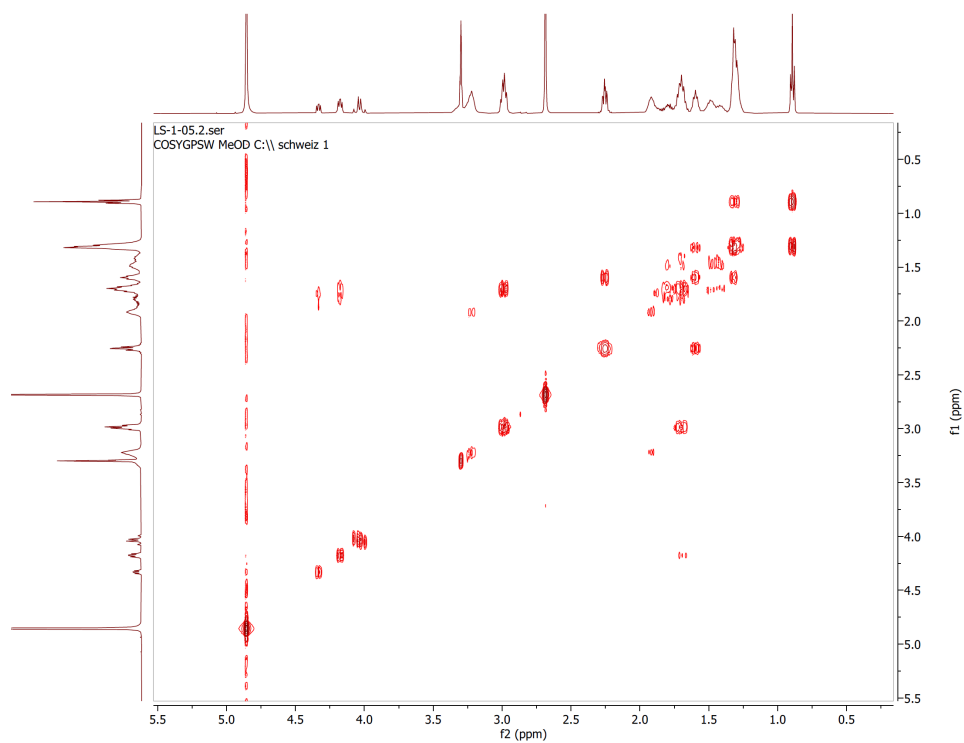
HMBC spectrum of UTBLP 1.



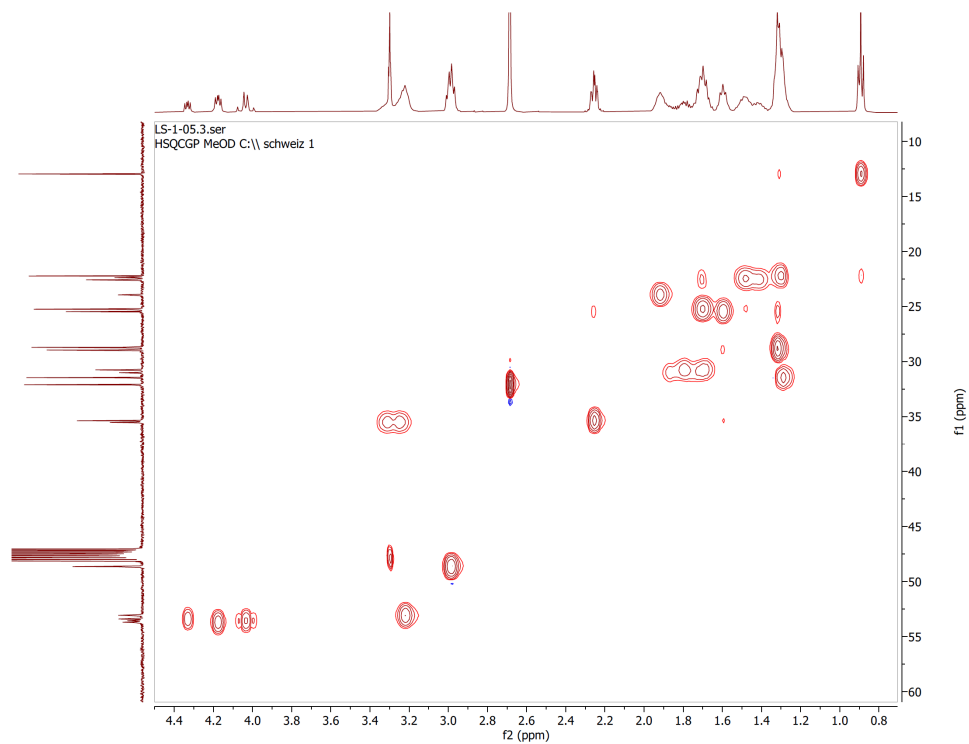
¹H spectrum of UTBLP 2.



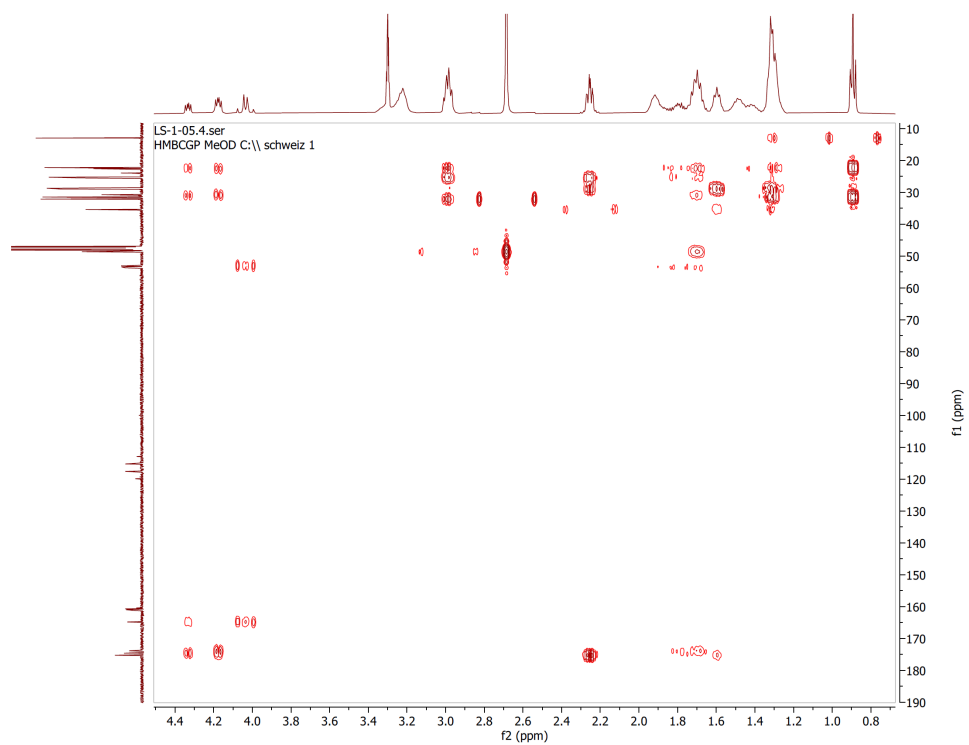
^{13}C spectrum of UTBLP 2.



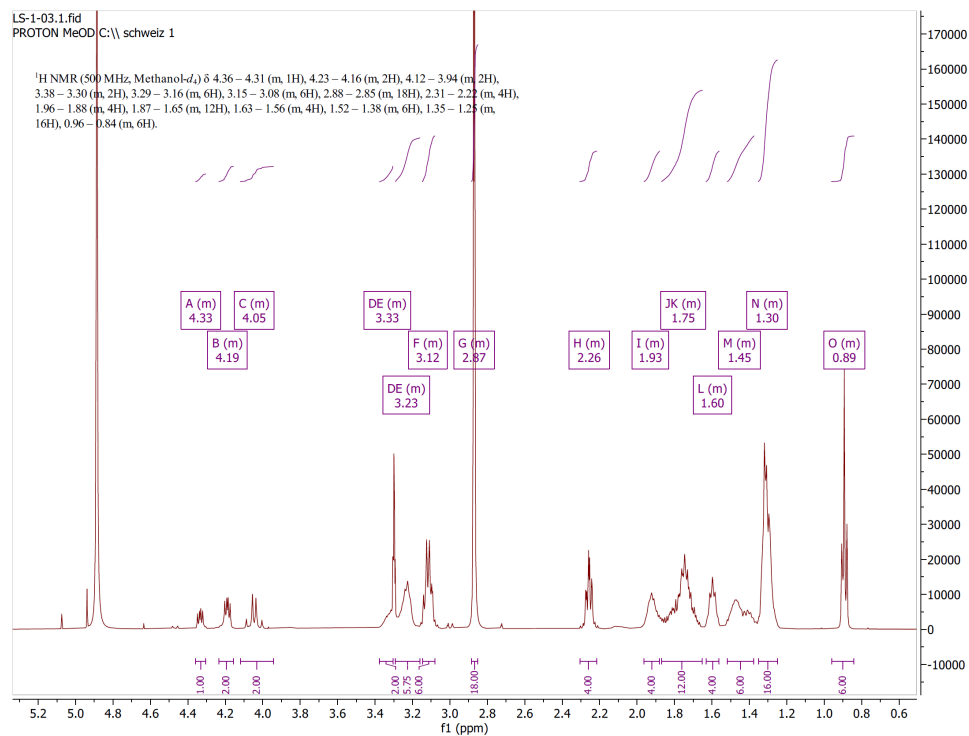
COSY spectrum of UTBLP 2.



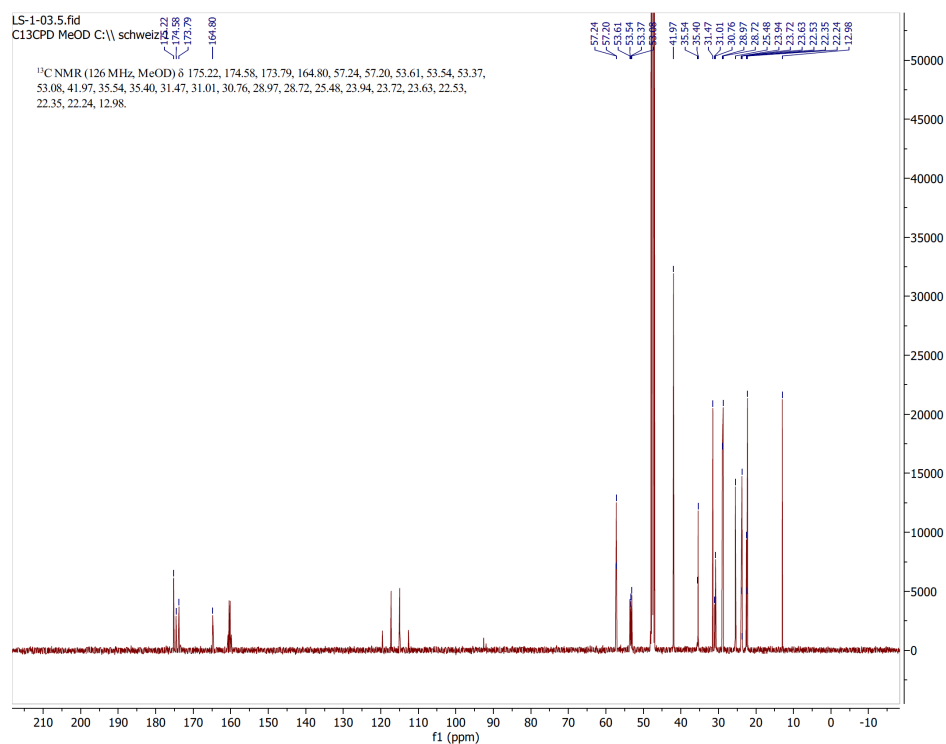
HSQC spectrum of UTBLP 2.



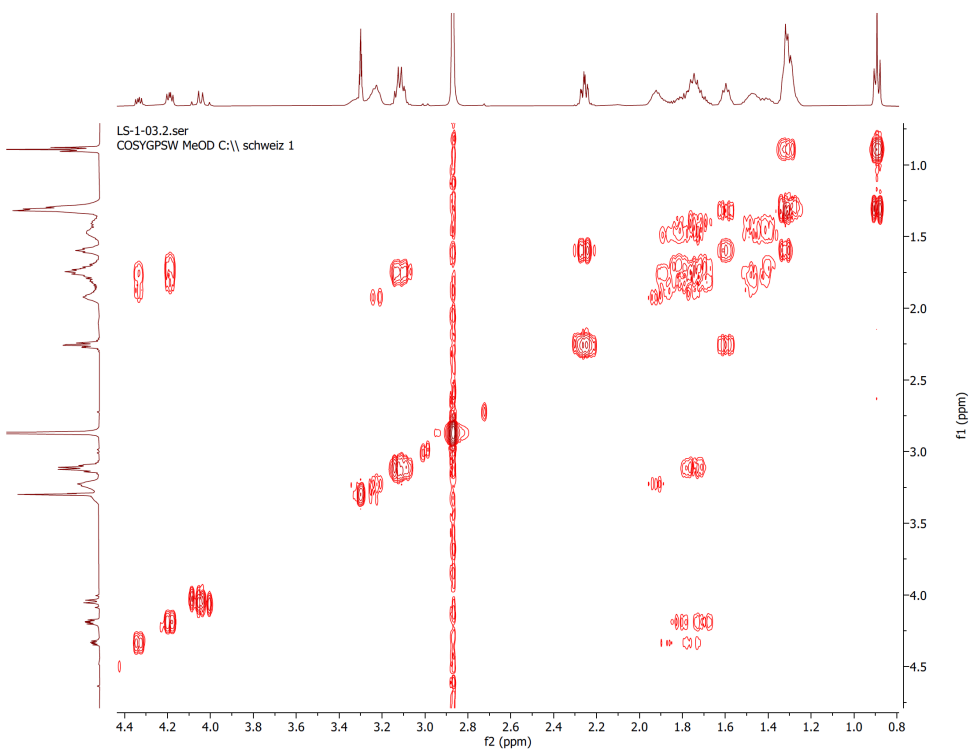
HMBC spectrum of UTBLP 2.



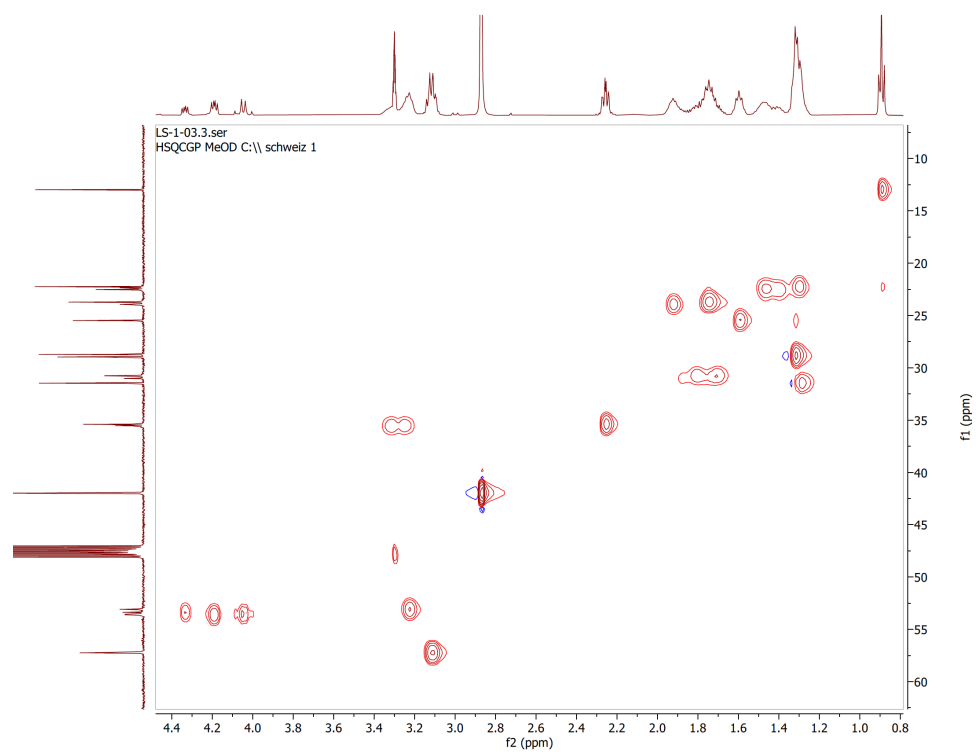
¹H spectrum of UTBLP 3.



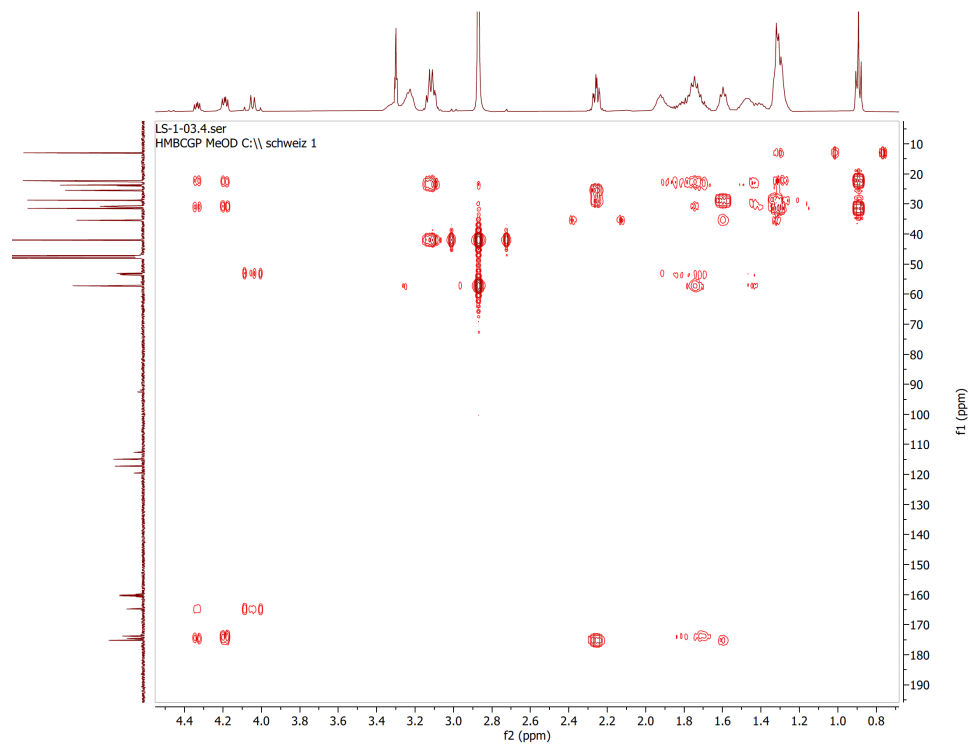
¹³C spectrum of UTBLP 3.



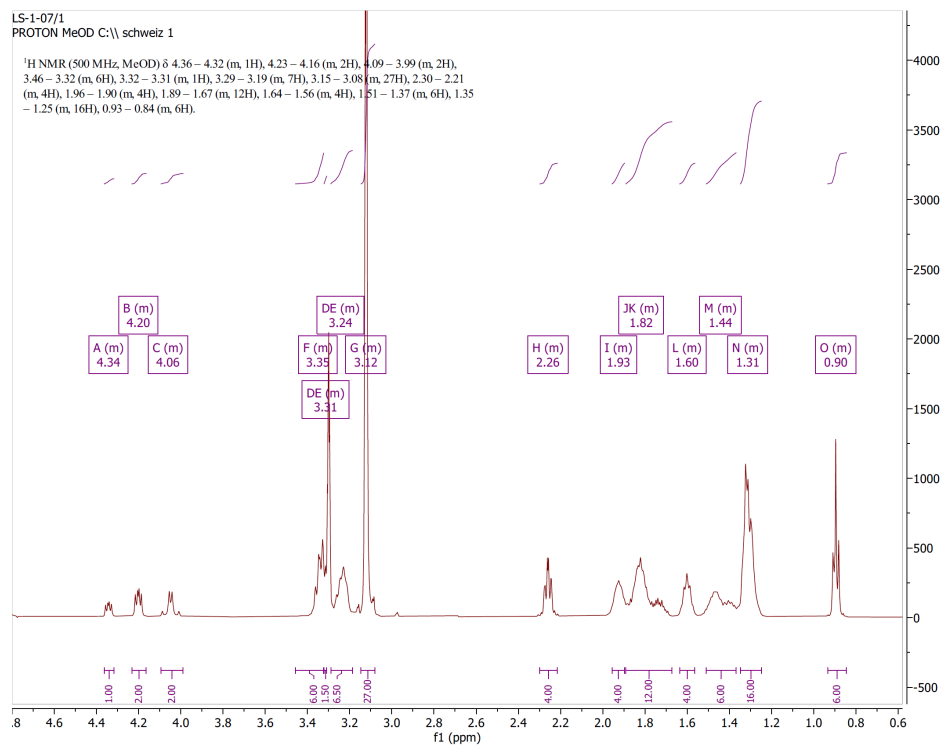
COSY spectrum of UTBLP **3**.



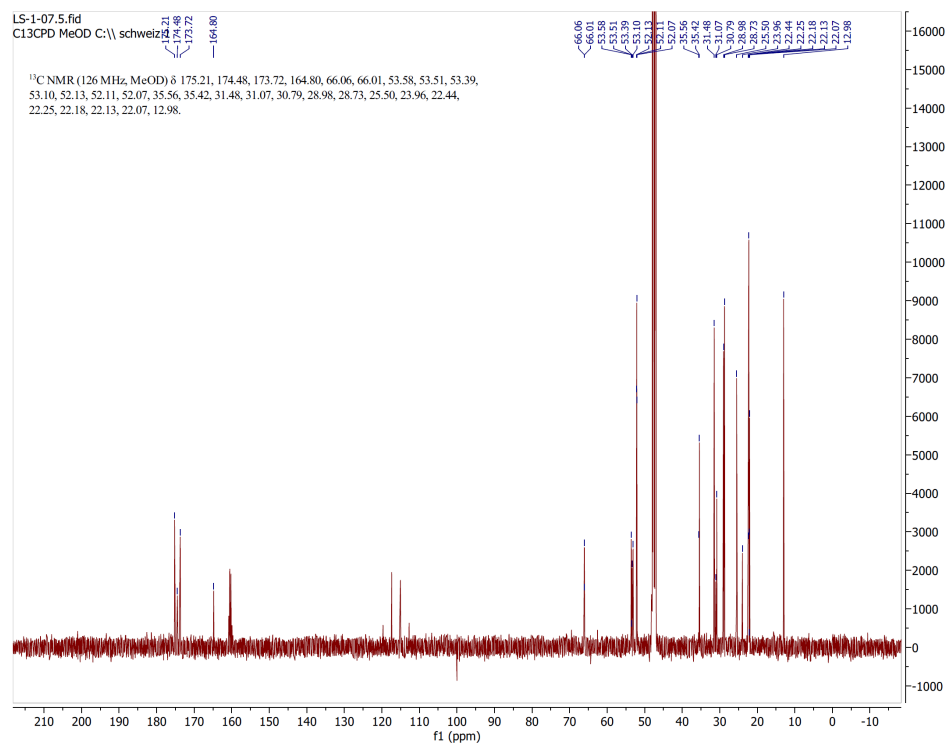
HSQC spectrum of UTBLP **3**.



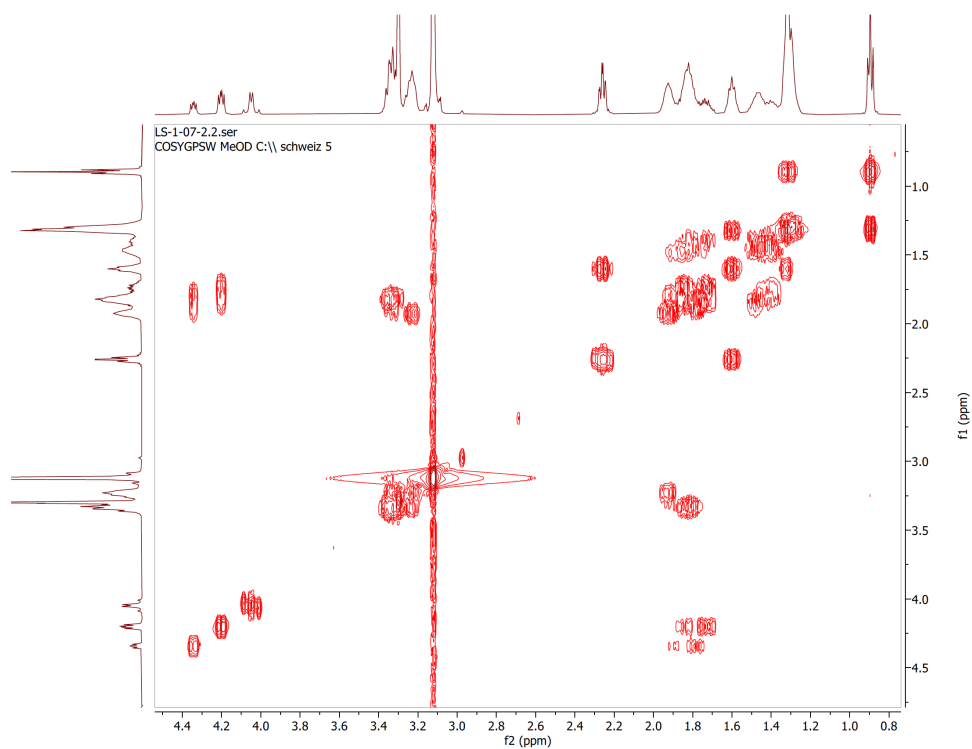
HMBC spectrum of UTBLP 3.



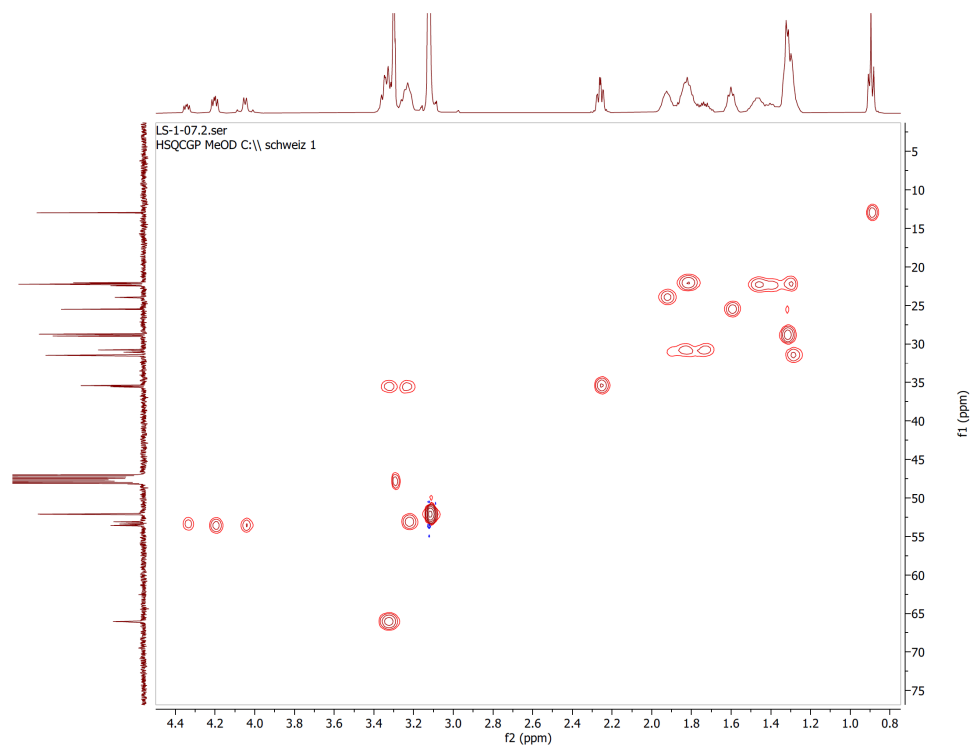
¹H spectrum of UTBLP 4.



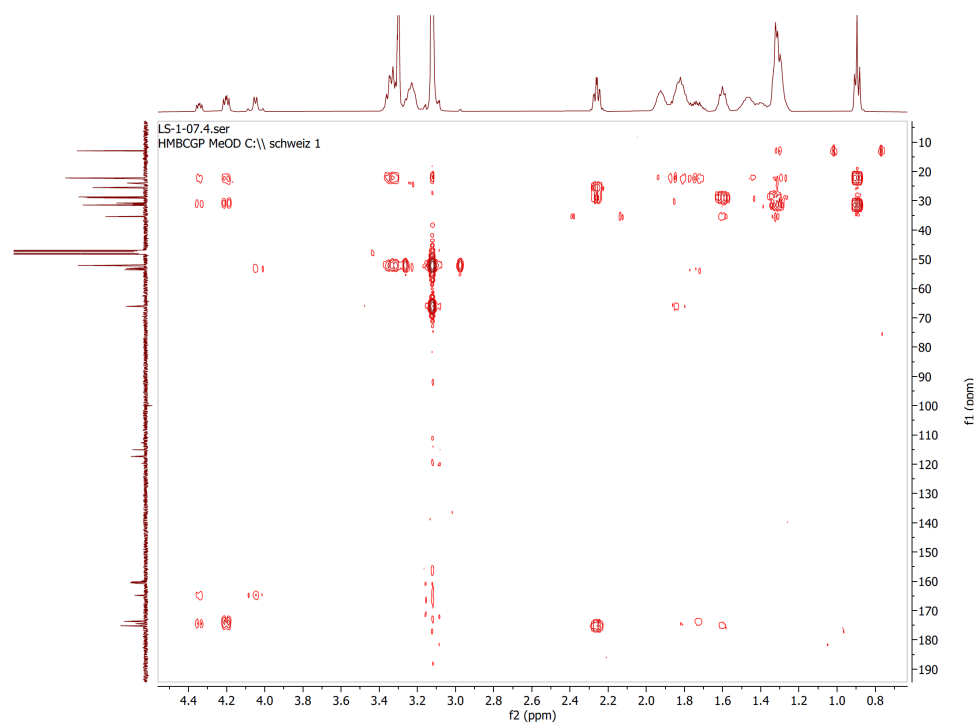
^{13}C spectrum of UTBLP 4.



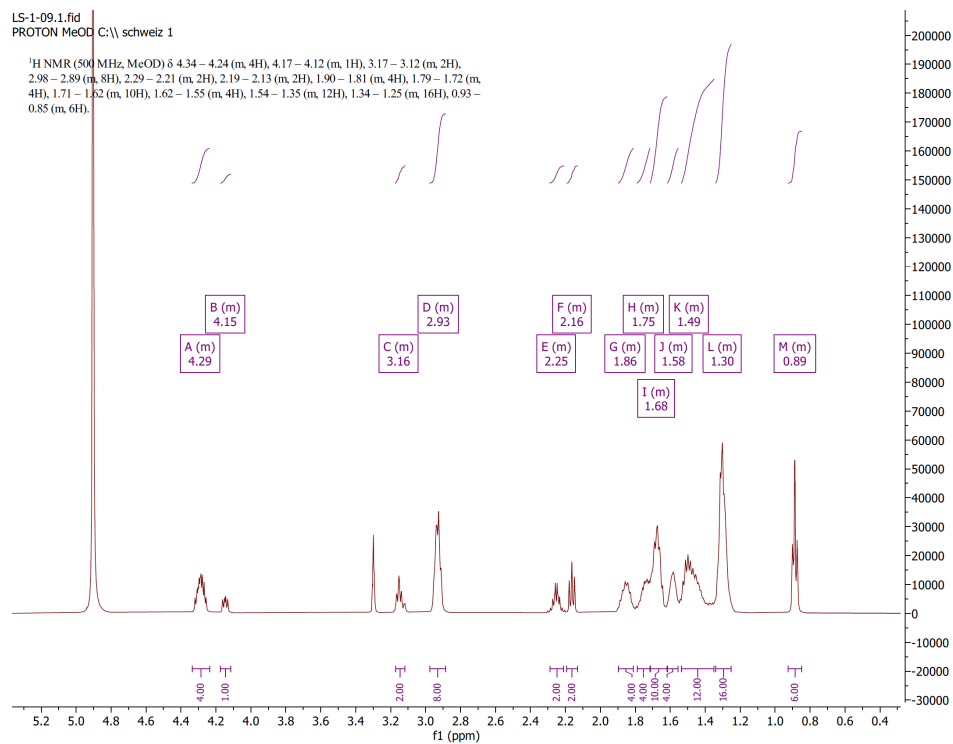
COSY spectrum of UTBLP 4.



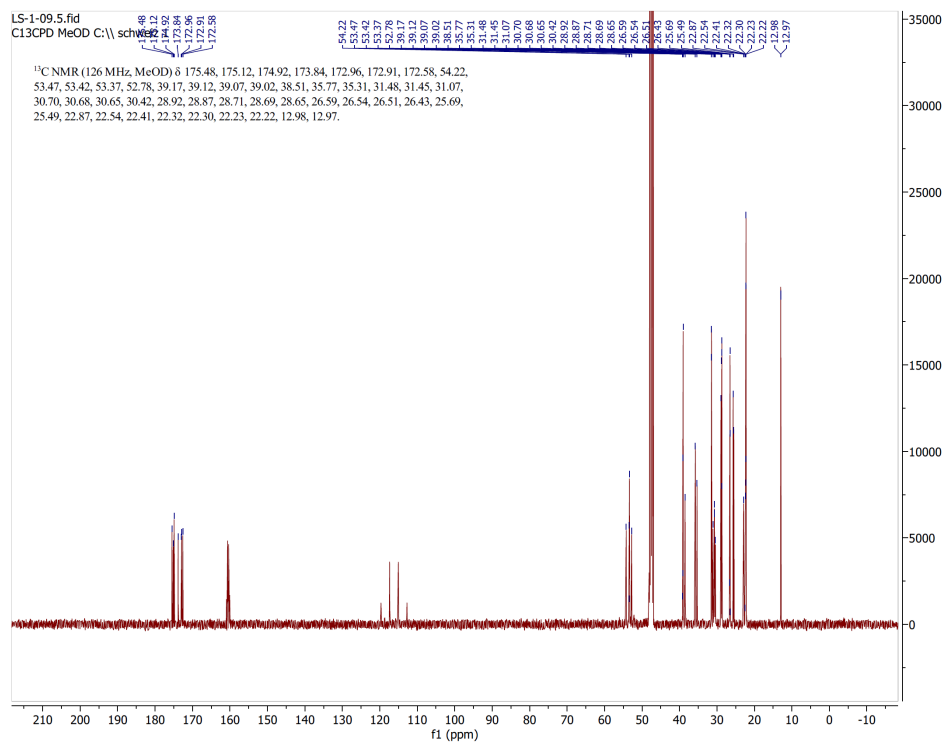
HSQC spectrum of UTBLP **4**.



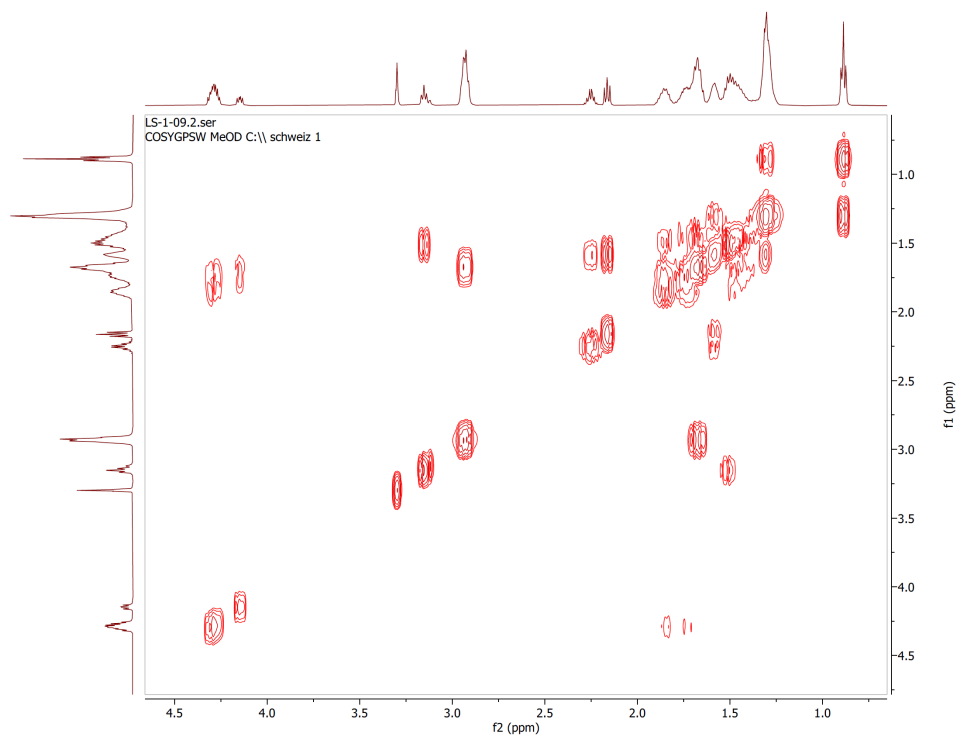
HMBC spectrum of UTBLP **4**.



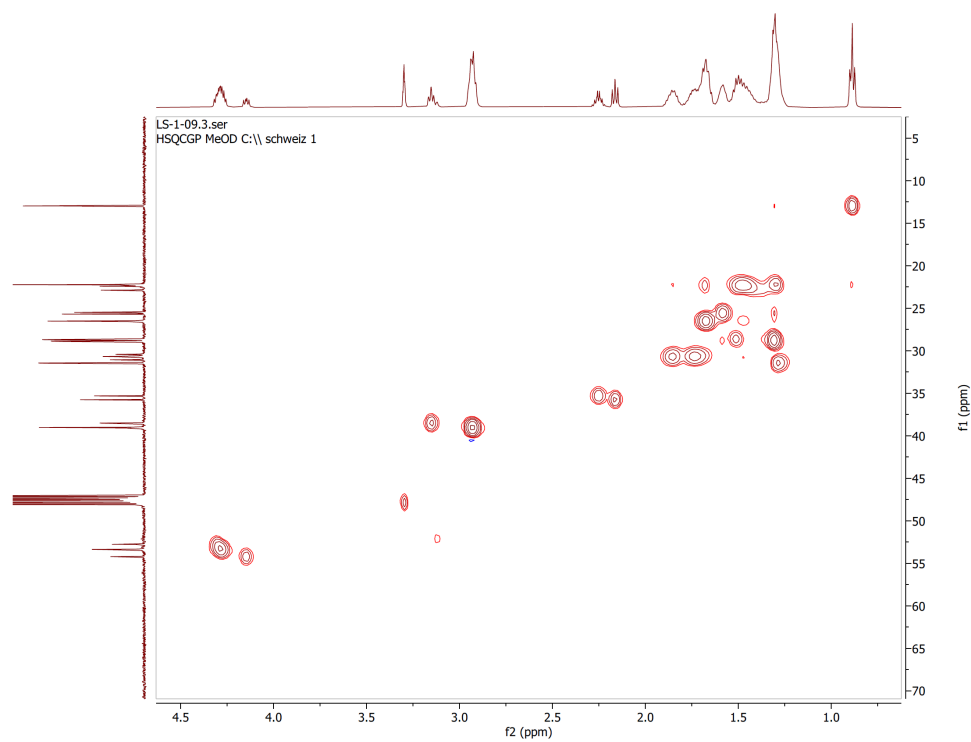
¹H spectrum of UTBLP 5.



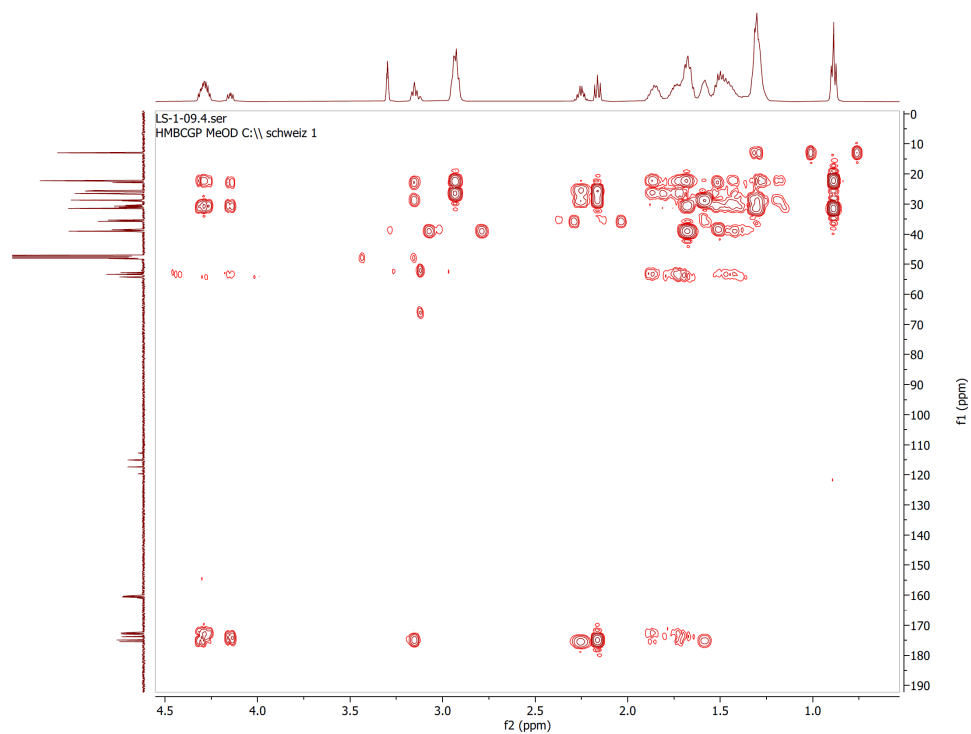
¹³C spectrum of UTBLP 5.



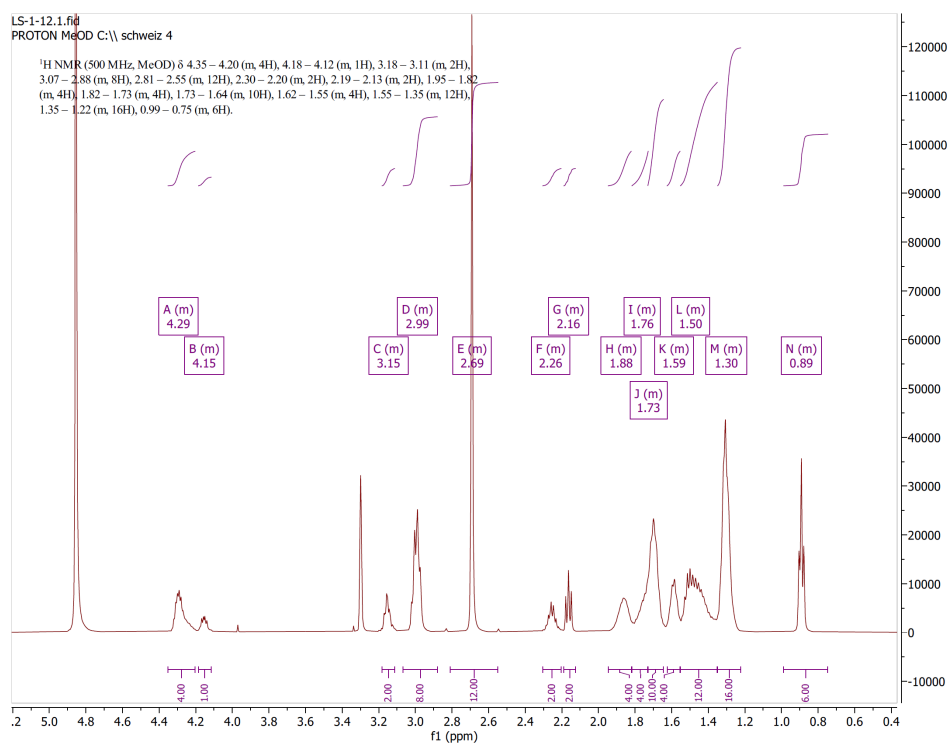
COSY spectrum of UTBLP 5.



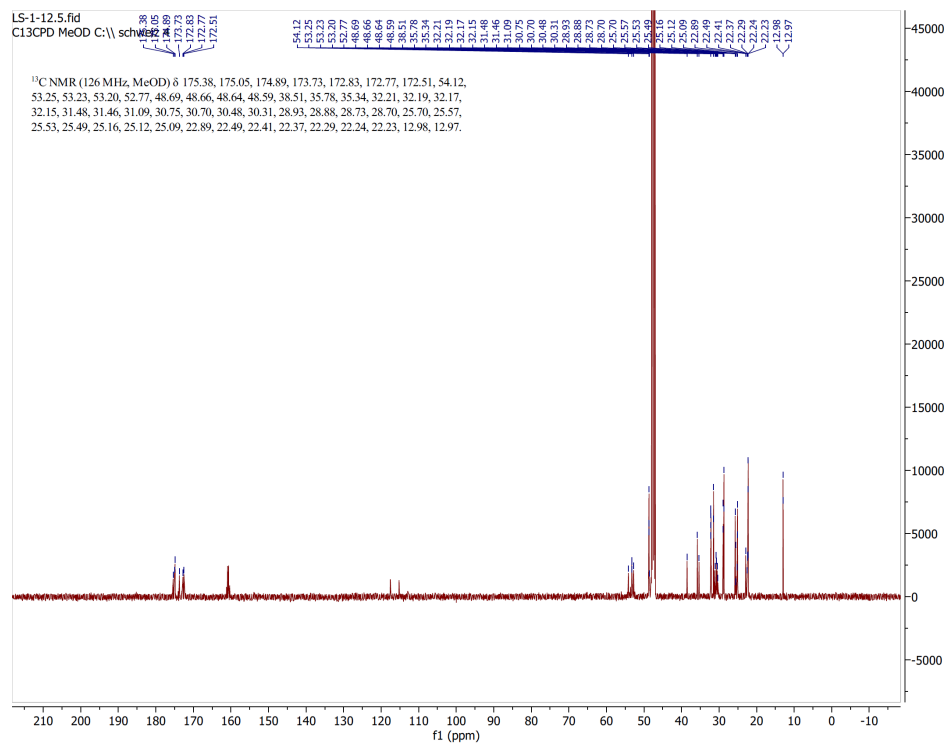
HSQC spectrum of UTBLP 5.



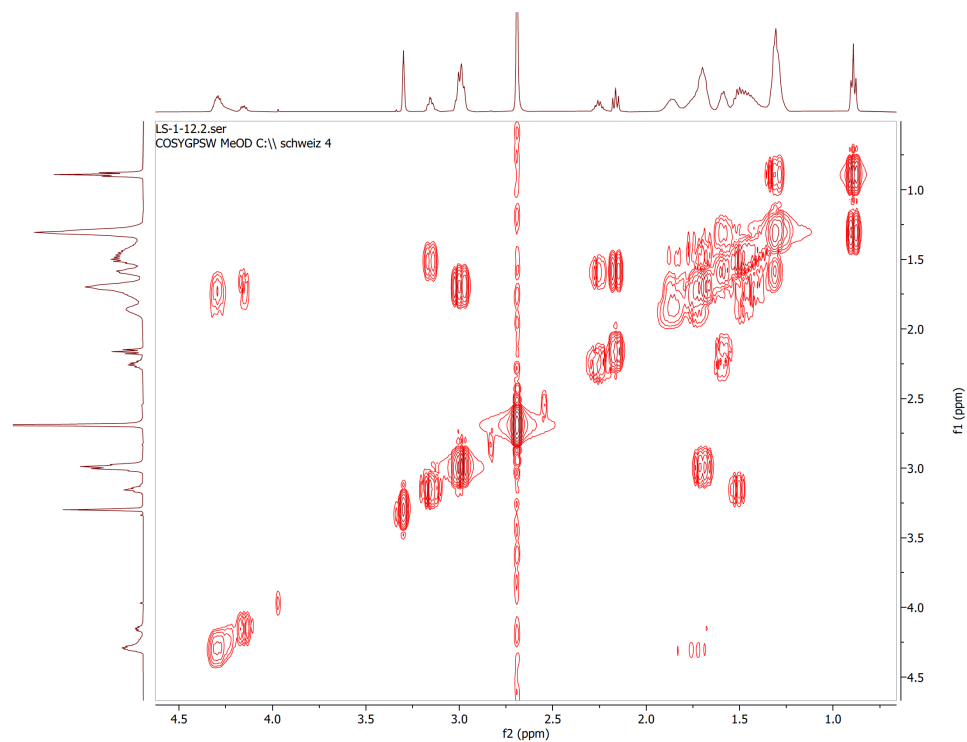
HMBC spectrum of UTBLP 5.



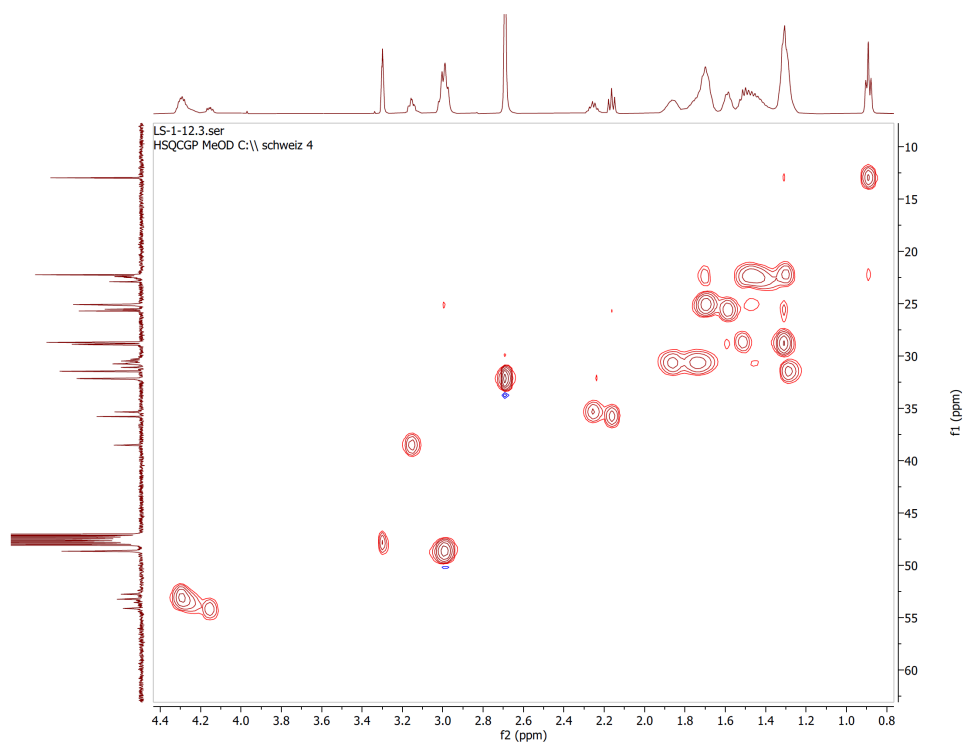
¹H spectrum of UTBLP 6.



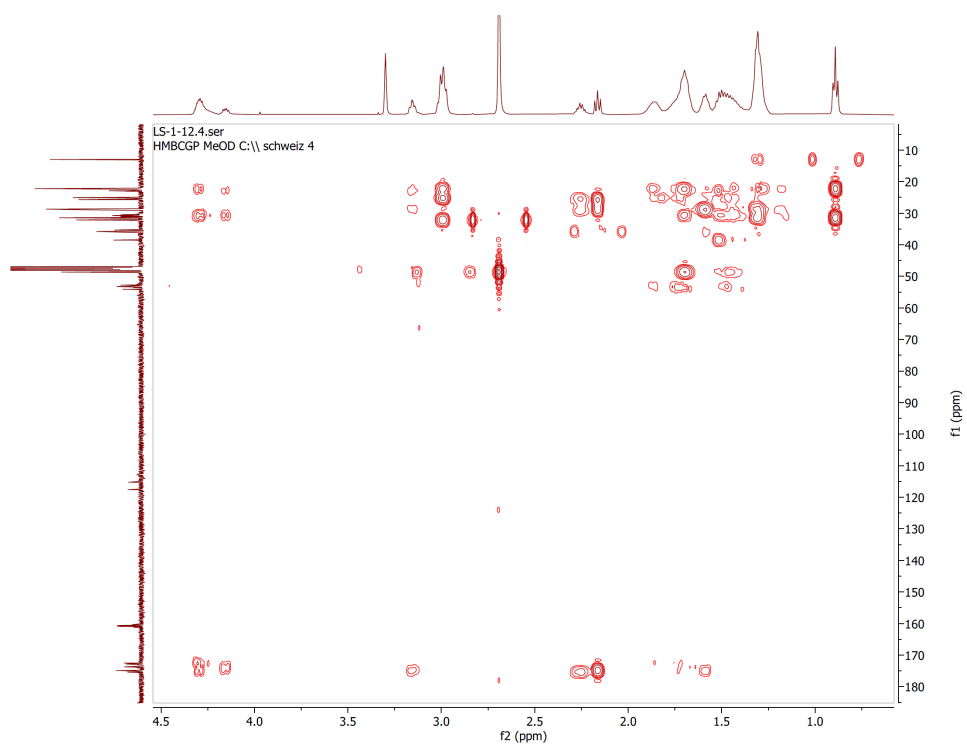
^{13}C spectrum of UTBLP 6.



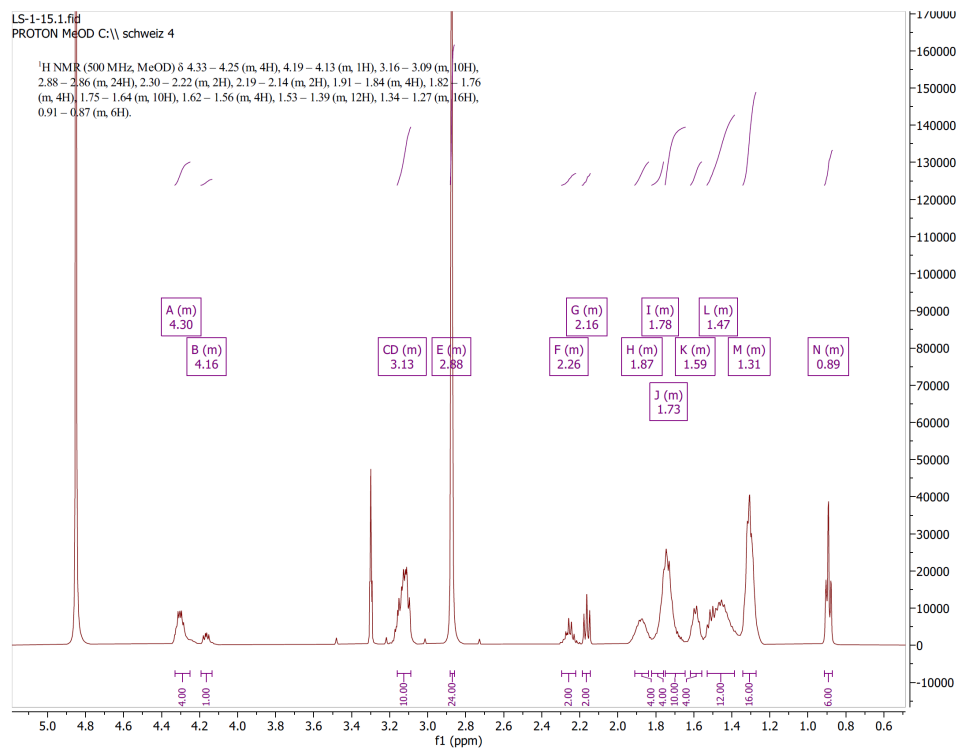
COSY spectrum of UTBLP 6.



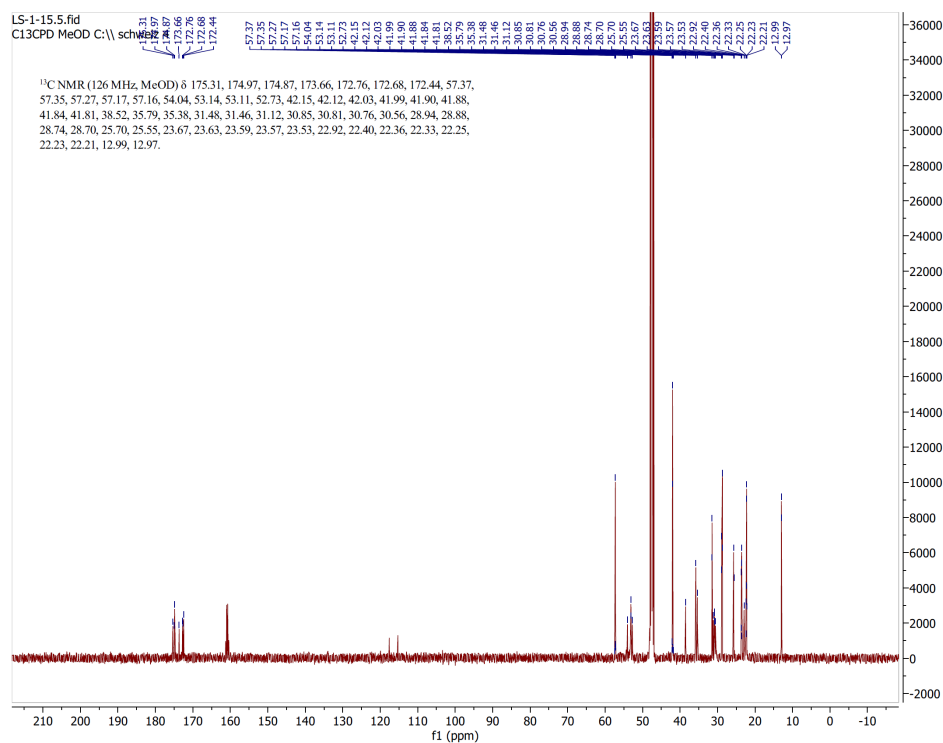
HSQC spectrum of UTBLP 6.



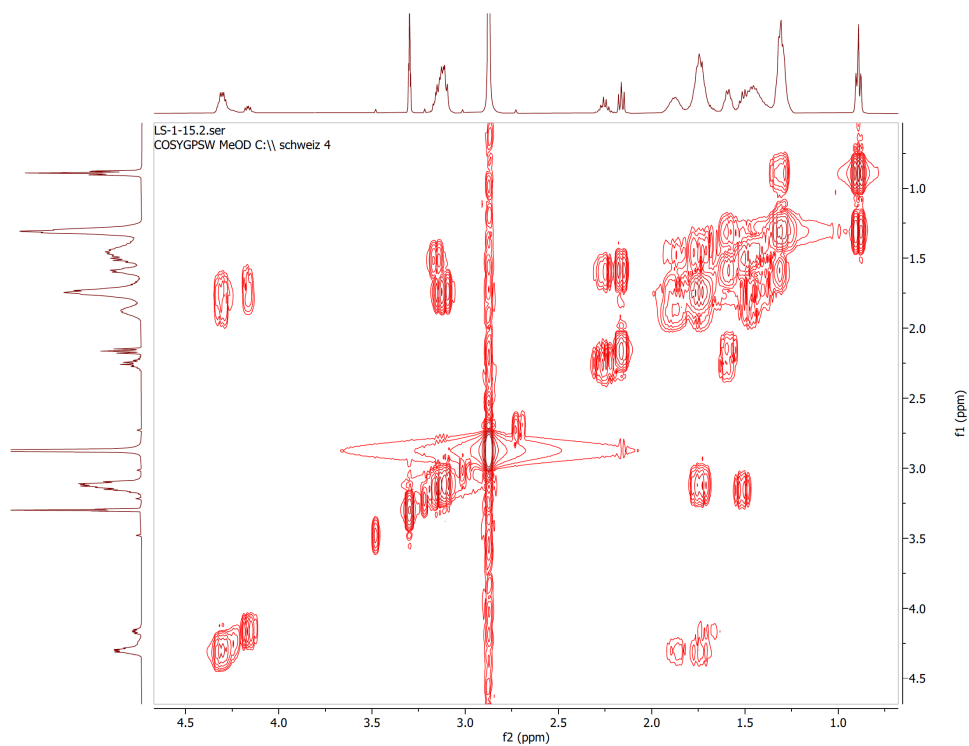
HMBC spectrum of UTBLP 6.



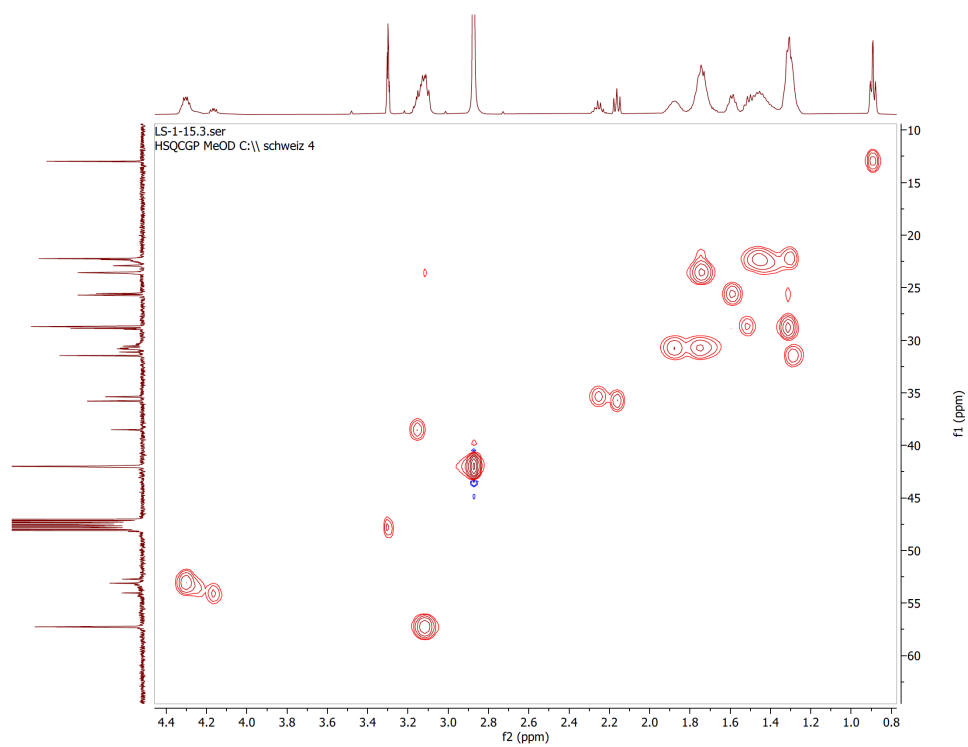
^1H spectrum of UTBLP 7.



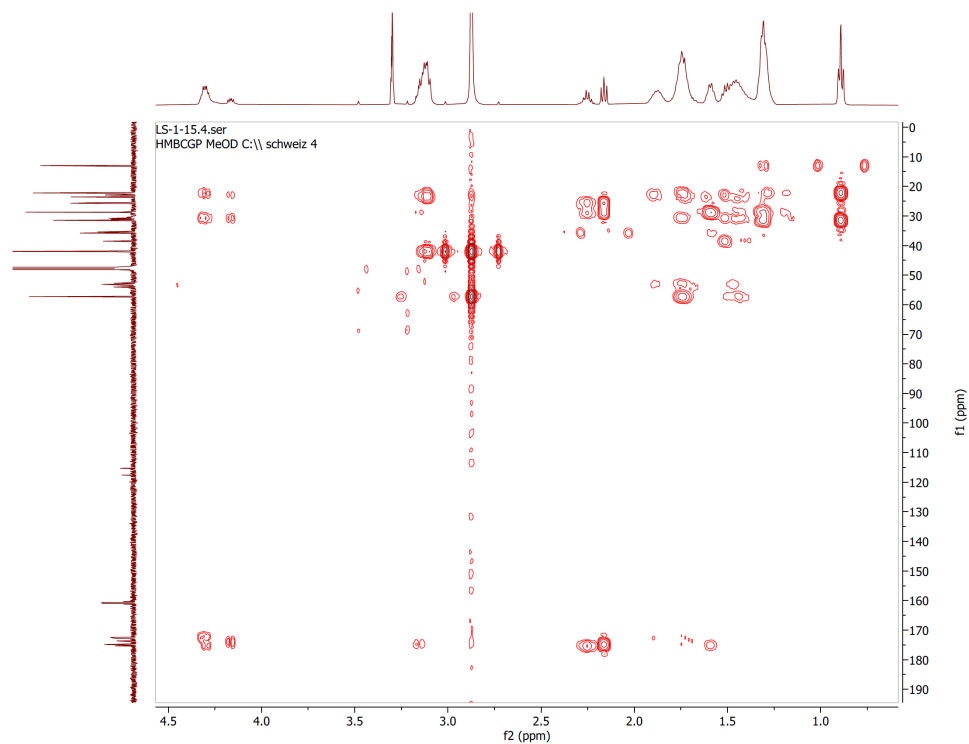
^{13}C spectrum of UTBLP 7.



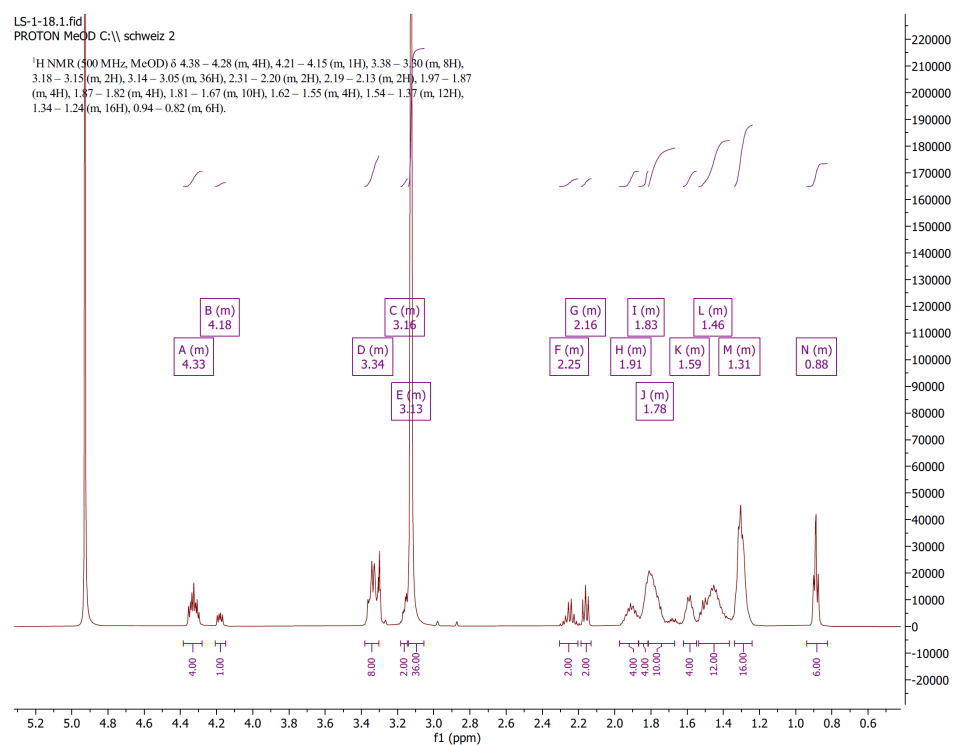
COSY spectrum of UTBLP 7.



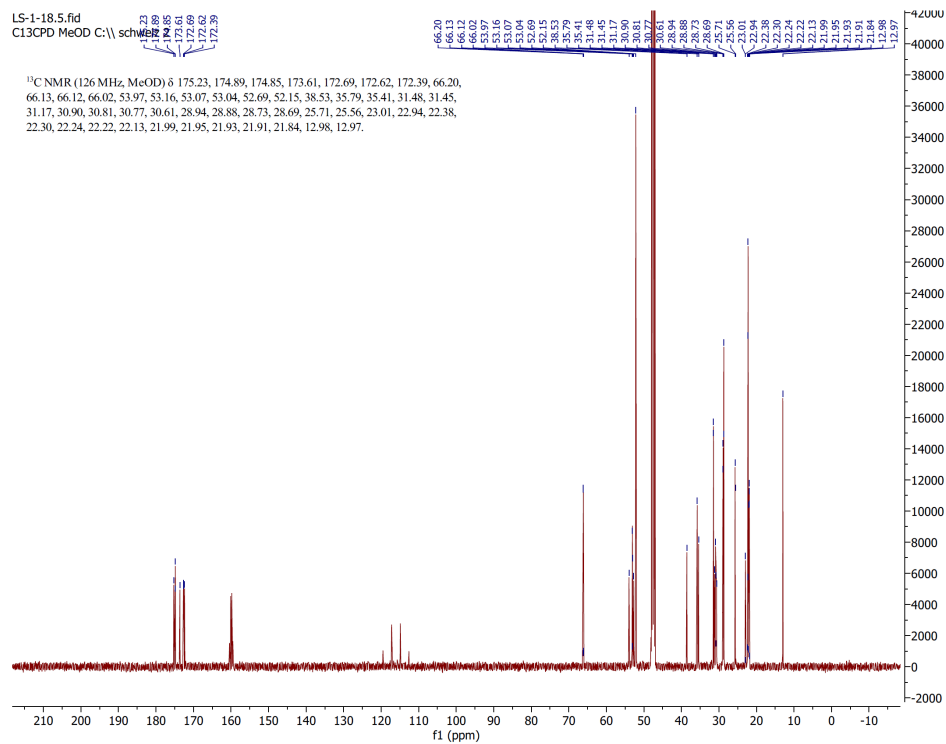
HSQC spectrum of UTBLP 7.



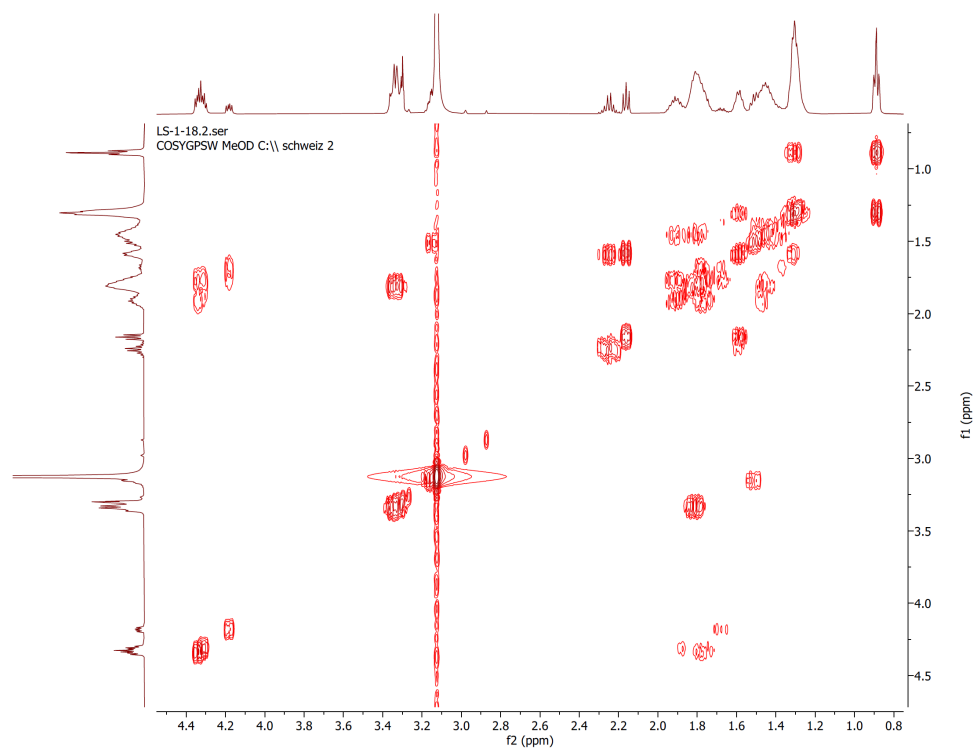
HMBC spectrum of UTBLP 7.



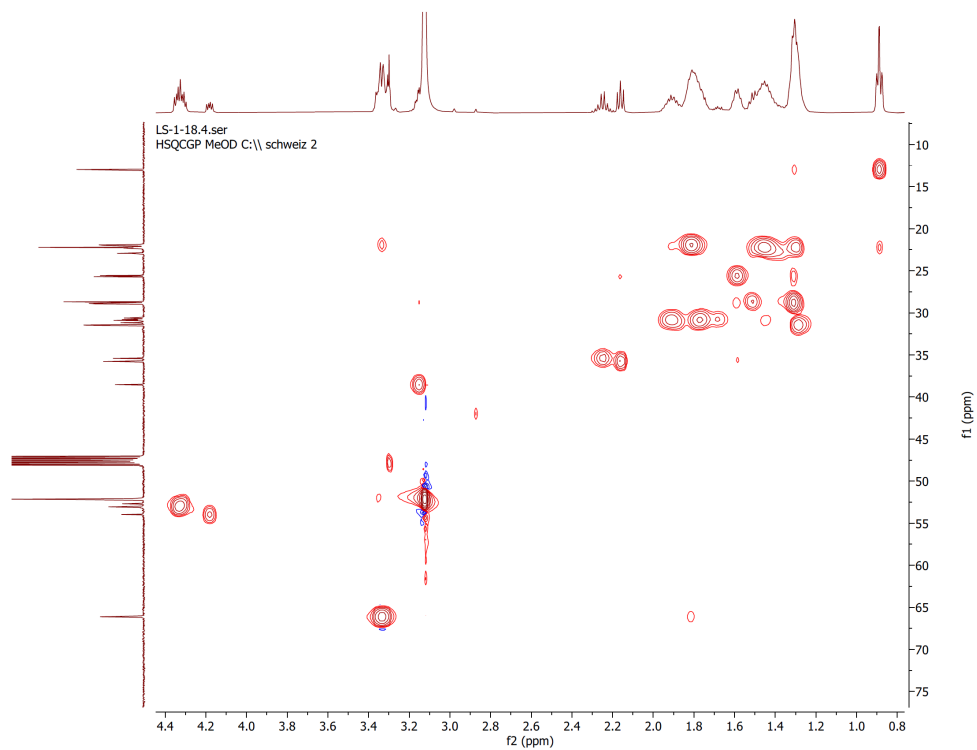
¹H spectrum of UTBLP 8.



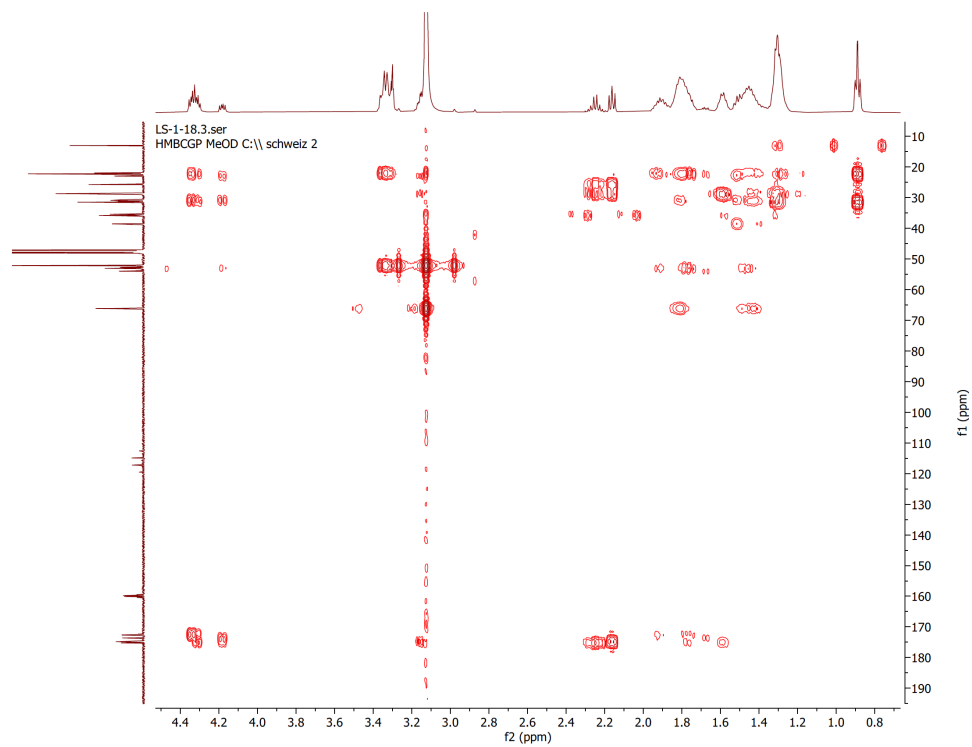
^{13}C spectrum of UTBLP **8**.



COSY spectrum of UTBLP **8**.



HSQC spectrum of UTBLP **8**.



HMBC spectrum of UTBLP **8**.

Table S5. MICs (in $\mu\text{g/mL}$) of various antibiotics against MDR GNB used in the study.

<i>P. aeruginosa</i>	PTZ	A/C	AZT	FOX	CFZ	CTR	CPM	CTX	CAZ	IMI	MER	DOR	ETP	CIP	LEV	MOX	TOB	GEN	AMK	TGC	MIN	DOX	ERC	OMC	CST	CAM
259-96196	64	>32	32	>32	>128	>64	>64	2048	512	32	1024	>1024	>32	>16	256	>16	256	>32	>64	32	32	32	8	64	1	1024
262-101856	64	>32	32	>32	>128	64	32	128	16	32	32	16	>32	>16	64	>16	1024	>32	>64	32	64	1024	8	64	1	2048

<i>A. baumannii</i>	PTZ	FOX	CFZ	CPM	CTX	CAZ	C/T	IMI	MER	CIP	LEV	MOX	TOB	GEN	AMK	TGC	MIN	DOX	ERC	OMC	CST	CAM
AB027	512	ND	>128	>128	>256	ND	>16	32	16	>16	8	8	ND	32	>64	4	0.25	ND	0.5	1	0.25	128
92247	<1	32	128	4	ND	ND	2	ND	4	≤0.06	ND	ND	ND	ND	<1	0.25	0.125	ND	ND	ND	4	ND

<i>E. coli</i>	PTZ	A/C	AZT	FOX	CFZ	CPM	CAZ	C/T	IMI	MER	ETP	CIP	LEV	MOX	TOB	GEN	AMK	TGC	MIN	DOX	ERC	OMC	CST	CAM
94393 (mcr-1 +)	≤1	4	≤0.12	4	1	≤0.25	≤0.25	0.25	0.25	≤0.03	≤0.03	0.5	1	1	≤0.5	≤0.5	2	0.25	2	4	0.5	4	4	4
94474 (mcr-1 +)	16	>32	≤0.12	16	4	≤0.25	0.5	0.5	0.25	≤0.03	≤0.03	>16	32	16	32	16	2	1	64	>32	1	16	16	4

<i>E. cloacae</i>	PTZ	A/C	AZT	FOX	CFZ	CPM	CAZ	C/T	IMI	MER	ETP	CIP	MOX	TOB	GEN	AMK	TGC	MIN	DOX	ERC	OMC	CST	CAM
118564	2	>32	≤0.12	>32	>128	0.25	0.5	ND	ND	0.12	ND	0.06	0.12	1	1	2	ND	ND	4	ND	ND	>16	ND

<i>K. pneumoniae</i>	PTZ	A/C	AZT	FOX	CFZ	CPM	CAZ	C/T	IMI	MER	ETP	CIP	LEV	MOX	TOB	GEN	AMK	TGC	MIN	DOX	ERC	OMC	CST	CAM
113250	4	4	≤0.12	1	1	1	0.5	2	0.25	≤0.03	≤0.03	≤0.06	0.125	≤0.06	≤0.5	≤0.5	≤1	ND	2	2	1	2	>16	4

PTZ: piperacillin-tazobactam, A/C: amoxicillin-clavulanic acid, AZT: aztreonam, FOX: ceftiofur, CFZ: cefazolin, CTR: ceftriaxone, CPM: cefepime, CTX: cefotaxime, CAZ: ceftazidime, C/T: ceftolozane-tazobactam, IMI: imipenem, MER: meropenem, DOR: doripenem, ETP: ertapenem, CIP: ciprofloxacin, LEV: levofloxacin, MOX: moxifloxacin, TOB: tobramycin, GEN: gentamicin, AMK: amikacin, TGC: tigecycline, MIN: minocycline, DOX: doxycycline, ERC: eravacycline, OMC: omadacycline, CST: colistin, CAM: chloramphenicol, ND: not determined.