Supporting Information

Fingerprinting antibiotics with PAE-based fluorescent sensor arrays

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Content

1. General Information.

Chemicals were purchased from commercial laboratory suppliers. Reagents were used without further purification unless otherwise noted.

Solvents were purchased from commercial laboratory suppliers and if necessary distilled prior use. Absolute solvents were dried by a MB SPS-800 using drying columns.

Analytical thin layer chromatography (TLC) was performed on Macherey & Nagel Polygram® SIL G/UV254 precoated plastic sheets. Components were visualized by observation under UV light (254 nm or 365 nm) or in the case of UV-inactive substances by using the suitably colouring solutions. The following colouring solutions were used for the visualization of UV-inactive substances:

$KMnO_4$ solution:2.0 g $KMnO_4$, 10.0 g K_2CO_3, 0.3 g NaOH, 200 mL distilled water.

Cer solution:10.0 g $Ce_2(SO)_3$, 25 g phosphomolybdic acid hydrate, 1 L distilled water, 50 mL conc. H_2SO_4.

Flash column chromatography was carried out using silica gel S (0.032 mm-0.062 mm), purchased from Sigma Aldrich, according to G. Nill, unless otherwise stated.[1]

^{1}H NMR spectra were recorded at room temperature on the following spectrometers: Bruker Avance III 300 (300 MHz), Bruker Avance III 400 (400 MHz), Bruker Avence III 500 (500 MHz) and Bruker Avance III 600 (600 MHz). The data were interpreted in first order spectra. The spectra were recorded in $CDCl_3$, D_2O or DMSO-d_6 as indicated in each case. Chemical shifts are reported in δ units relative to the solvent residual peak or TMS.[2] The following abbreviations are used to indicate the signal multiplicity: s (singlet), d (doublet), t (triplet), q (quartet), quin (quintet), sext (sextet), dd (doublet of doublet), dt (doublet of triplet), ddd (doublet of doublet of doublet), etc., bs (broad signal), m (multiplet).

^{13}C NMR spectra were recorded at room temperature on the following spectrometers: Bruker Avance III 300 (75 MHz), Bruker Avance III 400 (100 MHz), Bruker Avence III 500 (125

MHz) and Bruker Avance III 600 (150 MHz). The spectra were recorded in $CDCl_3$, D_2O or DMSO-d_6 as indicated in each case. Chemical shifts are reported in δ units relative to the solvent signal or TMS.[2]

High resolution mass spectra (HR-MS) were either recorded on a Bruker ApexQehybrid 9.4 T FT-ICR-MS (ESI^+, $DART^+$) , a Finnigan LCQ (ESI^+) or a JEOL JMS-700 (EI^+) mass spectrometer at the Organisch-Chemisches Institut der Universität Heidelberg.

A**bsorption and emission spectra** were recorded using a Jasco V660 and Jasco FP6500 spectrometer. Emission data for sensing were recorded on a CLARIOstar (firmware version 1.13) Platereader from BMG Labtech using the corresponding software (software version 5.20 R5). Data were analysed with CLARIOstar MARS Data Analysis Software (software version 3.10 R5) from BMG Labtech.

IR spectra were recorded on a JASCO FT/IR-4100. Substances were applied as a film, solid or in solution. The obtained data was processed with the software JASCO Spectra Manager™ II.

Fluorescence lifetimes τ were acquired by an exponential fit according to the least mean square with commercially available software HORIBA Scientific Decay Data Analyses 6 (DAS6) version 6.4.4. The luminescence decays were recorded with a HORIBA Scientific Fluorocube single photon counting system operated with HORIBA Scientific DataStation version 2.2.

Quantum yields Φ were measured by using the comparative method with quinine sulfate in 0.1 N sulfuric acid as a reference ($\Phi = 0.54$) according to the literature, the average values of three measurements were calculated for each sample.[3]

Dialysis was realized with regenerated cellulose tubular membranes (ZelluTrans, Carl Roth®) with a molecular weight cut-off of 3500 Da against deionized (DI) water.

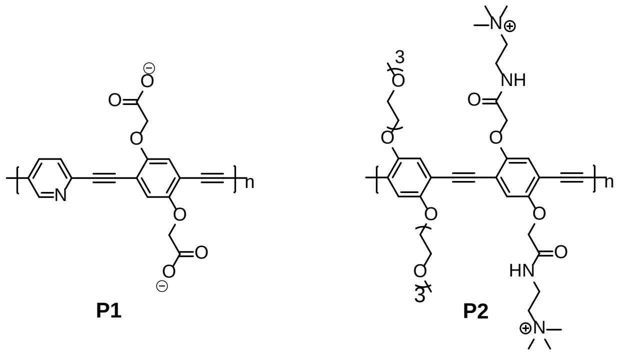
Gel Permeation Chromatography (GPC): Number- (M_n) and weight-average (M_w) molecular weights and polydispersities (PDI, M_w/M_n) were determined by GPC versus polystyrene standards. Measurements were carried out at room temperature in chloroform or THF with PSS-

SDV columns (8.0 mm x 30.0 mm, 5 μm particles, 10^2-, 10^3- and 10^5- Å pore size) on a Jasco PU-2050 GPC unit equipped with a Jasco UV-2075 UV- and a Jasco RI-2031 RI-detector.

Linear discriminant analysis (LDA) and principal component analysis (PCA). Both methods were carried out in this study by using SYSTAT (version 13.0). In LDA, all variables were used in the model (complete mode) and the tolerance was set as 0.001. The fluorescence response patterns were transformed to canonical patterns. The Mahalanobis distances of each individual pattern to the centroid of each group in a multidimensional space were calculated and the assignment of the case was based on the shortest Mahalanobis distance. PCA is a mathematical transformation used to extract variance between entries in a data matrix by reducing the redundancy in the dimensionality of the data. It takes the data points for all analytes and generates a set of orthogonal eigenvectors (principal components, PCs) for maximum variance.[4]

2. Synthetic Details and Analytical Data.

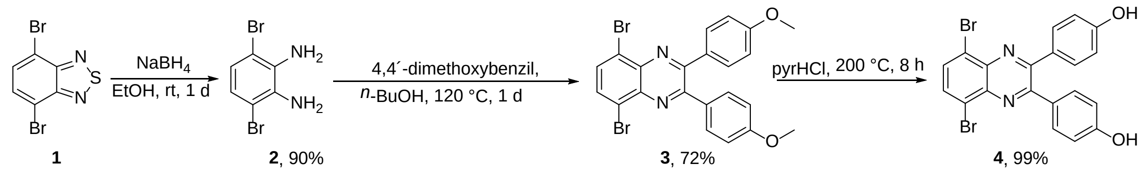
2.1 Synthesis of P1/P2



*Compound **P1** was synthesized according to the literature.*[5]

*Compound **P2** was synthesized according to the literature.*[6]

2.2 Synthesis of P3/P4



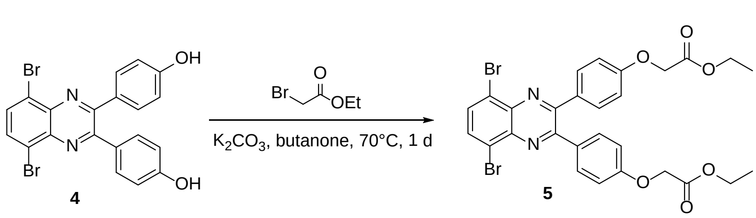
*Compound **1** was synthesized according to the literature.*[7]

Synthesis of 2. Compound **1** (1.50 g, 5.10 mmol) was dissolved in EtOH (50 ml) and cooled with an ice/water bath. $NaBH_4$ (10.2 mmol, 3.86 g) was added in small portions and the reaction mixture was stirred over night. The solidified reaction mixture was evaporated to dryness and cautiously diluted with water (100 mL). Water and Et_2O were added, the aqueous layer was separated and extracted with CH_2Cl_2. The combined organic layers were washed with brine, dried over $MgSO_4$ and concentrated in vacuo to afford compound **2** (1.23 g, 90%) as yellow solid. The product was used without further purification in the next step. ^{1}H NMR (300 MHz, DMSO-D_6): δ = 6.63 (s, 2 H), 5.00 (s, 4 H) ppm.

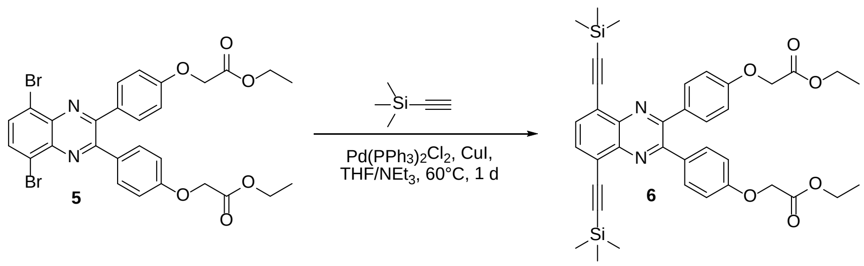
Synthesis of 3. Compound **2** (1.23 g, 4.63 mmol) and 4,4´-dimethoxybenzil (2.75 g, 10.2 mmol) were dissolved in *n*-BuOH (50 ml). A few drops of acetic acid were added and the reaction mixture was stirred at 120°C for 1 d. The solidified reaction mixture was suspended in

EtOH and filtrated. The residue was washed with copious amounts of hot ethanol and dried in vacuo to afford compound **3** (1.67 g, 72%) as ocre solid (m. p. 188-190 °C). ^{1}H NMR (400 MHz, $CDCl_3$): δ = 7.86 (s, 2H), 7.65-7.70 (m, 4H), 6.89-6.93 (m, 4H), 3.86 (s, 6H) ppm. ^{13}C NMR (100 MHz, $CDCl_3$): δ = 160.91, 153.53, 139.09, 132.57, 131.71, 130.62, 123.49, 113.90, 55.35 ppm. IR (cm^{-1}): ν 3079, 3001, 2956, 2929, 2836, 1900, 1603, 1577, 1576, 1560, 1558, 1537, 1526, 1525, 1522, 1512, 1458, 1451, 1443, 1436, 1415, 1382, 1331, 1305, 1292, 1248, 1236, 1218, 1179, 1170, 1111, 1064, 1025, 1015, 1008, 987, 962, 948, 899, 844, 837, 829, 813, 801, 792, 758, 737, 718, 673, 670, 660, 652, 635, 627, 604, 592, 568, 555, 552, 533, 521, 500, 492, 470, 463. HR-MS (EI$^+$): *m/z* calcd. for $C_{22}H_{16}Br_2N_2O_2^+$ 497.95730 [M$^{\cdot}$]$^+$; found 497.95808. $C_{22}H_{16}Br_2N_2O_2$ (499.18): calcd. C 52.83, H 3.22, N 5.60; found C 52.46, H 3.38, N 5.68.

Synthesis of 4. Compound **3** (1.50 g, 3.00 mmol) and pyridine hydrochloride (1.04 g, 90.0 mmol) was stirred at 200°C for 8 h. The cooled reaction mixture was dissolved in Et_2O and quenched with H_2O. The aqueous phase was extracted with Et_2O and the combined organic layers were washed with water and brine. Evaporation in vacuo afforded compound **4** (1.41 g, 99%) as light yellow solid (m. p. 302-304 °C). The product was used without further purification in the next step. ^{1}H NMR (400 MHz, DMSO-D_6): δ = 9.89 (br. s, 2H), 8.05 (s, 2H), 7.42-7.48 (m, 4H), 6.75-6.83 (m, 4H) ppm.

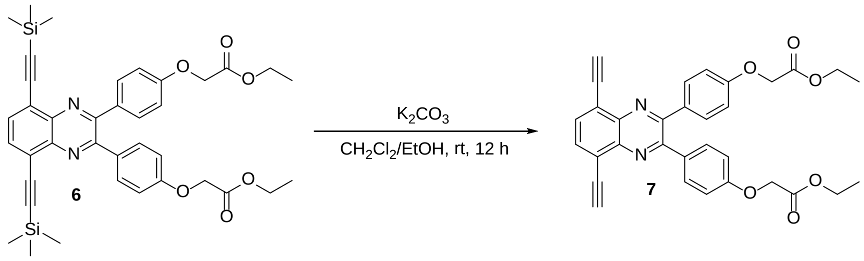


Synthesis of 5. Compound 4 (500 mg, 1.06 mmol) and ethylbromo acetate (0.26 mL, 389 mg, 2.33 mmol) were dissolved in degassed butanone. K_2CO_3 (1.46 g. 10.6 mmol) was added and the mixture was stirred at 70°C for 1 d until TLC showed a complete conversion. The reaction mixture was quenched with H_2O and the aqueous phase was extracted with ethyl acetate. The combined organic layers were dried over $MgSO_4$, filtered and concentrated in vacuo. The crude product was dissolved in ethyl acetate, filtered over a silica gel plug and evaporated at 80°C and 0.09 mbar for 2 h to afford compound 5 (605 mg, 89%) as yellow slowly solidifying oil (m. p. 131-133 °C). ^{1}H NMR (600 MHz, $CDCl_3$): δ = 7.88 (s, 2H), 7.63-7.69 (m, 4H), 6.88-6.93 (m, 4H), 4.67 (s, 4H), 4.30 (q, *J* = 7.2 Hz, 4H), 1.32 (t, *J* = 7.2 Hz, 6H) ppm. ^{13}C NMR (150 MHz, $CDCl_3$): δ = 168.85, 159.37, 153.55, 139.41, 133.09, 132.09, 131.75, 123.80, 114.89, 65.66, 61.83, 14.49 ppm. IR (cm^{-1}): ν 3080, 2999, 2979, 2938, 2908, 1749, 1725, 1606, 1578, 1540, 1511, 1473, 1440, 1415, 1386, 1332, 1307, 1292, 1262, 1235, 1204, 1173, 1114, 1078, 1069, 1055, 1026, 1014, 986, 947, 932, 899, 875, 850, 834, 824, 814, 801, 758, 735, 720, 698, 653, 640, 607, 591, 572, 551, 530, 520, 492, 467. HR-MS (DART+): m/z calcd. for $C_{28}H_{24}Br_2N_2O_6$+ 641.99956 [M·]+; found 642.00065. $C_{28}H_{24}Br_2N_2O_6$ (644.32): calcd. C 52.20, H 3.75, Br 24.80, N 4.35, O 14.90; found C 52.68, H 4.01, N 4.40.

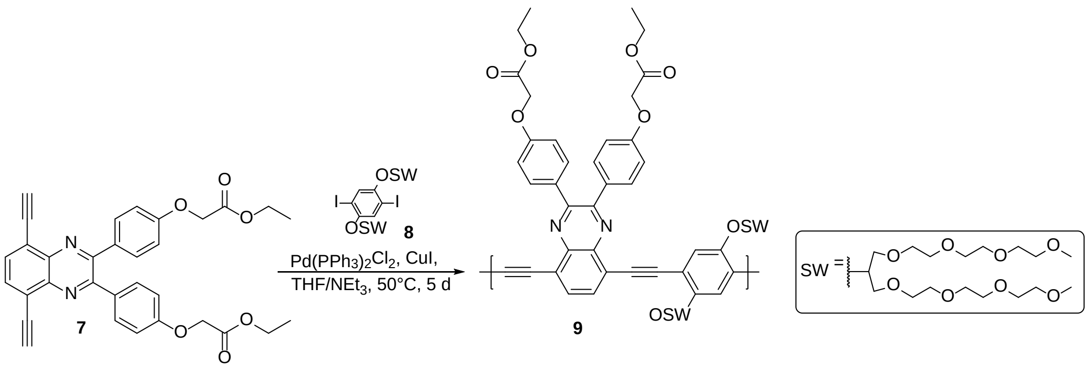


Synthesis of 6. Compound **5** (350 mg, 543 µmol) was dissolved in a degassed mixture of THF/NEt_3 (1:1, 3 mL/3 mL). $PdCl_2(PPh_3)_2$ (19 mg, 27 µmol) and CuI (5.2 mg, 27 µmol) were added, then TMS-acetylene (168 µL,117 mg, 1.20 mmol) was and dropwise and the resulting mixture was stirred for 1 d at 60°C until TLC showed a complete conversion. The reaction mixture was filtrated over Celite® and evaporated in vacuo. The crude product was purified by flash chromatography on silica gel [petroleum ether/ethyl acetate (5/1)] to give compound **6** (312 mg, 85%) as yellow solid (m. p. 163 – 165 °C). ^{1}H NMR (600 MHz, $CDCl_3$): δ = 7.79 (s, 1H), 7.70 (d, *J* = 8.8 Hz, 2H), 6.88 (d, *J* = 8.8 Hz, 2H), 4.66 (s, 2H), 4.29 (q, *J* = 7.2 Hz, 2H), 1.32 (t, *J* = 7.2 Hz, 3H), 0.35 (s, 9H) ppm. ^{13}C NMR (150 MHz, $CDCl_3$): δ = 168.59, 158.85, 152.04, 140.78, 132.83, 132.23, 131.71, 123.16, 114.31, 103.46, 101.28, 65.36, 61.49, 14.17, -

0.04 ppm. IR (cm^{-1}): ν 2957, 2933, 2898, 2154, 1755, 1604, 1581, 1537, 1511, 1478, 1463, 1437, 1411, 1377, 1341, 1301, 1283, 1271, 1247, 1217, 1194, 1176, 1115, 1081, 1062, 1026, 966, 952, 929, 839, 757, 733, 722, 698, 673, 661, 649, 634, 618, 575, 542, 526, 496, 480, 456. HR-MS (ESI$^+$): *m/z* calcd. for $C_{38}H_{43}N_2O_6Si_2^+$ 679.26542 [M+H]$^+$; found 679.26551. $C_{38}H_{42}N_2O_6Si_2$ (678.93): calcd. C 67.23, H 6.24, N 4.13; found C 66.94, H 6.15, N 3.67.

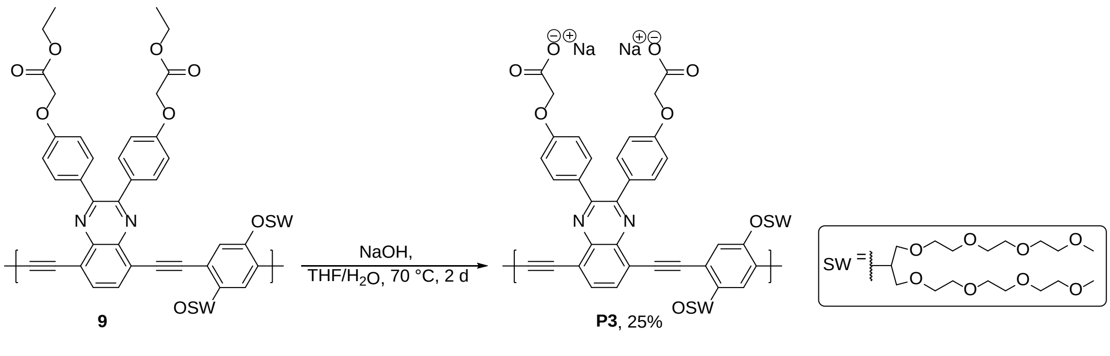


Synthesis of 7. Compound **6** (300 mg, 442 μmol) was dissolved in a degassed mixture of EtOH/CH_2Cl_2 (1:1, 10 mL/5 mL). K_2CO_3 (610 mg, 4.42 mmol) was added and the resulting mixture was stirred for 12 h at ambient temperature until TLC showed a complete conversion. H_2O and CH_2Cl_2 were added, the aqueous layer was separated and extracted with CH_2Cl_2. The combined organic layers were washed with H_2O and brine, dried over $MgSO_4$ and concentrated in vacuo. The crude product was dissolved in CH_2Cl_2, filtered over a silica gel plug and concentrated in vacuo to give compound **7** (181 mg, 76%) as yellowish solid (m. p. 162 °C decomposition). ^{1}H NMR (300 MHz, $CDCl_3$): δ = δ = 7.87 (s, 1H), 7.58-7.68 (m, 2H), 6.86-6.92 (m, 2H), 4.65 (s, 2H), 4.30 (q, *J* = 7.1 Hz, 2H), 3.63 (s, 1H), 1.32 (t, *J* = 7.1 Hz, 3H) ppm. ^{13}C NMR (75 MHz, $CDCl_3$): δ = 168.74, 159.06, 153.14, 141.20, 133.67, 132.29, 131.90, 123.00, 114.68, 85.34, 80.21, 77.16, 65.57, 61.65, 14.34 ppm. IR (cm^{-1}): ν 3304, 3243, 2982, 2938, 1752, 1716, 1606, 1581, 1567, 1540, 1511, 1476, 1446, 1415, 1382, 1338, 1308, 1295, 1261, 1211, 1179, 1142, 1114, 1092, 1077, 1064, 1051, 1029, 1013, 964, 938, 925, 855, 838, 826, 804, 770, 741, 702, 661, 632 ,615, 570, 534, 518, 470. HR-MS (ESI+): m/z calcd. for $C_{32}H_{27}N_2O_6^+$ 535.18636 [M+H]$^+$; found 535.18687. $C_{32}H_{26}N_2O_6$ (499.18): calcd. C 71.90, H 4.90, N 5.24; found C 71.86, H 5.49, N 4.63.

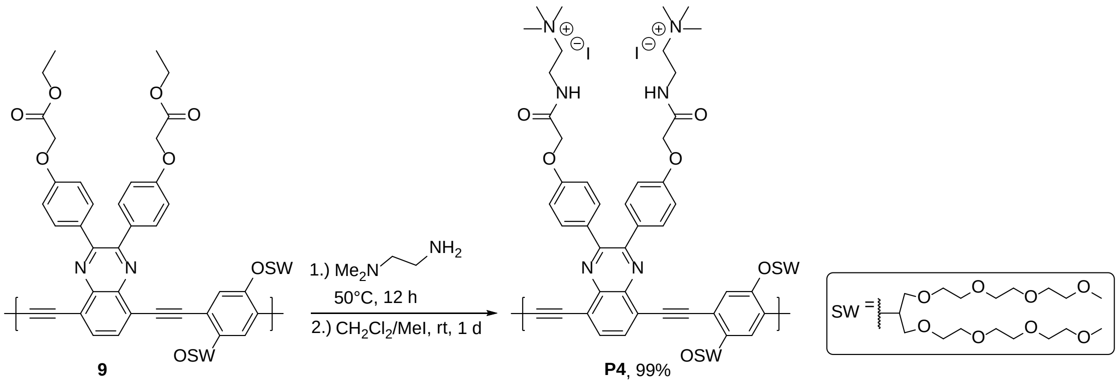


*Compound **8** was synthesized according to the literature.*[8]

Synthesis of 9. Monomer **7** (200 mg, 374 µmol) and monomer **8** (410 mg, 374 µmol) were dissolved in a mixture of degassed THF/$CHCl_3$/NEt_3 (3:1:4, 1.5 mL/0.5 mL/2 mL). $Pd(PPh_3)_4$ (5.3 mg, 7.5 µmol) and CuI (2.9 mg, 15 µmol) were added and the mixture was stirred at 50 °C for 5 d. Saturated aqueous NH_4Cl and CH_2Cl_2 were added, the aqueous layer was separated and extracted with CH_2Cl_2. The combined organic layers were dried over $MgSO_4$, filtered and concentrated in vacuo. Two times, the crude product was dissolved in a small amount of $CHCl_3$ and slowly added to an excess of pentane to give **9** as dark red solid (328 mg, 63%). The M_n was estimated to be 2.1 x 10^4 with a PDI of 1.5. ^{1}H NMR (300 MHz, $CDCl_3$): δ = 7.88-8.05 (m, 2 H), 7.63-7.76 (m, 4 H), 7.34-7.50 (m, 2 H), 6.89-7.01 (m, 4 H), 4.60-4.77 (m, 6 H), 4.24-4.36 (m, 4 H), 3.44-3.88 (m, 56 H), 3.27-3.39 (m, 12 H), 1.28-1.36 (m, 12 H) ppm. IR (cm^{-1}): ν 2917, 2872, 2364, 2340, 2328, 1758, 1738, 1605, 1513, 1497, 1468, 1447, 1407, 1380, 1337, 1303, 1274, 1248, 1200, 1180, 1108, 1032, 958, 843, 620, 577. Due to low solubility, ^{13}C NMR spectrum could not be obtained.

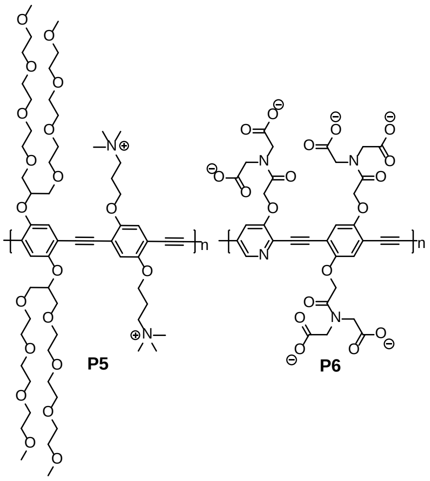


Synthesis of P3. Compound **9** (114 mg, 83 µmol) was dissolved in H_2O (20 mL), NaOH (65 mg, 1.66 mmol) was added and the resulting mixture was stirred at 70 °C for 2 d. After adjusting a pH of 7 (HCl) the aqueous mixture was dialyzed against DI H_2O for 3 d. Freeze-drying gave **P3** as spongy red solid (28 mg, 25%). The M_n and PDI result from **9**. ^{1}H NMR (500 MHz, D_2O): δ = 7.72-8.15 (m, 4 H), 7.41-7.68 (m, 2 H), 6.36-7.09 (m, 4 H), 3.05-4.03 (m, 74 H) ppm. IR (cm^{-1}): ν 3429, 3263, 3038, 2871, 1668, 1604, 1532, 1510, 1474, 1445, 1411, 1380, 1348, 1296, 1246, 1179, 954, 924, 841, 661, 577, 528. Due to low solubility, ^{13}C NMR spectrum could not be obtained.



Synthesis of P4. Compound **9** (113 mg, 81.9 µmol) was dissolved in N,N′-dimethyl-ethylenediamine (15 mL) and stirred at 70 °C for 12 h. The reaction mixture was evaporated to dryness and washed with copious amounts of *n*-pentane. The crude product was dissolved in CH_2Cl_2 (10 mL). After addition of MeI (5 mL) the reaction mixture was stirred for 1 d at ambient temerpature. All volatiles were removed under reduced pressure. The residue was dissolved in H_2O and dialyzed against DI H_2O for 3 d. Freeze-drying afforded **P4** as spongy red solid (141 mg, 99%). The M_n and PDI result from **9**. ^{1}H NMR (500 MHz, D_2O): δ = 6.91-7.77 (m, 10 H), 7.63-7.75 (m, 2 H), 4.41-4.74 (m, 6 H), 3.10-3.84 (m, 4 H) ppm. IR (cm^{-1}): ν 3392, 2921, 2874, 1720, 1646, 1603, 1511, 1444, 1348, 1297, 1200, 1175, 1073, 944, 878, 838, 775, 675, 647, 601, 576, 529. Due to low solubility, ^{13}C NMR spectrum could not be obtained.

2.3 Synthesis of P5/P6



*Compound **P5, P6** was synthesized according to the literature.*[5]

2.4 GPC and Optical Data of P1-P6

Table S1. Additional analytical data of **P1**-**P6**.

No.	M_n[a] [g/mol]	M_w[a] [g/mol]	PDI[a]	P_n	$\lambda_{max,abs.}$[b] [nm]	$\lambda_{max,em.}$[b] [nm]	Φ[b] [%]
P1	6.9×10^3	1.3×10^4	1.9	17	415	536	2
P2	1.1×10^4	1.7×10^4	1.5	15	404	460	4
P3	2.1×10^4	3.2×10^4	1.5	13	477	546	2
P4	2.1×10^4	3.2×10^4	1.5	13	403	550	4
P5	1.4×10^4	5.5×10^4	3.9	11	410	459	37
P6	1.1×10^4	1.8×10^4	1.5	12	390	443	8

[a]Determined by gel permeation chromtography of the corresponding organosoluble precursors. [b]Measured in KH_2PO_4/Na_2HPO_4 buffer solution.

3. Fluorescence Titration of Polymers with Surfactant

Fluorescence titration of weakly fluorescent PAE (**P1-P4**) with increasing concentration of surfactants (SDBS and CTMA) at different pH condition (pH3, pH7, and pH13 buffer) were carried out in a Jasco V660 and V670 UV/VIS spectrometer. The quenching titration and determination of Ksv constants of **P5**/**P6** have been reported previously.[5]

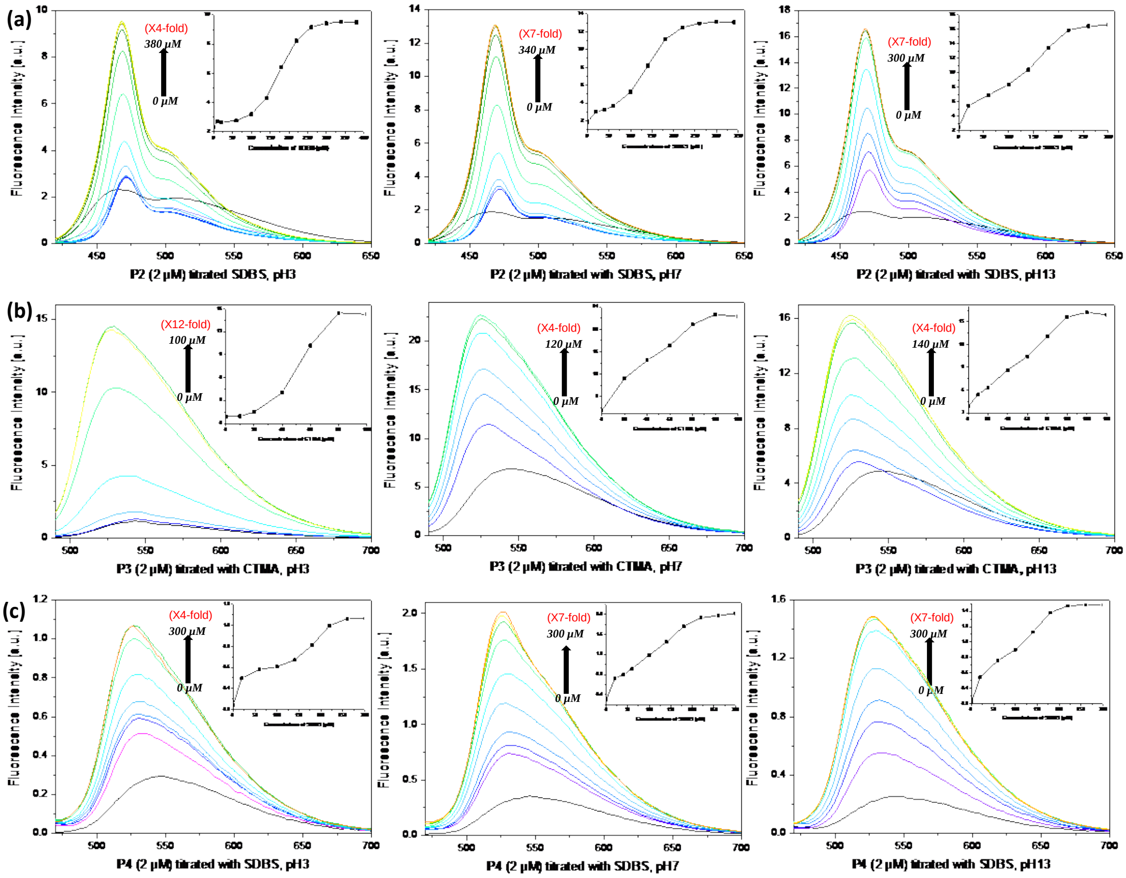


Figure S1. (a) P2 (2 μM, black line) with **SDBS**, **(b) P3** (2 μM, black line) with **CTMA**, **(c) P4** (2 μM, black line) with **SDBS** at pH 3, pH 7, and pH 13. The inset graph shows the change of I_{Fl} with increasing surfactant concentration.

4. Fluorescence Response Patterns

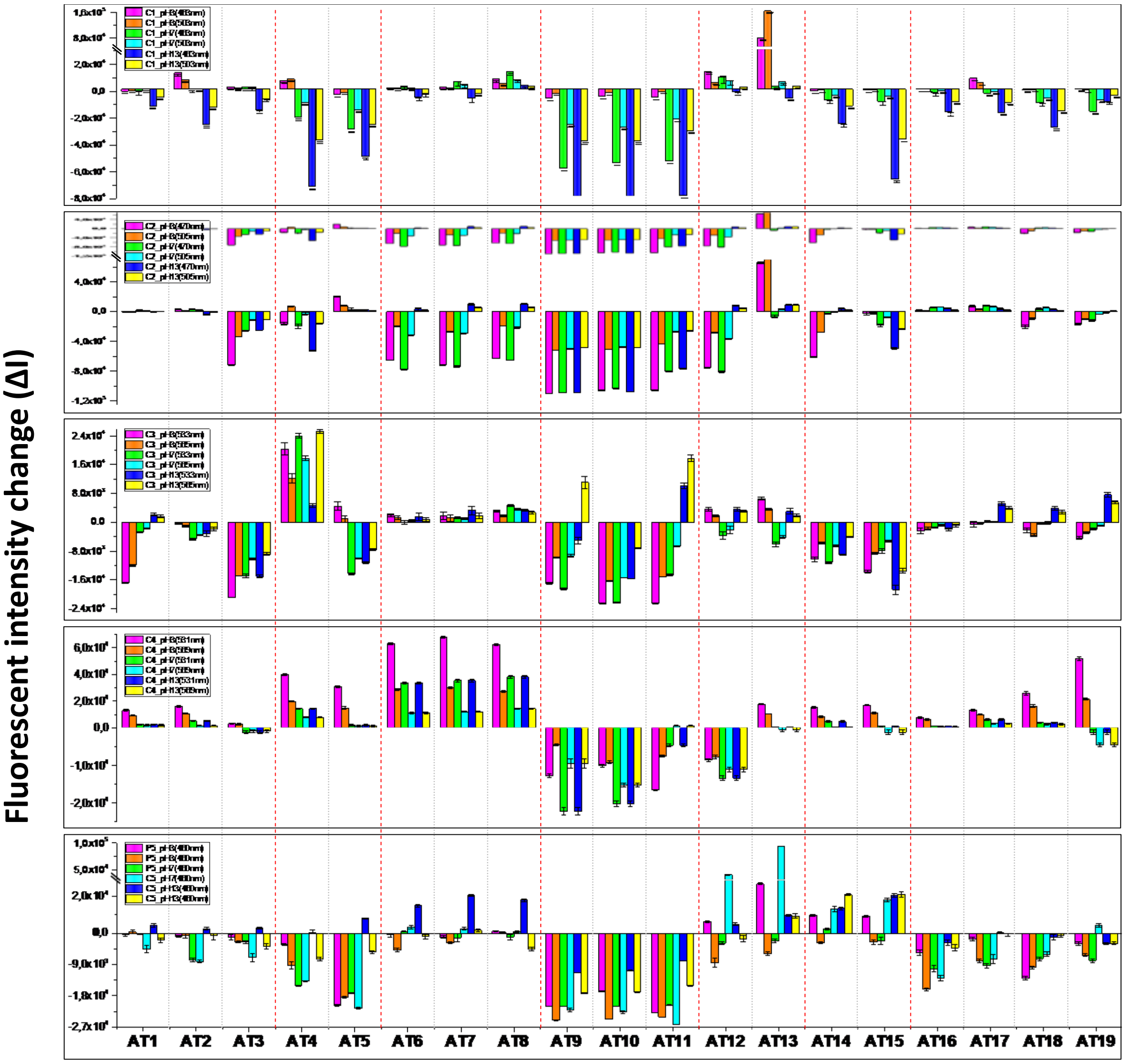


Figure S2. Fluorescence response pattern ΔI obtained by **C1-C4** (2 µM, at pH 3, pH 7 and pH 13, buffered) and **P5**, **C5** (0.5 µM, at pH 3, pH 7 and pH 13, buffered) treated with antibiotics **AT1-AT19** (c = 5 mM). Each value is the average of six independent measurements; each error bar shows the standard error of these measurements. The black dotted line shows the type of each antibiotic, red dotted line shows the seven families of antibiotics.

5. Linear Discriminant Analysis (LDA)

Table S2. Training matrix of fluorescence response pattern from an array of sensor element **S1-S24** against 19 antibiotics. LDA was carried out and resulting in 19 factors of the canonical scores (the first three scores were shown here) and group generation. Jackknifed classification matrix showed the 100% correct classification.

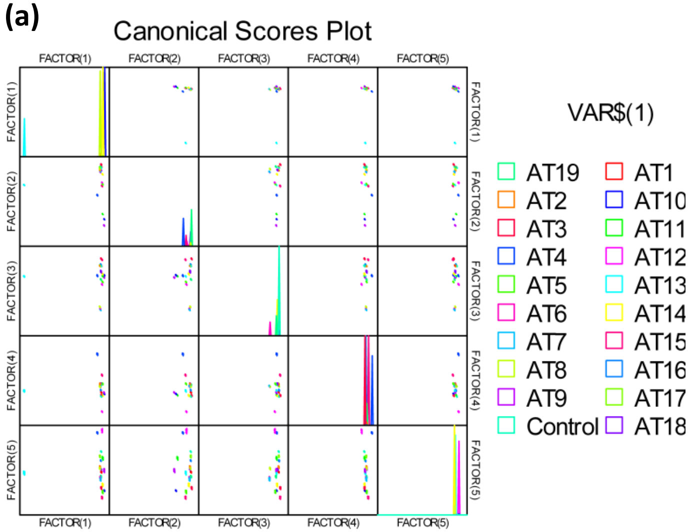
Analyte	Fluorescence response pattern																								Results LDA (the first three scores)			
Antibiotics	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14	S15	S16	S17	S18	S19	S20	S21	S22	S23	S24	SCORE 1	SCORE 2	SCORE 3	Group
AT1	-1978	-1138	-3147	-852	-12974	-5802	-478	-763	2020	894	-1873	383	-17025	-11895	-2740	-2057	2383	1586	12041	9164	1975	1289	-859	-591	67	68	44	**1**
AT1	-1414	-1032	-860	-591	-12674	-6310	-1158	-859	2163	882	-653	715	-16658	-11588	-2867	-1597	2405	1623	13482	9470	2499	2106	-28	-10	68	70	42	**1**
AT1	-1704	-1264	-2708	661	-12415	-5408	-54	-295	1891	657	1101	456	-16716	-11915	-2786	-1759	1914	2160	12878	8976	3195	1873	-903	136	69	71	42	**1**
AT1	-1744	-1163	193	56	-12440	-5172	-706	153	2030	1171	-864	834	-16795	-11790	-2629	-1462	1472	1527	13036	10085	2688	2577	52	-70	68	71	42	**1**
AT1	-1468	-1098	-577	-308	-12601	-6145	-389	-677	-281	1066	11	568	-16967	-12106	-2958	-1653	2610	1101	12731	9356	2684	2158	-865	-377	68	70	42	**1**
AT1	-1755	-1045	-1528	-137	-13177	-5813	-495	-201	1981	1873	-236	467	-16785	-12167	-2750	-1654	2294	1911	14079	9772	2414	2209	-361	-299	66	71	42	**1**
AT2	12621	7187	-678	-3	-26056	-13329	3449	1404	3184	1382	-4639	-1467	-167	-809	-4912	-3551	-2773	-1412	15345	10486	5583	1943	-1300	-874	44	53	42	**12**
AT2	13054	7289	-754	-170	-26577	-13268	3818	1070	3260	2145	-4664	-1212	-655	-1424	-4733	-3523	-4362	-2893	16648	10851	5315	869	-1352	-709	44	54	43	**12**
AT2	12826	7254	543	343	-26233	-13317	3903	1378	3625	2614	-3637	-1083	-310	-871	-4735	-3475	-3218	-1683	16548	10398	5249	2142	-1547	217	44	55	43	**12**
AT2	11062	6263	61	800	-26976	-13953	2903	1741	3123	2554	-3795	-966	-420	-799	-4459	-3545	-2129	-1740	15987	10342	5611	1471	-1743	-435	46	54	42	**12**
AT2	11708	6848	170	220	-26645	-13500	3378	1824	1915	480	-5334	-992	-209	-1228	-4631	-3749	-3424	-1929	16535	10719	5381	1881	-1398	-637	44	52	41	**12**
AT2	11915	6550	105	360	-27142	-13785	2982	1642	3435	2447	-4795	-998	207	-1142	-4221	-3736	-3164	-1695	17366	11623	4996	1357	-1667	-1297	47	54	42	**12**
AT3	1500	840	734	1785	-14289	-6495	19793	7555	5353	1445	2505	1016	-21005	-14776	-15641	-10566	-15481	-8978	3088	2551	-905	-1385	-3403	-104	68	83	68	**13**
AT3	1563	929	-560	-69	-16567	-8241	21265	8066	4204	3603	2483	2586	-20813	-14778	-15533	-10415	-14774	-8880	2827	3333	-1346	-983	-3422	-696	65	81	70	**13**
AT3	1712	857	1971	1507	-15759	-6708	21726	8582	1789	2075	3404	1665	-20914	-14760	-14623	-10206	-15183	-8900	3461	3007	-1893	-1023	-3421	-598	66	83	68	**13**
AT3	1073	668	1243	2178	-14783	-7128	20968	7390	1361	1750	2493	1734	-20739	-14877	-14779	-10051	-15062	-9077	3538	1898	-856	-503	-3144	-1364	66	82	67	**13**
AT3	1188	803	1995	2172	-16526	-7477	19655	8251	4568	1696	2175	1175	-20718	-14711	-14443	-9989	-14496	-8977	3483	3103	-900	-77	-2748	-950	66	82	68	**13**
AT3	1292	912	1487	1566	-15795	-6812	20665	7808	3370	2598	561	1015	-20682	-14731	-14502	-10158	-15144	-8098	2954	3181	-1396	-1045	-2814	-674	65	80	69	**13**
AT4	6519	7336	-20663	-10137	-73121	-38539	-15709	7365	-23057	-1829	-53408	-15955	18937	11802	23456	16602	4905	25615	39286	19354	13614	7575	1767	7228	-2	-72	6	**14**
AT4	6494	7603	-20129	-9614	-72991	-38348	-17841	6360	-17047	-2607	-51784	-15792	21726	13427	23070	17714	4848	25022	39723	20277	14524	7605	823	6900	-2	-70	5	**14**
AT4	5880	6900	-22452	-9987	-72791	-38386	-13532	8400	-17315	-2347	-52321	-15890	21655	13052	23953	18070	5122	25838	40272	19705	14001	8391	791	6510	0	-69	7	**14**
AT4	6792	7592	-21356	-10610	-72687	-38165	-15831	7029	-17396	-2604	-52842	-16202	19913	13335	24739	17724	4229	25058	40720	20036	14824	7666	874	6357	-3	-70	5	**14**
AT4	6473	7580	-21474	-10315	-73038	-37900	-16121	8280	-17303	-5852	-52108	-15560	21844	10849	24191	18726	5006	24966	39282	20073	14734	7754	985	6952	-3	-71	5	**14**
AT4	6481	7313	-20518	-10153	-72710	-37508	-17760	6825	-22971	-1726	-52827	-15874	17866	10773	24671	17761	4001	24492	39212	19469	14601	7746	1087	6756	-2	-71	4	**14**
AT5	-4248	-2458	-30020	-15836	-50939	-26853	-71485	-33688	-25936	-10046	-25706	-10820	5331	1586	-14286	-10015	-11531	-7780	30484	16524	1632	904	-1519	-1346	90	-17	-17	**15**
AT5	-4251	-2335	-29619	-15426	-51898	-26924	-71617	-33770	-25105	-11210	-25199	-10103	4716	1178	-13973	-10162	-11709	-7598	31220	13921	2400	1001	-1250	-881	90	-17	-17	**15**
AT5	-4184	-2472	-30371	-15879	-49739	-26329	-72174	-33686	-26864	-10854	-24389	-10265	4952	1716	-14358	-9924	-11419	-7787	31574	14415	1517	2032	-1631	-1190	90	-16	-18	**15**
AT5	-4127	-2378	-29840	-15436	-50329	-26598	-72344	-33993	-24964	-11339	-25293	-10646	5254	1020	-14319	-10094	-10942	-7350	30246	16223	2778	1254	-486	-933	91	-16	-18	**15**
AT5	-4326	-2411	-30620	-15600	-50067	-25908	-71968	-33451	-26658	-11169	-24878	-10539	4106	803	-14253	-10163	-11266	-7322	30595	14552	2922	1922	-1567	-1703	90	-16	-18	**15**
AT5	-4380	-2475	-30739	-15431	-49946	-25971	-72573	-33918	-24411	-10478	-25028	-9974	2279	-686	-14588	-9947	-10921	-7674	31889	14684	3081	1550	-1393	-1139	90	-14	-17	**15**

AT6	994	677	2866	395	-4776	-2633	-65263	-19632	-77862	-30707	1164	1146	1515	433	-455	488	1493	-33	63631	28713	34265	12151	12049	2749	50	44	-118	**16**
AT6	1021	454	2749	981	-5131	-3134	-65486	-19765	-77743	-31721	4809	2233	2298	1499	949	718	962	725	62162	29337	33311	10942	14011	3442	51	45	-118	**16**
AT6	883	443	1866	815	-6143	-2885	-64914	-19743	-77331	-31400	4350	3405	2257	1602	-464	349	-137	494	62484	27958	34230	10974	13903	3413	51	44	-118	**16**
AT6	832	401	602	1047	-5707	-2550	-65413	-19819	-78781	-32634	1537	835	1663	1435	300	657	2719	300	64211	28275	32956	11638	14849	3705	50	43	-119	**16**
AT6	763	403	2905	67	-6666	-3474	-64819	-19260	-76807	-31609	5782	2810	2581	1145	-499	-86	2339	1616	62230	28726	32626	10813	14672	3421	50	46	-117	**16**
AT6	872	345	2311	379	-6808	-4737	-65282	-20052	-78336	-32014	4264	2336	1885	1630	226	535	1630	1278	63693	28983	34760	11481	15302	3915	50	44	-120	**16**
AT7	1505	1088	5731	2870	-9549	-3084	-71719	-26916	-72982	-28312	10061	5202	359	83	1008	767	2652	696	68692	29805	37551	12313	-438	-399	54	46	-120	**17**
AT7	1467	1137	7940	4688	-5628	-3553	-71846	-27713	-73802	-29571	10032	6192	2564	1289	1948	859	4864	1643	67645	30856	36201	13025	2293	1291	53	47	-122	**17**
AT7	1637	961	5697	3337	-7511	-3189	-72018	-27547	-75697	-29034	9595	5422	794	173	1089	961	4111	2534	67500	29762	34757	11844	1528	-84	55	44	-120	**17**
AT7	1569	1016	3909	3013	-4923	-3149	-71965	-27335	-73692	-29686	10372	5553	2163	1886	1351	896	2149	1100	67202	29794	34013	12266	2314	1090	54	46	-120	**17**
AT7	1362	996	4370	2965	-6147	-3186	-72035	-27404	-74141	-30211	11592	5265	2710	2138	1153	803	2179	1821	68236	30206	34806	11582	1313	438	54	46	-122	**17**
AT7	1480	1058	5566	4390	-6044	-3286	-71210	-26591	-73106	-28391	9247	5118	2106	1537	1179	1378	3837	3011	69030	30619	35435	12250	3107	1816	53	46	-122	**17**
AT8	8029	4642	11874	7249	3449	1720	-62799	-18987	-64549	-21200	10824	5776	2699	1306	4813	3802	3585	2407	61499	26350	39582	14098	177	531	41	59	-109	**18**
AT8	8080	4478	13446	7140	2789	2046	-63044	-18987	-65047	-22419	10716	6348	3443	1989	4568	3607	3042	3079	62635	27250	38153	14444	1216	1641	43	58	-111	**18**
AT8	7916	4403	11884	7553	3386	2837	-63041	-19204	-65097	-21423	11874	6173	3429	2002	4385	3328	3723	2694	62186	27635	37319	14995	1252	983	43	61	-110	**18**
AT8	6602	3907	13690	6819	2083	1803	-63005	-19310	-65438	-20750	10935	6221	2971	2169	4841	3363	3110	2120	63010	27384	37154	13983	1549	1201	42	60	-110	**18**
AT8	6976	3927	13432	7913	2117	817	-63419	-19099	-65880	-22074	11038	5562	3508	1459	5162	3420	3684	3138	62449	27992	37656	14992	1796	1151	44	59	-110	**18**
AT8	6874	4013	12409	6215	2964	1508	-63284	-18635	-64566	-20490	10499	6272	2822	1682	4578	3928	3256	2755	63199	27935	39144	14798	1297	877	42	60	-111	**18**
AT9	-6654	-3120	-59314	-26411	-84427	-39082	-110214	-51720	-109319	-49947	-108745	-48775	-16685	-9473	-18419	-8848	-3803	12666	-12339	-4647	-21347	-8192	-11066	4722	116	-222	-2	**19**
AT9	-6685	-3165	-59158	-26523	-84502	-39248	-110246	-51774	-109560	-50228	-108701	-48734	-17192	-9961	-18617	-9313	-5792	9614	-12455	-4583	-23212	-10821	-11217	5065	116	-220	0	**19**
AT9	-6642	-3091	-59276	-26636	-84404	-39717	-110225	-51791	-109400	-49943	-108790	-48596	-16946	-9784	-18661	-9716	-6084	8898	-12650	-4308	-22686	10267	-11033	3627	116	-220	0	**19**
AT9	-6674	-3155	-59275	-26732	-84150	-38228	-110213	-51734	-109234	-49881	-108787	-48676	-17006	-9618	-18818	-9393	-5537	10245	-13282	-3934	-21346	-8370	-10372	4592	117	-220	-2	**19**
AT9	-6659	-3217	-59255	-26585	-84459	-38917	-110225	-51722	-109437	-49968	-108542	-48601	-17219	-9975	-18579	-9234	-5029	12180	-13309	-4704	-21533	-8761	-10713	3989	117	-222	-1	**19**
AT9	-6641	-3158	-59153	-26241	-84215	-38617	-110212	-51726	-109353	-49907	-108643	-48640	-16993	-9554	-18224	-9154	-4382	12597	-12491	-4655	-23316	-10919	-10474	5414	116	-221	-1	**19**
AT10	-5371	-3028	-54960	-28483	-82920	-38914	-105967	-50400	-102970	-47163	-107947	-47861	-22657	-16346	-22266	-15506	-15723	-6991	-9633	-8577	-20129	-14898	-9538	-4631	120	-190	7	**2**
AT10	-5353	-3083	-55092	-28647	-82696	-39294	-105970	-50500	-103573	-47557	-107997	-47801	-22741	-16310	-22385	-15426	-15660	-7129	-10209	-9358	-19792	-14670	-9360	-4474	121	-191	7	**2**
AT10	-5401	-3025	-55045	-28330	-82517	-38309	-105899	-50443	-103478	-47599	-107997	-48011	-22612	-16287	-22364	-15457	-15679	-6975	-10480	-8961	-19967	-14847	-9334	-4367	120	-191	7	**2**
AT10	-5390	-3069	-54837	-28479	-82967	-39145	-105910	-50434	-103443	-47476	-107879	-47838	-22652	-16387	-22367	-15397	-15484	-7044	-10345	-9456	-21057	-15734	-9402	-4722	121	-191	8	**2**
AT10	-5379	-2949	-54832	-28192	-82875	-39265	-105644	-50341	-103632	-47633	-107991	-47882	-22439	-16447	-22381	-15385	-15614	-7112	-10029	-9296	-21213	-15923	-9467	-4667	120	-191	8	**2**
AT10	-5346	-2970	-54866	-28565	-82488	-38371	-105951	-50254	-103398	-47592	-107999	-47891	-22557	-16306	-22245	-15513	-15717	-7339	-9729	-9702	-19432	-14976	-9367	-4177	120	-190	6	**2**
AT11	-6259	-1927	-53656	-22547	-79529	-31435	-105914	-43124	-80556	-26688	-77826	-26788	-22495	-15095	-14623	-6714	9510	17022	-16630	-7457	-5094	1667	-1360	2094	91	-164	5	**3**
AT11	-6212	-1860	-53736	-22507	-79675	-31452	-105988	-42881	-81304	-26495	-77348	-26407	-22636	-15060	-14466	-6617	9437	16958	-16813	-7572	-4115	2143	-1998	2410	91	-165	4	**3**
AT11	-6285	-1893	-54115	-22453	-79814	-31552	-105918	-42994	-80499	-26376	-77408	-25950	-22283	-15114	-14826	-6835	9731	18069	-16331	-7781	-4406	1884	-1614	1769	91	-165	4	**3**
AT11	-6285	-1928	-53628	-22889	-79879	-31137	-106042	-43293	-81990	-27661	-77210	-27071	-22495	-15125	-14842	-6792	10069	16766	-16666	-7364	-4674	1429	-1277	1591	91	-164	3	**3**
AT11	-6237	-1893	-53891	-22229	-79755	-30658	-105757	-42933	-80372	-26829	-76737	-25314	-22390	-14936	-14515	-6465	11217	18795	-16731	-7177	-4908	1052	-1728	2081	91	-165	4	**3**
AT11	-6289	-1822	-53613	-22494	-79391	-31048	-105957	-43284	-80699	-27103	-76658	-26039	-22575	-15105	-14436	-6887	10757	18892	-16474	-7505	-4625	982	-1952	2461	90	-165	3	**3**
AT12	13858	5282	11707	8435	-3158	1175	-76292	-29020	-79390	-35691	9410	5412	3424	2326	-2472	-783	4131	3129	-8258	-7229	-12275	-10519	-1830	-1648	81	-8	-26	**4**
AT12	13477	5135	10762	7045	-1248	1335	-74550	-28821	-82504	-36853	8459	5005	4034	1538	-3609	-1162	3832	3316	-8543	-7870	-12980	-11328	-656	-694	81	-8	-27	**4**
AT12	13476	5258	10335	6107	-1730	1916	-76474	-28887	-81885	-36606	8794	6041	4100	1679	-3624	-2871	3668	3116	-8418	-7161	-13923	-10311	-1519	-1114	80	-8	-28	**4**
AT12	13216	4861	7146	5225	-2130	2069	-75695	-28534	-82065	-36496	7298	4798	3962	1734	-3515	-2295	4019	3294	-8471	-8219	-13530	-11809	-1330	-1379	82	-10	-27	**4**
AT12	13419	4894	4736	3799	-1236	1363	-74986	-28011	-80574	-35776	7839	4181	3193	2098	-3602	-2277	3807	2966	-8223	-7959	-14097	-12091	-757	-1079	81	-8	-26	**4**

AT12	12500	4620	7718	5787	-3817	693	-73880	-27347	-82563	-36768	7629	4755	3052	1886	-5688	-3280	2657	2639	-9246	-8319	-13511	-10661	-1816	-634	82	-10	-25	**4**
AT13	72488	159089	804	4648	-6405	2087	66161	190957	-5696	3370	9905	8454	6429	3827	-6233	-4067	2957	2384	17750	10265	136	-880	-2644	-2126	-1280	-19	3	**5**
AT13	71906	159398	1513	6248	-6612	2019	65257	184846	-6804	3648	9786	9846	7409	3603	-6792	-4211	2372	1193	17644	10661	130	-1135	-2683	-2917	-1281	-21	3	**5**
AT13	71708	158571	1181	4892	-7049	2127	67164	186315	-5575	3869	8601	9083	6522	3385	-5160	-3758	3276	1846	17916	10661	894	-330	-2281	-2231	-1275	-20	4	**5**
AT13	72472	159301	2796	5585	-7155	2930	64803	190909	-6164	3886	9153	8878	6364	3894	-5262	-3557	2149	1780	17763	10480	725	-168	-2594	-2289	-1282	-20	2	**5**
AT13	71889	159483	3038	6049	-6185	2701	66017	187189	-5828	2724	8835	9294	6077	3692	-6486	-4643	3552	2053	16715	10450	248	80	-2113	-2812	-1282	-20	4	**5**
AT13	71568	158887	2191	4458	-7072	1965	66345	185299	-9309	4545	9281	8948	6662	3208	-6380	-4268	4154	2011	17950	10996	326	124	-2405	-2915	-1279	-20	2	**5**
AT14	-1328	-648	-7385	-4168	-27132	-13326	-61586	-27739	-2690	1252	829	-76	-10907	-6198	-11251	-6383	-9147	-4317	16075	9524	4004	568	-19463	-12945	89	32	14	**6**
AT14	-1506	-807	-7447	-4284	-25690	-12686	-60464	-27201	-4072	76	4651	2912	-10383	-5846	-10935	-6265	-9273	-4032	16161	7999	5441	1277	-20089	-12921	89	34	11	**6**
AT14	-1607	-744	-9526	-4214	-24833	-12074	-60689	-27745	-2431	-22	4380	2393	-10945	-5658	-11079	-6483	-9066	-4336	14714	7666	3952	374	-19435	-13055	88	34	13	**6**
AT14	-1379	-929	-7321	-5064	-25938	-12585	-60666	-27352	-3619	-22	2851	3029	-9889	-5952	-11415	-6714	-9117	-4009	14822	8230	4131	38	-19056	-12816	91	32	13	**6**
AT14	-1387	-824	-8381	-4247	-25502	-12968	-62015	-28324	-2979	-45	4587	2680	-10006	-5717	-11270	-6245	-9125	-3888	15744	8633	5246	754	-19129	-13100	90	34	10	**6**
AT14	-1511	-878	-7684	-5402	-25364	-12263	-61283	-27635	-2099	-477	3625	2294	-9617	-5426	-11085	-6891	-8821	-4045	15177	7689	5202	227	-19195	-12563	90	34	11	**6**
AT15	-725	-275	-7593	-4990	-67708	-37701	-5880	-3427	-16805	-6760	-50085	-24400	-13433	-8741	-7913	-5174	-16840	-12122	17090	11633	146	-1601	-22042	-15960	80	-25	65	**7**
AT15	-805	-215	-7874	-5385	-67214	-37595	623	-3363	-20051	-6747	-48690	-23505	-13330	-8308	-7542	-5449	-19525	-13718	16916	10911	1080	-1440	-21305	-15781	78	-23	66	**7**
AT15	-1031	-458	-10918	-6338	-67127	-37935	-4971	-443	-16923	-8482	-49064	-22973	-14061	-8907	-8977	-5447	-19324	-13908	17382	12310	524	-1686	-22547	-16624	79	-25	64	**7**
AT15	-759	-289	-10661	-5613	-66871	-37532	-840	-2956	-20347	-8037	-48376	-23743	-13798	-8428	-7966	-5655	-17442	-13152	16629	10192	1267	-776	-22357	-16410	79	-25	65	**7**
AT15	-950	-501	-9161	-5295	-67676	-37542	-910	-1898	-16738	-6373	-49535	-23372	-14368	-8749	-7363	-4813	-19163	-13841	17615	11177	1970	-119	-22580	-16122	80	-23	67	**7**
AT15	-1078	-437	-9534	-4472	-67925	-37557	-3188	-2650	-19174	-8035	-50994	-23648	-13743	-8691	-7803	-4980	-19973	-14075	16914	10516	1530	-1262	-21595	-15962	80	-27	65	**7**
AT16	130	-60	-2247	-1974	-15582	-9198	1205	1523	5490	6487	3598	1760	-1739	-2211	-1514	-810	-1778	-1156	7006	5797	1255	286	1767	866	61	68	46	**8**
AT16	-390	9	-1687	-1001	-17219	-9607	1892	1317	6389	6873	4815	2130	-1963	-1794	-1579	-296	-2070	-809	7104	6943	1196	1343	1427	1150	59	67	47	**8**
AT16	-25	-45	-2514	-2028	-18004	-9494	2788	1468	6167	6280	6008	3115	-2082	-1343	-1427	-861	-2043	-429	8588	5618	1446	905	1946	1151	60	68	46	**8**
AT16	-158	50	-3661	-889	-18541	-10338	2631	1261	6822	6885	4985	2269	-1802	-1418	-1395	-396	-1526	-1027	7854	5946	1287	1148	1628	1692	59	67	48	**8**
AT16	-167	-100	-1073	-643	-17341	-9018	1753	1297	6149	6844	5027	2825	-2604	-1875	-1466	-762	-2424	-821	7907	6391	1175	380	2185	1618	61	69	47	**8**
AT16	-229	-141	-3455	-1434	-15988	-8662	1155	277	5201	6205	3879	2859	-3585	-1839	-1460	-1001	-1825	-1273	8760	6949	1338	1177	2072	1172	61	68	45	**8**
AT17	7878	4642	-3805	-2403	-18112	-10304	7154	2475	7996	6057	3912	1710	-1535	-738	-289	88	4917	3364	13549	9358	5873	3473	1203	224	43	66	43	**9**
AT17	8286	4835	-3125	-1522	-17985	-9797	6775	3365	7565	7226	5166	2504	-755	-119	148	88	4703	4541	12759	10145	6557	3124	1746	781	42	67	42	**9**
AT17	8080	4499	-3159	-2109	-17455	-9643	8479	3392	8642	6623	4214	2673	-265	-73	454	224	5531	3837	13707	10266	6847	3226	1424	-85	44	68	43	**9**
AT17	8019	4665	-3922	-1591	-17377	-9813	8591	3588	8557	8127	3666	2098	-23	130	442	302	6050	4273	14032	10254	6405	2380	1467	1007	42	68	43	**9**
AT17	8051	4578	-2298	-2216	-16475	-9605	7369	4290	9424	7618	4220	2694	-978	-471	-6	241	5079	3993	12755	10371	5482	3301	1890	671	43	69	44	**9**
AT17	7752	4412	-3019	-1633	-17648	-10003	7165	3715	7274	7084	2898	1525	262	-145	416	282	4990	3730	13476	9970	6663	3742	1486	1245	44	66	42	**9**
AT18	-831	-449	-10812	-6686	-29240	-16722	-20637	-9308	2629	5238	2489	2010	-1854	-3508	-467	-637	3905	2133	25899	15039	3557	2948	883	795	61	53	22	**10**
AT18	-636	-335	-10091	-6287	-28004	-16070	-17181	-8489	5610	6028	2752	1744	-2004	-4442	-103	-183	3592	3229	24699	16299	4637	3427	1177	1044	61	56	24	**10**
AT18	-392	-475	-9090	-6274	-28510	-16628	-22313	-7722	5139	5169	3655	2010	-2839	-3402	-358	-495	3827	2873	24533	15086	3272	2519	675	530	63	55	23	**10**
AT18	-391	-431	-11146	-7348	-29101	-16599	-23619	-10642	3049	6672	3427	1843	-1587	-3657	-10	286	4427	2700	27484	16663	4439	2074	988	715	62	54	18	**10**
AT18	-314	-345	-9211	-6467	-28301	-16251	-21839	-11156	3605	5407	3165	2006	-3030	-3399	-812	-329	3363	2735	25790	17270	4227	3068	188	1540	64	53	20	**10**
AT18	-593	-427	-10112	-5917	-28246	-16181	-18497	-8734	4561	5976	2632	2151	-1654	-3451	-461	305	4278	3622	28132	17546	4224	2523	722	1261	61	56	21	**10**
AT19	252	-553	-17891	-8172	-9913	-4610	-18460	-9965	-12168	-3576	-1574	-532	-4412	-2763	-1713	-1037	6948	5236	52838	21267	-2103	-4758	-637	421	59	70	-9	**11**
AT19	236	-631	-16658	-8050	-9593	-4528	-17960	-10181	-11781	-3555	-1445	279	-4114	-2959	-1926	-815	7363	5442	50424	21707	-1999	-4989	472	791	60	70	-7	**11**
AT19	105	-734	-16875	-7333	-8757	-4986	-17092	-9463	-12209	-3750	-1213	887	-4264	-2437	-1838	-814	8364	5614	52905	22895	-686	-4108	309	214	60	72	-10	**11**
AT19	162	-736	-16456	-8504	-9185	-5080	-15440	-8689	-10765	-3169	-530	1312	-4704	-3027	-2064	-832	7233	5911	51073	21372	-309	-4458	-38	644	60	72	-7	**11**

AT19	109	-669	-16612	-7441	-9020	-4239	-17071	-9301	-11435	-3075	-1100	999	-3948	-3344	-1630	-1103	7663	5358	50916	20322	-826	-4710	-24	-29	60	72	-7	**11**
AT19	41	-762	-16823	-7762	-8622	-5054	-16212	-9324	-12997	-3751	-1441	490	-4703	-2732	-1910	-1038	8423	6079	52965	21632	-898	-3983	-813	206	60	71	-9	**11**
Control	-9	4	175	477	905	853	-684	-691	-2154	-194	871	196	-21	28	357	-326	723	-168	350	-295	-241	-77	-138	-309	64	68	41	**20**
Control	107	154	-1250	-390	1143	-17	542	161	1223	-143	363	126	-70	118	-209	169	108	340	-652	251	333	134	68	302	64	67	43	**20**
Control	-36	1	402	306	969	553	1427	667	-2340	-395	525	-41	203	136	-359	-245	-213	-567	581	387	-180	144	-7	6	64	68	42	**20**
Control	148	-157	298	157	518	86	-230	-22	-1431	225	35	186	67	136	-338	225	-472	-493	702	-310	-242	-29	-181	-214	66	67	42	**20**
Control	-99	10	-676	155	-536	-640	-578	256	-785	-484	-114	-422	202	-148	676	292	449	-360	161	110	51	-23	-339	-103	64	65	42	**20**
Control	-94	-2	-77	-279	1363	-1241	-498	-781	382	161	-48	-263	-45	73	429	188	122	-161	-47	-825	-238	137	199	217	64	67	43	**20**

(a)



(b)

Jackknifed Classification Matrix

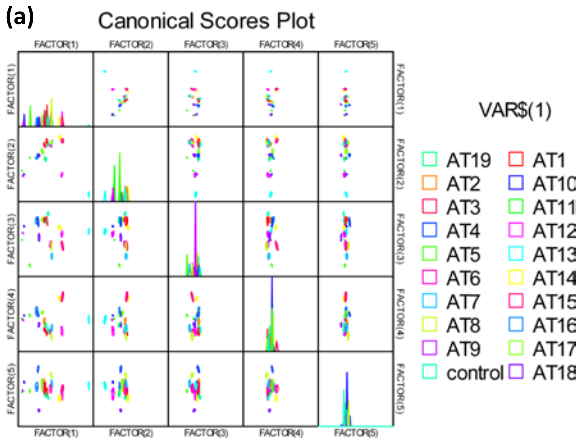
	AT1	AT10	AT11	AT12	AT13	AT14	AT15	AT16	AT17	AT18	AT19	AT2	AT3	AT4	AT5	AT6	AT7	AT8	AT9	control	%correct
AT1	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100
AT10	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100
AT11	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100
AT12	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100
AT13	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100
AT14	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100
AT15	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	100
AT16	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	100
AT17	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	100
AT18	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	100
AT19	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	100
AT2	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	100
AT3	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	100
AT4	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	100
AT5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	100
AT6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	100
AT7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	100
AT8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	100
AT9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	100
control	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	100
Total	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	100

Figure S3. (a) Correlations of canonical fluroescence response patterns from an array of sensor element **S1**-**S24** against 19 antibiotics. The 95% confidence ellipses for the individual acids are also shown. **(b)** Jackknifed classification matrix showed the 100% correct classification.

Table S3. Training matrix of fluorescence response pattern from an array of sensor element **S25-S30** against 19 antibiotics. LDA was carried out and resulting in 6 factors of the canonical scores and group generation. Jackknifed classification matrix showed the 100% correct classification.

Analyte	Fluorescence response pattern						Results LDA						
Antibiotics	**S25**	**S26**	**S27**	**S28**	**S29**	**S30**	**SCORE1**	**SCORE2**	**SCORE3**	**SCORE4**	**SCORE5**	**SCORE6**	**GROUP**
AT1	-499	2101	113	-5638	3522	-2092	3.25	18.33	10.00	-10.02	-2.10	-1.26	**1**
AT1	-391	91	-135	-3984	5411	-1311	5.08	16.45	6.69	-8.17	-1.64	0.46	**1**
AT1	-145	822	236	-5652	5935	-3038	3.92	17.74	7.12	-10.09	0.04	0.95	**1**
AT1	-879	1386	-36	-5112	4125	-1460	3.53	17.76	8.37	-9.23	-2.59	-1.03	**1**
AT1	-161	-190	110	-4550	3270	-2765	2.95	15.18	10.10	-9.21	-1.68	1.50	**1**
AT1	-1118	133	-583	-2759	3861	-1656	4.55	14.43	7.25	-8.95	-2.99	-0.78	**1**
AT2	-530	18	-7396	-8613	2677	-80	-3.06	15.03	9.73	0.16	3.46	-7.02	**12**
AT2	-950	-106	-8217	-8268	2782	-1491	-3.80	13.33	8.67	-0.92	4.49	-7.76	**12**
AT2	-1159	-343	-8192	-8264	2528	-2286	-4.51	12.55	8.71	-1.71	4.58	-7.41	**12**
AT2	-1019	-1124	-6955	-7519	2333	1289	-2.68	14.09	9.13	1.33	1.27	-6.06	**12**
AT2	-1058	-238	-7736	-8043	1252	-1507	-4.48	12.74	10.61	-1.28	3.12	-7.28	**12**
AT2	-1358	-2021	-7206	-8259	2941	-575	-4.55	12.78	7.96	0.18	2.73	-4.86	**12**
AT3	-2496	-2597	-2690	-6382	1957	-2603	-3.84	11.87	8.33	-6.29	-2.19	0.12	**13**
AT3	-881	-2037	-2476	-6248	2322	-4450	-2.29	11.79	10.06	-7.61	0.70	1.07	**13**
AT3	-1737	-2225	-2438	-8080	3354	-3405	-4.03	13.76	8.19	-6.64	0.08	1.04	**13**
AT3	-422	-2474	-2618	-5828	3117	-4481	-1.33	11.40	9.35	-7.08	1.67	1.66	**13**
AT3	-407	-2355	-2284	-8803	3558	-4497	-3.84	13.97	9.95	-6.65	2.40	2.56	**13**
AT3	-1146	-2899	-3108	-6709	2667	-3342	-3.12	11.71	9.12	-5.51	0.60	1.09	**13**
AT4	-3110	-10304	-15118	-13579	970	-7484	-21.86	-0.33	6.88	5.34	12.13	-2.37	**14**
AT4	-3369	-9955	-14989	-13614	1912	-7395	-21.32	0.42	5.37	4.87	12.16	-2.73	**14**
AT4	-3420	-8995	-15114	-13877	-678	-6775	-22.39	0.74	8.95	5.13	10.55	-4.28	**14**
AT4	-3139	-8259	-15142	-14045	1459	-8066	-21.09	1.59	6.61	3.49	12.80	-4.52	**14**
AT4	-2823	-8248	-15198	-13814	26	-7674	-21.29	1.16	8.85	4.16	12.17	-4.65	**14**
AT4	-3386	-10154	-15071	-13827	-831	-7006	-23.12	-0.45	9.05	5.66	10.62	-2.83	**14**
AT5	-21026	-18490	-17327	-21688	8219	-5157	-46.05	-2.56	-25.20	4.08	-1.71	-4.07	**15**
AT5	-20837	-18357	-17145	-21333	8226	-5346	-45.45	-2.65	-25.02	3.70	-1.62	-3.94	**15**
AT5	-20861	-18538	-17113	-21321	7799	-5229	-45.76	-2.90	-24.50	3.91	-1.97	-3.77	**15**
AT5	-20878	-18130	-17247	-21521	8315	-5438	-45.56	-2.41	-25.13	3.55	-1.44	-4.27	**15**
AT5	-20534	-18615	-17263	-21410	8252	-5286	-45.41	-2.79	-24.70	4.25	-1.18	-3.59	**15**
AT5	-20671	-18216	-17319	-22210	7715	-6337	-46.76	-2.74	-23.83	3.13	-0.74	-3.82	**15**
AT6	-883	-5023	780	1868	15816	-1940	13.53	11.86	-10.36	-8.62	1.37	6.75	**16**
AT6	-1475	-4410	953	3159	14498	81	14.59	12.12	-9.72	-7.83	-1.68	5.06	**16**
AT6	-713	-4361	1137	2410	14916	-1206	14.43	12.37	-8.94	-8.59	0.21	6.13	**16**
AT6	334	-4704	557	2990	14976	-736	15.73	11.83	-8.06	-6.85	1.50	6.28	**16**
AT6	-350	-4583	1400	3972	13721	-1134	15.59	10.90	-7.38	-8.67	-0.67	6.46	**16**
AT6	480	-5708	1214	4298	15563	-697	17.13	10.70	-9.06	-6.94	1.06	8.01	**16**
AT7	-1284	-2497	36	2621	20688	2021	19.19	17.06	-17.58	-6.50	1.47	2.02	**17**
AT7	-1527	-2638	-3024	2889	20186	907	17.58	14.06	-18.21	-5.32	4.15	-1.15	**17**
AT7	-1542	-3170	-543	2569	21013	899	18.17	15.60	-18.58	-6.90	2.54	2.31	**17**
AT7	-663	-2439	-2209	3036	19872	2648	19.22	15.67	-16.45	-3.76	3.19	-0.44	**17**
AT7	-1192	-2590	-1914	1531	21631	2308	18.17	17.13	-18.90	-4.30	3.84	0.26	**17**
AT7	-590	-3065	-749	1540	20677	676	17.72	16.24	-16.55	-6.07	4.01	2.76	**17**
AT8	1147	-733	-1766	283	17978	-3719	16.06	15.36	-10.19	-9.52	8.35	1.04	**18**
AT8	700	-633	-1465	983	18620	-3951	16.81	15.14	-11.79	-10.60	7.88	0.95	**18**
AT8	832	635	204	527	18488	-4885	17.33	16.99	-10.63	-13.48	7.18	1.69	**18**
AT8	885	410	-540	1001	18793	-4637	17.75	16.28	-11.38	-12.60	7.77	1.03	**18**
AT8	1547	54	-1211	1303	16738	-4927	16.95	14.57	-8.10	-11.62	8.14	0.96	**18**
AT8	1298	657	-2083	705	17758	-4773	16.85	15.41	-9.76	-11.25	9.18	-0.69	**18**
AT9	-21055	-25075	-21046	-21269	-11381	-17265	-65.62	-24.98	-1.04	0.22	-1.46	0.88	**19**
AT9	-21017	-25094	-21052	-21906	-11381	-17311	-66.24	-24.57	-0.77	0.39	-1.23	1.06	**19**
AT9	-21052	-25101	-21125	-22337	-11385	-17251	-66.71	-24.29	-0.68	0.61	-1.13	1.04	**19**
AT9	-21033	-25066	-21097	-22482	-11398	-17398	-66.86	-24.22	-0.57	0.47	-1.01	1.11	**19**
AT9	-21029	-25073	-21054	-21688	-11323	-17353	-66.01	-24.71	-0.94	0.27	-1.24	0.99	**19**
AT9	-20949	-25049	-21120	-22658	-11309	-17124	-66.82	-23.89	-0.52	0.85	-0.97	1.09	**19**
AT10	-16704	-24673	-20957	-22235	-10843	-16685	-62.02	-22.48	4.39	3.75	3.57	3.14	**2**
AT10	-17020	-24689	-21056	-22536	-10749	-16801	-62.61	-22.43	3.92	3.58	3.49	2.97	**2**
AT10	-16732	-24699	-21123	-22820	-10722	-16890	-62.68	-22.26	4.35	3.82	4.01	3.15	**2**
AT10	-16670	-24760	-21098	-23063	-10669	-17019	-62.91	-22.17	4.45	3.82	4.23	3.37	**2**
AT10	-16927	-24677	-21129	-22620	-10769	-17033	-62.72	-22.53	4.08	3.48	3.81	3.00	**2**
AT10	-16642	-24715	-21129	-22971	-10788	-17045	-62.85	-22.27	4.61	3.79	4.22	3.28	**2**

AT11	-22944	-24028	-20673	-26199	-7999	-15097	-68.82	-18.24	-6.06	1.22	-2.22	-0.27	**3**
AT11	-22914	-24048	-20664	-26229	-7992	-15326	-68.90	-18.36	-6.02	1.02	-2.05	-0.16	**3**
AT11	-22962	-24124	-20694	-26178	-8142	-15182	-68.98	-18.46	-5.92	1.20	-2.25	-0.19	**3**
AT11	-22960	-24180	-20725	-26159	-8010	-15037	-68.88	-18.41	-6.11	1.40	-2.25	-0.19	**3**
AT11	-22922	-24164	-20576	-26174	-7979	-15011	-68.78	-18.26	-6.06	1.33	-2.33	-0.02	**3**
AT11	-22939	-24177	-20710	-26251	-8051	-15160	-69.01	-18.41	-5.99	1.30	-2.16	-0.12	**3**
AT12	6425	-8933	-3345	39209	6041	-2011	47.81	-22.62	-2.69	-7.20	-1.33	2.56	**4**
AT12	5821	-8692	-2435	40746	4820	-1513	48.69	-23.25	-2.11	-8.35	-4.12	2.41	**4**
AT12	7341	-7268	-2732	38968	5138	-2215	48.93	-20.92	0.20	-8.24	-1.13	1.87	**4**
AT12	5983	-8174	-2446	40468	4036	49	48.90	-21.98	-0.69	-6.89	-5.20	1.53	**4**
AT12	6319	-10940	-3407	39383	5013	-1427	46.33	-24.57	-1.79	-5.29	-2.28	4.52	**4**
AT12	5370	-7652	-3014	40196	3798	-2658	47.21	-23.44	-1.17	-9.85	-3.86	0.61	**4**
AT13	26105	-5703	-3141	94812	9814	7302	127.14	-48.37	-1.25	-1.53	2.90	-3.05	**5**
AT13	27342	-5829	-2452	94390	9293	8572	128.06	-46.99	1.40	0.29	2.80	-1.67	**5**
AT13	26974	-5110	-1885	93271	10373	9724	128.20	-44.25	0.12	0.51	2.04	-2.05	**5**
AT13	27266	-6593	-2084	93377	9513	10208	127.32	-45.70	1.37	2.36	1.81	-0.57	**5**
AT13	26417	-5853	-1716	94041	9284	10500	127.73	-45.41	0.52	1.11	0.06	-1.74	**5**
AT13	27142	-6321	-2226	93657	9571	10088	127.59	-45.82	1.03	2.01	1.81	-1.14	**5**
AT14	9635	-3123	2735	13897	12945	20665	41.97	20.18	3.78	15.56	-6.44	4.86	**6**
AT14	9428	-2973	3107	11930	14477	21234	41.09	22.78	2.28	16.04	-6.04	5.35	**6**
AT14	10519	-2478	2493	14684	14047	20594	44.42	20.58	3.20	15.60	-4.83	4.28	**6**
AT14	9181	-2903	1542	11756	12841	21702	39.48	21.64	3.77	17.66	-6.06	3.23	**6**
AT14	9824	-2575	2214	14252	12892	20958	42.70	20.28	3.89	15.94	-6.08	3.61	**6**
AT14	10221	-2822	2067	11162	13897	20816	40.33	22.54	4.10	17.14	-4.10	4.72	**6**
AT15	9528	-1978	-3122	18912	19306	19151	48.83	15.61	-8.19	16.13	1.33	-3.24	**7**
AT15	9371	-2888	-1614	18331	20203	21205	49.23	17.62	-9.08	17.60	-0.73	-0.91	**7**
AT15	9164	-2673	-1612	19304	20507	21051	50.26	17.09	-10.08	16.88	-0.97	-1.43	**7**
AT15	8595	-2276	-1538	16677	19545	20487	46.68	18.55	-8.53	16.35	-1.17	-1.52	**7**
AT15	9297	-1767	-3983	18739	21540	23218	50.89	18.52	-11.65	20.52	0.58	-5.32	**7**
AT15	9516	-3643	-1847	17720	22431	21350	49.56	18.20	-11.82	18.58	0.87	0.04	**7**
AT16	-4248	-16071	-9951	-12857	-2055	-5310	-24.87	-2.85	9.91	6.45	3.48	8.49	**8**
AT16	-5458	-16850	-9424	-12334	-2807	-3868	-25.66	-3.28	9.18	7.06	0.29	8.77	**8**
AT16	-5632	-16073	-10757	-12690	-2470	-3158	-25.71	-2.65	8.34	8.26	1.06	6.24	**8**
AT16	-5303	-15760	-9135	-11821	-2812	-3923	-24.32	-2.53	9.43	6.02	0.10	7.82	**8**
AT16	-5912	-16178	-11923	-13311	-4049	-3379	-27.96	-3.76	9.96	9.09	1.22	4.99	**8**
AT16	-6746	-16144	-9883	-13968	-1898	-5475	-28.14	-2.63	6.81	4.82	1.06	7.48	**8**
AT17	-1757	-7755	-10460	-8968	984	-1522	-11.30	5.06	8.64	5.65	4.91	-1.77	**9**
AT17	-1362	-8246	-9401	-6246	-257	-713	-8.66	3.42	10.08	5.56	2.64	-0.65	**9**
AT17	-2197	-8283	-8948	-8204	107	311	-10.67	5.60	9.32	6.18	1.38	-0.40	**9**
AT17	-686	-7593	-9286	-6721	245	70	-7.59	5.16	10.59	6.40	3.21	-0.93	**9**
AT17	-2223	-7382	-8526	-8763	389	481	-10.39	7.22	9.34	5.53	1.16	-0.90	**9**
AT17	-2063	-8728	-9247	-5980	-678	645	-9.04	3.39	9.61	6.58	0.62	-0.73	**9**
AT18	-12694	-10266	-6789	-5929	-884	-904	-19.03	0.36	-3.63	-3.36	-12.70	-2.09	**10**
AT18	-12722	-9846	-7497	-7000	-1179	-540	-20.14	1.15	-3.04	-2.43	-12.23	-3.26	**10**
AT18	-13768	-10204	-7494	-6199	42	4	-19.60	0.83	-6.38	-2.66	-13.31	-3.66	**10**
AT18	-13385	-9197	-7272	-6539	-1834	-1436	-20.49	0.62	-3.05	-4.49	-13.11	-4.08	**10**
AT18	-12890	-9886	-8199	-5103	-1917	-543	-19.07	-0.96	-3.15	-2.43	-12.69	-4.53	**10**
AT18	-12453	-9991	-6972	-6000	-935	-280	-18.61	0.92	-3.23	-2.58	-12.66	-2.61	**10**
AT19	-2399	-6060	-7815	4104	-3056	-2557	0.23	-3.40	9.50	-2.36	-2.94	-3.98	**11**
AT19	-3728	-6277	-8632	4243	-3209	-3390	-1.52	-4.98	7.65	-3.37	-3.36	-5.24	**11**
AT19	-3083	-6574	-7226	5569	-3268	-3260	0.63	-5.16	8.46	-4.05	-4.28	-3.29	**11**
AT19	-3075	-6866	-7508	3335	-3105	-3114	-1.69	-3.85	8.94	-2.89	-3.45	-2.81	**11**
AT19	-2534	-6068	-8335	4917	-2673	-3079	0.81	-4.48	8.37	-2.80	-2.35	-4.64	**11**
AT19	-2424	-5941	-7708	2782	-2678	-2498	-0.76	-2.13	9.48	-2.15	-2.56	-3.72	**11**
control	778	1567	408	177	4	929	8.88	14.61	14.32	-7.34	-6.00	-1.73	**20**
control	704	1429	-509	-599	82	278	7.52	14.14	14.11	-7.02	-4.67	-2.30	**20**
control	32	840	-121	198	442	-232	7.54	13.00	12.50	-8.15	-5.47	-1.61	**20**
control	508	687	-298	-423	-21	-16	7.01	13.25	13.90	-7.17	-4.98	-1.30	**20**
control	323	-611	-190	-457	-314	-317	5.84	11.90	13.92	-6.79	-5.22	0.28	**20**
control	296	-908	-934	108	-267	656	6.32	11.38	13.37	-5.20	-5.31	-0.55	**20**



(b) **Jackknifed Classification Matrix**

	AT1	AT10	AT11	AT12	AT13	AT14	AT15	AT16	AT17	AT18	AT19	AT2	AT3	AT4	AT5	AT6	AT7	AT8	AT9	control	%correct
AT1	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100
AT10	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100
AT11	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100
AT12	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100
AT13	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100
AT14	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100
AT15	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	100
AT16	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	100
AT17	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	100
AT18	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	100
AT19	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	100
AT2	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	100
AT3	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	100
AT4	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	100
AT5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	100
AT6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	100
AT7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	100
AT8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	100
AT9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	100
control	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	100
Total	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	100

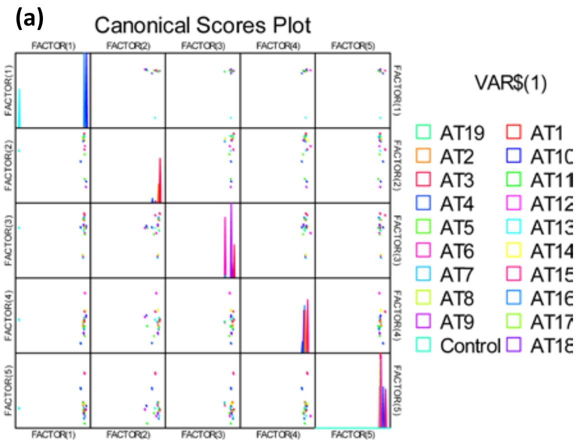
Figure S4. (a) Correlations of canonical fluroescence response patterns from an array of sensor element **S25-S30** against 19 antibiotics. The 95% confidence ellipses for the individual acids are also shown. **(b)** Jackknifed classification matrix showed the 100% correct classification.

Table S4. Training matrix of fluorescence response pattern (combine the Table S2 and S3) from an array of sensor element **S1-S30** against 19 antibiotics. Fluorescence response pattern LDA was carried out and resulting in 30 factors of the canonical scores (the first 8 scores were shown here) and group generation. Jackknifed classification matrix showed the 100% correct classification.

Analyte	**Results LDA**								
Antibiotics	**SCORE1**	**SCORE2**	**SCORE3**	**SCORE4**	**SCORE5**	**SCORE6**	**SCORE7**	**SCORE8**	**GROUP**
AT1	74.81	72.88	42.30	1.87	-11.33	-4.47	-17.15	-26.98	**1**
AT1	75.18	75.16	40.11	2.39	-10.75	-5.10	-15.70	-25.03	**1**
AT1	76.78	75.78	39.81	1.55	-12.03	-5.80	-16.80	-25.83	**1**
AT1	75.28	75.71	40.21	1.23	-11.54	-4.54	-17.25	-26.14	**1**
AT1	76.16	75.62	41.10	2.90	-12.20	-3.65	-17.59	-24.63	**1**
AT1	73.19	75.97	40.35	0.59	-11.65	-5.75	-15.70	-25.77	**1**
AT2	49.13	54.46	41.23	-11.22	15.10	3.45	-1.82	39.22	**12**
AT2	49.52	55.75	41.42	-12.60	15.69	3.10	-2.62	41.00	**12**
AT2	49.19	56.19	41.62	-13.56	13.48	4.36	-1.69	39.82	**12**
AT2	51.04	55.98	41.04	-12.17	13.74	2.36	-0.69	35.84	**12**
AT2	49.09	53.92	40.35	-12.54	14.85	4.16	-3.92	37.45	**12**
AT2	51.68	55.78	40.91	-14.30	15.55	2.45	-0.66	38.77	**12**
AT3	76.69	88.44	67.39	10.17	-7.97	-29.73	-30.15	6.13	**13**
AT3	74.36	86.71	69.70	8.90	-6.35	-27.00	-27.64	5.70	**13**
AT3	75.12	87.84	67.72	9.44	-6.34	-27.06	-30.22	6.20	**13**
AT3	76.02	88.22	67.13	11.59	-6.26	-26.56	-30.15	4.71	**13**
AT3	75.42	87.12	67.99	8.04	-6.43	-28.34	-29.67	5.33	**13**
AT3	74.41	85.67	68.63	9.42	-6.26	-26.80	-29.71	4.43	**13**
AT4	-2.38	-79.10	6.93	-77.31	55.37	75.34	13.19	-5.91	**14**
AT4	-2.42	-77.88	6.22	-78.23	54.08	75.22	16.63	-6.10	**14**
AT4	0.10	-76.88	9.03	-80.62	55.71	77.76	14.65	-7.83	**14**
AT4	-2.47	-77.46	6.83	-78.91	57.60	77.97	13.91	-8.05	**14**
AT4	-2.92	-78.67	6.44	-78.10	55.47	77.55	13.50	-8.09	**14**
AT4	-1.82	-78.61	6.19	-77.47	53.46	76.80	13.42	-8.66	**14**
AT5	82.71	-37.32	-22.93	-52.38	-16.48	-48.62	27.89	25.40	**15**
AT5	82.17	-37.14	-23.05	-52.51	-16.61	-48.43	27.88	25.58	**15**
AT5	82.99	-35.85	-24.18	-51.59	-18.32	-47.69	28.53	25.19	**15**
AT5	82.96	-36.55	-24.73	-52.35	-17.26	-49.61	27.12	25.98	**15**
AT5	82.20	-36.32	-24.32	-51.04	-17.97	-49.08	27.40	24.31	**15**
AT5	83.08	-34.37	-23.65	-52.78	-19.21	-51.49	26.31	23.33	**15**
AT6	47.55	40.20	-122.72	-2.55	6.26	-7.59	-22.27	-1.02	**16**

AT6	48.25	40.80	-123.53	-2.91	6.00	-5.68	-21.37	-0.57	**16**
AT6	49.12	40.29	-122.82	-3.16	5.17	-6.30	-21.33	0.69	**16**
AT6	48.56	39.63	-123.32	-2.39	5.98	-6.13	-23.87	0.27	**16**
AT6	48.19	42.53	-121.63	-2.60	4.72	-7.01	-21.33	0.36	**16**
AT6	48.67	40.34	-124.90	-2.71	8.10	-6.75	-22.13	0.12	**16**
AT7	50.50	41.62	-126.67	1.16	14.31	-13.39	-2.56	-6.54	**17**
AT7	49.45	41.84	-128.43	-0.22	11.37	-10.32	-3.58	-4.42	**17**
AT7	51.38	39.64	-126.31	2.25	11.90	-11.02	-3.51	-6.29	**17**
AT7	50.81	41.45	-126.55	2.06	11.61	-10.84	-2.60	-5.65	**17**
AT7	49.91	40.54	-128.98	1.10	12.70	-12.62	-2.74	-6.18	**17**
AT7	49.73	41.68	-127.75	-1.27	11.60	-11.15	-4.91	-6.12	**17**
AT8	40.81	56.71	-113.77	2.22	9.09	7.33	-4.06	4.05	**18**
AT8	42.70	56.16	-114.99	2.15	9.66	8.46	-4.30	4.60	**18**
AT8	42.75	58.41	-114.40	1.73	7.64	7.64	-3.48	4.32	**18**
AT8	41.89	57.93	-114.36	1.21	8.53	7.38	-4.69	0.35	**18**
AT8	43.81	56.83	-114.67	0.82	10.27	7.14	-5.02	2.68	**18**
AT8	41.40	57.26	-115.71	0.07	9.17	7.16	-4.79	0.37	**18**
AT9	111.43	-230.15	3.91	17.73	-6.57	5.20	-13.86	-11.41	**19**
AT9	112.10	-228.42	5.60	19.05	-6.32	3.29	-15.96	-9.92	**19**
AT9	111.32	-227.81	5.53	18.15	-5.30	1.87	-15.35	-8.04	**19**
AT9	112.27	-228.41	4.40	17.32	-8.15	3.24	-15.31	-9.40	**19**
AT9	112.60	-229.61	4.74	18.34	-6.45	3.87	-14.48	-10.78	**19**
AT9	111.66	-229.66	5.06	18.12	-7.22	4.75	-15.62	-11.42	**19**
AT10	117.88	-195.94	12.75	24.03	4.84	-23.42	-23.94	12.05	**2**
AT10	118.35	-196.92	12.53	24.15	4.27	-22.95	-24.28	12.47	**2**
AT10	118.12	-196.55	12.72	24.45	3.27	-22.86	-24.75	12.02	**2**
AT10	118.26	-196.72	14.04	24.73	3.99	-22.87	-24.54	12.30	**2**
AT10	116.98	-196.79	13.72	24.66	4.49	-23.05	-24.82	12.43	**2**
AT10	117.53	-195.85	11.95	23.91	3.35	-22.74	-24.99	12.49	**2**
AT11	83.26	-181.26	5.41	-15.53	-47.73	-5.50	13.83	-10.51	**3**
AT11	82.61	-181.88	4.57	-15.63	-48.04	-4.58	14.37	-10.88	**3**
AT11	82.58	-181.82	4.76	-16.33	-47.69	-5.57	15.12	-10.41	**3**
AT11	82.94	-181.37	4.11	-14.57	-48.10	-5.73	12.55	-9.98	**3**
AT11	82.69	-181.74	5.33	-15.10	-49.22	-3.32	14.75	-11.73	**3**
AT11	82.08	-181.70	4.25	-15.13	-48.41	-4.63	14.08	-12.21	**3**
AT12	89.17	13.94	-17.52	106.37	-25.11	62.73	20.43	20.37	**4**
AT12	88.10	13.98	-19.32	108.35	-25.81	62.59	16.91	19.50	**4**
AT12	87.82	14.36	-19.44	107.67	-25.25	60.45	20.32	20.19	**4**
AT12	88.92	12.48	-19.06	107.67	-25.55	61.51	19.25	19.46	**4**
AT12	88.39	13.28	-17.40	105.26	-27.81	60.56	18.51	19.65	**4**
AT12	89.68	11.22	-17.13	106.95	-25.79	58.66	16.44	20.41	**4**
AT13	-1319.48	-14.05	5.63	7.78	-3.28	-3.72	-1.86	0.59	**5**
AT13	-1319.91	-14.83	5.60	8.96	-4.19	-6.78	1.01	0.73	**5**
AT13	-1314.87	-14.36	6.18	7.04	-2.06	-4.50	-0.11	-1.83	**5**
AT13	-1320.85	-14.37	5.49	7.97	-3.02	-3.50	-0.03	0.00	**5**
AT13	-1321.95	-14.49	6.54	9.48	-4.21	-6.75	-0.81	-0.49	**5**
AT13	-1318.72	-14.97	4.79	8.16	-3.92	-6.72	0.54	-1.04	**5**
AT14	93.85	45.56	12.37	42.21	11.36	-38.56	51.78	-21.35	**6**
AT14	93.34	47.20	9.28	41.76	9.25	-37.18	53.34	-22.05	**6**
AT14	93.58	48.42	12.37	45.06	7.92	-36.45	53.13	-23.26	**6**
AT14	95.33	45.62	11.51	41.82	8.55	-36.79	52.55	-19.63	**6**
AT14	94.84	47.39	9.28	42.78	9.14	-37.26	53.75	-20.99	**6**
AT14	95.25	47.27	10.21	41.85	8.05	-37.12	52.41	-20.94	**6**
AT15	82.37	-7.79	61.20	38.74	98.84	-24.21	1.97	-2.86	**7**
AT15	80.07	-5.31	61.51	38.31	100.51	-23.82	-0.75	-1.91	**7**
AT15	80.70	-6.99	59.68	39.96	100.48	-26.88	1.50	-3.43	**7**
AT15	80.58	-7.64	60.66	37.60	98.55	-24.18	-0.51	-1.43	**7**
AT15	81.14	-6.03	61.57	37.82	102.39	-25.90	2.43	-3.31	**7**
AT15	81.66	-9.53	60.13	38.87	100.40	-25.42	0.81	-2.36	**7**
AT16	70.44	65.59	50.62	-23.04	-32.60	8.74	-5.10	0.84	**8**
AT16	68.03	64.47	51.63	-25.08	-33.61	7.82	-3.73	-1.01	**8**
AT16	68.24	64.99	50.19	-26.38	-32.37	7.71	-3.55	1.47	**8**

AT16	67.79	63.90	51.82	-26.22	-32.30	8.34	-3.00	0.80	**8**
AT16	69.23	65.00	50.90	-26.68	-33.94	6.95	-5.17	1.81	**8**
AT16	69.27	64.06	48.82	-27.10	-34.89	7.31	-5.87	-0.11	**8**
AT17	49.24	65.44	44.73	-21.29	-10.58	13.09	-0.65	16.16	**9**
AT17	48.26	66.92	43.81	-20.04	-10.67	15.74	1.03	16.75	**9**
AT17	50.30	68.01	44.19	-21.77	-9.78	15.73	0.05	17.18	**9**
AT17	48.15	68.45	44.48	-20.59	-9.03	16.08	0.51	16.06	**9**
AT17	48.99	68.64	45.07	-21.18	-11.09	14.40	0.54	15.55	**9**
AT17	49.89	66.34	43.31	-21.05	-9.95	15.97	0.80	16.51	**9**
AT18	61.72	45.73	18.06	-41.35	-18.90	-7.29	14.27	-3.25	**10**
AT18	61.66	48.26	20.36	-43.09	-18.44	-8.02	12.56	-4.35	**10**
AT18	62.93	46.61	18.85	-40.10	-19.07	-8.03	14.97	-3.30	**10**
AT18	62.12	45.76	14.16	-44.00	-19.56	-7.20	15.45	-3.56	**10**
AT18	64.75	46.16	17.39	-39.46	-18.49	-7.42	13.91	-4.29	**10**
AT18	62.00	48.49	17.24	-42.35	-16.44	-7.18	12.59	-4.71	**10**
AT19	64.62	70.93	-6.81	-17.31	-2.19	-1.90	-10.69	-15.12	**11**
AT19	65.38	70.04	-5.58	-17.83	-5.29	-0.39	-11.48	-14.39	**11**
AT19	64.99	72.95	-8.03	-17.59	-2.40	-0.17	-12.32	-14.76	**11**
AT19	65.51	72.63	-5.10	-18.41	-3.74	-0.34	-12.38	-15.37	**11**
AT19	64.94	73.07	-5.68	-16.82	-3.95	-0.63	-10.45	-14.19	**11**
AT19	65.10	71.97	-7.39	-17.41	-1.27	-1.44	-12.47	-15.57	**11**
Control	74.93	76.65	43.22	16.55	-25.44	28.15	-8.12	-17.94	**20**
Control	74.27	75.24	45.32	14.80	-25.60	27.93	-8.70	-18.73	**20**
Control	74.25	76.67	43.66	15.45	-25.23	28.01	-10.53	-17.12	**20**
Control	77.22	75.70	44.56	15.40	-25.12	28.55	-8.80	-16.74	**20**
Control	74.47	73.60	44.95	13.52	-25.70	28.79	-8.53	-17.85	**20**
Control	74.91	75.13	45.54	14.21	-25.99	27.79	-7.71	-18.30	**20**



(b) **Jackknifed Classification Matrix**

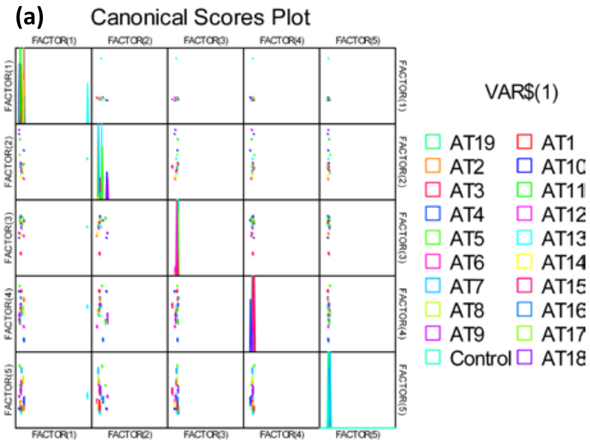
	AT1	AT10	AT11	AT12	AT13	AT14	AT15	AT16	AT17	AT18	AT19	AT2	AT3	AT4	AT5	AT6	AT7	AT8	AT9	control	%correct
AT1	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100
AT10	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100
AT11	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100
AT12	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100
AT13	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100
AT14	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100
AT15	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	100
AT16	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	100
AT17	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	100
AT18	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	100
AT19	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	100
AT2	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	100
AT3	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	100
AT4	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	100
AT5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	100
AT6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	100
AT7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	100
AT8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	100
AT9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	100
control	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	100
Total	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	100

Figure S5. (a) Correlations of canonical fluroescence response patterns from an array of sensor element **S1-S30** against 19 antibiotics. The 95% confidence ellipses for the individual acids are also shown. **(b)** Jackknifed classification matrix showed the 100% correct classification.

Table S5. Training matrix of fluorescence response pattern from an optimized array of combined sensor element **S2, S12, S18, S25, S28** and **S29** against 19 antibiotics. LDA was carried out as described above resulting in the four factors of the canonical scores and group generation. Jackknifed classification matrix showed the 100% correct classification.

Analyte	Fluorescence response pattern						Results LDA						
Antibiotics	**S2**	**S12**	**S18**	**S25**	**S28**	**S29**	SCORE 1	SCORE 2	SCORE 3	SCORE 4	SCORE 5	SCORE 6	Group
AT1	-1138	383	1586	-499	-5638	3522	-56.52	-16.64	7.96	0.55	-7.66	3.66	**1**
AT1	-1032	715	1623	-391	-3984	5411	-55.72	-18.87	6.23	-0.33	-4.94	3.44	**1**
AT1	-1264	456	2160	-145	-5652	5935	-57.31	-17.94	6.88	-0.84	-4.96	5.37	**1**
AT1	-1163	834	1527	-879	-5112	4125	-56.53	-17.59	7.99	0.58	-6.21	3.04	**1**
AT1	-1098	568	1101	-161	-4550	3270	-56.12	-17.86	7.10	0.86	-8.29	2.96	**1**
AT1	-1045	467	1911	-1118	-2759	3861	-55.46	-17.81	6.38	-0.74	-5.47	0.94	**1**
AT2	7187	-1467	-1412	-530	-8613	2677	-12.44	-6.94	10.52	8.27	-9.51	7.61	**12**
AT2	7289	-1212	-2893	-950	-8268	2782	-11.90	-7.73	10.07	10.58	-9.01	6.68	**12**
AT2	7254	-1083	-1683	-1159	-8264	2528	-11.96	-7.17	11.04	8.90	-8.75	6.45	**12**
AT2	6263	-966	-1740	-1019	-7519	2333	-17.17	-8.55	10.20	8.44	-9.10	5.63	**12**
AT2	6848	-992	-1929	-1058	-8043	1252	-14.05	-7.36	11.27	9.26	-10.57	5.57	**12**
AT2	6550	-998	-1695	-1358	-8259	2941	-15.77	-7.84	10.73	8.73	-8.00	6.24	**12**
AT3	840	1016	-8978	-2496	-6382	1957	-46.51	-17.64	6.79	18.30	-9.30	0.01	**13**
AT3	929	2586	-8880	-881	-6248	2322	-45.88	-21.40	7.52	17.83	-11.11	1.65	**13**
AT3	857	1665	-8900	-1737	-8080	3354	-46.75	-18.83	7.69	18.43	-9.05	2.82	**13**
AT3	668	1734	-9077	-422	-5828	3117	-47.41	-21.39	5.35	17.43	-10.71	2.31	**13**
AT3	803	1175	-8977	-407	-8803	3558	-47.30	-18.97	6.71	18.18	-10.93	5.06	**13**
AT3	912	1015	-8098	-1146	-6709	2667	-46.21	-18.47	6.36	16.52	-10.22	2.31	**13**
AT4	7336	-15955	25615	-3110	-13579	970	-12.13	30.96	12.84	-32.25	-2.89	14.59	**14**
AT4	7603	-15792	25022	-3369	-13614	1912	-10.75	30.51	12.56	-31.30	-1.43	14.77	**14**
AT4	6900	-15890	25838	-3420	-13877	-678	-14.41	31.77	14.04	-32.21	-4.61	13.52	**14**
AT4	7592	-16202	25058	-3139	-14045	1459	-10.92	31.36	12.49	-31.30	-2.45	15.21	**14**
AT4	7580	-15560	24966	-2823	-13814	26	-10.80	30.60	13.56	-30.99	-4.71	14.49	**14**
AT4	7313	-15874	24492	-3386	-13827	-831	-12.26	31.52	13.59	-30.08	-5.13	13.34	**14**
AT5	-2458	-10820	-7780	-21026	-21688	8219	-68.15	18.93	10.49	24.08	21.44	-3.86	**15**
AT5	-2335	-10103	-7598	-20837	-21333	8226	-67.32	17.69	11.10	23.80	21.32	-4.01	**15**
AT5	-2472	-10265	-7787	-20861	-21321	7799	-68.07	17.94	10.98	24.08	20.76	-4.30	**15**
AT5	-2378	-10646	-7350	-20878	-21521	8315	-67.64	18.65	10.69	23.37	21.50	-3.73	**15**
AT5	-2411	-10539	-7322	-20534	-21410	8252	-67.79	18.16	10.57	23.19	20.96	-3.49	**15**
AT5	-2475	-9974	-7674	-20671	-22210	7715	-68.20	17.94	11.94	24.24	20.16	-3.47	**15**
AT6	677	1146	-33	-883	1868	15816	-46.06	-26.26	-2.42	-0.86	10.43	3.84	**16**
AT6	454	2233	725	-1475	3159	14498	-46.74	-27.37	-0.80	-1.86	10.10	1.32	**16**
AT6	443	3405	494	-713	2410	14916	-46.86	-29.58	0.35	-1.35	9.28	2.72	**16**
AT6	401	835	300	334	2990	14976	-47.37	-27.15	-3.82	-2.21	7.95	3.93	**16**
AT6	403	2810	1616	-350	3972	13721	-46.73	-28.94	-0.54	-3.65	7.90	1.54	**16**
AT6	345	2336	1278	480	4298	15563	-47.21	-30.09	-2.91	-3.98	9.07	3.21	**16**
AT7	1088	5202	696	-1284	2621	20688	-43.40	-33.79	0.16	-1.89	17.65	4.78	**17**
AT7	1137	6192	1643	-1527	2889	20186	-42.85	-34.55	2.00	-3.01	17.66	4.00	**17**
AT7	961	5422	2534	-1542	2569	21013	-43.94	-33.36	1.29	-4.57	18.85	4.90	**17**
AT7	1016	5553	1100	-663	3036	19872	-43.62	-34.58	0.49	-2.68	15.91	4.70	**17**
AT7	996	5265	1821	-1192	1531	21631	-44.06	-33.37	1.01	-3.38	18.69	6.36	**17**
AT7	1058	5118	3011	-590	1540	20677	-43.62	-32.72	1.57	-5.24	16.88	6.76	**17**
AT8	4642	5776	2407	1147	283	17978	-24.34	-30.84	4.87	-2.89	10.73	9.00	**18**
AT8	4478	6348	3079	700	983	18620	-24.99	-31.83	5.23	-4.02	12.53	8.23	**18**
AT8	4403	6173	2694	832	527	18488	-25.53	-31.58	5.12	-3.36	11.95	8.62	**18**
AT8	3907	6221	2120	885	1001	18793	-28.18	-32.69	4.15	-2.88	12.22	8.25	**18**
AT8	3927	5562	3138	1547	1303	16738	-27.94	-31.13	4.32	-4.54	8.95	7.96	**18**
AT8	4013	6272	2755	1298	705	17758	-27.57	-32.16	5.06	-3.66	10.37	8.51	**18**
AT9	-3120	-48775	12666	-21055	-21269	-11381	-73.79	90.49	-14.78	-11.75	1.32	-4.27	**19**
AT9	-3165	-48734	9614	-21017	-21906	-11381	-74.37	89.48	-15.82	-6.97	0.38	-4.20	**19**
AT9	-3091	-48596	8898	-21052	-22337	-11385	-74.08	89.32	-15.65	-5.69	0.14	-4.02	**19**
AT9	-3155	-48676	10245	-21033	-22482	-11398	-74.36	90.00	-15.01	-7.69	0.37	-3.69	**19**

AT9	-3217	-48601	12180	-21029	-21688	-11323	-74.41	90.15	-14.60	-10.88	1.13	-4.01	**19**
AT9	-3158	-48640	12597	-20949	-22658	-11309	-74.24	90.89	-13.77	-11.18	0.87	-3.07	**19**
AT10	-3028	-47861	-6991	-16704	-22235	-10843	-75.03	77.96	-25.44	16.58	-9.17	-1.42	**2**
AT10	-3083	-47801	-7129	-17020	-22536	-10749	-75.38	78.16	-25.11	16.99	-8.71	-1.54	**2**
AT10	-3025	-48011	-6975	-16732	-22820	-10722	-75.15	78.48	-25.23	16.73	-9.12	-0.90	**2**
AT10	-3069	-47838	-7044	-16670	-23063	-10669	-75.42	78.23	-24.97	16.91	-9.23	-0.66	**2**
AT10	-2949	-47882	-7112	-16927	-22620	-10769	-74.68	78.36	-25.12	16.99	-8.88	-1.32	**2**
AT10	-2970	-47891	-7339	-16642	-22971	-10788	-74.89	78.24	-25.16	17.34	-9.46	-0.77	**2**
AT11	-1927	-26788	17022	-22944	-26199	-7999	-65.24	63.84	16.63	-11.35	8.15	-4.04	**3**
AT11	-1860	-26407	16958	-22914	-26229	-7992	-64.84	63.30	17.07	-11.16	8.09	-4.04	**3**
AT11	-1893	-25950	18069	-22962	-26178	-8142	-64.85	63.13	18.21	-12.71	8.24	-4.15	**3**
AT11	-1928	-27071	16766	-22960	-26159	-8010	-65.29	64.15	16.15	-11.04	8.11	-4.07	**3**
AT11	-1893	-25314	18795	-22922	-26174	-7979	-64.73	62.39	19.21	-13.70	8.57	-4.03	**3**
AT11	-1822	-26039	18892	-22939	-26251	-8051	-64.44	63.63	18.54	-13.93	8.51	-3.86	**3**
AT12	5282	5412	3129	6425	39209	6041	-13.37	-50.51	-19.93	-17.65	-1.50	-21.59	**4**
AT12	5135	5005	3316	5821	40746	4820	-13.83	-49.78	-20.53	-18.19	-1.75	-24.05	**4**
AT12	5258	6041	3116	7341	38968	5138	-13.45	-51.69	-19.11	-17.60	-4.05	-20.98	**4**
AT12	4861	4798	3294	5983	40468	4036	-15.35	-49.33	-20.41	-18.11	-3.09	-24.09	**4**
AT12	4894	4181	2966	6319	39383	5013	-15.54	-48.63	-21.18	-17.64	-2.69	-22.27	**4**
AT12	4620	4755	2639	5370	40196	3798	-16.72	-48.95	-20.23	-16.86	-2.75	-24.84	**4**
AT13	159089	8454	2384	26105	94812	9814	827.92	9.50	-2.39	1.30	2.44	-1.88	**5**
AT13	159398	9846	1193	27342	94390	9293	829.58	6.65	-1.36	3.26	-0.39	-0.80	**5**
AT13	158571	9083	1846	26974	93271	10373	824.81	7.88	-1.82	2.24	1.31	0.26	**5**
AT13	159301	8878	1780	27266	93377	9513	828.78	8.76	-1.59	2.50	-0.14	0.28	**5**
AT13	159483	9294	2053	26417	94041	9284	830.01	8.83	-0.76	2.34	1.05	-1.31	**5**
AT13	158887	8948	2011	27142	93657	9571	826.62	8.37	-1.73	1.99	0.21	-0.14	**5**
AT14	-648	-76	-4317	9635	13897	12945	-51.79	-41.39	-19.75	-2.67	-6.35	3.94	**6**
AT14	-807	2912	-4032	9428	11930	14477	-52.68	-45.16	-15.40	-1.98	-4.57	5.48	**6**
AT14	-744	2393	-4336	10519	14684	14047	-51.95	-46.73	-18.52	-2.92	-6.02	4.38	**6**
AT14	-929	3029	-4009	9181	11756	12841	-53.25	-44.40	-14.23	-1.61	-6.36	4.43	**6**
AT14	-824	2680	-3888	9824	14252	12892	-52.30	-45.71	-16.71	-2.96	-6.51	3.33	**6**
AT14	-878	2294	-4045	10221	11162	13897	-53.28	-44.29	-15.78	-2.03	-6.67	6.77	**6**
AT15	-275	-24400	-12122	9528	18912	19306	-52.88	-14.17	-58.66	1.15	1.54	6.84	**7**
AT15	-215	-23505	-13718	9371	18331	20203	-52.72	-16.01	-58.32	3.86	2.39	7.19	**7**
AT15	-458	-22973	-13908	9164	19304	20507	-53.81	-17.55	-58.62	3.87	3.27	6.16	**7**
AT15	-289	-23743	-13152	8595	16677	19545	-53.33	-13.64	-56.39	3.91	2.35	7.39	**7**
AT15	-501	-23372	-13841	9297	18739	21540	-54.25	-17.21	-59.26	3.65	4.27	7.37	**7**
AT15	-437	-23648	-14075	9516	17720	22431	-54.20	-16.85	-59.51	4.10	4.77	8.92	**7**
AT16	-60	1760	-1156	-4248	-12857	-2055	-51.57	-9.42	18.77	10.08	-11.88	1.83	**8**
AT16	9	2130	-809	-5458	-12334	-2807	-50.93	-8.73	20.09	10.03	-10.87	-0.34	**8**
AT16	-45	3115	-429	-5632	-12690	-2470	-51.15	-9.86	21.60	9.79	-10.20	-0.23	**8**
AT16	50	2269	-1027	-5303	-11821	-2812	-50.63	-9.41	19.71	10.16	-11.01	-0.62	**8**
AT16	-100	2825	-821	-5912	-13311	-4049	-51.53	-8.38	22.43	10.87	-12.08	-0.89	**8**
AT16	-141	2859	-1273	-6746	-13968	-1898	-51.99	-8.51	22.10	11.73	-8.40	-0.27	**8**
AT17	4642	1710	3364	-1757	-8968	984	-25.37	-9.59	17.28	1.90	-9.09	5.06	**9**
AT17	4835	2504	4541	-1362	-6246	-257	-23.59	-11.44	17.32	-0.54	-10.23	2.78	**9**
AT17	4499	2673	3837	-2197	-8204	107	-25.78	-10.59	18.72	1.38	-9.27	3.35	**9**
AT17	4665	2098	4273	-686	-6721	245	-24.72	-11.59	16.34	-0.43	-10.77	4.17	**9**
AT17	4578	2694	3993	-2223	-8763	389	-25.45	-10.29	19.14	1.34	-8.98	3.95	**9**
AT17	4412	1525	3730	-2063	-5980	-678	-25.96	-10.04	16.00	0.56	-9.91	1.53	**9**
AT18	-449	2010	2133	-12694	-5929	-884	-51.88	-6.11	19.78	5.46	4.44	-12.15	**10**
AT18	-335	1744	3229	-12722	-7000	-1179	-51.39	-4.45	20.99	4.24	4.09	-11.25	**10**
AT18	-475	2010	2873	-13768	-6199	42	-52.02	-5.19	20.48	4.68	7.28	-12.56	**10**
AT18	-431	1843	2700	-13385	-6539	-1834	-51.79	-4.30	21.17	5.20	4.20	-12.82	**10**
AT18	-345	2006	2735	-12890	-5103	-1917	-51.05	-5.64	20.15	4.54	3.78	-13.44	**10**
AT18	-427	2151	3622	-12453	-6000	-935	-51.65	-5.84	20.63	3.22	4.36	-11.65	**10**
AT19	-553	-532	5236	-2399	4104	-3056	-50.99	-14.42	6.30	-6.65	-9.81	-8.70	**11**
AT19	-631	279	5442	-3728	4243	-3209	-51.21	-14.49	8.05	-6.35	-8.00	-10.53	**11**
AT19	-734	887	5614	-3083	5569	-3268	-51.46	-16.64	7.52	-7.20	-8.62	-10.99	**11**
AT19	-736	1312	5911	-3075	3335	-3105	-51.81	-15.97	9.68	-6.79	-8.96	-9.18	**11**
AT19	-669	999	5358	-2534	4917	-2673	-51.29	-17.20	7.41	-6.84	-8.89	-9.60	**11**
AT19	-762	490	6079	-2424	2782	-2678	-52.19	-15.13	8.60	-7.33	-9.46	-7.62	**11**



(b) Jackknifed Classification Matrix

	AT1	AT10	AT11	AT12	AT13	AT14	AT15	AT16	AT17	AT18	AT19	AT2	AT3	AT4	AT5	AT6	AT7	AT8	AT9	control	%correct
AT1	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100
AT10	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100
AT11	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100
AT12	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100
AT13	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100
AT14	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100
AT15	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	100
AT16	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	100
AT17	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	100
AT18	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	100
AT19	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	100
AT2	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	100
AT3	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	100
AT4	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	100
AT5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	100
AT6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	100
AT7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	100
AT8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	100
AT9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	100
control	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	100
Total	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	100

Figure S6. (a) Correlations of canonical fluroescence response patterns from an optimized array of combined sensor element **S2**, **S12**, **S18**, **S25**, **S28** and **S29** against 19 antibiotics. The 95% confidence ellipses for the individual acids are also shown. **(b)** Jackknifed classification matrix showed the 100% correct classification.

Table S6. Detection and identification of unknown antibiotics samples using LDA with combined sensor element **S2**, **S12**, **S18**, **S25**, **S28** and **S29**. All unknown samples could be assigned to the corresponding group defined by the training matrix according to ther shortest Mahalanobis distance. According to the verification, all of 76 unknown samples were correct identified, representing an accuracy of 100%.

Analyte	Fluorescence response pattern						Results LDA								
Unknown samples	S2	S12	S18	S25	S28	S29	SCORE 1	SCORE 2	SCORE 3	SCORE 4	SCORE 5	SCORE 6	Group	Identification	Verification
1	811	1483	-8573	-776	-6586	3113	-46.75	-19.99	6.11	17.06	-10.27	2.67	13	AT3	AT3
2	351	2753	1287	-77	3722	15008	-47.17	-29.67	-1.41	-3.41	9.01	2.67	16	AT6	AT6
3	5041	5177	3488	6412	39591	6296	-14.62	-50.52	-20.53	-18.48	-0.99	-21.74	4	AT12	AT12
4	-3081	-48542	11520	-20974	-21529	-11303	-73.69	89.76	-14.95	-9.92	0.97	-4.14	19	AT9	AT9
5	-457	-24148	-13579	9632	17876	21980	-54.29	-15.92	-59.81	3.22	4.18	8.86	7	AT15	AT15
6	-139	2038	3075	-13643	-6566	-949	-50.20	-4.37	21.44	4.73	5.81	-12.53	10	AT18	AT18
7	-567	2340	3125	-13281	-6499	-230	-52.51	-5.76	21.03	4.32	6.20	-11.97	10	AT18	AT18
8	-1113	-124	1086	136	-2585	4676	-56.03	-18.82	4.00	-0.30	-6.40	2.61	1	AT1	AT1
9	7173	-17073	24515	-3444	-14078	626	-13.29	32.73	11.63	-30.54	-3.25	14.43	14	AT4	AT4
10	4431	5582	2141	1281	1179	16494	-25.28	-30.79	4.43	-2.72	8.80	7.61	18	AT8	AT8
11	4240	6308	2415	1400	1555	16659	-26.15	-32.27	4.92	-3.24	8.98	7.39	18	AT8	AT8
12	-842	394	-4264	10238	15007	13454	-52.62	-43.54	-20.64	-3.40	-6.27	3.88	6	AT14	AT14
13	6935	-864	-1642	-1400	-9121	2146	-13.78	-6.87	12.12	9.24	-9.14	6.54	12	AT2	AT2
14	4604	2184	3993	-2013	-6465	781	-24.99	-11.15	16.59	0.28	-8.16	2.69	9	AT17	AT17
15	-2334	-10073	-7683	-20469	-21841	7870	-67.40	17.74	11.43	24.04	20.18	-3.40	15	AT5	AT5
16	159260	9359	2255	27069	91378	9730	828.29	9.41	0.63	2.63	-0.01	1.71	5	AT13	AT13
17	-206	2718	-1325	-4106	-12866	-1535	-52.28	-11.33	19.41	10.36	-11.48	2.02	8	AT16	AT16
18	-3048	-48127	-7432	-16338	-21587	-10852	-75.11	77.49	-26.65	16.82	-9.64	-1.54	2	AT10	AT10
19	6857	-1671	-1727	-2091	-8673	1692	-14.17	-5.26	11.40	9.34	-8.63	5.30	12	AT2	AT2
20	-2434	-10067	-8318	-20408	-22278	7751	-68.07	17.65	11.42	25.12	19.66	-3.17	15	AT5	AT5
21	-1932	-26447	18034	-22939	-26172	-7892	-65.14	63.68	17.45	-12.82	8.52	-3.91	3	AT11	AT11
22	-643	-24013	-13344	9926	17930	22001	-55.26	-16.45	-59.83	2.72	3.83	9.12	7	AT15	AT15
23	4783	5112	3336	6048	39515	3875	-15.90	-49.28	-19.33	-17.79	-3.64	-23.43	4	AT12	AT12
24	-3124	-48620	11261	-21025	-22633	-11258	-74.15	90.37	-14.39	-9.16	0.74	-3.34	19	AT9	AT9
25	913	5265	1990	-567	3446	21286	-44.15	-34.80	-0.50	-4.51	17.89	5.38	17	AT7	AT7
26	7102	-16213	24665	-3388	-13644	735	-13.48	31.15	12.28	-30.79	-3.05	14.05	14	AT4	AT4
27	-1153	-10	2009	-555	-2532	2937	-56.03	-17.35	5.79	-1.16	-7.39	0.99	1	AT1	AT1
28	743	5705	1086	-75	2901	21754	-45.23	-36.24	-0.63	-3.17	17.40	6.34	17	AT7	AT7
29	157688	9375	1871	26186	93195	9913	820.12	7.70	-1.12	2.39	1.77	-1.09	5	AT13	AT13
30	-163	3123	-1479	-5767	-12607	-3184	-51.81	-10.01	21.41	11.46	-11.15	-1.00	8	AT16	AT16
31	-3117	-47897	-7464	-16471	-21878	-10773	-75.50	77.33	-26.18	17.03	-9.44	-1.49	2	AT10	AT10

32	-665	741	5660	-2870	6509	-2821	-50.97	-17.25	6.38	-7.77	-8.09	-11.21	11	AT19	AT19
33	-1837	-25581	18700	-22915	-26231	-7781	-64.49	62.72	18.81	-13.61	8.78	-3.82	3	AT11	AT11
34	-2396	-10056	-7465	-20972	-22018	7781	-67.73	18.31	11.99	23.96	20.79	-3.86	15	AT5	AT5
35	4855	1407	4790	-1472	-7186	-122	-23.77	-9.16	16.84	-0.79	-10.09	3.73	9	AT17	AT17
36	-116	2108	3100	-13295	-4789	-2240	-49.68	-5.17	20.72	4.17	4.14	-14.22	10	AT18	AT18
37	-3062	-48013	-7524	-16450	-21378	-10794	-75.13	77.23	-26.68	16.93	-9.37	-1.84	2	AT10	AT10
38	185	2332	-197	-20	3305	15272	-48.33	-29.71	-2.57	-1.24	8.79	3.02	16	AT6	AT6
39	909	1643	-8529	-312	-6595	2434	-46.18	-20.22	6.45	17.00	-11.80	2.84	13	AT3	AT3
40	-1003	2921	-4105	10621	14747	13109	-53.21	-47.32	-17.53	-3.13	-7.32	3.82	6	AT14	AT14
41	4520	1978	3314	-1767	-6632	-169	-25.51	-10.89	16.42	1.36	-9.95	2.52	9	AT17	AT17
42	-703	641	5852	-2568	8373	-2797	-50.85	-18.35	4.82	-8.86	-7.95	-12.28	11	AT19	AT19
43	-553	-22484	-14001	9655	20344	22593	-54.22	-20.26	-60.20	3.20	5.48	6.85	7	AT15	AT15
44	438	1048	-8475	1	-6676	2397	-48.82	-19.88	5.47	16.58	-12.35	3.24	13	AT3	AT3
45	-2365	-10552	-7586	-20534	-21921	7763	-67.63	18.60	11.05	23.85	20.13	-3.37	15	AT5	AT5
46	-3136	-48675	11236	-20914	-21329	-11391	-73.98	89.67	-15.40	-9.62	0.75	-4.31	19	AT9	AT9
47	-1935	-26123	18652	-22943	-26219	-8153	-65.07	63.60	18.30	-13.62	8.33	-3.99	3	AT11	AT11
48	157654	9166	2241	25949	95842	9740	820.43	6.93	-2.87	0.95	2.69	-3.44	5	AT13	AT13
49	730	1464	-8499	-901	-6470	3114	-47.16	-19.95	6.08	16.92	-10.05	2.43	13	AT3	AT3
50	4249	6264	2369	844	1279	17171	-26.17	-31.82	5.11	-2.96	10.36	7.25	18	AT8	AT8
51	-725	3474	-4390	10310	12230	12992	-52.09	-46.32	-14.86	-1.48	-7.74	5.32	6	AT14	AT14
52	-515	1722	2918	-13351	-6333	-869	-52.26	-4.66	20.46	4.59	5.48	-12.41	10	AT18	AT18
53	-875	2327	-4345	8733	13878	12968	-52.68	-44.34	-16.52	-1.86	-5.05	2.43	6	AT14	AT14
54	6716	-1317	-2664	-2158	-8333	2319	-14.93	-6.67	10.77	10.58	-7.87	5.04	12	AT2	AT2
55	264	2242	74	-1017	2154	12907	-47.93	-26.92	0.06	-0.49	6.96	1.64	16	AT6	AT6
56	5042	4390	2409	5768	40051	3105	-14.51	-48.15	-20.36	-16.45	-4.27	-24.50	4	AT12	AT12
57	4254	6416	2120	651	1279	16833	-26.11	-31.83	5.44	-2.43	10.15	6.79	18	AT8	AT8
58	-266	2464	-1205	-6946	-13188	-1954	-52.55	-8.24	21.20	11.31	-7.97	-1.09	8	AT16	AT16
59	-1062	-79	1092	-802	-2900	3799	-55.72	-17.51	5.27	0.31	-6.24	1.35	1	AT1	AT1
60	-1976	-25916	17828	-22937	-26154	-7986	-65.32	62.82	17.98	-12.41	8.35	-4.12	3	AT11	AT11
61	-973	-76	1400	-635	-1149	4608	-54.95	-18.79	3.72	-0.94	-4.90	0.65	1	AT1	AT1
62	4998	4816	3396	6026	40865	5729	-14.63	-50.20	-21.43	-18.65	-0.84	-23.43	4	AT12	AT12
63	4664	2026	4365	-1434	-6747	592	-24.72	-10.97	16.58	-0.37	-9.23	3.56	9	AT17	AT17
64	6843	-760	-1515	-1819	-8135	1271	-14.01	-6.86	12.23	8.99	-9.37	4.81	12	AT2	AT2
65	-658	367	5422	-1844	5725	-2713	-51.18	-17.25	5.75	-7.59	-9.70	-9.34	11	AT19	AT19
66	318	2694	1526	128	2125	15193	-47.65	-28.87	-0.44	-3.32	8.57	4.29	16	AT6	AT6
67	-3081	-48650	11451	-20913	-23063	-11377	-73.98	90.73	-14.01	-9.31	0.36	-2.89	19	AT9	AT9
68	789	5932	773	-1416	2302	20494	-44.96	-34.67	1.32	-1.74	17.50	4.57	17	AT7	AT7
69	-90	3659	-1780	-5301	-12716	-3547	-51.38	-11.03	21.91	11.98	-12.38	-0.71	8	AT16	AT16
70	-665	220	5633	-2058	4910	-3077	-51.34	-16.17	6.57	-7.52	-10.03	-9.08	11	AT19	AT19
71	7577	-16474	25336	-3697	-13839	1398	-10.96	32.23	12.50	-31.64	-1.61	14.48	14	AT4	AT4
72	933	5849	629	-1018	2163	21279	-44.29	-35.10	0.70	-1.72	17.87	5.57	17	AT7	AT7
73	6950	-16335	25284	-3196	-13635	1583	-14.33	30.93	11.84	-32.00	-2.10	14.78	14	AT4	AT4
74	-3030	-48066	-7298	-16563	-22138	-10836	-75.08	77.96	-25.99	16.91	-9.41	-1.34	2	AT10	AT10
75	158122	9544	1608	25887	93915	10042	822.60	7.46	-1.27	2.78	2.54	-1.88	5	AT13	AT13
76	-604	-22616	-13719	8223	15865	21425	-55.18	-15.80	-55.63	5.03	4.92	8.21	7	AT15	AT15

Blind test: 76/76 (100% correct identified)

6. Principal Component Analysis (PCA)

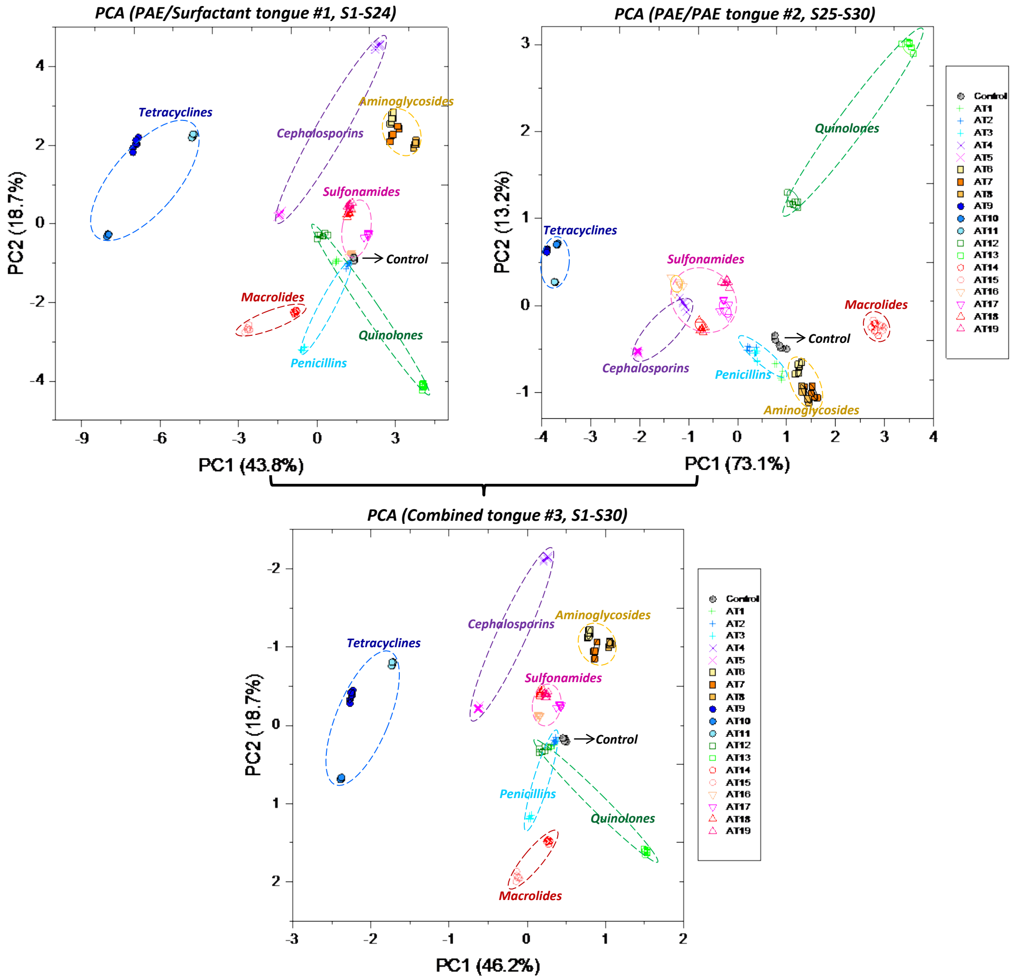


Figure S7. 2D PCA plot for the first two principal component obtained with an array of **S1-S24** (left, PAE/surfactant tongue #1), **S25-S30** (right, PAE/PAE tongue #2) and combined tongue of **S1-S30** (bottom, tongue #3) treated with antibiotics **AT1-AT19** (c = 5 mM) with 95% confidence ellipses. Each point represents the response pattern for a single antibiotic to the array. Each antibiotic was shown with their individual shape (triangle, square, circle etc.) and similar color.

7. Optimization Process

(1) *PAE/Surfactant tongue*

PCA sensor element		PC1 (43.8%)	PC2 (18.7%)	PC3 (11.9%)
S1	(C1_Ph3_463nm)	2.111	3.903	14.046
S2	***(C1_pH3_503nm)***	1.082	4.117	***15.746***
S3	(C1_pH7_463nm)	7.035	1.907	2.759
S4	(C1_pH7_503nm)	7.120	1.972	1.290
S5	(C1_pH13_463nm)	6.113	1.537	2.356
S6	(C1_pH13_503nm)	5.413	1.568	1.041
S7	(C2_pH3_470nm)	3.357	7.736	2.720
S8	(C2_pH3_505nm)	2.482	5.912	12.734
S9	(C2_pH7_470nm)	2.398	6.204	0.026
S10	(C2_pH7_505nm)	2.999	4.895	0.197
S11	(C2_pH13_470nm)	7.266	1.913	2.530
S12	***(C2_pH13_505nm)***	***7.746***	1.350	1.124
S13	(C3_pH3_533nm)	5.179	2.142	2.577
S14	(C3_pH3_565nm)	5.145	2.251	2.411
S15	(C3_pH7_533nm)	5.372	4.275	0.854
S16	(C3_pH7_565nm)	4.495	5.864	1.494
S17	(C3_pH13_533nm)	2.429	5.127	4.650
S18	***(C3_pH13_565nm)***	0.078	***10.948***	11.670
S19	(C4_pH3_531nm)	4.212	3.326	4.123
S20	(C4_pH3_569nm)	4.772	2.336	3.334
S21	(C4_pH7_531nm)	4.938	3.119	5.416
S22	(C4_pH7_569nm)	4.698	3.169	2.535
S23	(C4_pH13_531nm)	3.079	4.722	0.183
S24	(C4_pH13_569nm)	0.480	9.707	4.184

Contribution of the variables (%)

(2) *PAE/PAE tongue*

PCA sensor element		PC1 (73.1%)	PC2 (13.2%)	PC3 (7.1%)
S25	***(P5_pH3_560nm)***	***19.35***	12.82	3.16
S26	(P5_pH7_560nm)	16.72	15.76	26.73
S27	(P5_pH13_560nm)	19.30	6.35	10.39
S28	***(C5_pH3_560nm)***	12.51	***52.77***	0.00
S29	***(C5_pH7_560nm)***	14.88	12.27	***38.79***
S30	(C5_pH13_560nm)	17.23	0.02	20.93

Contribution of the variables (%)

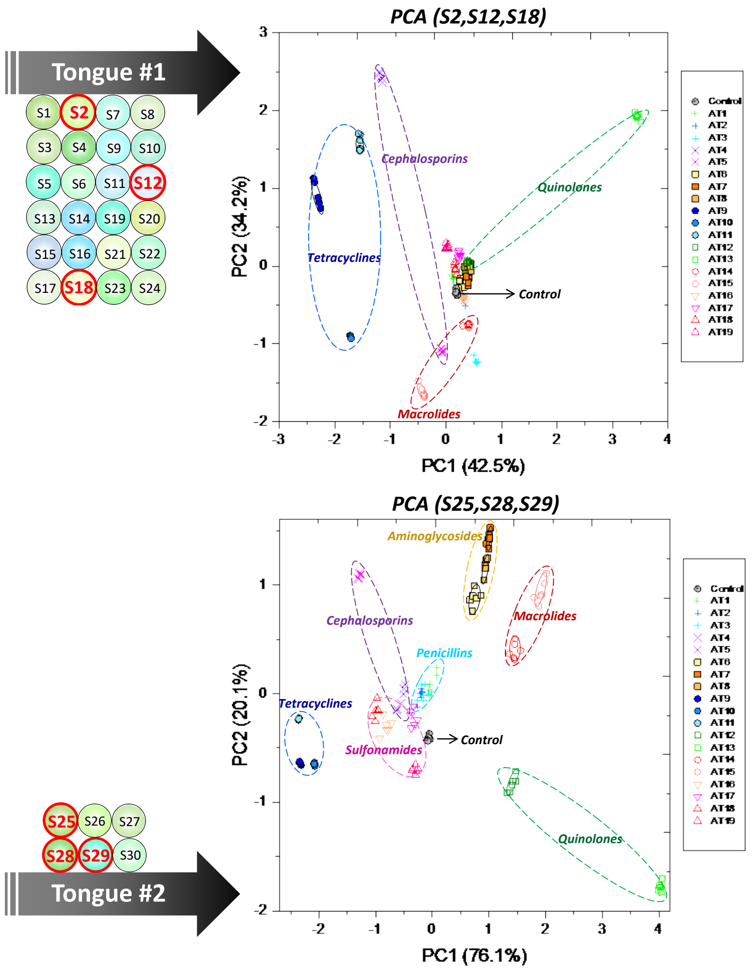


Figure S8. Optimization and selection of the best three sensing elements from the PAE/surfactant tongue (**S1-S24**) and PAE/PAE tongue (**S25-S30**) based on contribution of the variables of PCA (left). The resulting PCA plots are shown (right).

8. Others

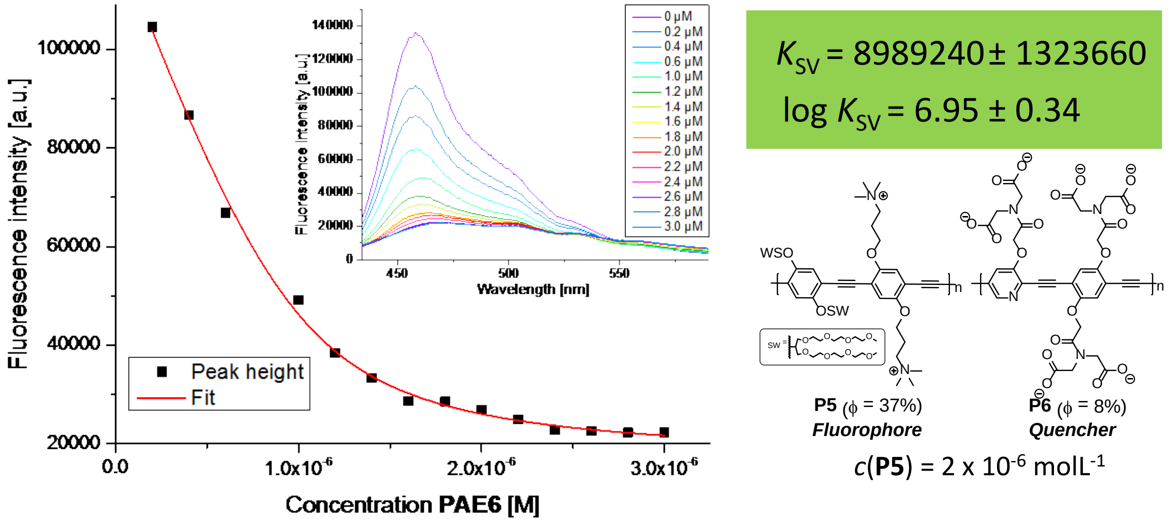


Figure S9. Complex titrations and determination of Ksv constants with modified Ster-Volmer equation. The titrations were performed in KH_2PO4/Na_2HPO_4 buffered solution (pH = 7).

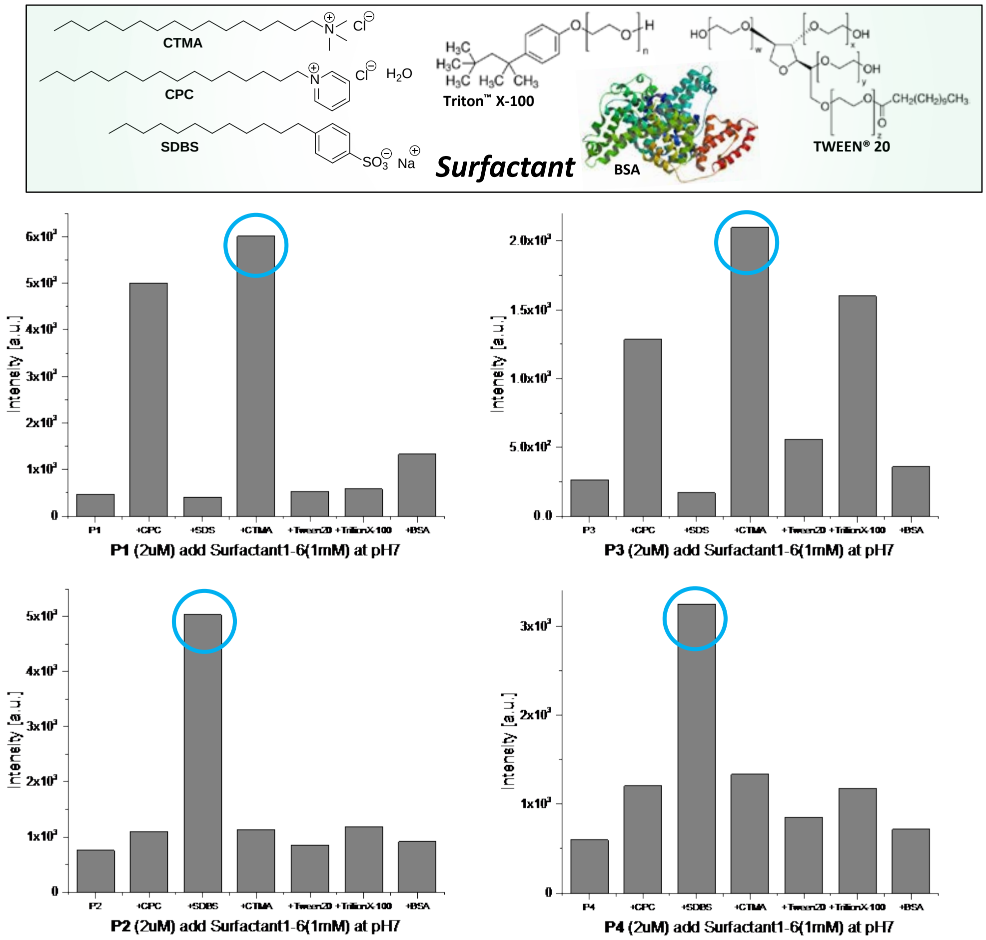


Figure S10. Screening process of various surfactants.

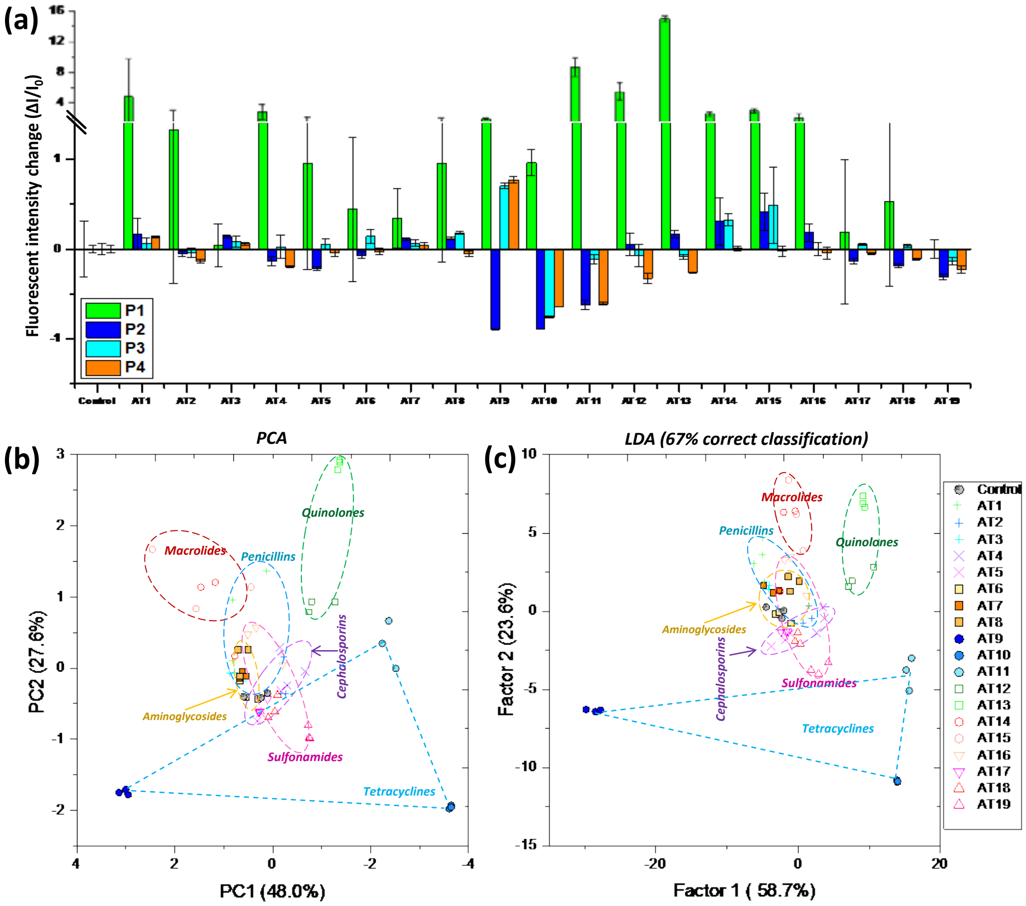
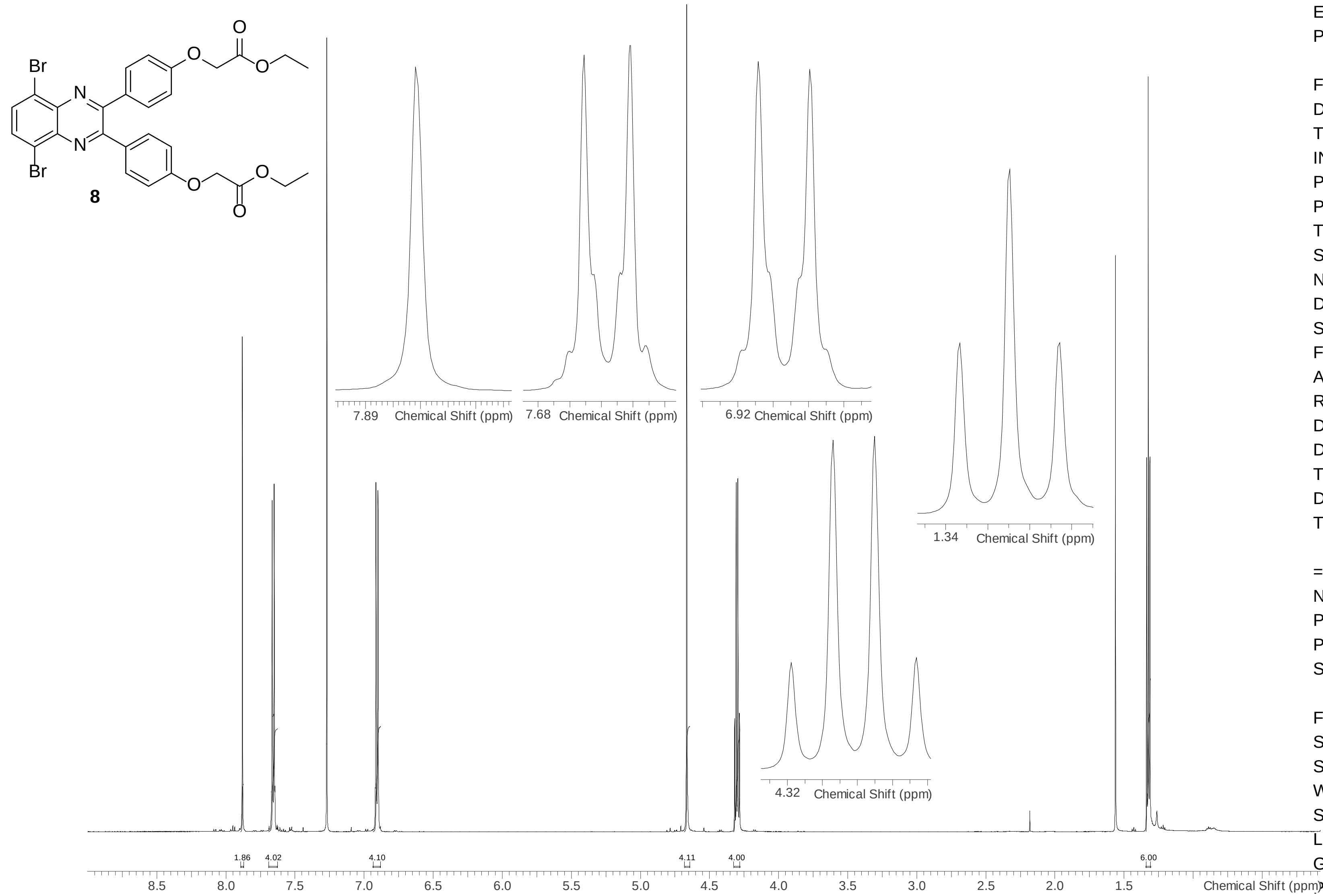


Figure S11. (a) Fluorescence intensity change $\Delta I/I_0$ obtained by weakly florescent **P1-P4** (2 µM, at pH 7, buffered) treated with antibiotics **AT1-AT19** (c = 5 mM). Each value is the average of three independent measurements; each error bar shows the standard error (SD) of these measurements. **(b)** PCA plot and **(c)** LDA plot from first the first two factors obtained with **P1-P4** (2 µM, at pH7, buffered) treated with antibiotics **AT1-AT19** (c = 5 mM). Cross-validated LDA showed 67% correct accuracy for all antibiotics.

9. ^{1}H-NMR Spectra



Current Data Parameters

NAME	e151130ubmb.246
EXPNO	3
PROCNO	1

F2 - Acquisition Parameters

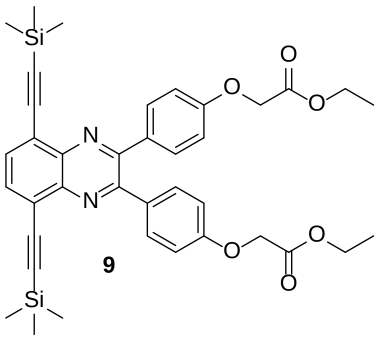
Date	20151130
Time	13.09
INSTRUM	spect
PROBHD	Z132808_0001 (
PULPROG	zg30
TD	131072
SOLVENT	$CDCl_3$
NS	128
DS	2
SWH	18028.846 Hz
FIDRES	0.137549 Hz
AQ	3.6350634 sec
RG	10.93
DW	27.733 usec
DE	12.00 usec
TE	295 K
D1	0.10000000 sec
TD0	16

====== CHANNEL f1 =====

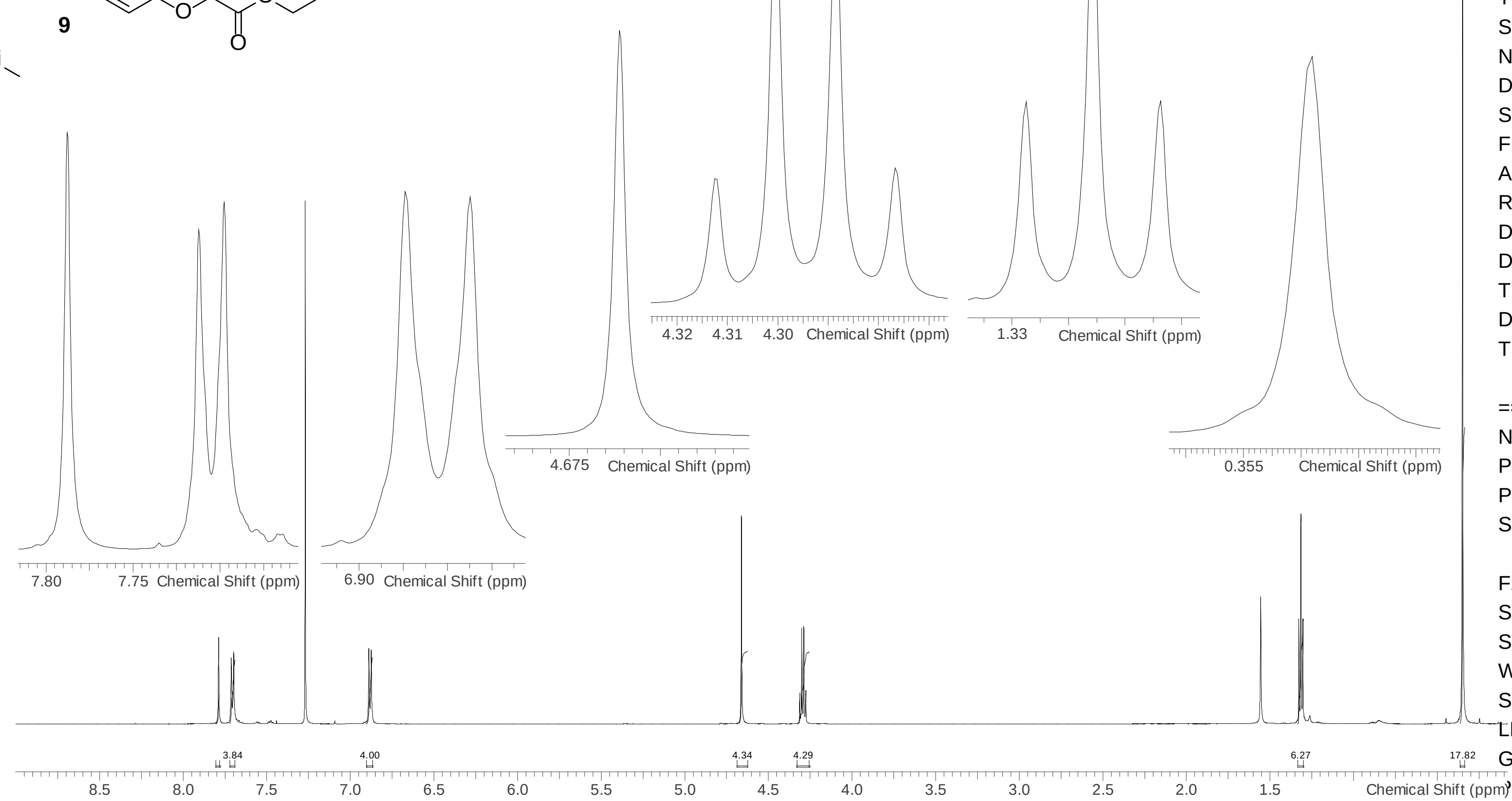
NUC1	1H
P1	7.63 usec
PLW1	7.50000000 W
SFO1	600.2468302 MHz

F2 - Processing parameters

SI	65536
SF	600.2438290 MHz
WDW	EM
SSB	0
LB	0.30 Hz
GB	0
PC	1.00



9



Current Data Parameters

NAME	e160302ubmb.280
EXPNO	2
PROCNO	1

F2 - Acquisition Parameters

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Time	22.07
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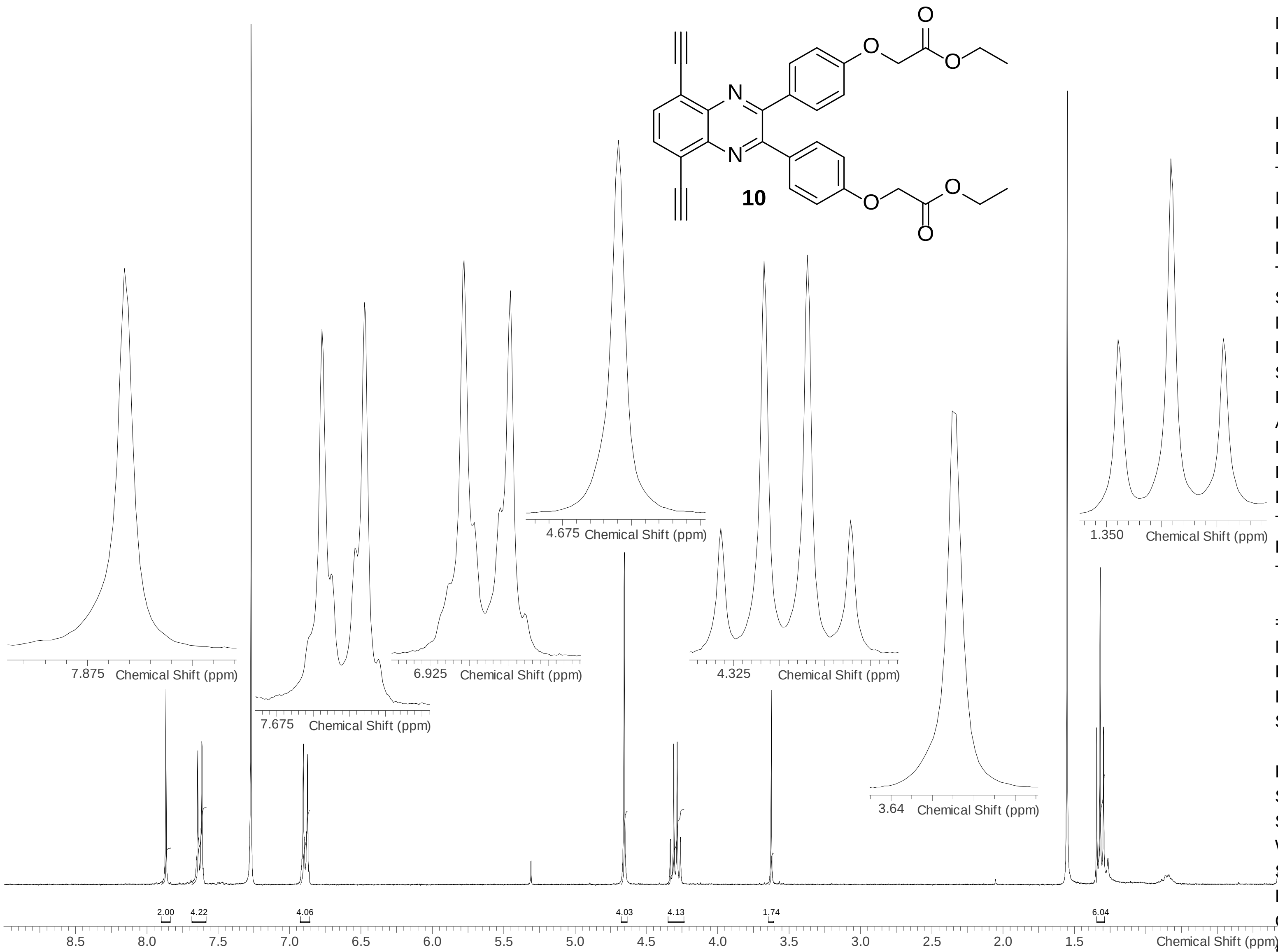
PULPROG	zg30
TD	131072
SOLVENT	$CDCl_3$
NS	128
DS	2
SWH	18028.846 Hz
FIDRES	0.137549 Hz
AQ	3.6350634 sec
RG	16.84
DW	27.733 usec
DE	12.00 usec
TE	295 K
D1	0.10000000 sec
TD0	16

====== CHANNEL f1 =====

NUC1	1H
P1	7.63 usec
PLW1	7.50000000 W
SFO1	600.2468302 MHz

F2 - Processing parameters

SI	65536
SF	600.2438290 MHz
WDW	EM
SSB	0
LB	0.30 Hz
GB	0
PC	1.00



Current Data Parameters

NAME	b160401ubhr.046
EXPNO	2
PROCNO	1

F2 - Acquisition Parameters

Date	20160403
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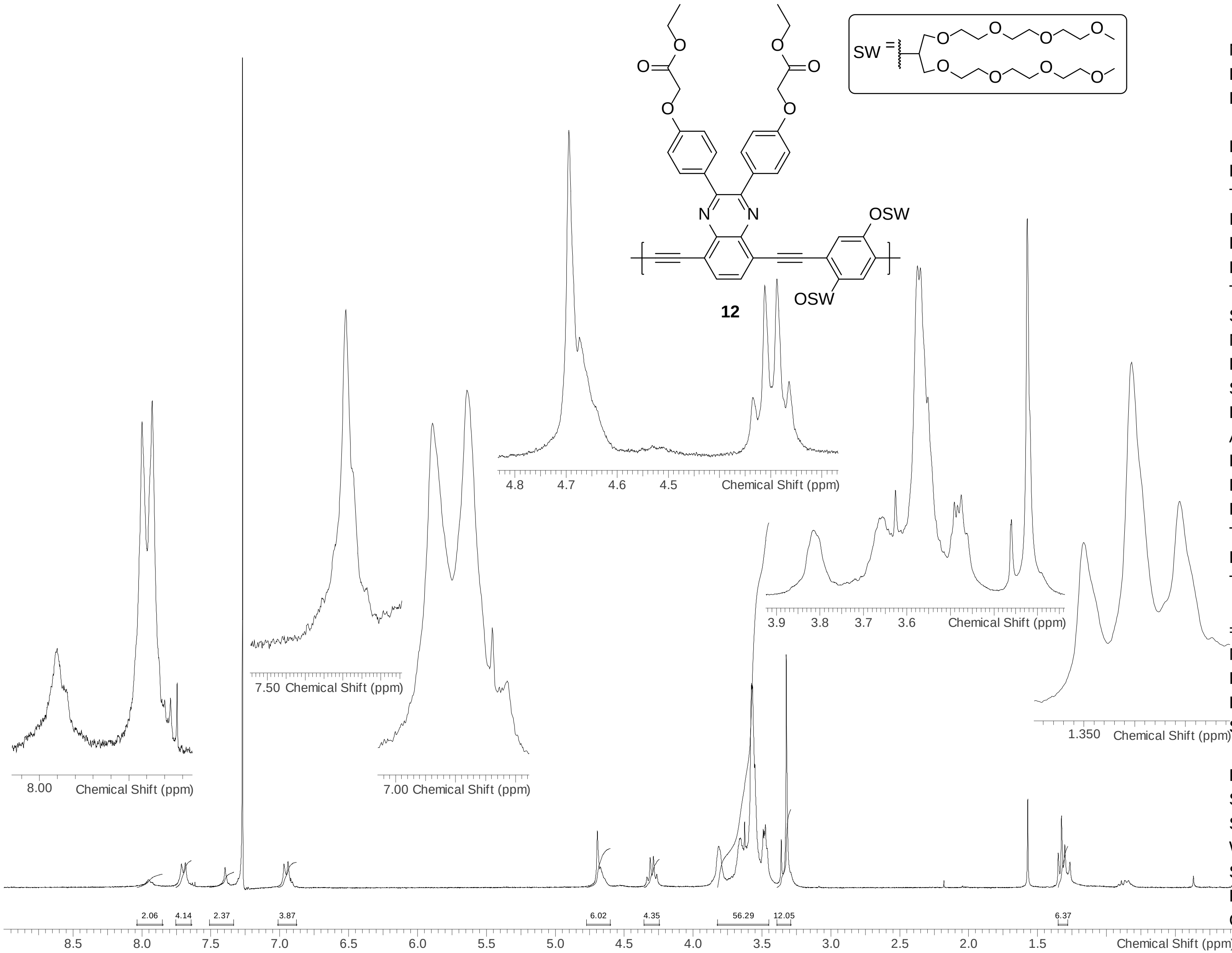
INSTRUM	Spect
PROBHD	5 mm PATXO 31P
PULPROG	zg30
TD	65536
SOLVENT	$CDCl_3$
NS	128
DS	2
SWH	8992.806 Hz
FIDRES	0.137219 Hz
AQ	3.6438515 sec
RG	574.7
DW	55.600 usec
DE	6.00 usec
TE	298.2 K
D1	0.10000000 sec
TD0	16

====== CHANNEL f1 =====

NUC1	1H
P1	11.50 usec
PL1	-3.00 dB
SFO1	300.1315007 MHz

F2 - Processing parameters

SI	32768
SF	300.1300244 MHz
WDW	EM
SSB	0
LB	0.30 Hz
GB	0
PC	1.00



Current Data Parameters

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EXPNO	1
PROCNO	1

F2 - Acquisition Parameters

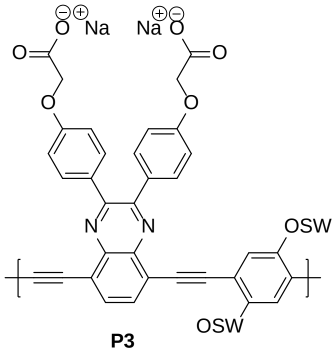
Date	20160426
Time	16.09
INSTRUM	Spect
PROBHD	Z104275_0201 (
PULPROG	zg30
TD	65536
SOLVENT	$CDCl_3$
NS	128
DS	2
SWH	9014.423 Hz
FIDRES	0.275098 Hz
AQ	3.6350634 sec
RG	1030
DW	55.467 usec
DE	6.50 usec
TE	300 K
D1	0.10000000 sec
TD0	16

====== CHANNEL f1 =====

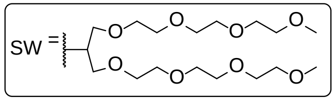
NUC1	1H
P1	10.00 usec
PLW1	16.00000000 W
SFO1	300.5115025 MHz

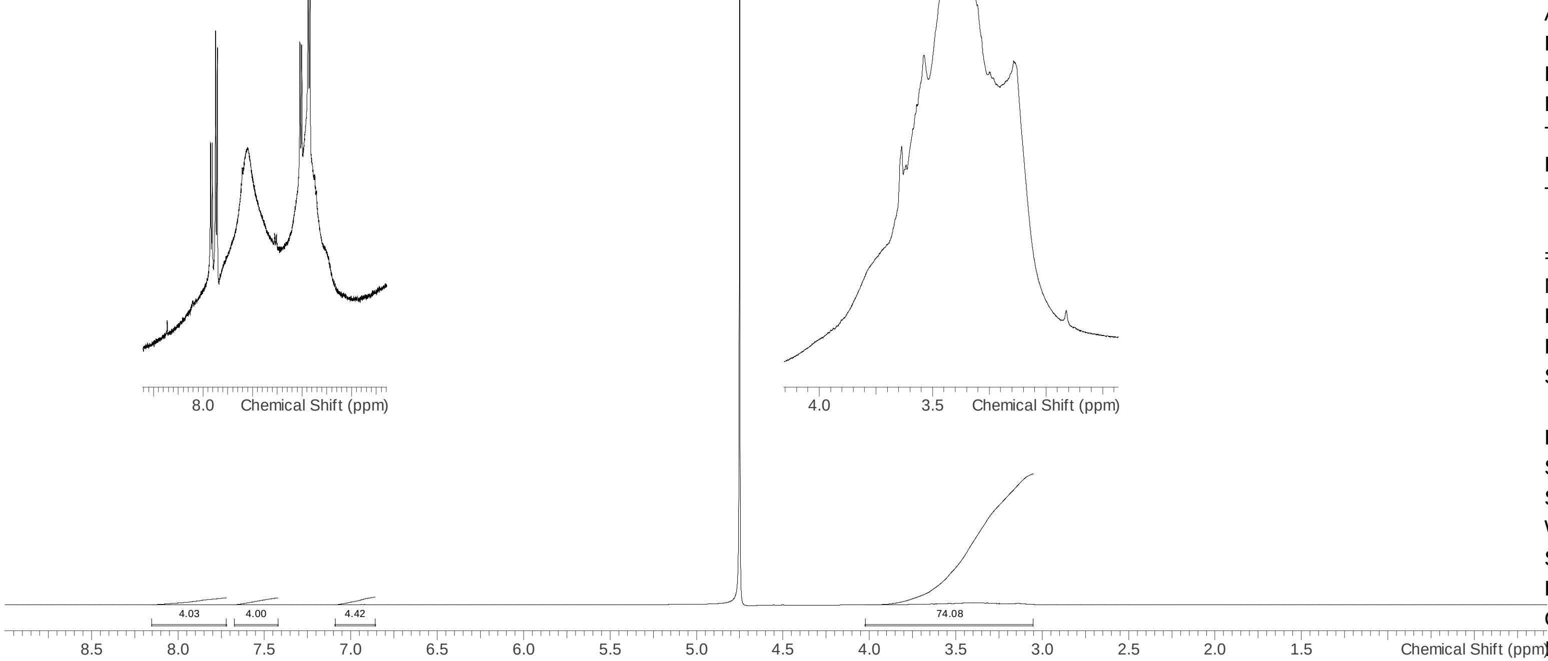
F2 - Processing parameters

SI	65536
SF	300.5100279 MHz
WDW	EM
SSB	0
LB	0.30 Hz
GB	0
PC	1.00



P3





Current Data Parameters

NAME	d160430ubjp_38
EXPNO	1
PROCNO	1

F2 - Acquisition Parameters

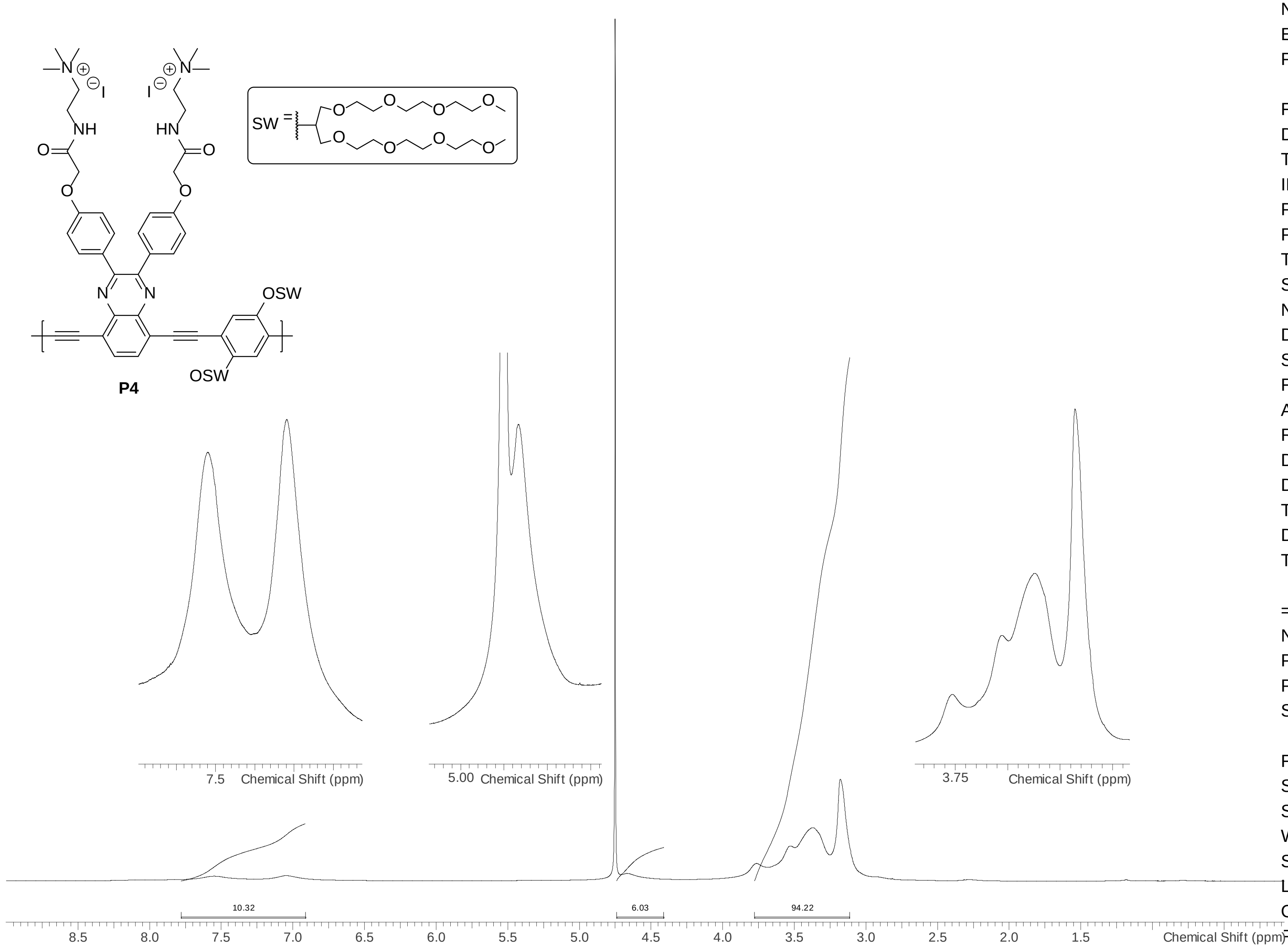
Date	20160501
Time	4.49
INSTRUM	spect
PROBHD	Z119877_0003 (
PULPROG	zg30
TD	98304
SOLVENT	D_2O
NS	10240
DS	2
SWH	15000.000 Hz
FIDRES	0.305176 Hz
AQ	3.2767999sec
RG	287
DW	33.333 usec
DE	6.50 usec
TE	295 K
D1	0.10000000 sec
TD0	1280

====== CHANNEL f1 =====

NUC1	1H
P1	14.60 usec
PLW1	36.00000000 W
SFO1	500.1325006 MHz

F2 - Processing parameters

SI	65536
SF	500.1300000 MHz
WDW	EM
SSB	0
LB	0.30 Hz
GB	0
PC	1.00



Current Data Parameters

NAME	d160530ubjp_37
EXPNO	1
PROCNO	1

F2 - Acquisition Parameters

Date	20160504
Time	4.35
INSTRUM	spect
PROBHD	Z119877_0003 (
PULPROG	zg30
TD	98304
SOLVENT	D_2O
NS	81920
DS	2
SWH	15000.000 Hz
FIDRES	0.305176 Hz
AQ	3.2767999sec
RG	203
DW	33.333 usec
DE	6.50 usec
TE	294.9 K
D1	0.10000000 sec
TD0	1024

====== CHANNEL f1 =====

NUC1	1H
P1	14.60 usec
PLW1	36.00000000 W
SFO1	500.1325006 MHz

F2 - Processing parameters

SI	65536
SF	500.1299761 MHz
WDW	EM
SSB	0
LB	0.30 Hz
GB	0
PC	1.00

10. Supplemental References

1. G. Helmchen, G. Nill, D. Flockerzi, W. Schuhle and M. S. K. Youssef, *Angew. Chem. Int. Ed. Engl.*, 1979, **18**, 62-63.
2. G. R. Fulmer, A. J. M. Miller, N. H. Sherden, H. E. Gottlieb, A. Nudelman, B. M. Stoltz, J. E. Bercaw and K. I. Goldberg, *Organometallics*, 2010, **29**, 2176-2179.
3. W. H. Melhuish, *J. Phys. Chem.-Us*, 1961, **65**, 229-235.
4. S. Stewart, M. A. Ivy and E. V. Anslyn, *Chem. Soc. Rev.* 2014, **43**, 70-84.
5. J. Han, M. Bender, S. Hahn, K. Seehafer and U. H. F. Bunz, *Chem. - Eur. J.*, 2016, **22**, 3230-3233.
6. S. Rana, S. G. Elci, R. Mout, A. K. Singla, M. Yazdani, M. Bender, A. Bajaj, K. Saha, U. H. F. Bunz, F. R. Jirik and V. M. Rotello, *J. Am. Chem. Soc.*, 2016, **138**, 4522-4529.
7. J. H. Kim, H. U. Kim, D. Mi, S. H. Jin, W. S. Shin, S. C. Yoon, I. N. Kang and D. H. Hwang, M*acromolecules*, 2012, **45**, 2367-2376.
8. A. Khan, S. Muller and S. Hecht *Chem. Commun. (Camb)* 2005, 584-586.