

Supporting Information

Quantitative Geometric Descriptions of the Belt Iron Atoms of the Iron-Molybdenum Cofactor of Nitrogenase and Synthetic Iron(II) Model Complexes

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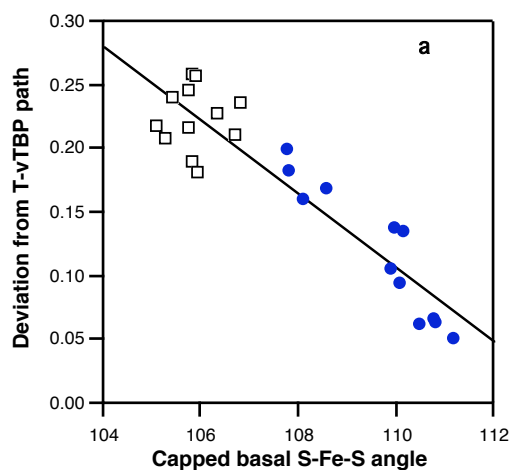


Figure S1. Dependence of the deviation from the T-vTBP path on the S-Fe-S bond angle subtended by the capping Mo (blue circles) or Fe (squares) atoms in the FeMo cofactor.

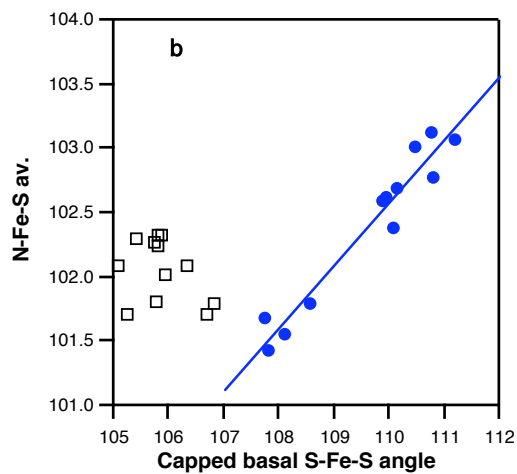


Figure S2. Dependence of the average S-Fe-X bond angle α on the S-Fe-S bond angle subtended by the capping Mo (blue circles) or Fe (squares) atoms in the FeMo cofactor.

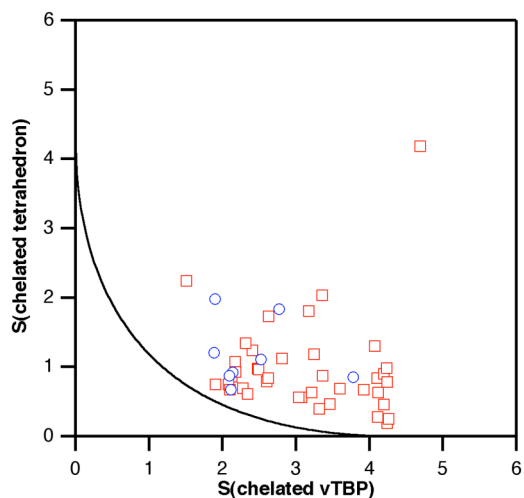


Figure S3. Shape map referred to a chelated tetrahedron and a chelated vTBP, in which one bond angle is constrained to be 95° , showing the position of the Fe atoms in diketiminato complexes. Symbols as in Fig. 11.

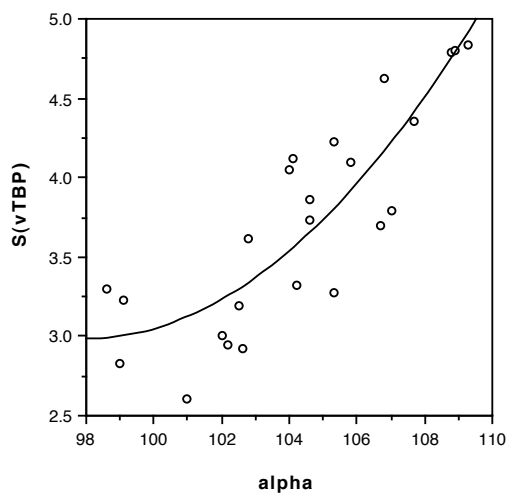


Figure S4. Scatterplot of the vTBP shape measures of Fe(II) diketiminato complexes (Table 2) as a function of the average pyramidity angle α (Scheme 2d).

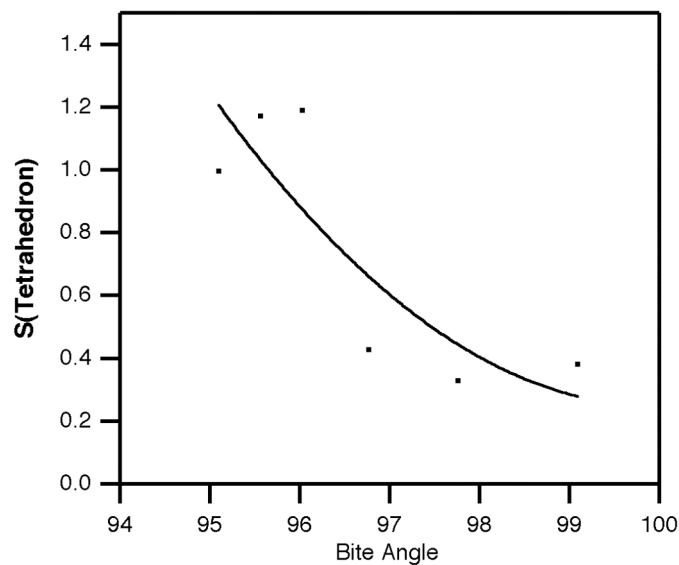


Figure S5. Tetrahedral measures of Fe(III) diketiminate complexes represented as a function of the bite angle.

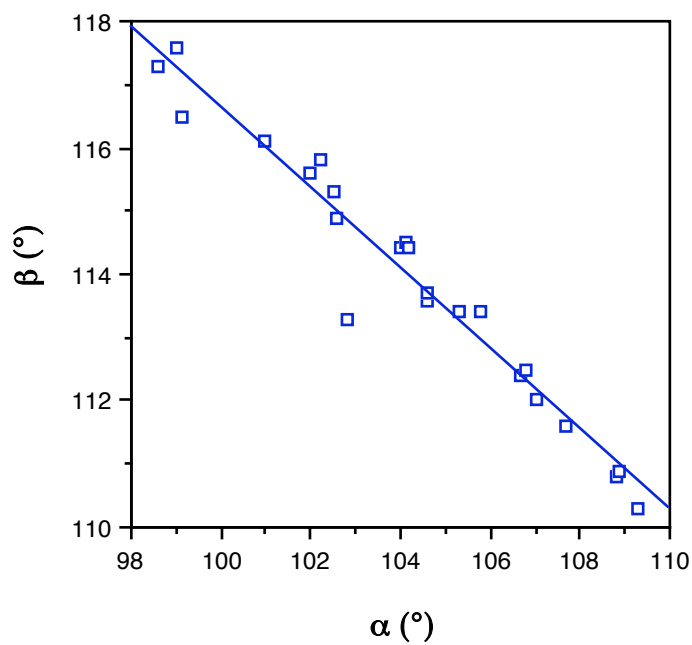


Figure S6. Scatterplot of the basal and axial bond angles (Scheme 2b) of Fe(II) diketiminate complexes (Table 2).

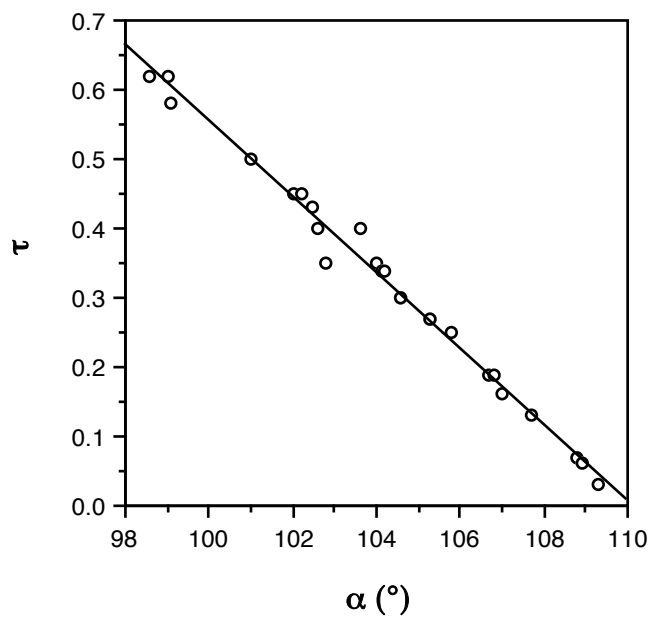


Figure S7. Correlation between the parameter τ defined in eq. 1 and the average axial ligand-metal-basal ligand bond angle α (Scheme 2b) of Fe(II) diketiminate complexes (Table 2).

Table S1. Crystal data and structure refinement for 1.

| | |
|-----------------------------------|---|
| Identification code | holjv49 |
| Empirical formula | C38 H59 Fe N3 |
| Formula weight | 613.73 |
| Temperature | 193(2) K |
| Wavelength | 0.71073 Å |
| Crystal system, space group | Monoclinic, P2(1) |
| Unit cell dimensions | a = 10.0407(10) Å alpha = 90 deg. b = 16.3860(16) Å beta = 108.979(2) deg. c = 11.8742(12) Å gamma = 90 deg. |
| Volume | 1847.4(3) Å ³ |
| Z, Calculated density | 2, 1.103 Mg/m ³ |
| Absorption coefficient | 0.435 mm ⁻¹ |
| F(000) | 668 |
| Crystal size | 0.50 x 0.50 x 0.45 mm |
| Theta range for data collection | 1.81 to 28.26 deg. |
| Limiting indices | -13<=h<=13, -21<=k<=21, -15<=l<=15 |
| Reflections collected / unique | 22406 / 8838 [R(int) = 0.0188] |
| Completeness to theta = 28.26 | 98.8 % |
| Absorption correction | Empirical |
| Refinement method | Full-matrix least-squares on F ² |
| Data / restraints / parameters | 8838 / 1 / 394 |
| Goodness-of-fit on F ² | 1.035 |
| Final R indices [I>2sigma(I)] | R1 = 0.0292, wR2 = 0.0699 |
| R indices (all data) | R1 = 0.0339, wR2 = 0.0721 |
| Absolute structure parameter | -0.017(8) |
| Largest diff. peak and hole | 0.214 and -0.196 e.Å ⁻³ |

Table S2. Atomic coordinates ($\times 10^4$) and equivalent isotropic displacement parameters ($\text{\AA}^2 \times 10^3$) for 1. U(eq) is defined as one third of the trace of the orthogonalized U_{ij} tensor.

| | x | y | z | U(eq) |
|--------|----------|---------|----------|-------|
| Fe(1) | 6460(1) | 6269(1) | 2390(1) | 26(1) |
| N(11) | 6110(1) | 5140(1) | 1664(1) | 26(1) |
| N(14) | 4397(2) | 6712(1) | 1348(1) | 35(1) |
| N(21) | 5781(1) | 5949(1) | 3759(1) | 26(1) |
| C(11) | 4293(2) | 5179(1) | 4675(2) | 38(1) |
| C(12) | 6908(2) | 4892(1) | 906(1) | 29(1) |
| C(13) | 6220(2) | 6460(1) | 4801(1) | 28(1) |
| C(14) | 3214(2) | 6594(1) | 975(1) | 35(1) |
| C(15) | 8022(2) | 7013(1) | 2236(2) | 36(1) |
| C(21) | 4925(2) | 5322(1) | 3694(1) | 27(1) |
| C(22) | 6453(2) | 5101(1) | -306(1) | 33(1) |
| C(23) | 5341(2) | 7087(1) | 4967(1) | 33(1) |
| C(24) | 1689(2) | 6410(1) | 488(2) | 41(1) |
| C(25) | 7833(2) | 7937(1) | 2339(2) | 36(1) |
| C(31) | 4564(2) | 4752(1) | 2752(1) | 30(1) |
| C(32) | 7292(2) | 4874(1) | -988(2) | 41(1) |
| C(33) | 5845(2) | 7587(1) | 5972(2) | 41(1) |
| C(34) | 1196(2) | 6084(2) | 1490(2) | 58(1) |
| C(35) | 8077(2) | 8188(1) | 3621(2) | 50(1) |
| C(41) | 5183(2) | 4627(1) | 1857(1) | 28(1) |
| C(42) | 8529(2) | 4450(1) | -499(2) | 46(1) |
| C(43) | 7165(2) | 7476(1) | 6782(2) | 45(1) |
| C(44) | 891(3) | 7195(2) | -20(3) | 84(1) |
| C(45) | 8785(2) | 8438(1) | 1824(2) | 52(1) |
| C(51) | 4751(2) | 3863(1) | 1114(2) | 41(1) |
| C(52) | 8970(2) | 4259(1) | 701(2) | 42(1) |
| C(53) | 8032(2) | 6870(1) | 6598(2) | 41(1) |
| C(54) | 1481(3) | 5763(2) | -480(2) | 77(1) |
| C(62) | 8176(2) | 4474(1) | 1423(2) | 35(1) |
| C(63) | 7598(2) | 6362(1) | 5608(1) | 31(1) |
| C(72) | 5086(2) | 5556(1) | -896(2) | 39(1) |
| C(73) | 3894(2) | 7263(1) | 4072(2) | 40(1) |
| C(82) | 5355(3) | 6431(1) | -1204(2) | 67(1) |
| C(83) | 3930(3) | 8046(1) | 3378(2) | 57(1) |
| C(92) | 4142(2) | 5107(2) | -1996(2) | 60(1) |
| C(93) | 2750(2) | 7311(2) | 4668(2) | 65(1) |
| C(102) | 8715(2) | 4250(1) | 2746(2) | 41(1) |
| C(103) | 8573(2) | 5708(1) | 5402(2) | 36(1) |
| C(112) | 10177(2) | 4577(2) | 3368(2) | 61(1) |
| C(113) | 8352(3) | 4890(2) | 5912(3) | 71(1) |
| C(122) | 8682(3) | 3329(2) | 2940(2) | 65(1) |
| C(123) | 10129(2) | 5969(2) | 5861(2) | 64(1) |

Table S3. Bond lengths [Å] and angles [deg] for 1.

| | |
|-------------------|------------|
| Fe(1)-N(11) | 2.0230(12) |
| Fe(1)-N(21) | 2.0262(12) |
| Fe(1)-C(15) | 2.0400(16) |
| Fe(1)-N(14) | 2.1634(15) |
| N(11)-C(41) | 1.3283(19) |
| N(11)-C(12) | 1.4436(19) |
| N(14)-C(14) | 1.141(2) |
| N(21)-C(21) | 1.3250(19) |
| N(21)-C(13) | 1.4393(19) |
| C(11)-C(21) | 1.516(2) |
| C(12)-C(62) | 1.399(2) |
| C(12)-C(22) | 1.404(2) |
| C(13)-C(23) | 1.409(2) |
| C(13)-C(63) | 1.413(2) |
| C(14)-C(24) | 1.482(2) |
| C(15)-C(25) | 1.536(2) |
| C(21)-C(31) | 1.411(2) |
| C(22)-C(32) | 1.395(2) |
| C(22)-C(72) | 1.518(3) |
| C(23)-C(33) | 1.400(2) |
| C(23)-C(73) | 1.523(2) |
| C(24)-C(34) | 1.526(3) |
| C(24)-C(54) | 1.527(3) |
| C(24)-C(44) | 1.532(3) |
| C(25)-C(35) | 1.518(3) |
| C(25)-C(45) | 1.531(2) |
| C(31)-C(41) | 1.410(2) |
| C(32)-C(42) | 1.375(3) |
| C(33)-C(43) | 1.373(3) |
| C(41)-C(51) | 1.512(2) |
| C(42)-C(52) | 1.383(3) |
| C(43)-C(53) | 1.384(3) |
| C(52)-C(62) | 1.393(2) |
| C(53)-C(63) | 1.391(2) |
| C(62)-C(102) | 1.531(2) |
| C(63)-C(103) | 1.524(2) |
| C(72)-C(82) | 1.526(3) |
| C(72)-C(92) | 1.530(3) |
| C(73)-C(83) | 1.532(3) |
| C(73)-C(93) | 1.535(3) |
| C(102)-C(112) | 1.510(3) |
| C(102)-C(122) | 1.529(3) |
| C(103)-C(113) | 1.517(3) |
| C(103)-C(123) | 1.538(3) |
| | |
| N(11)-Fe(1)-N(21) | 92.74(5) |
| N(11)-Fe(1)-C(15) | 122.69(6) |
| N(21)-Fe(1)-C(15) | 134.09(6) |
| N(11)-Fe(1)-N(14) | 93.51(5) |
| N(21)-Fe(1)-N(14) | 92.07(5) |
| C(15)-Fe(1)-N(14) | 111.67(6) |
| C(41)-N(11)-C(12) | 119.47(12) |
| C(41)-N(11)-Fe(1) | 122.64(10) |
| C(12)-N(11)-Fe(1) | 117.90(9) |
| C(14)-N(14)-Fe(1) | 147.96(13) |
| C(21)-N(21)-C(13) | 120.79(12) |
| C(21)-N(21)-Fe(1) | 122.38(10) |
| C(13)-N(21)-Fe(1) | 116.77(9) |
| C(62)-C(12)-C(22) | 120.97(14) |
| C(62)-C(12)-N(11) | 118.37(14) |
| C(22)-C(12)-N(11) | 120.60(14) |

| | |
|----------------------|------------|
| C(23)-C(13)-C(63) | 120.51(14) |
| C(23)-C(13)-N(21) | 120.93(13) |
| C(63)-C(13)-N(21) | 118.37(13) |
| N(14)-C(14)-C(24) | 177.94(18) |
| C(25)-C(15)-Fe(1) | 117.60(11) |
| N(21)-C(21)-C(31) | 123.58(13) |
| N(21)-C(21)-C(11) | 120.11(13) |
| C(31)-C(21)-C(11) | 116.30(13) |
| C(32)-C(22)-C(12) | 118.28(16) |
| C(32)-C(22)-C(72) | 119.29(15) |
| C(12)-C(22)-C(72) | 122.43(14) |
| C(33)-C(23)-C(13) | 118.50(15) |
| C(33)-C(23)-C(73) | 118.84(15) |
| C(13)-C(23)-C(73) | 122.62(14) |
| C(14)-C(24)-C(34) | 108.87(14) |
| C(14)-C(24)-C(54) | 107.82(15) |
| C(34)-C(24)-C(54) | 110.16(19) |
| C(14)-C(24)-C(44) | 108.89(18) |
| C(34)-C(24)-C(44) | 109.92(19) |
| C(54)-C(24)-C(44) | 111.1(2) |
| C(35)-C(25)-C(45) | 109.69(16) |
| C(35)-C(25)-C(15) | 111.27(15) |
| C(45)-C(25)-C(15) | 112.82(15) |
| C(41)-C(31)-C(21) | 129.18(14) |
| C(42)-C(32)-C(22) | 121.47(17) |
| C(43)-C(33)-C(23) | 121.22(16) |
| N(11)-C(41)-C(31) | 122.94(13) |
| N(11)-C(41)-C(51) | 120.47(14) |
| C(31)-C(41)-C(51) | 116.59(14) |
| C(32)-C(42)-C(52) | 119.50(16) |
| C(33)-C(43)-C(53) | 119.88(16) |
| C(42)-C(52)-C(62) | 121.33(17) |
| C(43)-C(53)-C(63) | 121.53(16) |
| C(52)-C(62)-C(12) | 118.44(16) |
| C(52)-C(62)-C(102) | 119.23(16) |
| C(12)-C(62)-C(102) | 122.33(14) |
| C(53)-C(63)-C(13) | 118.28(15) |
| C(53)-C(63)-C(103) | 121.03(14) |
| C(13)-C(63)-C(103) | 120.68(14) |
| C(22)-C(72)-C(82) | 111.59(17) |
| C(22)-C(72)-C(92) | 111.99(16) |
| C(82)-C(72)-C(92) | 110.83(18) |
| C(23)-C(73)-C(83) | 110.49(16) |
| C(23)-C(73)-C(93) | 112.04(17) |
| C(83)-C(73)-C(93) | 110.95(18) |
| C(112)-C(102)-C(122) | 109.96(18) |
| C(112)-C(102)-C(62) | 112.33(16) |
| C(122)-C(102)-C(62) | 111.95(17) |
| C(113)-C(103)-C(63) | 111.83(15) |
| C(113)-C(103)-C(123) | 111.58(18) |
| C(63)-C(103)-C(123) | 112.33(15) |

Table S4. Anisotropic displacement parameters ($\text{\AA}^2 \times 10^3$) for 1.
The anisotropic displacement factor exponent takes the form:
 $-2 \pi^2 [h^2 a^{*2} U_{11} + \dots + 2 h k a^* b^* U_{12}]$

| | U11 | U22 | U33 | U23 | U13 | U12 |
|--------|-------|--------|--------|--------|-------|--------|
| Fe(1) | 31(1) | 23(1) | 28(1) | -2(1) | 14(1) | -4(1) |
| N(11) | 33(1) | 24(1) | 26(1) | -2(1) | 13(1) | -1(1) |
| N(14) | 42(1) | 31(1) | 33(1) | 2(1) | 15(1) | 2(1) |
| N(21) | 27(1) | 28(1) | 23(1) | -1(1) | 9(1) | 1(1) |
| C(11) | 44(1) | 40(1) | 37(1) | 0(1) | 22(1) | -7(1) |
| C(12) | 36(1) | 22(1) | 33(1) | -4(1) | 17(1) | -5(1) |
| C(13) | 32(1) | 31(1) | 25(1) | -1(1) | 14(1) | -4(1) |
| C(14) | 43(1) | 33(1) | 29(1) | 2(1) | 13(1) | 4(1) |
| C(15) | 35(1) | 33(1) | 45(1) | -1(1) | 20(1) | -5(1) |
| C(21) | 27(1) | 29(1) | 27(1) | 3(1) | 11(1) | 1(1) |
| C(22) | 43(1) | 30(1) | 31(1) | -3(1) | 17(1) | -6(1) |
| C(23) | 34(1) | 35(1) | 31(1) | -4(1) | 15(1) | -3(1) |
| C(24) | 36(1) | 46(1) | 37(1) | 0(1) | 7(1) | 4(1) |
| C(25) | 32(1) | 33(1) | 42(1) | 2(1) | 12(1) | -4(1) |
| C(31) | 32(1) | 27(1) | 32(1) | 0(1) | 14(1) | -5(1) |
| C(32) | 53(1) | 47(1) | 31(1) | -5(1) | 22(1) | -4(1) |
| C(33) | 49(1) | 38(1) | 41(1) | -12(1) | 21(1) | -2(1) |
| C(34) | 41(1) | 83(2) | 51(1) | 3(1) | 17(1) | -4(1) |
| C(35) | 61(1) | 40(1) | 52(1) | -6(1) | 20(1) | -10(1) |
| C(41) | 32(1) | 24(1) | 27(1) | 0(1) | 9(1) | -1(1) |
| C(42) | 53(1) | 49(1) | 47(1) | -12(1) | 32(1) | -2(1) |
| C(43) | 54(1) | 47(1) | 34(1) | -16(1) | 15(1) | -10(1) |
| C(44) | 54(1) | 81(2) | 102(2) | 35(2) | 4(1) | 19(1) |
| C(45) | 52(1) | 44(1) | 65(1) | 7(1) | 23(1) | -11(1) |
| C(51) | 56(1) | 31(1) | 43(1) | -10(1) | 24(1) | -13(1) |
| C(52) | 43(1) | 40(1) | 49(1) | -8(1) | 22(1) | 4(1) |
| C(53) | 41(1) | 49(1) | 30(1) | -6(1) | 7(1) | -6(1) |
| C(54) | 50(1) | 113(2) | 71(2) | -44(2) | 25(1) | -26(1) |
| C(62) | 43(1) | 29(1) | 37(1) | -3(1) | 18(1) | 1(1) |
| C(63) | 34(1) | 33(1) | 26(1) | 0(1) | 11(1) | -1(1) |
| C(72) | 49(1) | 42(1) | 30(1) | 1(1) | 17(1) | 2(1) |
| C(73) | 37(1) | 40(1) | 44(1) | -9(1) | 14(1) | 7(1) |
| C(82) | 79(2) | 49(2) | 74(1) | 23(1) | 27(1) | 10(1) |
| C(83) | 64(1) | 43(1) | 54(1) | -3(1) | 6(1) | 16(1) |
| C(92) | 54(1) | 84(2) | 37(1) | -10(1) | 9(1) | 4(1) |
| C(93) | 44(1) | 84(2) | 71(2) | -20(1) | 26(1) | 9(1) |
| C(102) | 45(1) | 44(1) | 39(1) | 3(1) | 19(1) | 13(1) |
| C(103) | 31(1) | 44(1) | 30(1) | 1(1) | 7(1) | 4(1) |
| C(112) | 63(1) | 71(2) | 44(1) | 3(1) | 11(1) | -2(1) |
| C(113) | 78(2) | 52(1) | 94(2) | 28(1) | 46(1) | 28(1) |
| C(122) | 79(2) | 55(1) | 61(1) | 18(1) | 22(1) | 2(1) |
| C(123) | 34(1) | 88(2) | 67(1) | -22(1) | 11(1) | 1(1) |

Table S5. Crystal data and structure refinement for 2.

| | |
|-----------------------------------|---|
| Identification code | holjv54 |
| Empirical formula | C ₃₉ H ₆₁ Fe N ₃ |
| Formula weight | 627.76 |
| Temperature | 193(2) K |
| Wavelength | 0.71073 Å |
| Crystal system, space group | Monoclinic, P2(1) |
| Unit cell dimensions | a = 10.3029(7) Å alpha = 90 deg. b = 16.3575(11) Å beta = 104.8300(10) deg. c = 11.8844(8) Å gamma = 90 deg. |
| Volume | 1936.2(2) Å ³ |
| Z, Calculated density | 2, 1.077 Mg/m ³ |
| Absorption coefficient | 0.417 mm ⁻¹ |
| F(000) | 684 |
| Crystal size | 0.50 x 0.50 x 0.40 mm |
| Theta range for data collection | 1.77 to 28.29 deg. |
| Limiting indices | -13<=h<=13, -21<=k<=21, -15<=l<=15 |
| Reflections collected / unique | 23593 / 9300 [R(int) = 0.0202] |
| Completeness to theta = 28.29 | 98.8 % |
| Absorption correction | Empirical |
| Refinement method | Full-matrix least-squares on F ² |
| Data / restraints / parameters | 9300 / 1 / 404 |
| Goodness-of-fit on F ² | 1.041 |
| Final R indices [I>2sigma(I)] | R1 = 0.0315, wR2 = 0.0758 |
| R indices (all data) | R1 = 0.0349, wR2 = 0.0772 |
| Absolute structure parameter | 0.029(8) |
| Largest diff. peak and hole | 0.282 and -0.226 e.Å ⁻³ |

Table S6. Atomic coordinates ($\times 10^4$) and equivalent isotropic displacement parameters ($\text{\AA}^2 \times 10^3$) for 2. U(eq) is defined as one third of the trace of the orthogonalized U_{ij} tensor.

| | x | y | z | U(eq) |
|--------|----------|---------|----------|--------|
| Fe(1) | 8290(1) | 6511(1) | 7529(1) | 28(1) |
| N(11) | 9098(1) | 6190(1) | 6204(1) | 27(1) |
| N(15) | 10208(2) | 6873(1) | 8621(1) | 41(1) |
| N(21) | 8404(1) | 5354(1) | 8159(1) | 31(1) |
| C(11) | 10575(2) | 5358(1) | 5308(2) | 42(1) |
| C(12) | 8857(1) | 6736(1) | 5221(1) | 29(1) |
| C(13) | 7483(2) | 5094(1) | 8820(2) | 38(1) |
| C(14) | 6658(2) | 7238(1) | 7500(2) | 37(1) |
| C(15) | 11315(2) | 6792(1) | 9089(2) | 42(1) |
| C(21) | 9868(1) | 5537(1) | 6257(1) | 29(1) |
| C(22) | 9822(2) | 7316(1) | 5102(1) | 35(1) |
| C(23) | 6255(2) | 4743(1) | 8228(2) | 44(1) |
| C(24) | 6774(2) | 8174(1) | 7556(1) | 38(1) |
| C(25) | 12746(2) | 6659(1) | 9696(2) | 55(1) |
| C(31) | 10055(2) | 4951(1) | 7150(1) | 32(1) |
| C(32) | 9492(2) | 7857(1) | 4165(2) | 43(1) |
| C(33) | 5361(2) | 4488(1) | 8865(2) | 59(1) |
| C(34) | 7359(2) | 8485(1) | 6583(2) | 58(1) |
| C(35) | 13499(2) | 6476(3) | 8767(2) | 85(1) |
| C(41) | 9311(2) | 4824(1) | 7971(1) | 31(1) |
| C(42) | 8266(2) | 7835(1) | 3377(2) | 46(1) |
| C(43) | 5672(3) | 4601(2) | 10058(2) | 69(1) |
| C(44) | 7663(2) | 8434(1) | 8737(2) | 63(1) |
| C(45) | 12833(3) | 5922(2) | 10502(3) | 85(1) |
| C(51) | 9554(2) | 4029(1) | 8645(2) | 45(1) |
| C(52) | 7313(2) | 7271(1) | 3503(1) | 41(1) |
| C(53) | 6847(3) | 4959(2) | 10622(2) | 68(1) |
| C(54) | 5392(2) | 8569(1) | 7417(2) | 55(1) |
| C(55) | 13257(4) | 7437(2) | 10369(4) | 144(2) |
| C(62) | 7576(2) | 6716(1) | 4420(1) | 32(1) |
| C(63) | 7800(2) | 5220(1) | 10028(2) | 49(1) |
| C(72) | 11196(2) | 7378(1) | 5969(2) | 41(1) |
| C(73) | 5874(2) | 4614(1) | 6924(2) | 45(1) |
| C(82) | 11337(2) | 8179(1) | 6652(2) | 54(1) |
| C(83) | 4493(2) | 4970(2) | 6344(2) | 70(1) |
| C(92) | 12345(2) | 7300(2) | 5355(2) | 61(1) |
| C(93) | 5922(3) | 3716(2) | 6612(2) | 73(1) |
| C(102) | 6528(2) | 6096(1) | 4551(1) | 37(1) |
| C(103) | 9090(2) | 5627(1) | 10676(2) | 59(1) |
| C(112) | 6828(2) | 5249(1) | 4139(2) | 61(1) |
| C(113) | 8841(3) | 6517(2) | 10958(2) | 94(1) |
| C(122) | 5088(2) | 6358(2) | 3959(2) | 67(1) |
| C(123) | 9793(4) | 5160(2) | 11794(2) | 95(1) |

Table S7. Bond lengths [Å] and angles [deg] for 2.

| | |
|-------------------|------------|
| Fe(1)-N(21) | 2.0269(13) |
| Fe(1)-N(11) | 2.0294(12) |
| Fe(1)-C(14) | 2.0526(16) |
| Fe(1)-N(15) | 2.1513(15) |
| N(11)-C(21) | 1.3227(19) |
| N(11)-C(12) | 1.4407(19) |
| N(15)-C(15) | 1.142(2) |
| N(21)-C(41) | 1.3360(19) |
| N(21)-C(13) | 1.443(2) |
| C(11)-C(21) | 1.519(2) |
| C(12)-C(22) | 1.406(2) |
| C(12)-C(62) | 1.416(2) |
| C(13)-C(23) | 1.403(3) |
| C(13)-C(63) | 1.404(2) |
| C(14)-C(24) | 1.536(2) |
| C(15)-C(25) | 1.482(3) |
| C(21)-C(31) | 1.406(2) |
| C(22)-C(32) | 1.395(2) |
| C(22)-C(72) | 1.526(2) |
| C(23)-C(33) | 1.398(2) |
| C(23)-C(73) | 1.513(3) |
| C(24)-C(34) | 1.521(3) |
| C(24)-C(44) | 1.527(2) |
| C(24)-C(54) | 1.533(2) |
| C(25)-C(55) | 1.524(4) |
| C(25)-C(45) | 1.528(4) |
| C(25)-C(35) | 1.533(3) |
| C(31)-C(41) | 1.402(2) |
| C(32)-C(42) | 1.367(3) |
| C(33)-C(43) | 1.384(4) |
| C(41)-C(51) | 1.513(2) |
| C(42)-C(52) | 1.383(3) |
| C(43)-C(53) | 1.357(4) |
| C(52)-C(62) | 1.391(2) |
| C(53)-C(63) | 1.414(3) |
| C(62)-C(102) | 1.519(2) |
| C(63)-C(103) | 1.509(3) |
| C(72)-C(82) | 1.529(3) |
| C(72)-C(92) | 1.546(3) |
| C(73)-C(93) | 1.519(3) |
| C(73)-C(83) | 1.528(3) |
| C(102)-C(112) | 1.527(3) |
| C(102)-C(122) | 1.532(3) |
| C(103)-C(113) | 1.530(4) |
| C(103)-C(123) | 1.543(3) |
| N(21)-Fe(1)-N(11) | 92.81(5) |
| N(21)-Fe(1)-C(14) | 121.14(6) |
| N(11)-Fe(1)-C(14) | 129.30(6) |
| N(21)-Fe(1)-N(15) | 94.39(6) |
| N(11)-Fe(1)-N(15) | 92.48(5) |
| C(14)-Fe(1)-N(15) | 118.21(6) |
| C(21)-N(11)-C(12) | 121.03(12) |
| C(21)-N(11)-Fe(1) | 122.16(10) |
| C(12)-N(11)-Fe(1) | 116.71(9) |
| C(15)-N(15)-Fe(1) | 155.62(14) |
| C(41)-N(21)-C(13) | 119.01(13) |
| C(41)-N(21)-Fe(1) | 121.45(10) |
| C(13)-N(21)-Fe(1) | 119.54(10) |
| C(22)-C(12)-C(62) | 120.60(13) |
| C(22)-C(12)-N(11) | 121.31(13) |

| | |
|----------------------|------------|
| C(62)-C(12)-N(11) | 117.92(12) |
| C(23)-C(13)-C(63) | 121.21(17) |
| C(23)-C(13)-N(21) | 118.76(15) |
| C(63)-C(13)-N(21) | 119.99(17) |
| C(24)-C(14)-Fe(1) | 121.49(11) |
| N(15)-C(15)-C(25) | 178.2(2) |
| N(11)-C(21)-C(31) | 123.40(13) |
| N(11)-C(21)-C(11) | 121.15(14) |
| C(31)-C(21)-C(11) | 115.41(14) |
| C(32)-C(22)-C(12) | 118.31(15) |
| C(32)-C(22)-C(72) | 119.36(15) |
| C(12)-C(22)-C(72) | 122.32(14) |
| C(33)-C(23)-C(13) | 118.98(19) |
| C(33)-C(23)-C(73) | 118.58(19) |
| C(13)-C(23)-C(73) | 122.42(15) |
| C(34)-C(24)-C(44) | 110.18(18) |
| C(34)-C(24)-C(54) | 108.38(16) |
| C(44)-C(24)-C(54) | 107.66(16) |
| C(34)-C(24)-C(14) | 109.99(15) |
| C(44)-C(24)-C(14) | 109.80(15) |
| C(54)-C(24)-C(14) | 110.79(15) |
| C(15)-C(25)-C(55) | 107.4(2) |
| C(15)-C(25)-C(45) | 108.19(19) |
| C(55)-C(25)-C(45) | 111.9(3) |
| C(15)-C(25)-C(35) | 107.56(17) |
| C(55)-C(25)-C(35) | 111.7(3) |
| C(45)-C(25)-C(35) | 109.8(2) |
| C(41)-C(31)-C(21) | 129.32(14) |
| C(42)-C(32)-C(22) | 121.55(16) |
| C(43)-C(33)-C(23) | 120.2(2) |
| N(21)-C(41)-C(31) | 123.36(14) |
| N(21)-C(41)-C(51) | 119.81(14) |
| C(31)-C(41)-C(51) | 116.82(14) |
| C(32)-C(42)-C(52) | 120.06(16) |
| C(53)-C(43)-C(33) | 120.50(19) |
| C(42)-C(52)-C(62) | 121.23(16) |
| C(43)-C(53)-C(63) | 122.0(2) |
| C(52)-C(62)-C(12) | 118.23(14) |
| C(52)-C(62)-C(102) | 121.03(14) |
| C(12)-C(62)-C(102) | 120.73(13) |
| C(13)-C(63)-C(53) | 117.1(2) |
| C(13)-C(63)-C(103) | 122.09(17) |
| C(53)-C(63)-C(103) | 120.81(18) |
| C(22)-C(72)-C(82) | 111.15(15) |
| C(22)-C(72)-C(92) | 111.46(16) |
| C(82)-C(72)-C(92) | 109.96(16) |
| C(23)-C(73)-C(93) | 111.64(17) |
| C(23)-C(73)-C(83) | 112.09(17) |
| C(93)-C(73)-C(83) | 110.1(2) |
| C(62)-C(102)-C(112) | 111.39(14) |
| C(62)-C(102)-C(122) | 113.32(15) |
| C(112)-C(102)-C(122) | 111.04(18) |
| C(63)-C(103)-C(113) | 110.9(2) |
| C(63)-C(103)-C(123) | 112.2(2) |
| C(113)-C(103)-C(123) | 110.5(2) |

Table S8. Anisotropic displacement parameters ($\text{\AA}^2 \times 10^3$) for 2.
The anisotropic displacement factor exponent takes the form:
 $-2 \pi^2 [h^2 a^{*2} U_{11} + \dots + 2 h k a^* b^* U_{12}]$

| | U11 | U22 | U33 | U23 | U13 | U12 |
|--------|--------|--------|--------|--------|--------|--------|
| Fe(1) | 33(1) | 25(1) | 27(1) | -1(1) | 11(1) | 4(1) |
| N(11) | 30(1) | 27(1) | 26(1) | -1(1) | 10(1) | -1(1) |
| N(15) | 45(1) | 39(1) | 40(1) | -6(1) | 9(1) | 2(1) |
| N(21) | 40(1) | 28(1) | 28(1) | 4(1) | 14(1) | 5(1) |
| C(11) | 50(1) | 39(1) | 44(1) | 0(1) | 27(1) | 6(1) |
| C(12) | 34(1) | 29(1) | 27(1) | 0(1) | 13(1) | 1(1) |
| C(13) | 51(1) | 32(1) | 38(1) | 10(1) | 23(1) | 13(1) |
| C(14) | 35(1) | 34(1) | 43(1) | -6(1) | 12(1) | 3(1) |
| C(15) | 46(1) | 39(1) | 38(1) | -8(1) | 6(1) | 0(1) |
| C(21) | 29(1) | 29(1) | 32(1) | -4(1) | 12(1) | -2(1) |
| C(22) | 36(1) | 34(1) | 38(1) | 2(1) | 15(1) | 0(1) |
| C(23) | 48(1) | 34(1) | 57(1) | 14(1) | 28(1) | 8(1) |
| C(24) | 37(1) | 32(1) | 40(1) | -8(1) | 5(1) | 6(1) |
| C(25) | 44(1) | 52(1) | 61(1) | -2(1) | -5(1) | 2(1) |
| C(31) | 33(1) | 29(1) | 35(1) | 0(1) | 11(1) | 9(1) |
| C(32) | 49(1) | 37(1) | 50(1) | 9(1) | 23(1) | -5(1) |
| C(33) | 59(1) | 55(1) | 74(1) | 26(1) | 40(1) | 10(1) |
| C(34) | 70(1) | 41(1) | 67(1) | 4(1) | 24(1) | 5(1) |
| C(35) | 50(1) | 112(2) | 95(2) | 29(2) | 21(1) | 22(2) |
| C(41) | 36(1) | 29(1) | 29(1) | 2(1) | 8(1) | 5(1) |
| C(42) | 57(1) | 44(1) | 40(1) | 15(1) | 17(1) | 1(1) |
| C(43) | 77(2) | 72(2) | 79(2) | 34(1) | 56(1) | 24(1) |
| C(44) | 68(1) | 48(1) | 57(1) | -20(1) | -11(1) | 13(1) |
| C(45) | 64(2) | 107(2) | 77(2) | 31(2) | 7(1) | 24(2) |
| C(51) | 56(1) | 37(1) | 46(1) | 12(1) | 21(1) | 15(1) |
| C(52) | 47(1) | 44(1) | 30(1) | 5(1) | 7(1) | 1(1) |
| C(53) | 95(2) | 77(2) | 45(1) | 23(1) | 45(1) | 34(1) |
| C(54) | 47(1) | 47(1) | 68(1) | -8(1) | 8(1) | 18(1) |
| C(55) | 81(2) | 100(3) | 201(5) | -72(3) | -56(3) | 5(2) |
| C(62) | 37(1) | 33(1) | 26(1) | -1(1) | 11(1) | -1(1) |
| C(63) | 70(1) | 49(1) | 35(1) | 11(1) | 26(1) | 20(1) |
| C(72) | 34(1) | 39(1) | 52(1) | 3(1) | 16(1) | -6(1) |
| C(73) | 41(1) | 44(1) | 55(1) | 6(1) | 19(1) | -6(1) |
| C(82) | 46(1) | 44(1) | 68(1) | -6(1) | 8(1) | -10(1) |
| C(83) | 60(1) | 77(2) | 72(2) | 14(1) | 15(1) | 10(1) |
| C(92) | 41(1) | 69(1) | 79(2) | 2(1) | 28(1) | -6(1) |
| C(93) | 84(2) | 57(1) | 74(2) | -6(1) | 16(1) | 6(1) |
| C(102) | 37(1) | 43(1) | 30(1) | -1(1) | 8(1) | -7(1) |
| C(103) | 84(2) | 64(1) | 32(1) | 3(1) | 21(1) | 16(1) |
| C(112) | 73(1) | 51(1) | 66(1) | -26(1) | 31(1) | -26(1) |
| C(113) | 137(2) | 76(2) | 72(2) | -24(2) | 34(2) | 10(2) |
| C(122) | 39(1) | 88(2) | 66(1) | 27(1) | 1(1) | -14(1) |
| C(123) | 109(2) | 124(3) | 47(1) | 25(2) | 8(1) | 14(2) |

Table S9. Crystal data and structure refinement for 3.

| | |
|-----------------------------------|--|
| Identification code | holjs104 |
| Empirical formula | C79 H108 Cl2 Fe2 N6 |
| Formula weight | 1324.31 |
| Temperature | 193(2) K |
| Wavelength | 0.71073 Å |
| Crystal system, space group | Triclinic, P-1 |
| Unit cell dimensions | a = 12.7967(17) Å alpha = 88.453(2) deg. b = 17.485(2) Å beta = 76.926(2) deg. c = 17.643(2) Å gamma = 89.798(2) deg. |
| Volume | 3843.9(9) Å ³ |
| Z, Calculated density | 2, 1.144 Mg/m ³ |
| Absorption coefficient | 0.491 mm ⁻¹ |
| F(000) | 1420 |
| Crystal size | 0.40 x 0.10 x 0.10 mm |
| Theta range for data collection | 1.63 to 28.37 deg. |
| Limiting indices | -17<=h<=17, -23<=k<=23, -23<=l<=23 |
| Reflections collected / unique | 34674 / 17992 [R(int) = 0.0458] |
| Completeness to theta = 28.37 | 93.5 % |
| Absorption correction | None |
| Refinement method | Full-matrix least-squares on F ² |
| Data / restraints / parameters | 17992 / 0 / 813 |
| Goodness-of-fit on F ² | 0.964 |
| Final R indices [I>2sigma(I)] | R1 = 0.0579, wR2 = 0.1254 |
| R indices (all data) | R1 = 0.1427, wR2 = 0.1523 |
| Largest diff. peak and hole | 0.580 and -0.345 e.Å ⁻³ |

Table S10. Atomic coordinates ($\times 10^4$) and equivalent isotropic displacement parameters ($\text{Å}^2 \times 10^3$) for 3. U(eq) is defined as one third of the trace of the orthogonalized U_{ij} tensor.

| | x | y | z | U(eq) |
|--------|----------|----------|----------|--------|
| Fe(2) | 7218(1) | 4422(1) | 7571(1) | 34(1) |
| Fe(1) | 9275(1) | 9530(1) | 7905(1) | 41(1) |
| Cl(2) | 6780(1) | 3271(1) | 8137(1) | 55(1) |
| Cl(1) | 9221(1) | 8473(1) | 8657(1) | 70(1) |
| N(22) | 8751(2) | 4657(1) | 7055(1) | 31(1) |
| N(21) | 10461(2) | 9863(1) | 7012(1) | 34(1) |
| N(18) | 6862(2) | 5161(1) | 8518(1) | 37(1) |
| N(14) | 9081(2) | 10426(2) | 8702(1) | 41(1) |
| N(11) | 8129(2) | 9718(2) | 7309(1) | 43(1) |
| N(12) | 6624(2) | 4915(1) | 6720(1) | 35(1) |
| C(35) | 8306(3) | 5500(2) | 6082(2) | 40(1) |
| C(67) | 9792(2) | 3488(2) | 7055(2) | 39(1) |
| C(17) | 9551(2) | 4223(2) | 7335(2) | 33(1) |
| C(45) | 9036(2) | 5149(2) | 6456(2) | 35(1) |
| C(31) | 9278(2) | 10409(2) | 6256(2) | 36(1) |
| C(25) | 7202(3) | 5363(2) | 6162(2) | 42(1) |
| C(13) | 11543(3) | 9629(2) | 7036(2) | 40(1) |
| C(14) | 8964(2) | 11141(2) | 8437(2) | 39(1) |
| C(27) | 10022(2) | 4510(2) | 7914(2) | 40(1) |
| C(58) | 6485(2) | 4952(2) | 9261(2) | 42(1) |
| C(28) | 7009(2) | 6435(2) | 8946(2) | 41(1) |
| C(18) | 7105(2) | 5902(2) | 8377(2) | 39(1) |
| C(55) | 10213(2) | 5332(2) | 6128(2) | 47(1) |
| C(51) | 11237(3) | 10564(2) | 5778(2) | 50(1) |
| C(34) | 8568(2) | 11664(2) | 9714(2) | 40(1) |
| C(107) | 9330(3) | 3178(2) | 6400(2) | 50(1) |
| C(16) | 5528(3) | 4721(2) | 6695(2) | 41(1) |
| C(26) | 4685(3) | 5210(2) | 7006(2) | 46(1) |
| C(44) | 8727(3) | 10935(2) | 9983(2) | 50(1) |
| C(24) | 8713(2) | 11758(2) | 8907(2) | 41(1) |
| C(21) | 8279(2) | 10128(2) | 6650(2) | 38(1) |
| C(63) | 11865(3) | 8883(2) | 6813(2) | 48(1) |
| C(41) | 10292(2) | 10255(2) | 6389(2) | 36(1) |
| C(37) | 10740(3) | 4043(2) | 8193(2) | 54(1) |
| C(68) | 6576(3) | 6792(2) | 10371(2) | 49(1) |
| C(72) | 6358(3) | 10476(4) | 8400(3) | 110(2) |
| C(57) | 10512(3) | 3047(2) | 7355(2) | 50(1) |
| C(33) | 13256(3) | 9854(2) | 7329(2) | 66(1) |
| C(76) | 4839(3) | 5964(2) | 7367(2) | 49(1) |
| C(64) | 8242(3) | 12347(2) | 10243(2) | 51(1) |
| C(48) | 6367(2) | 5450(2) | 9868(2) | 44(1) |
| C(23) | 12234(3) | 10117(2) | 7310(2) | 49(1) |
| C(54) | 8965(3) | 10340(2) | 9477(2) | 51(1) |
| C(62) | 7065(3) | 8563(2) | 7360(3) | 69(1) |
| C(103) | 11119(3) | 8343(2) | 6533(2) | 55(1) |
| C(11) | 7338(3) | 10311(2) | 6286(2) | 56(1) |
| C(73) | 11913(3) | 10918(2) | 7586(2) | 56(1) |
| C(38) | 6637(2) | 6217(2) | 9730(2) | 40(1) |
| C(47) | 10984(3) | 3314(2) | 7923(2) | 59(1) |
| C(77) | 9794(3) | 5296(2) | 8239(2) | 48(1) |
| C(53) | 12899(3) | 8661(2) | 6840(2) | 65(1) |
| C(15) | 6688(3) | 5747(2) | 5556(2) | 65(1) |
| C(98) | 6222(3) | 6421(2) | 11188(2) | 71(1) |
| C(12) | 7145(3) | 9311(2) | 7601(2) | 57(1) |

| | | | | |
|--------|----------|----------|----------|--------|
| C(86) | 4311(3) | 6629(2) | 7004(3) | 79(1) |
| C(056) | 5339(3) | 4015(2) | 6387(2) | 56(1) |
| C(117) | 10169(4) | 3187(3) | 5645(2) | 108(2) |
| C(94) | 7212(4) | 12686(3) | 10089(2) | 101(2) |
| C(127) | 8881(3) | 2379(2) | 6565(2) | 66(1) |
| C(43) | 13584(3) | 9137(3) | 7093(2) | 74(1) |
| C(36) | 3652(3) | 4973(2) | 6991(2) | 62(1) |
| C(22) | 6322(3) | 9646(3) | 8163(2) | 76(1) |
| C(87) | 10800(3) | 5809(2) | 8076(2) | 71(1) |
| C(42) | 5376(4) | 8446(4) | 8271(3) | 105(2) |
| C(46) | 3458(3) | 4291(3) | 6684(2) | 71(1) |
| C(116) | 6010(5) | 2646(3) | 6277(4) | 124(2) |
| C(74) | 8025(3) | 12112(2) | 11104(2) | 73(1) |
| C(78) | 5779(4) | 7412(3) | 10268(2) | 94(2) |
| C(102) | 7912(4) | 8216(2) | 6715(3) | 88(2) |
| C(84) | 9147(4) | 12923(3) | 10083(3) | 108(2) |
| C(97) | 9316(3) | 5256(2) | 9110(2) | 70(1) |
| C(106) | 6251(4) | 3479(2) | 6038(3) | 79(1) |
| C(32) | 5428(4) | 9198(4) | 8490(3) | 104(2) |
| C(93) | 12729(3) | 11524(2) | 7169(3) | 84(1) |
| C(88) | 7690(3) | 7141(2) | 10301(2) | 67(1) |
| C(96) | 4415(3) | 5929(2) | 8244(2) | 67(1) |
| C(82) | 5500(4) | 10975(3) | 8132(4) | 138(3) |
| C(83) | 11762(3) | 10952(2) | 8468(2) | 75(1) |
| C(123) | 11207(4) | 8435(2) | 5660(2) | 80(1) |
| C(112) | 7485(6) | 8144(3) | 5963(3) | 147(3) |
| C(56) | 4296(4) | 3821(2) | 6387(2) | 72(1) |
| C(122) | 8312(5) | 7442(2) | 6943(3) | 118(2) |
| C(113) | 11284(4) | 7499(2) | 6748(3) | 97(2) |
| C(52) | 6155(4) | 8136(3) | 7710(3) | 95(2) |
| C(92) | 6264(4) | 10544(5) | 9270(3) | 205(4) |
| C(126) | 6561(5) | 3585(4) | 5165(3) | 148(3) |
| C(1S) | 5311(4) | 9690(3) | 5085(3) | 81(1) |
| C(2S) | 4838(5) | 9063(4) | 4820(4) | 143(2) |
| C(3S) | 5383(10) | 8433(8) | 5113(7) | 303(6) |

Table S11. Bond lengths [Å] and angles [deg] for 3.

| | |
|---------------|------------|
| Fe(2)-N(12) | 2.004(2) |
| Fe(2)-N(22) | 2.007(2) |
| Fe(2)-N(18) | 2.106(2) |
| Fe(2)-Cl(2) | 2.2372(9) |
| Fe(1)-N(21) | 1.999(2) |
| Fe(1)-N(11) | 2.010(3) |
| Fe(1)-N(14) | 2.110(3) |
| Fe(1)-Cl(1) | 2.2376(10) |
| N(22)-C(45) | 1.331(4) |
| N(22)-C(17) | 1.438(4) |
| N(21)-C(41) | 1.338(3) |
| N(21)-C(13) | 1.452(4) |
| N(18)-C(58) | 1.332(4) |
| N(18)-C(18) | 1.338(4) |
| N(14)-C(14) | 1.344(4) |
| N(14)-C(54) | 1.346(4) |
| N(11)-C(21) | 1.325(4) |
| N(11)-C(12) | 1.433(4) |
| N(12)-C(25) | 1.328(4) |
| N(12)-C(16) | 1.454(4) |
| C(35)-C(45) | 1.393(4) |
| C(35)-C(25) | 1.408(4) |
| C(67)-C(57) | 1.384(4) |
| C(67)-C(17) | 1.398(4) |
| C(67)-C(107) | 1.524(4) |
| C(17)-C(27) | 1.403(4) |
| C(45)-C(55) | 1.518(4) |
| C(31)-C(21) | 1.393(4) |
| C(31)-C(41) | 1.394(4) |
| C(25)-C(15) | 1.518(4) |
| C(13)-C(23) | 1.401(4) |
| C(13)-C(63) | 1.407(4) |
| C(14)-C(24) | 1.372(4) |
| C(27)-C(37) | 1.389(4) |
| C(27)-C(77) | 1.506(4) |
| C(58)-C(48) | 1.380(4) |
| C(28)-C(18) | 1.374(4) |
| C(28)-C(38) | 1.399(4) |
| C(51)-C(41) | 1.517(4) |
| C(34)-C(44) | 1.379(4) |
| C(34)-C(24) | 1.398(4) |
| C(34)-C(64) | 1.534(4) |
| C(107)-C(127) | 1.508(4) |
| C(107)-C(117) | 1.510(5) |
| C(16)-C(26) | 1.395(4) |
| C(16)-C(056) | 1.405(4) |
| C(26)-C(36) | 1.392(5) |
| C(26)-C(76) | 1.513(5) |
| C(44)-C(54) | 1.377(4) |
| C(21)-C(11) | 1.518(4) |
| C(63)-C(53) | 1.388(5) |
| C(63)-C(103) | 1.514(5) |
| C(37)-C(47) | 1.383(5) |
| C(68)-C(78) | 1.521(5) |
| C(68)-C(38) | 1.523(4) |
| C(68)-C(88) | 1.529(5) |
| C(68)-C(98) | 1.535(5) |
| C(72)-C(92) | 1.520(6) |
| C(72)-C(22) | 1.525(7) |
| C(72)-C(82) | 1.549(8) |
| C(57)-C(47) | 1.374(5) |

| | |
|---------------|-----------|
| C(33)-C(43) | 1.365(5) |
| C(33)-C(23) | 1.393(5) |
| C(76)-C(96) | 1.519(5) |
| C(76)-C(86) | 1.539(5) |
| C(64)-C(84) | 1.510(5) |
| C(64)-C(94) | 1.520(5) |
| C(64)-C(74) | 1.527(5) |
| C(48)-C(38) | 1.387(4) |
| C(23)-C(73) | 1.519(4) |
| C(62)-C(52) | 1.396(6) |
| C(62)-C(12) | 1.398(5) |
| C(62)-C(102) | 1.520(6) |
| C(103)-C(123) | 1.523(5) |
| C(103)-C(113) | 1.538(5) |
| C(73)-C(83) | 1.527(5) |
| C(73)-C(93) | 1.541(5) |
| C(77)-C(97) | 1.521(5) |
| C(77)-C(87) | 1.540(5) |
| C(53)-C(43) | 1.365(5) |
| C(12)-C(22) | 1.410(5) |
| C(056)-C(56) | 1.379(5) |
| C(056)-C(106) | 1.522(5) |
| C(36)-C(46) | 1.370(5) |
| C(22)-C(32) | 1.393(6) |
| C(42)-C(52) | 1.359(7) |
| C(42)-C(32) | 1.386(7) |
| C(46)-C(56) | 1.364(5) |
| C(116)-C(106) | 1.518(6) |
| C(102)-C(122) | 1.522(6) |
| C(102)-C(112) | 1.553(7) |
| C(106)-C(126) | 1.508(7) |
| C(1S)-C(2S) | 1.397(7) |
| C(1S)-C(1S)#1 | 1.407(8) |
| C(2S)-C(3S) | 1.448(13) |

| | |
|-------------------|------------|
| N(12)-Fe(2)-N(22) | 94.47(10) |
| N(12)-Fe(2)-N(18) | 106.53(10) |
| N(22)-Fe(2)-N(18) | 104.41(9) |
| N(12)-Fe(2)-Cl(2) | 126.73(8) |
| N(22)-Fe(2)-Cl(2) | 119.77(7) |
| N(18)-Fe(2)-Cl(2) | 102.83(7) |
| N(21)-Fe(1)-N(11) | 93.51(10) |
| N(21)-Fe(1)-N(14) | 105.75(10) |
| N(11)-Fe(1)-N(14) | 104.32(10) |
| N(21)-Fe(1)-Cl(1) | 127.15(7) |
| N(11)-Fe(1)-Cl(1) | 120.06(8) |
| N(14)-Fe(1)-Cl(1) | 103.71(7) |
| C(45)-N(22)-C(17) | 120.5(2) |
| C(45)-N(22)-Fe(2) | 123.1(2) |
| C(17)-N(22)-Fe(2) | 116.25(17) |
| C(41)-N(21)-C(13) | 119.5(2) |
| C(41)-N(21)-Fe(1) | 123.1(2) |
| C(13)-N(21)-Fe(1) | 117.41(18) |
| C(58)-N(18)-C(18) | 116.1(3) |
| C(58)-N(18)-Fe(2) | 126.0(2) |
| C(18)-N(18)-Fe(2) | 117.7(2) |
| C(14)-N(14)-C(54) | 115.9(3) |
| C(14)-N(14)-Fe(1) | 118.3(2) |
| C(54)-N(14)-Fe(1) | 125.6(2) |
| C(21)-N(11)-C(12) | 120.7(3) |
| C(21)-N(11)-Fe(1) | 123.8(2) |
| C(12)-N(11)-Fe(1) | 115.2(2) |
| C(25)-N(12)-C(16) | 119.5(2) |
| C(25)-N(12)-Fe(2) | 123.2(2) |
| C(16)-N(12)-Fe(2) | 117.18(18) |

| | |
|----------------------|----------|
| C(45)-C(35)-C(25) | 130.1(3) |
| C(57)-C(67)-C(17) | 118.9(3) |
| C(57)-C(67)-C(107) | 119.4(3) |
| C(17)-C(67)-C(107) | 121.7(3) |
| C(67)-C(17)-C(27) | 120.8(3) |
| C(67)-C(17)-N(22) | 118.4(3) |
| C(27)-C(17)-N(22) | 120.7(3) |
| N(22)-C(45)-C(35) | 123.4(3) |
| N(22)-C(45)-C(55) | 120.0(3) |
| C(35)-C(45)-C(55) | 116.5(3) |
| C(21)-C(31)-C(41) | 129.5(3) |
| N(12)-C(25)-C(35) | 123.4(3) |
| N(12)-C(25)-C(15) | 120.4(3) |
| C(35)-C(25)-C(15) | 116.2(3) |
| C(23)-C(13)-C(63) | 120.6(3) |
| C(23)-C(13)-N(21) | 121.3(3) |
| C(63)-C(13)-N(21) | 118.1(3) |
| N(14)-C(14)-C(24) | 123.9(3) |
| C(37)-C(27)-C(17) | 117.9(3) |
| C(37)-C(27)-C(77) | 118.9(3) |
| C(17)-C(27)-C(77) | 123.2(3) |
| N(18)-C(58)-C(48) | 123.5(3) |
| C(18)-C(28)-C(38) | 120.2(3) |
| N(18)-C(18)-C(28) | 124.0(3) |
| C(44)-C(34)-C(24) | 116.0(3) |
| C(44)-C(34)-C(64) | 123.9(3) |
| C(24)-C(34)-C(64) | 120.1(3) |
| C(127)-C(107)-C(117) | 108.9(3) |
| C(127)-C(107)-C(67) | 113.5(3) |
| C(117)-C(107)-C(67) | 110.6(3) |
| C(26)-C(16)-C(056) | 121.2(3) |
| C(26)-C(16)-N(12) | 120.4(3) |
| C(056)-C(16)-N(12) | 118.3(3) |
| C(36)-C(26)-C(16) | 117.3(3) |
| C(36)-C(26)-C(76) | 119.2(3) |
| C(16)-C(26)-C(76) | 123.4(3) |
| C(54)-C(44)-C(34) | 120.7(3) |
| C(14)-C(24)-C(34) | 120.1(3) |
| N(11)-C(21)-C(31) | 123.3(3) |
| N(11)-C(21)-C(11) | 120.1(3) |
| C(31)-C(21)-C(11) | 116.6(3) |
| C(53)-C(63)-C(13) | 117.9(3) |
| C(53)-C(63)-C(103) | 120.9(3) |
| C(13)-C(63)-C(103) | 121.2(3) |
| N(21)-C(41)-C(31) | 123.9(3) |
| N(21)-C(41)-C(51) | 120.0(3) |
| C(31)-C(41)-C(51) | 116.1(3) |
| C(47)-C(37)-C(27) | 122.0(3) |
| C(78)-C(68)-C(38) | 108.4(3) |
| C(78)-C(68)-C(88) | 110.3(3) |
| C(38)-C(68)-C(88) | 108.7(3) |
| C(78)-C(68)-C(98) | 109.2(3) |
| C(38)-C(68)-C(98) | 112.3(3) |
| C(88)-C(68)-C(98) | 107.9(3) |
| C(92)-C(72)-C(22) | 112.1(6) |
| C(92)-C(72)-C(82) | 110.6(5) |
| C(22)-C(72)-C(82) | 112.3(3) |
| C(47)-C(57)-C(67) | 121.5(3) |
| C(43)-C(33)-C(23) | 121.4(4) |
| C(26)-C(76)-C(96) | 111.5(3) |
| C(26)-C(76)-C(86) | 111.7(3) |
| C(96)-C(76)-C(86) | 110.1(3) |
| C(84)-C(64)-C(94) | 111.8(4) |
| C(84)-C(64)-C(74) | 107.8(3) |
| C(94)-C(64)-C(74) | 107.5(3) |

| | |
|----------------------|----------|
| C(84)-C(64)-C(34) | 108.8(3) |
| C(94)-C(64)-C(34) | 108.8(3) |
| C(74)-C(64)-C(34) | 112.1(3) |
| C(58)-C(48)-C(38) | 120.8(3) |
| C(33)-C(23)-C(13) | 118.3(3) |
| C(33)-C(23)-C(73) | 118.9(3) |
| C(13)-C(23)-C(73) | 122.8(3) |
| N(14)-C(54)-C(44) | 123.4(3) |
| C(52)-C(62)-C(12) | 118.2(5) |
| C(52)-C(62)-C(102) | 119.6(5) |
| C(12)-C(62)-C(102) | 122.2(3) |
| C(63)-C(103)-C(123) | 111.8(3) |
| C(63)-C(103)-C(113) | 113.1(3) |
| C(123)-C(103)-C(113) | 109.9(3) |
| C(23)-C(73)-C(83) | 110.6(3) |
| C(23)-C(73)-C(93) | 111.8(3) |
| C(83)-C(73)-C(93) | 110.9(3) |
| C(48)-C(38)-C(28) | 115.3(3) |
| C(48)-C(38)-C(68) | 123.8(3) |
| C(28)-C(38)-C(68) | 120.9(3) |
| C(57)-C(47)-C(37) | 119.0(3) |
| C(27)-C(77)-C(97) | 111.4(3) |
| C(27)-C(77)-C(87) | 112.5(3) |
| C(97)-C(77)-C(87) | 109.2(3) |
| C(43)-C(53)-C(63) | 121.9(3) |
| C(62)-C(12)-C(22) | 121.8(4) |
| C(62)-C(12)-N(11) | 118.1(4) |
| C(22)-C(12)-N(11) | 119.9(4) |
| C(56)-C(056)-C(16) | 118.2(3) |
| C(56)-C(056)-C(106) | 119.9(4) |
| C(16)-C(056)-C(106) | 121.9(3) |
| C(53)-C(43)-C(33) | 119.9(4) |
| C(46)-C(36)-C(26) | 122.0(4) |
| C(32)-C(22)-C(12) | 117.7(5) |
| C(32)-C(22)-C(72) | 119.4(5) |
| C(12)-C(22)-C(72) | 122.9(4) |
| C(52)-C(42)-C(32) | 121.8(5) |
| C(56)-C(46)-C(36) | 119.6(4) |
| C(122)-C(102)-C(62) | 113.3(4) |
| C(122)-C(102)-C(112) | 109.7(4) |
| C(62)-C(102)-C(112) | 110.8(5) |
| C(126)-C(106)-C(116) | 111.5(4) |
| C(126)-C(106)-C(056) | 110.7(4) |
| C(116)-C(106)-C(056) | 113.2(4) |
| C(42)-C(32)-C(22) | 120.0(5) |
| C(46)-C(56)-C(056) | 121.7(4) |
| C(42)-C(52)-C(62) | 120.4(5) |
| C(2S)-C(1S)-C(1S)#1 | 103.1(6) |
| C(1S)-C(2S)-C(3S) | 101.3(7) |

Symmetry transformations used to generate equivalent atoms:
#1 -x+1,-y+2,-z+1

Table S12. Anisotropic displacement parameters ($\text{\AA}^2 \times 10^3$) for 3.
The anisotropic displacement factor exponent takes the form:
 $-2 \pi^2 [h^2 a^{*2} U_{11} + \dots + 2 h k a^* b^* U_{12}]$

| | U11 | U22 | U33 | U23 | U13 | U12 |
|--------|-------|--------|--------|--------|--------|--------|
| Fe(2) | 40(1) | 33(1) | 28(1) | 3(1) | -7(1) | 0(1) |
| Fe(1) | 52(1) | 38(1) | 31(1) | 4(1) | -9(1) | -2(1) |
| Cl(2) | 65(1) | 41(1) | 53(1) | 11(1) | -5(1) | -7(1) |
| Cl(1) | 92(1) | 54(1) | 60(1) | 22(1) | -13(1) | 2(1) |
| N(22) | 39(1) | 28(1) | 27(1) | -1(1) | -7(1) | 1(1) |
| N(21) | 43(2) | 26(1) | 33(1) | -2(1) | -7(1) | 5(1) |
| N(18) | 38(2) | 42(2) | 31(1) | 1(1) | -6(1) | -4(1) |
| N(14) | 47(2) | 47(2) | 29(1) | 2(1) | -12(1) | -2(1) |
| N(11) | 44(2) | 52(2) | 32(2) | -1(1) | -7(1) | -10(1) |
| N(12) | 43(2) | 35(1) | 28(1) | -1(1) | -7(1) | 6(1) |
| C(35) | 54(2) | 28(2) | 34(2) | 9(1) | -4(2) | 3(2) |
| C(67) | 46(2) | 32(2) | 35(2) | 5(1) | -2(2) | 1(2) |
| C(17) | 34(2) | 31(2) | 32(2) | 3(1) | -3(1) | 1(1) |
| C(45) | 44(2) | 29(2) | 30(2) | -2(1) | -4(1) | 2(1) |
| C(31) | 46(2) | 27(2) | 33(2) | 3(1) | -7(2) | 5(1) |
| C(25) | 54(2) | 43(2) | 29(2) | 0(2) | -10(2) | 12(2) |
| C(13) | 47(2) | 35(2) | 37(2) | 1(1) | -9(2) | 10(2) |
| C(14) | 39(2) | 51(2) | 28(2) | 3(2) | -7(1) | -1(2) |
| C(27) | 36(2) | 43(2) | 39(2) | -2(2) | -7(2) | 2(2) |
| C(58) | 44(2) | 46(2) | 32(2) | 4(2) | -2(2) | -9(2) |
| C(28) | 40(2) | 42(2) | 41(2) | -3(2) | -8(2) | 2(2) |
| C(18) | 46(2) | 43(2) | 28(2) | 0(2) | -7(1) | 3(2) |
| C(55) | 48(2) | 47(2) | 42(2) | 6(2) | 0(2) | -3(2) |
| C(51) | 50(2) | 51(2) | 45(2) | 9(2) | -2(2) | 1(2) |
| C(34) | 33(2) | 53(2) | 38(2) | -6(2) | -14(2) | 1(2) |
| C(107) | 77(3) | 31(2) | 46(2) | -4(2) | -20(2) | 11(2) |
| C(16) | 48(2) | 45(2) | 35(2) | 2(2) | -17(2) | 2(2) |
| C(26) | 42(2) | 54(2) | 42(2) | 4(2) | -12(2) | 3(2) |
| C(44) | 64(2) | 57(2) | 32(2) | -1(2) | -18(2) | 6(2) |
| C(24) | 44(2) | 41(2) | 35(2) | 1(2) | -5(2) | 2(2) |
| C(21) | 43(2) | 38(2) | 36(2) | -8(2) | -14(2) | 4(2) |
| C(63) | 63(2) | 43(2) | 39(2) | -3(2) | -13(2) | 19(2) |
| C(41) | 48(2) | 27(2) | 30(2) | -2(1) | -6(1) | 4(1) |
| C(37) | 52(2) | 62(3) | 53(2) | -2(2) | -24(2) | 6(2) |
| C(68) | 48(2) | 59(2) | 41(2) | -16(2) | -9(2) | 11(2) |
| C(72) | 44(3) | 194(6) | 87(4) | -82(4) | 6(2) | -34(3) |
| C(57) | 55(2) | 37(2) | 56(2) | 1(2) | -11(2) | 10(2) |
| C(33) | 54(2) | 72(3) | 79(3) | -19(2) | -28(2) | 18(2) |
| C(76) | 43(2) | 53(2) | 52(2) | -4(2) | -12(2) | 15(2) |
| C(64) | 57(2) | 59(2) | 38(2) | -13(2) | -12(2) | 11(2) |
| C(48) | 40(2) | 62(2) | 28(2) | 0(2) | -1(1) | -7(2) |
| C(23) | 44(2) | 49(2) | 54(2) | -10(2) | -11(2) | 13(2) |
| C(54) | 71(3) | 50(2) | 36(2) | 1(2) | -22(2) | 4(2) |
| C(62) | 71(3) | 68(3) | 73(3) | 32(2) | -32(2) | -32(2) |
| C(103) | 87(3) | 33(2) | 48(2) | -6(2) | -18(2) | 15(2) |
| C(11) | 55(2) | 68(3) | 50(2) | -4(2) | -22(2) | 2(2) |
| C(73) | 43(2) | 49(2) | 80(3) | -19(2) | -20(2) | 5(2) |
| C(38) | 26(2) | 55(2) | 38(2) | -7(2) | -4(1) | 3(2) |
| C(47) | 57(2) | 54(2) | 69(3) | 8(2) | -23(2) | 13(2) |
| C(77) | 46(2) | 58(2) | 46(2) | -15(2) | -20(2) | 10(2) |
| C(53) | 88(3) | 51(2) | 61(3) | -10(2) | -24(2) | 33(2) |
| C(15) | 67(3) | 82(3) | 44(2) | 22(2) | -9(2) | 17(2) |
| C(98) | 73(3) | 96(3) | 42(2) | -23(2) | -4(2) | 0(2) |
| C(12) | 53(2) | 83(3) | 38(2) | 8(2) | -18(2) | -27(2) |
| C(86) | 80(3) | 65(3) | 101(3) | 0(2) | -42(3) | 25(2) |

| | | | | | | |
|--------|--------|---------|--------|---------|--------|---------|
| C(056) | 62(3) | 57(2) | 54(2) | -14(2) | -24(2) | 3(2) |
| C(117) | 174(5) | 96(4) | 42(3) | -7(2) | 1(3) | -59(4) |
| C(94) | 111(4) | 140(5) | 59(3) | -37(3) | -30(3) | 82(3) |
| C(127) | 89(3) | 47(2) | 61(2) | -11(2) | -16(2) | -8(2) |
| C(43) | 68(3) | 83(3) | 77(3) | -13(2) | -30(2) | 40(3) |
| C(36) | 47(2) | 77(3) | 62(3) | -4(2) | -9(2) | 5(2) |
| C(22) | 43(2) | 140(4) | 46(2) | -8(3) | -10(2) | -33(3) |
| C(87) | 74(3) | 59(3) | 83(3) | -24(2) | -25(2) | -2(2) |
| C(42) | 57(3) | 159(6) | 104(4) | 77(4) | -36(3) | -51(4) |
| C(46) | 53(3) | 87(3) | 77(3) | 1(3) | -25(2) | -12(2) |
| C(116) | 150(5) | 64(3) | 184(6) | -40(4) | -90(5) | 26(3) |
| C(74) | 89(3) | 94(3) | 41(2) | -22(2) | -22(2) | 23(3) |
| C(78) | 113(4) | 102(4) | 74(3) | -37(3) | -31(3) | 59(3) |
| C(102) | 122(4) | 37(2) | 98(4) | 3(2) | -10(3) | -29(2) |
| C(84) | 139(5) | 85(4) | 84(3) | -40(3) | 13(3) | -42(3) |
| C(97) | 60(3) | 100(3) | 55(2) | -28(2) | -21(2) | 25(2) |
| C(106) | 83(3) | 68(3) | 99(4) | -41(3) | -42(3) | 13(2) |
| C(32) | 58(3) | 191(6) | 65(3) | 16(4) | -17(2) | -42(4) |
| C(93) | 52(3) | 59(3) | 137(4) | -16(3) | -10(3) | 0(2) |
| C(88) | 71(3) | 75(3) | 57(2) | -19(2) | -17(2) | -13(2) |
| C(96) | 54(2) | 87(3) | 57(2) | -16(2) | -7(2) | 16(2) |
| C(82) | 55(3) | 165(6) | 189(6) | -115(5) | -3(4) | -5(3) |
| C(83) | 64(3) | 79(3) | 89(3) | -39(2) | -29(2) | 9(2) |
| C(123) | 131(4) | 63(3) | 53(2) | -7(2) | -33(3) | -4(3) |
| C(112) | 252(8) | 98(4) | 83(4) | 13(3) | -25(5) | -35(5) |
| C(56) | 75(3) | 72(3) | 78(3) | -18(2) | -38(3) | -6(2) |
| C(122) | 169(6) | 54(3) | 129(5) | -6(3) | -31(4) | -14(3) |
| C(113) | 177(5) | 37(2) | 89(3) | 2(2) | -54(3) | 13(3) |
| C(52) | 86(4) | 98(4) | 111(4) | 56(3) | -51(3) | -39(3) |
| C(92) | 96(4) | 423(13) | 82(4) | -118(6) | 22(3) | -107(6) |
| C(126) | 175(6) | 150(6) | 103(5) | -58(4) | 8(4) | 51(5) |

Table S13. Crystal data and structure refinement for 4.

| | |
|-----------------------------------|--|
| Identification code | holjs18 |
| Empirical formula | C84 H136 Cl2 Fe2 N6 |
| Formula weight | 1412.59 |
| Temperature | 293(2) K |
| Wavelength | 0.71073 Å |
| Crystal system, space group | Triclinic, P-1 |
| Unit cell dimensions | a = 12.8392(7) Å alpha=113.493(1) deg. b = 18.2881(10) Å beta = 97.623(1) deg. c = 19.5619(11) Å gamma= 92.430(1) deg. |
| Volume | 4152.3(4) Å ³ |
| Z, Calculated density | 2, 1.130 Mg/m ³ |
| Absorption coefficient | 0.458 mm ⁻¹ |
| F(000) | 1536 |
| Crystal size | 0.14 x 0.25 x 0.44 mm |
| Theta range for data collection | 1.15 to 23.29 deg. |
| Limiting indices | -14<=h<=13, -16<=k<=20, -21<=l<=21 |
| Reflections collected / unique | 19223 / 11947 [R(int) = 0.0517] |
| Completeness to theta = 23.29 | 99.6 % |
| Refinement method | Full-matrix least-squares on F ² |
| Data / restraints / parameters | 11947 / 0 / 831 |
| Goodness-of-fit on F ² | 1.018 |
| Final R indices [I>2sigma(I)] | R1 = 0.0757, wR2 = 0.1589 |
| R indices (all data) | R1 = 0.1447, wR2 = 0.1822 |
| Largest diff. peak and hole | 0.751 and -0.407 e.Å ⁻³ |

Table S14. Atomic coordinates ($\times 10^4$) and equivalent isotropic displacement parameters ($\text{Å}^2 \times 10^3$) for 4. U(eq) is defined as one third of the trace of the orthogonalized U_{ij} tensor.

| | x | y | z | U(eq) |
|--------|----------|----------|----------|-------|
| Fe(1) | 3521(1) | 933(1) | 7307(1) | 30(1) |
| Fe(2) | 9974(1) | 3935(1) | 2972(1) | 31(1) |
| Cl(1) | 3097(1) | 1422(1) | 6445(1) | 53(1) |
| Cl(2) | 10041(1) | 3111(1) | 3572(1) | 49(1) |
| C(12) | 2766(5) | 2180(4) | 8582(3) | 33(2) |
| N(21) | 4910(3) | 513(3) | 7448(3) | 26(1) |
| C(65) | 8620(5) | 3463(4) | 611(3) | 39(2) |
| C(105) | 9284(5) | 3155(5) | -38(4) | 62(2) |
| C(25) | 12015(5) | 4932(4) | 1804(4) | 42(2) |
| N(11) | 3393(3) | 1507(3) | 8395(3) | 29(1) |
| C(16) | 12050(4) | 4760(4) | 3333(3) | 31(2) |
| C(23) | 5217(5) | -468(4) | 6206(3) | 33(2) |
| C(102) | 4466(5) | 3143(4) | 9123(4) | 42(2) |
| C(31) | 3911(5) | 1259(3) | 8898(3) | 30(2) |
| C(66) | 12127(5) | 5551(4) | 3904(4) | 39(2) |
| C(13) | 5440(4) | 298(4) | 6800(3) | 30(2) |
| N(12) | 11161(3) | 4487(3) | 2732(3) | 27(1) |
| C(55) | 9328(4) | 3695(3) | 1391(3) | 28(1) |
| C(106) | 11316(5) | 6131(4) | 3929(4) | 42(2) |
| C(111) | 6960(5) | 611(4) | 8997(4) | 54(2) |
| C(22) | 1661(5) | 2032(4) | 8376(4) | 39(2) |
| N(22) | 9137(3) | 3455(3) | 1927(3) | 30(1) |
| C(26) | 12778(5) | 4227(4) | 3384(3) | 36(2) |
| C(61) | 6257(5) | 39(3) | 8245(3) | 34(2) |
| N(14) | 2509(4) | -111(3) | 7001(3) | 42(1) |
| C(62) | 3277(5) | 2961(4) | 8912(3) | 36(2) |
| C(56) | 13005(6) | 5806(4) | 4472(4) | 56(2) |
| C(85) | 11592(6) | 5614(5) | 1616(5) | 70(2) |
| C(51) | 5259(4) | 452(3) | 8091(3) | 28(1) |
| C(35) | 11123(4) | 4545(3) | 2063(4) | 31(2) |
| C(63) | 6100(5) | 894(4) | 6731(4) | 35(2) |
| C(116) | 11714(6) | 6834(4) | 3759(4) | 66(2) |
| C(42) | 1586(6) | 3468(4) | 8866(4) | 56(2) |
| C(71) | 6985(5) | -205(4) | 7658(4) | 45(2) |
| C(52) | 2657(6) | 3596(4) | 9050(4) | 47(2) |
| C(72) | 1063(5) | 1207(4) | 8013(4) | 41(2) |
| C(75) | 7690(5) | 2822(4) | 394(4) | 47(2) |
| C(14) | 1977(5) | -675(5) | 6861(4) | 46(2) |
| C(32) | 1082(5) | 2696(5) | 8525(4) | 49(2) |
| N(18) | 9247(4) | 4813(3) | 3753(3) | 43(1) |
| C(93) | 3504(5) | -1329(4) | 5569(4) | 56(2) |
| C(91) | 4676(5) | 1771(4) | 10306(3) | 47(2) |
| C(53) | 6577(5) | 678(4) | 6099(4) | 48(2) |
| C(67) | 7471(5) | 2869(4) | 2090(3) | 37(2) |
| C(117) | 6163(5) | 3856(4) | 2004(4) | 59(2) |
| C(73) | 4448(5) | -1116(4) | 6213(3) | 37(2) |
| C(97) | 10560(5) | 1544(4) | 1725(4) | 59(2) |
| C(103) | 6283(5) | 1746(4) | 7315(4) | 44(2) |
| C(17) | 8431(5) | 2762(3) | 1804(3) | 31(2) |
| C(77) | 9835(5) | 1846(4) | 1230(4) | 41(2) |
| C(37) | 8104(5) | 1347(4) | 1414(4) | 45(2) |
| C(76) | 12672(5) | 3358(4) | 2840(4) | 44(2) |
| C(21) | 3663(5) | 1464(3) | 9713(3) | 34(2) |
| C(41) | 4705(5) | 749(3) | 8711(3) | 31(2) |

| | | | | |
|--------|----------|----------|----------|--------|
| C(15) | 13062(5) | 5278(4) | 2351(4) | 47(2) |
| C(33) | 5710(5) | -643(4) | 5573(4) | 45(2) |
| C(27) | 8770(5) | 2000(4) | 1489(3) | 37(2) |
| C(18) | 8788(5) | 5197(4) | 4196(4) | 41(2) |
| C(45) | 10221(5) | 4227(3) | 1500(3) | 33(2) |
| C(101) | 5847(5) | -731(4) | 8319(4) | 50(2) |
| C(82) | 253(6) | 1090(4) | 8480(5) | 66(2) |
| C(107) | 7099(5) | 3688(4) | 2485(4) | 42(2) |
| C(11) | 2870(5) | 2082(4) | 10002(4) | 48(2) |
| C(57) | 6845(5) | 2192(4) | 1995(4) | 49(2) |
| C(43) | 6384(6) | -77(5) | 5517(4) | 55(2) |
| C(81) | 3154(6) | 680(4) | 9698(4) | 54(2) |
| C(96) | 12728(6) | 2814(4) | 3263(4) | 62(2) |
| C(123) | 6025(5) | 2334(4) | 6953(4) | 57(2) |
| C(28) | 8197(5) | 5690(4) | 4760(4) | 57(2) |
| C(46) | 13750(6) | 5297(5) | 4497(4) | 63(2) |
| C(92) | 538(5) | 1030(4) | 7210(4) | 58(2) |
| C(112) | 4838(6) | 3761(4) | 9930(4) | 61(2) |
| C(95) | 12304(5) | 4280(5) | 1081(4) | 71(2) |
| C(47) | 7141(5) | 1437(4) | 1654(4) | 53(2) |
| C(115) | 8151(6) | 4224(4) | 615(4) | 62(2) |
| C(36) | 13636(5) | 4516(4) | 3956(4) | 55(2) |
| C(127) | 6812(5) | 3796(4) | 3256(4) | 60(2) |
| C(126) | 10947(6) | 6463(4) | 4696(4) | 59(2) |
| C(24) | 1279(6) | -1405(4) | 6683(4) | 70(2) |
| C(83) | 4948(5) | -1885(4) | 6139(4) | 57(2) |
| C(122) | 4903(6) | 3442(5) | 8579(4) | 67(2) |
| C(87) | 9749(6) | 1258(4) | 402(4) | 65(2) |
| C(113) | 7437(6) | 1980(5) | 7732(5) | 87(3) |
| C(86) | 13534(7) | 3173(5) | 2334(5) | 87(3) |
| C(8S) | 7070(5) | 6091(4) | 3338(4) | 39(2) |
| C(3S) | 9573(5) | 8654(4) | 5283(4) | 41(2) |
| C(4S) | 9750(7) | 8708(6) | 4643(6) | 98(3) |
| C(5S) | 10870(7) | 9040(5) | 4707(5) | 91(3) |
| C(10S) | 8592(8) | 6164(6) | 2864(6) | 126(4) |
| C(2S) | 8510(9) | 8344(7) | 5249(7) | 139(4) |
| C(1S) | 8313(9) | 8592(7) | 5990(7) | 138(4) |
| C(9S) | 7519(9) | 6245(7) | 2845(7) | 132(4) |
| C(7S) | 6081(10) | 6306(8) | 3346(8) | 153(5) |
| C(6S) | 5684(9) | 6474(7) | 4010(7) | 139(4) |

Table S15. Bond lengths [Å] and angles [deg] for 4.

| | |
|---------------|------------|
| Fe(1)-N(11) | 1.996(5) |
| Fe(1)-N(21) | 2.001(4) |
| Fe(1)-N(14) | 2.090(6) |
| Fe(1)-Cl(1) | 2.2224(18) |
| Fe(2)-N(12) | 2.000(4) |
| Fe(2)-N(22) | 2.002(5) |
| Fe(2)-N(18) | 2.081(6) |
| Fe(2)-Cl(2) | 2.2471(17) |
| C(12)-C(62) | 1.400(8) |
| C(12)-C(22) | 1.407(8) |
| C(12)-N(11) | 1.450(7) |
| N(21)-C(51) | 1.326(7) |
| N(21)-C(13) | 1.443(7) |
| C(65)-C(75) | 1.525(8) |
| C(65)-C(115) | 1.538(8) |
| C(65)-C(105) | 1.553(9) |
| C(65)-C(55) | 1.555(8) |
| C(25)-C(15) | 1.535(8) |
| C(25)-C(85) | 1.536(9) |
| C(25)-C(95) | 1.545(9) |
| C(25)-C(35) | 1.563(8) |
| N(11)-C(31) | 1.351(7) |
| C(16)-C(26) | 1.402(8) |
| C(16)-C(66) | 1.422(8) |
| C(16)-N(12) | 1.436(7) |
| C(23)-C(33) | 1.396(8) |
| C(23)-C(13) | 1.404(8) |
| C(23)-C(73) | 1.517(8) |
| C(102)-C(62) | 1.514(8) |
| C(102)-C(112) | 1.526(9) |
| C(102)-C(122) | 1.532(9) |
| C(31)-C(41) | 1.397(7) |
| C(31)-C(21) | 1.566(8) |
| C(66)-C(56) | 1.391(9) |
| C(66)-C(106) | 1.508(8) |
| C(13)-C(63) | 1.413(8) |
| N(12)-C(35) | 1.348(7) |
| C(55)-N(22) | 1.334(7) |
| C(55)-C(45) | 1.408(8) |
| C(106)-C(126) | 1.526(9) |
| C(106)-C(116) | 1.534(8) |
| C(111)-C(61) | 1.554(8) |
| C(22)-C(32) | 1.401(8) |
| C(22)-C(72) | 1.509(9) |
| N(22)-C(17) | 1.444(7) |
| C(26)-C(36) | 1.377(8) |
| C(26)-C(76) | 1.506(9) |
| C(61)-C(71) | 1.518(8) |
| C(61)-C(101) | 1.548(8) |
| C(61)-C(51) | 1.570(8) |
| N(14)-C(14) | 1.127(8) |
| C(62)-C(52) | 1.394(8) |
| C(56)-C(46) | 1.372(9) |
| C(51)-C(41) | 1.419(8) |
| C(35)-C(45) | 1.410(8) |
| C(63)-C(53) | 1.376(8) |
| C(63)-C(103) | 1.507(9) |
| C(42)-C(52) | 1.360(9) |
| C(42)-C(32) | 1.383(9) |
| C(72)-C(92) | 1.522(9) |
| C(72)-C(82) | 1.533(9) |

| | |
|---------------------|------------|
| C(14)-C(24) | 1.468(10) |
| N(18)-C(18) | 1.130(8) |
| C(93)-C(73) | 1.541(8) |
| C(91)-C(21) | 1.539(8) |
| C(53)-C(43) | 1.381(9) |
| C(67)-C(57) | 1.380(8) |
| C(67)-C(17) | 1.409(8) |
| C(67)-C(107) | 1.518(8) |
| C(117)-C(107) | 1.544(8) |
| C(73)-C(83) | 1.532(8) |
| C(97)-C(77) | 1.529(8) |
| C(103)-C(123) | 1.531(8) |
| C(103)-C(113) | 1.546(9) |
| C(17)-C(27) | 1.395(8) |
| C(77)-C(27) | 1.521(8) |
| C(77)-C(87) | 1.531(9) |
| C(37)-C(47) | 1.373(9) |
| C(37)-C(27) | 1.386(8) |
| C(76)-C(96) | 1.525(8) |
| C(76)-C(86) | 1.541(9) |
| C(21)-C(81) | 1.537(8) |
| C(21)-C(11) | 1.542(8) |
| C(33)-C(43) | 1.367(9) |
| C(18)-C(28) | 1.447(10) |
| C(107)-C(127) | 1.538(9) |
| C(57)-C(47) | 1.370(9) |
| C(46)-C(36) | 1.386(10) |
| C(8S)-C(9S) | 1.300(11) |
| C(8S)-C(7S) | 1.345(12) |
| C(3S)-C(4S) | 1.342(10) |
| C(3S)-C(2S) | 1.439(12) |
| C(4S)-C(5S) | 1.506(11) |
| C(10S)-C(9S) | 1.390(12) |
| C(2S)-C(1S) | 1.397(14) |
| C(7S)-C(6S) | 1.384(14) |
| | |
| N(11)-Fe(1)-N(21) | 98.01(18) |
| N(11)-Fe(1)-N(14) | 101.0(2) |
| N(21)-Fe(1)-N(14) | 99.56(19) |
| N(11)-Fe(1)-Cl(1) | 123.80(14) |
| N(21)-Fe(1)-Cl(1) | 122.81(14) |
| N(14)-Fe(1)-Cl(1) | 107.39(16) |
| N(12)-Fe(2)-N(22) | 96.54(19) |
| N(12)-Fe(2)-N(18) | 107.66(19) |
| N(22)-Fe(2)-N(18) | 113.8(2) |
| N(12)-Fe(2)-Cl(2) | 129.08(14) |
| N(22)-Fe(2)-Cl(2) | 114.46(14) |
| N(18)-Fe(2)-Cl(2) | 95.85(16) |
| C(62)-C(12)-C(22) | 121.5(6) |
| C(62)-C(12)-N(11) | 119.3(5) |
| C(22)-C(12)-N(11) | 119.0(6) |
| C(51)-N(21)-C(13) | 126.3(5) |
| C(51)-N(21)-Fe(1) | 120.3(4) |
| C(13)-N(21)-Fe(1) | 113.4(3) |
| C(75)-C(65)-C(115) | 106.5(5) |
| C(75)-C(65)-C(105) | 105.8(5) |
| C(115)-C(65)-C(105) | 108.8(6) |
| C(75)-C(65)-C(55) | 117.3(5) |
| C(115)-C(65)-C(55) | 107.3(5) |
| C(105)-C(65)-C(55) | 110.7(5) |
| C(15)-C(25)-C(85) | 107.0(5) |
| C(15)-C(25)-C(95) | 105.8(5) |
| C(85)-C(25)-C(95) | 108.9(6) |
| C(15)-C(25)-C(35) | 118.0(5) |
| C(85)-C(25)-C(35) | 108.9(5) |

| | |
|----------------------|----------|
| C(95)-C(25)-C(35) | 107.9(5) |
| C(31)-N(11)-C(12) | 125.1(5) |
| C(31)-N(11)-Fe(1) | 118.5(4) |
| C(12)-N(11)-Fe(1) | 116.4(3) |
| C(26)-C(16)-C(66) | 120.9(6) |
| C(26)-C(16)-N(12) | 119.8(5) |
| C(66)-C(16)-N(12) | 119.1(5) |
| C(33)-C(23)-C(13) | 119.0(6) |
| C(33)-C(23)-C(73) | 117.9(6) |
| C(13)-C(23)-C(73) | 123.0(5) |
| C(62)-C(102)-C(112) | 113.9(5) |
| C(62)-C(102)-C(122) | 109.9(5) |
| C(112)-C(102)-C(122) | 108.6(6) |
| N(11)-C(31)-C(41) | 121.5(5) |
| N(11)-C(31)-C(21) | 125.0(5) |
| C(41)-C(31)-C(21) | 113.4(5) |
| C(56)-C(66)-C(16) | 117.9(6) |
| C(56)-C(66)-C(106) | 118.1(6) |
| C(16)-C(66)-C(106) | 124.0(6) |
| C(23)-C(13)-C(63) | 120.0(6) |
| C(23)-C(13)-N(21) | 120.6(5) |
| C(63)-C(13)-N(21) | 119.0(5) |
| C(35)-N(12)-C(16) | 125.6(5) |
| C(35)-N(12)-Fe(2) | 122.5(4) |
| C(16)-N(12)-Fe(2) | 111.8(3) |
| N(22)-C(55)-C(45) | 121.3(5) |
| N(22)-C(55)-C(65) | 126.2(5) |
| C(45)-C(55)-C(65) | 112.5(5) |
| C(66)-C(106)-C(126) | 111.0(6) |
| C(66)-C(106)-C(116) | 113.2(5) |
| C(126)-C(106)-C(116) | 108.9(5) |
| C(32)-C(22)-C(12) | 117.6(6) |
| C(32)-C(22)-C(72) | 118.2(6) |
| C(12)-C(22)-C(72) | 124.1(6) |
| C(55)-N(22)-C(17) | 124.9(5) |
| C(55)-N(22)-Fe(2) | 122.4(4) |
| C(17)-N(22)-Fe(2) | 112.1(4) |
| C(36)-C(26)-C(16) | 118.2(6) |
| C(36)-C(26)-C(76) | 118.6(6) |
| C(16)-C(26)-C(76) | 123.1(5) |
| C(71)-C(61)-C(101) | 107.4(5) |
| C(71)-C(61)-C(111) | 105.8(5) |
| C(101)-C(61)-C(111) | 109.6(5) |
| C(71)-C(61)-C(51) | 117.7(5) |
| C(101)-C(61)-C(51) | 106.8(5) |
| C(111)-C(61)-C(51) | 109.5(5) |
| C(14)-N(14)-Fe(1) | 177.4(6) |
| C(52)-C(62)-C(12) | 118.1(6) |
| C(52)-C(62)-C(102) | 119.0(6) |
| C(12)-C(62)-C(102) | 123.0(5) |
| C(46)-C(56)-C(66) | 121.0(7) |
| N(21)-C(51)-C(41) | 120.7(5) |
| N(21)-C(51)-C(61) | 125.9(5) |
| C(41)-C(51)-C(61) | 113.4(5) |
| N(12)-C(35)-C(45) | 120.9(5) |
| N(12)-C(35)-C(25) | 126.9(5) |
| C(45)-C(35)-C(25) | 112.2(5) |
| C(53)-C(63)-C(13) | 117.9(6) |
| C(53)-C(63)-C(103) | 119.7(6) |
| C(13)-C(63)-C(103) | 122.4(5) |
| C(52)-C(42)-C(32) | 120.4(7) |
| C(42)-C(52)-C(62) | 121.5(7) |
| C(22)-C(72)-C(92) | 110.6(6) |
| C(22)-C(72)-C(82) | 112.4(5) |
| C(92)-C(72)-C(82) | 111.0(6) |

| | |
|----------------------|-----------|
| N(14)-C(14)-C(24) | 179.5(9) |
| C(42)-C(32)-C(22) | 120.9(6) |
| C(18)-N(18)-Fe(2) | 169.7(5) |
| C(63)-C(53)-C(43) | 122.6(6) |
| C(57)-C(67)-C(17) | 117.9(6) |
| C(57)-C(67)-C(107) | 119.2(6) |
| C(17)-C(67)-C(107) | 122.9(5) |
| C(23)-C(73)-C(83) | 113.4(5) |
| C(23)-C(73)-C(93) | 110.2(5) |
| C(83)-C(73)-C(93) | 108.6(5) |
| C(63)-C(103)-C(123) | 110.8(6) |
| C(63)-C(103)-C(113) | 112.5(6) |
| C(123)-C(103)-C(113) | 107.8(5) |
| C(27)-C(17)-C(67) | 120.6(5) |
| C(27)-C(17)-N(22) | 119.3(5) |
| C(67)-C(17)-N(22) | 119.6(5) |
| C(27)-C(77)-C(97) | 111.9(5) |
| C(27)-C(77)-C(87) | 113.3(5) |
| C(97)-C(77)-C(87) | 109.1(6) |
| C(47)-C(37)-C(27) | 121.6(6) |
| C(26)-C(76)-C(96) | 110.8(6) |
| C(26)-C(76)-C(86) | 112.3(6) |
| C(96)-C(76)-C(86) | 108.5(6) |
| C(81)-C(21)-C(91) | 110.3(5) |
| C(81)-C(21)-C(11) | 105.2(5) |
| C(91)-C(21)-C(11) | 106.2(5) |
| C(81)-C(21)-C(31) | 106.0(5) |
| C(91)-C(21)-C(31) | 111.3(5) |
| C(11)-C(21)-C(31) | 117.5(5) |
| C(31)-C(41)-C(51) | 134.8(5) |
| C(43)-C(33)-C(23) | 121.0(7) |
| C(37)-C(27)-C(17) | 118.4(6) |
| C(37)-C(27)-C(77) | 117.9(6) |
| C(17)-C(27)-C(77) | 123.6(5) |
| N(18)-C(18)-C(28) | 179.7(9) |
| C(55)-C(45)-C(35) | 133.9(5) |
| C(67)-C(107)-C(127) | 111.1(5) |
| C(67)-C(107)-C(117) | 113.1(6) |
| C(127)-C(107)-C(117) | 110.1(5) |
| C(47)-C(57)-C(67) | 122.2(6) |
| C(33)-C(43)-C(53) | 119.3(6) |
| C(56)-C(46)-C(36) | 120.3(7) |
| C(57)-C(47)-C(37) | 119.2(6) |
| C(26)-C(36)-C(46) | 121.4(7) |
| C(9S)-C(8S)-C(7S) | 111.6(9) |
| C(4S)-C(3S)-C(2S) | 113.8(8) |
| C(3S)-C(4S)-C(5S) | 111.8(8) |
| C(1S)-C(2S)-C(3S) | 107.7(10) |
| C(8S)-C(9S)-C(10S) | 116.8(10) |
| C(8S)-C(7S)-C(6S) | 116.4(11) |

Table S16. Anisotropic displacement parameters ($\text{\AA}^2 \times 10^3$) for 4.
The anisotropic displacement factor exponent takes the form:
 $-2 \pi^2 [h^2 a^{*2} U_{11} + \dots + 2 h k a^* b^* U_{12}]$

| | U11 | U22 | U33 | U23 | U13 | U12 |
|--------|-------|-------|-------|-------|-------|--------|
| Fe(1) | 32(1) | 31(1) | 26(1) | 12(1) | 4(1) | 5(1) |
| Fe(2) | 32(1) | 32(1) | 28(1) | 10(1) | 5(1) | -6(1) |
| Cl(1) | 55(1) | 70(1) | 47(1) | 36(1) | 6(1) | 10(1) |
| Cl(2) | 64(1) | 44(1) | 42(1) | 22(1) | 5(1) | -5(1) |
| C(12) | 41(4) | 41(4) | 18(4) | 9(3) | 14(3) | 15(3) |
| N(21) | 28(3) | 24(3) | 22(3) | 7(2) | 0(2) | 0(2) |
| C(65) | 36(4) | 40(4) | 31(4) | 12(3) | -8(3) | -6(3) |
| C(105) | 51(5) | 94(6) | 30(5) | 15(4) | 2(4) | -8(4) |
| C(25) | 44(4) | 41(4) | 35(4) | 11(3) | 9(3) | -13(3) |
| N(11) | 29(3) | 29(3) | 30(3) | 15(3) | 4(2) | 5(2) |
| C(16) | 26(3) | 38(4) | 24(4) | 10(3) | 2(3) | -8(3) |
| C(23) | 39(4) | 34(4) | 25(4) | 7(3) | 7(3) | 12(3) |
| C(102) | 52(4) | 26(4) | 49(5) | 14(3) | 12(4) | 7(3) |
| C(31) | 33(4) | 28(4) | 26(4) | 9(3) | 5(3) | -2(3) |
| C(66) | 33(4) | 39(4) | 37(4) | 8(3) | 6(3) | -11(3) |
| C(13) | 26(3) | 34(4) | 29(4) | 13(3) | -1(3) | 7(3) |
| N(12) | 24(3) | 25(3) | 25(3) | 3(2) | 6(2) | -4(2) |
| C(55) | 28(3) | 25(3) | 23(4) | 2(3) | 2(3) | 2(3) |
| C(106) | 43(4) | 33(4) | 38(4) | 3(3) | 12(3) | -7(3) |
| C(111) | 46(4) | 58(5) | 44(5) | 11(4) | -7(4) | 5(4) |
| C(22) | 40(4) | 46(4) | 37(4) | 20(4) | 14(3) | 19(4) |
| N(22) | 31(3) | 22(3) | 32(3) | 8(2) | 4(2) | -4(2) |
| C(26) | 28(4) | 46(4) | 30(4) | 13(3) | 1(3) | -3(3) |
| C(61) | 35(4) | 30(4) | 35(4) | 15(3) | 1(3) | 8(3) |
| N(14) | 36(3) | 37(4) | 45(4) | 9(3) | 6(3) | -4(3) |
| C(62) | 44(4) | 35(4) | 32(4) | 14(3) | 13(3) | 7(3) |
| C(56) | 57(5) | 49(5) | 37(5) | -3(4) | -1(4) | -23(4) |
| C(85) | 67(5) | 71(6) | 91(7) | 59(5) | -1(5) | -20(4) |
| C(51) | 33(4) | 23(3) | 25(4) | 10(3) | 2(3) | -3(3) |
| C(35) | 31(4) | 20(3) | 36(4) | 4(3) | 9(3) | -1(3) |
| C(63) | 31(4) | 43(4) | 35(4) | 19(3) | 12(3) | 6(3) |
| C(116) | 88(6) | 43(5) | 71(6) | 19(4) | 34(5) | 9(4) |
| C(42) | 66(6) | 47(5) | 61(5) | 25(4) | 22(4) | 24(4) |
| C(71) | 41(4) | 46(4) | 51(5) | 25(4) | 3(4) | 16(3) |
| C(52) | 57(5) | 36(4) | 51(5) | 18(4) | 15(4) | 10(4) |
| C(72) | 37(4) | 38(4) | 41(4) | 7(3) | 13(3) | 7(3) |
| C(75) | 38(4) | 60(5) | 33(4) | 16(4) | -8(3) | -3(4) |
| C(14) | 41(4) | 56(5) | 40(5) | 18(4) | 7(4) | 14(4) |
| C(32) | 36(4) | 69(6) | 46(5) | 24(4) | 15(4) | 17(4) |
| N(18) | 46(4) | 34(3) | 41(4) | 5(3) | 15(3) | -3(3) |
| C(93) | 49(5) | 50(5) | 51(5) | 4(4) | 8(4) | 0(4) |
| C(91) | 67(5) | 49(4) | 19(4) | 7(3) | 8(4) | 7(4) |
| C(53) | 51(5) | 49(5) | 55(5) | 26(4) | 24(4) | 9(4) |
| C(67) | 30(4) | 37(4) | 32(4) | 6(3) | 2(3) | -12(3) |
| C(117) | 47(5) | 63(5) | 59(5) | 15(4) | 9(4) | 16(4) |
| C(73) | 42(4) | 33(4) | 26(4) | 1(3) | 3(3) | 2(3) |
| C(97) | 60(5) | 58(5) | 50(5) | 14(4) | 5(4) | 7(4) |
| C(103) | 49(4) | 41(4) | 47(5) | 25(4) | 11(4) | -3(3) |
| C(17) | 33(4) | 26(4) | 25(4) | 5(3) | -2(3) | -6(3) |
| C(77) | 43(4) | 33(4) | 40(4) | 7(3) | 9(3) | -1(3) |
| C(37) | 49(5) | 26(4) | 42(4) | -4(3) | 4(4) | -6(3) |
| C(76) | 33(4) | 44(4) | 55(5) | 22(4) | 4(3) | 6(3) |
| C(21) | 48(4) | 29(4) | 22(4) | 7(3) | 9(3) | 2(3) |
| C(41) | 41(4) | 31(4) | 27(4) | 19(3) | 1(3) | 4(3) |
| C(15) | 41(4) | 45(4) | 45(5) | 8(4) | 15(3) | -15(3) |

| | | | | | | |
|--------|--------|-------|--------|-------|--------|--------|
| C(33) | 51(5) | 47(5) | 31(4) | 9(4) | 7(4) | 13(4) |
| C(27) | 42(4) | 33(4) | 30(4) | 9(3) | -1(3) | -5(3) |
| C(18) | 44(4) | 38(4) | 37(5) | 14(4) | -1(4) | -5(4) |
| C(45) | 39(4) | 34(4) | 27(4) | 15(3) | 1(3) | -4(3) |
| C(101) | 54(5) | 49(5) | 55(5) | 29(4) | 12(4) | 18(4) |
| C(82) | 55(5) | 62(5) | 78(6) | 23(5) | 22(4) | -7(4) |
| C(107) | 32(4) | 44(4) | 40(4) | 9(3) | 8(3) | -4(3) |
| C(11) | 68(5) | 44(4) | 32(4) | 12(3) | 20(4) | 10(4) |
| C(57) | 36(4) | 53(5) | 55(5) | 20(4) | 6(4) | -13(4) |
| C(43) | 67(5) | 68(6) | 42(5) | 27(4) | 32(4) | 29(5) |
| C(81) | 80(5) | 45(5) | 42(5) | 20(4) | 23(4) | -2(4) |
| C(96) | 65(5) | 44(5) | 79(6) | 27(4) | 8(4) | 21(4) |
| C(123) | 56(5) | 48(5) | 77(6) | 30(4) | 31(4) | 12(4) |
| C(28) | 49(5) | 61(5) | 47(5) | 5(4) | 10(4) | 6(4) |
| C(46) | 44(5) | 74(6) | 54(6) | 17(5) | -18(4) | -6(4) |
| C(92) | 43(4) | 71(5) | 49(5) | 15(4) | 6(4) | 6(4) |
| C(112) | 61(5) | 55(5) | 59(6) | 17(4) | 2(4) | -10(4) |
| C(95) | 46(5) | 90(6) | 51(5) | 1(5) | 22(4) | -21(4) |
| C(47) | 46(5) | 37(5) | 64(5) | 12(4) | 3(4) | -21(4) |
| C(115) | 61(5) | 58(5) | 67(6) | 35(4) | -18(4) | -8(4) |
| C(36) | 40(4) | 55(5) | 57(5) | 15(4) | -6(4) | 6(4) |
| C(127) | 54(5) | 59(5) | 50(5) | 2(4) | 14(4) | -7(4) |
| C(126) | 58(5) | 48(5) | 53(5) | 0(4) | 18(4) | -10(4) |
| C(24) | 74(6) | 58(5) | 70(6) | 25(5) | 1(5) | -30(4) |
| C(83) | 63(5) | 36(4) | 67(6) | 16(4) | 10(4) | 4(4) |
| C(122) | 54(5) | 84(6) | 66(6) | 30(5) | 24(4) | 0(4) |
| C(87) | 62(5) | 74(6) | 52(5) | 14(4) | 15(4) | 17(4) |
| C(113) | 87(7) | 50(5) | 105(8) | 28(5) | -30(6) | -14(5) |
| C(86) | 113(8) | 66(6) | 93(7) | 25(5) | 71(6) | 30(5) |

Table S17. Crystal data and structure refinement for 5.

*Note: 30s/Frame data to 56.5 deg.

| | |
|-----------------------------------|---|
| Identification code | holjs46 |
| Empirical formula | C36 H53 F3 Fe N2 O3 S |
| Formula weight | 706.71 |
| Temperature | 293(2) K |
| Wavelength | 0.71073 Å |
| Crystal system | Monoclinic |
| Space group | P2(1)/n |
| Unit cell dimensions | a = 9.7581(12) Å alpha = 90 deg. b = 17.336(2) Å beta = 95.194(2) deg. c = 21.989(3) Å gamma = 90 deg. |
| Volume, Z | 3704.4(8) Å ³ , 4 |
| Density (calculated) | 1.267 Mg/m ³ |
| Absorption coefficient | 0.514 mm ⁻¹ |
| F(000) | 1504 |
| Crystal size | 0.14 x 0.18 x 0.18 mm |
| Theta range for data collection | 1.50 to 28.25 deg. |
| Limiting indices | -12<=h<=11, -18<=k<=23, -29<=l<=28 |
| Reflections collected | 21706 |
| Independent reflections | 8649 [R(int) = 0.0488] |
| Reflections >2Sig(I) | 5578 |
| Absorption correction | Empirical; SADABS |
| Max. and min. transmission | 0.928 and 0.839 |
| Refinement method | Full-matrix least-squares on F ² |
| Data / restraints / parameters | 8649 / 0 / 415 |
| Goodness-of-fit on F ² | 1.143 |
| Final R indices [I>2sigma(I)] | R1 = 0.0984, wR2 = 0.1662 |
| R indices (all data) | R1 = 0.1635, wR2 = 0.1892 |
| Largest diff. peak and hole | 0.433 and -0.492 e.Å ⁻³ |

Table S18. Atomic coordinates ($\times 10^4$) and equivalent isotropic displacement parameters ($\text{Å}^2 \times 10^3$) for 5. $U(\text{eq})$ is defined as one third of the trace of the orthogonalized U_{ij} tensor.

| | x | y | z | U(eq) |
|--------|----------|---------|---------|--------|
| Fe(1) | 9159(1) | 2485(1) | 6303(1) | 31(1) |
| N(11) | 7882(3) | 2583(2) | 5566(1) | 23(1) |
| N(21) | 9116(3) | 3579(2) | 6527(1) | 26(1) |
| C(11) | 6205(4) | 3306(2) | 4794(2) | 28(1) |
| C(21) | 7251(4) | 3230(2) | 5365(2) | 24(1) |
| C(31) | 7531(4) | 3933(2) | 5679(2) | 27(1) |
| C(41) | 8384(4) | 4118(2) | 6202(2) | 26(1) |
| C(51) | 8369(4) | 5009(2) | 6359(2) | 35(1) |
| C(61) | 5855(4) | 2568(2) | 4424(2) | 41(1) |
| C(71) | 4833(4) | 3601(3) | 5002(2) | 42(1) |
| C(81) | 6758(5) | 3891(3) | 4354(2) | 44(1) |
| C(91) | 6891(5) | 5232(3) | 6491(2) | 50(1) |
| C(101) | 8738(5) | 5467(2) | 5789(2) | 47(1) |
| C(111) | 9339(5) | 5300(2) | 6891(2) | 42(1) |
| C(12) | 7827(4) | 1824(2) | 5290(2) | 25(1) |
| C(22) | 6932(4) | 1263(2) | 5501(2) | 30(1) |
| C(32) | 7062(5) | 511(2) | 5296(2) | 39(1) |
| C(42) | 8027(5) | 319(2) | 4899(2) | 42(1) |
| C(52) | 8870(4) | 876(2) | 4692(2) | 40(1) |
| C(62) | 8794(4) | 1640(2) | 4876(2) | 29(1) |
| C(72) | 5805(4) | 1467(3) | 5906(2) | 40(1) |
| C(82) | 4388(5) | 1263(4) | 5633(3) | 78(2) |
| C(92) | 5980(6) | 1098(5) | 6533(3) | 102(3) |
| C(102) | 9726(4) | 2244(3) | 4622(2) | 36(1) |
| C(112) | 9516(5) | 2284(3) | 3919(2) | 51(1) |
| C(122) | 11254(5) | 2090(3) | 4812(2) | 57(1) |
| C(13) | 9885(4) | 3695(2) | 7112(2) | 27(1) |
| C(23) | 9184(4) | 3702(2) | 7643(2) | 33(1) |
| C(33) | 9953(5) | 3830(3) | 8195(2) | 46(1) |
| C(43) | 11350(5) | 3943(3) | 8228(2) | 46(1) |
| C(53) | 12033(5) | 3873(3) | 7714(2) | 41(1) |
| C(63) | 11340(4) | 3725(2) | 7143(2) | 31(1) |
| C(73) | 7635(5) | 3551(3) | 7624(2) | 44(1) |
| C(83) | 7381(6) | 2722(3) | 7809(3) | 67(2) |
| C(93) | 6885(5) | 4114(3) | 8022(2) | 58(1) |
| C(103) | 12127(4) | 3602(3) | 6583(2) | 39(1) |
| C(113) | 12247(6) | 4318(3) | 6201(2) | 61(2) |
| C(123) | 13546(5) | 3236(4) | 6736(3) | 73(2) |
| S(14) | 10524(1) | 1173(1) | 6692(1) | 39(1) |
| O(14) | 9168(3) | 1453(2) | 6830(2) | 52(1) |
| O(24) | 11060(3) | 1786(2) | 6322(1) | 51(1) |
| O(34) | 10621(4) | 405(2) | 6494(2) | 73(1) |
| C(14) | 11549(6) | 1215(3) | 7419(2) | 61(2) |
| F(14) | 12836(4) | 1065(3) | 7352(2) | 111(2) |
| F(24) | 11463(4) | 1897(2) | 7671(2) | 101(1) |
| F(34) | 11091(4) | 693(2) | 7792(2) | 94(1) |

Table S19. Bond lengths [Å] and angles [deg] for 5.

| | |
|-------------------|------------|
| Fe(1)-N(11) | 1.959(3) |
| Fe(1)-N(21) | 1.961(3) |
| Fe(1)-O(14) | 2.131(3) |
| Fe(1)-O(24) | 2.213(3) |
| Fe(1)-S(14) | 2.7338(12) |
| N(11)-C(21) | 1.335(5) |
| N(11)-C(12) | 1.448(4) |
| N(21)-C(41) | 1.341(5) |
| N(21)-C(13) | 1.444(5) |
| C(11)-C(81) | 1.534(6) |
| C(11)-C(61) | 1.538(5) |
| C(11)-C(71) | 1.541(6) |
| C(11)-C(21) | 1.551(5) |
| C(21)-C(31) | 1.416(5) |
| C(31)-C(41) | 1.394(5) |
| C(41)-C(51) | 1.584(5) |
| C(51)-C(111) | 1.523(6) |
| C(51)-C(91) | 1.545(6) |
| C(51)-C(101) | 1.552(6) |
| C(12)-C(62) | 1.406(5) |
| C(12)-C(22) | 1.413(5) |
| C(22)-C(32) | 1.389(6) |
| C(22)-C(72) | 1.517(6) |
| C(32)-C(42) | 1.382(6) |
| C(42)-C(52) | 1.374(6) |
| C(52)-C(62) | 1.388(6) |
| C(62)-C(102) | 1.526(6) |
| C(72)-C(82) | 1.499(7) |
| C(72)-C(92) | 1.516(7) |
| C(102)-C(122) | 1.536(6) |
| C(102)-C(112) | 1.543(6) |
| C(13)-C(23) | 1.407(5) |
| C(13)-C(63) | 1.415(5) |
| C(23)-C(33) | 1.384(6) |
| C(23)-C(73) | 1.531(6) |
| C(33)-C(43) | 1.372(6) |
| C(43)-C(53) | 1.369(6) |
| C(53)-C(63) | 1.395(6) |
| C(63)-C(103) | 1.525(6) |
| C(73)-C(83) | 1.521(7) |
| C(73)-C(93) | 1.540(6) |
| C(103)-C(113) | 1.510(6) |
| C(103)-C(123) | 1.532(6) |
| S(14)-O(34) | 1.406(3) |
| S(14)-O(24) | 1.463(3) |
| S(14)-O(14) | 1.467(3) |
| S(14)-C(14) | 1.809(6) |
| C(14)-F(14) | 1.303(6) |
| C(14)-F(24) | 1.312(6) |
| C(14)-F(34) | 1.326(6) |
| | |
| N(11)-Fe(1)-N(21) | 95.56(12) |
| N(11)-Fe(1)-O(14) | 119.57(13) |
| N(21)-Fe(1)-O(14) | 132.41(14) |
| N(11)-Fe(1)-O(24) | 122.21(12) |
| N(21)-Fe(1)-O(24) | 124.18(13) |
| O(14)-Fe(1)-O(24) | 64.40(12) |
| N(11)-Fe(1)-S(14) | 125.90(9) |
| N(21)-Fe(1)-S(14) | 138.34(9) |
| O(14)-Fe(1)-S(14) | 32.17(9) |
| O(24)-Fe(1)-S(14) | 32.28(8) |

| | |
|----------------------|------------|
| C(21)-N(11)-C(12) | 128.7(3) |
| C(21)-N(11)-Fe(1) | 125.9(2) |
| C(12)-N(11)-Fe(1) | 105.3(2) |
| C(41)-N(21)-C(13) | 125.9(3) |
| C(41)-N(21)-Fe(1) | 124.2(3) |
| C(13)-N(21)-Fe(1) | 109.7(2) |
| C(81)-C(11)-C(61) | 106.9(3) |
| C(81)-C(11)-C(71) | 109.4(3) |
| C(61)-C(11)-C(71) | 106.0(3) |
| C(81)-C(11)-C(21) | 108.9(3) |
| C(61)-C(11)-C(21) | 117.2(3) |
| C(71)-C(11)-C(21) | 108.3(3) |
| N(11)-C(21)-C(31) | 120.0(3) |
| N(11)-C(21)-C(11) | 126.1(3) |
| C(31)-C(21)-C(11) | 113.9(3) |
| C(41)-C(31)-C(21) | 132.4(3) |
| N(21)-C(41)-C(31) | 121.9(3) |
| N(21)-C(41)-C(51) | 125.3(3) |
| C(31)-C(41)-C(51) | 112.8(3) |
| C(111)-C(51)-C(91) | 107.3(4) |
| C(111)-C(51)-C(101) | 106.2(4) |
| C(91)-C(51)-C(101) | 108.2(4) |
| C(111)-C(51)-C(41) | 118.2(3) |
| C(91)-C(51)-C(41) | 108.2(3) |
| C(101)-C(51)-C(41) | 108.4(3) |
| C(62)-C(12)-C(22) | 121.8(4) |
| C(62)-C(12)-N(11) | 118.4(3) |
| C(22)-C(12)-N(11) | 119.2(3) |
| C(32)-C(22)-C(12) | 117.5(4) |
| C(32)-C(22)-C(72) | 120.1(4) |
| C(12)-C(22)-C(72) | 122.3(4) |
| C(42)-C(32)-C(22) | 121.3(4) |
| C(52)-C(42)-C(32) | 120.1(4) |
| C(42)-C(52)-C(62) | 121.7(4) |
| C(52)-C(62)-C(12) | 117.5(4) |
| C(52)-C(62)-C(102) | 119.9(4) |
| C(12)-C(62)-C(102) | 122.5(3) |
| C(82)-C(72)-C(92) | 106.8(4) |
| C(82)-C(72)-C(22) | 113.6(4) |
| C(92)-C(72)-C(22) | 114.1(4) |
| C(62)-C(102)-C(122) | 112.2(4) |
| C(62)-C(102)-C(112) | 111.6(4) |
| C(122)-C(102)-C(112) | 108.5(4) |
| C(23)-C(13)-C(63) | 121.3(3) |
| C(23)-C(13)-N(21) | 119.3(3) |
| C(63)-C(13)-N(21) | 119.1(3) |
| C(33)-C(23)-C(13) | 117.6(4) |
| C(33)-C(23)-C(73) | 120.5(4) |
| C(13)-C(23)-C(73) | 121.9(4) |
| C(43)-C(33)-C(23) | 121.8(4) |
| C(33)-C(43)-C(53) | 119.9(4) |
| C(43)-C(53)-C(63) | 121.8(4) |
| C(53)-C(63)-C(13) | 116.9(4) |
| C(53)-C(63)-C(103) | 120.9(4) |
| C(13)-C(63)-C(103) | 122.1(4) |
| C(83)-C(73)-C(93) | 110.4(4) |
| C(83)-C(73)-C(23) | 109.8(4) |
| C(93)-C(73)-C(23) | 113.2(4) |
| C(113)-C(103)-C(63) | 113.8(4) |
| C(113)-C(103)-C(123) | 110.4(4) |
| C(63)-C(103)-C(123) | 113.1(4) |
| O(34)-S(14)-O(24) | 118.6(2) |
| O(34)-S(14)-O(14) | 117.7(2) |
| O(24)-S(14)-O(14) | 104.42(19) |
| O(34)-S(14)-C(14) | 105.3(2) |

| | |
|-------------------|------------|
| O(24)-S(14)-C(14) | 105.4(2) |
| O(14)-S(14)-C(14) | 103.9(2) |
| O(34)-S(14)-Fe(1) | 137.34(17) |
| O(24)-S(14)-Fe(1) | 53.86(13) |
| O(14)-S(14)-Fe(1) | 50.68(13) |
| C(14)-S(14)-Fe(1) | 117.24(18) |
| S(14)-O(14)-Fe(1) | 97.15(17) |
| S(14)-O(24)-Fe(1) | 93.86(16) |
| F(14)-C(14)-F(24) | 109.1(5) |
| F(14)-C(14)-F(34) | 108.4(5) |
| F(24)-C(14)-F(34) | 108.4(5) |
| F(14)-C(14)-S(14) | 110.7(4) |
| F(24)-C(14)-S(14) | 111.0(4) |
| F(34)-C(14)-S(14) | 109.2(4) |

Table S20. Anisotropic displacement parameters ($\text{Å}^2 \times 10^3$) for 5. The anisotropic displacement factor exponent takes the form: $-2 \pi^2 [h^2 a^{*2} U_{11} + \dots + 2 h k a^* b^* U_{12}]$

| | U11 | U22 | U33 | U23 | U13 | U12 |
|--------|--------|--------|--------|--------|--------|--------|
| Fe(1) | 37(1) | 24(1) | 31(1) | 3(1) | -8(1) | 6(1) |
| N(11) | 24(2) | 22(2) | 24(2) | 0(1) | 0(1) | 2(1) |
| N(21) | 28(2) | 24(2) | 24(2) | 1(1) | -3(1) | 1(1) |
| C(11) | 29(2) | 27(2) | 26(2) | 2(2) | -3(2) | 2(2) |
| C(21) | 18(2) | 27(2) | 26(2) | 0(2) | 4(2) | 1(2) |
| C(31) | 31(2) | 17(2) | 30(2) | 3(2) | -6(2) | 8(2) |
| C(41) | 29(2) | 24(2) | 27(2) | 0(2) | 4(2) | 1(2) |
| C(51) | 47(3) | 21(2) | 34(2) | 1(2) | -5(2) | 0(2) |
| C(61) | 42(3) | 38(3) | 40(2) | -5(2) | -11(2) | 3(2) |
| C(71) | 35(3) | 45(3) | 43(3) | -4(2) | -7(2) | 6(2) |
| C(81) | 53(3) | 46(3) | 33(2) | 8(2) | -4(2) | -3(2) |
| C(91) | 58(3) | 38(3) | 52(3) | -7(2) | -3(2) | 17(2) |
| C(101) | 66(3) | 26(2) | 48(3) | 3(2) | -8(2) | -5(2) |
| C(111) | 58(3) | 23(2) | 42(3) | -4(2) | -11(2) | -1(2) |
| C(12) | 22(2) | 26(2) | 26(2) | -1(2) | -4(2) | 1(2) |
| C(22) | 27(2) | 28(2) | 33(2) | 5(2) | -3(2) | 2(2) |
| C(32) | 36(3) | 25(2) | 54(3) | 2(2) | -4(2) | -4(2) |
| C(42) | 43(3) | 22(2) | 59(3) | -8(2) | -5(2) | 5(2) |
| C(52) | 34(3) | 38(3) | 47(3) | -14(2) | 2(2) | 7(2) |
| C(62) | 26(2) | 30(2) | 31(2) | -1(2) | -3(2) | 1(2) |
| C(72) | 42(3) | 32(2) | 46(3) | -2(2) | 13(2) | -9(2) |
| C(82) | 33(3) | 135(6) | 67(4) | 4(4) | 6(3) | 9(3) |
| C(92) | 49(4) | 200(9) | 60(4) | 36(5) | 12(3) | 1(4) |
| C(102) | 33(2) | 40(2) | 37(2) | -8(2) | 11(2) | -3(2) |
| C(112) | 50(3) | 61(3) | 43(3) | 3(2) | 7(2) | 0(2) |
| C(122) | 32(3) | 87(4) | 51(3) | 9(3) | 3(2) | -14(3) |
| C(13) | 32(2) | 23(2) | 26(2) | 5(2) | -5(2) | 2(2) |
| C(23) | 37(2) | 32(2) | 31(2) | 3(2) | 2(2) | 4(2) |
| C(33) | 60(3) | 54(3) | 23(2) | 2(2) | 3(2) | 3(3) |
| C(43) | 49(3) | 53(3) | 31(2) | 2(2) | -13(2) | 0(2) |
| C(53) | 32(2) | 44(3) | 45(3) | 6(2) | -7(2) | -1(2) |
| C(63) | 32(2) | 25(2) | 35(2) | 7(2) | -2(2) | -5(2) |
| C(73) | 38(3) | 55(3) | 40(3) | 2(2) | 10(2) | -1(2) |
| C(83) | 64(4) | 59(4) | 85(4) | -9(3) | 36(3) | -13(3) |
| C(93) | 52(3) | 61(3) | 64(4) | -1(3) | 20(3) | 1(3) |
| C(103) | 35(3) | 37(2) | 44(3) | 0(2) | 5(2) | -3(2) |
| C(113) | 78(4) | 52(3) | 60(3) | 12(3) | 31(3) | 3(3) |
| C(123) | 51(3) | 102(5) | 69(4) | 23(4) | 22(3) | 26(3) |
| S(14) | 48(1) | 30(1) | 38(1) | 6(1) | 1(1) | 9(1) |
| O(14) | 45(2) | 49(2) | 61(2) | 17(2) | 6(2) | 12(2) |
| O(24) | 54(2) | 51(2) | 49(2) | 15(2) | 10(2) | 8(2) |
| O(34) | 116(3) | 29(2) | 71(3) | -3(2) | -2(2) | 24(2) |
| C(14) | 76(4) | 51(3) | 52(3) | 14(3) | -9(3) | 14(3) |
| F(14) | 52(2) | 141(4) | 132(3) | 33(3) | -29(2) | 22(2) |
| F(24) | 152(4) | 71(2) | 69(2) | -9(2) | -46(2) | 12(2) |
| F(34) | 137(3) | 90(3) | 53(2) | 36(2) | -1(2) | 12(2) |

Table S21. Hydrogen coordinates ($\times 10^4$) and isotropic displacement parameters ($\text{Å}^2 \times 10^3$) for 5.

| | x | y | z | U(eq) |
|--------|-------|------|------|-------|
| H(31A) | 7053 | 4353 | 5503 | 32 |
| H(61A) | 6679 | 2359 | 4281 | 61 |
| H(61B) | 5210 | 2688 | 4081 | 61 |
| H(61C) | 5456 | 2195 | 4679 | 61 |
| H(71A) | 4993 | 4066 | 5235 | 62 |
| H(71B) | 4448 | 3216 | 5250 | 62 |
| H(71C) | 4203 | 3705 | 4650 | 62 |
| H(81A) | 7612 | 3707 | 4223 | 67 |
| H(81B) | 6908 | 4377 | 4557 | 67 |
| H(81C) | 6102 | 3955 | 4005 | 67 |
| H(91A) | 6861 | 5771 | 6588 | 75 |
| H(91B) | 6626 | 4935 | 6830 | 75 |
| H(91C) | 6269 | 5128 | 6137 | 75 |
| H(10A) | 8735 | 6009 | 5877 | 71 |
| H(10B) | 8071 | 5358 | 5452 | 71 |
| H(10C) | 9635 | 5316 | 5687 | 71 |
| H(11A) | 9222 | 5847 | 6936 | 63 |
| H(11B) | 10272 | 5192 | 6815 | 63 |
| H(11C) | 9133 | 5045 | 7260 | 63 |
| H(32A) | 6488 | 130 | 5428 | 47 |
| H(42A) | 8107 | -190 | 4772 | 50 |
| H(52A) | 9507 | 739 | 4421 | 48 |
| H(72A) | 5831 | 2027 | 5965 | 48 |
| H(82A) | 4229 | 1495 | 5236 | 117 |
| H(82B) | 3721 | 1452 | 5891 | 117 |
| H(82C) | 4307 | 713 | 5596 | 117 |
| H(92A) | 6874 | 1221 | 6727 | 154 |
| H(92B) | 5891 | 548 | 6493 | 154 |
| H(92C) | 5285 | 1290 | 6776 | 154 |
| H(10D) | 9489 | 2749 | 4785 | 43 |
| H(11D) | 8567 | 2391 | 3794 | 76 |
| H(11E) | 9769 | 1799 | 3750 | 76 |
| H(11F) | 10082 | 2686 | 3776 | 76 |
| H(12A) | 11404 | 2074 | 5249 | 85 |
| H(12B) | 11800 | 2495 | 4659 | 85 |
| H(12C) | 11515 | 1605 | 4646 | 85 |
| H(33A) | 9510 | 3840 | 8552 | 55 |
| H(43A) | 11831 | 4067 | 8600 | 55 |
| H(53A) | 12985 | 3925 | 7746 | 49 |
| H(73A) | 7246 | 3616 | 7200 | 52 |
| H(83A) | 7839 | 2378 | 7552 | 101 |
| H(83B) | 6411 | 2618 | 7766 | 101 |
| H(83C) | 7733 | 2646 | 8227 | 101 |
| H(93A) | 5921 | 3993 | 7990 | 87 |
| H(93B) | 7011 | 4633 | 7885 | 87 |
| H(93C) | 7256 | 4067 | 8440 | 87 |
| H(10E) | 11591 | 3230 | 6323 | 47 |
| H(11G) | 11349 | 4536 | 6103 | 92 |
| H(11H) | 12644 | 4187 | 5831 | 92 |
| H(11I) | 12823 | 4688 | 6426 | 92 |
| H(12D) | 13452 | 2775 | 6970 | 109 |
| H(12E) | 14132 | 3594 | 6969 | 109 |
| H(12F) | 13944 | 3111 | 6365 | 109 |