# Synthetic route to dinuclear platinum(II) complexes [{*trans*-$PtCl(NH_3)_2\}_2(\mu\text{-}L)]^{2+}$ (L = aliphatic or heterocyclic diamine) as potential antitumor agents, exploiting mutual activation of hydroxido ligands and ammonium groups

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## Supporting Information

**Table S1**. Crystal data and structure refinement for **1**.

| | |
|---|---|
| Identification code | **1** |
| Empirical formula | C3 H21 Cl3 N6 O3 Pt2 |
| Formula weight | 685.79 |
| Temperature | 293(2) K |
| Wavelength | 0.71073 Å |
| Crystal system, space group | Monoclinic, C 2/c |
| Unit cell dimensions | a = 29.338(5) Å |
| | b = 7.784(2) Å |
| | c = 14.857(3) ? Å |
| | alpha = 90 deg. |
| | beta = 104.327(8)deg. |
| | gamma = 90 deg. |
| Volume | 3287.1(13) $Å^3$ |
| Z, Calculated density | 8, 2.771 $Mg/m^3$ |
| Absorption coefficient | 17.498 $mm^{-1}$ |
| F(000) | 2496 |
| Crystal size | 0.18 x 0.16 x 0.16 mm |
| Theta range for data collection | 2.7 to 26.0 deg. |
| Limiting indices | -36<=h<=36, -9<=k<=9, |
| | -18<=l<=18 |
| Reflections collected/unique | 14660 / 3234 |
| | [R(int) = 0.0325] |
| Completeness to theta = 26.0 | 99.8 % |
| Absorption correction | Empirical, multiscan |
| Max. and min. transmission | 1.0 and 0.58 |
| Refinement method | Full-matrix |
| | least-squares on $F^2$ |
| Data/restraints/parameters | 3234/0/156 |
| Goodness-of-fit on F2 | 1.091 |
| Final R indices [I>2sigma(I)] | R1=0.0227, wR2=0.0596 |
| R indices (all data) | R1=0.0255, wR2=0.0611 |
| Extinction coefficient | 0.00067(3) |
| Largest diff. peak and hole | 1.724 and -1.346 e.$Å^{-3}$ |

**Table S2**. Bond lengths [Å] and angles [deg] for **1**.

| | |
|---|---|
| Pt(1)-N(1) | 1.992(4) |
| Pt(1)-N(11) | 2.039(4) |
| Pt(1)-N(12) | 2.043(4) |
| Pt(1)-Cl(1) | 2.3084(14) |
| Cl(2)-Pt(2) | 2.3045(13) |
| Pt(2)-N(2) | 2.003(5) |
| Pt(2)-N(21) | 2.034(4) |
| Pt(2)-N(22) | 2.050(4) |
| N(1)-N(2) | 1.350(6) |
| N(1)-C(1) | 1.355(7) |
| N(2)-C(3) | 1.350(7) |
| C(1)-C(2) | 1.386(9) |
| C(2)-C(3) | 1.377(9) |
| | |
| N(1)-Pt(1)-N(11) | 87.50(16) |
| N(1)-Pt(1)-N(12) | 92.45(16) |
| N(11)-Pt(1)-N(12) | 179.83(19) |
| N(1)-Pt(1)-Cl(1) | 175.00(13) |
| N(11)-Pt(1)-Cl(1) | 90.44(12) |
| N(12)-Pt(1)-Cl(1) | 89.62(12) |
| N(2)-Pt(2)-N(21) | 88.03(16) |
| N(2)-Pt(2)-N(22) | 92.67(16) |
| N(21)-Pt(2)-N(22) | 179.29(16) |
| N(2)-Pt(2)-Cl(2) | 174.66(12) |
| N(21)-Pt(2)-Cl(2) | 89.43(12) |
| N(22)-Pt(2)-Cl(2) | 89.86(12) |
| N(2)-N(1)-C(1) | 107.0(4) |
| N(2)-N(1)-Pt(1) | 128.8(3) |
| C(1)-N(1)-Pt(1) | 124.1(4) |
| C(3)-N(2)-N(1) | 108.6(4) |
| C(3)-N(2)-Pt(2) | 123.6(4) |
| N(1)-N(2)-Pt(2) | 127.7(3) |
| N(1)-C(1)-C(2) | 110.5(5) |
| C(3)-C(2)-C(1) | 103.9(5) |
| N(2)-C(3)-C(2) | 110.0(5) |