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†Equally contributed

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Figure S0. Example of variation of absorbance profile for the [Au(NHC)₂⁺]/Tel 23 system at different temperatures; [Tel23] = 1.0 µM, r = [Au(NHC)₂⁺]/Tel 23 = 5.0, 50 mM potassium phosphate buffer, pH = 7.0, cell path 1.0 cm. Inset is the sigmoidal fit of the absorbance at 292 nm vs. temperature plot which provides the melting temperature, Tₘ.

Table S1. Data collection and data refinement about the crystal structure of the adduct formed by the complex [Au(NHC)₂⁺] and the human telomeric sequence Tel24.

<table>
<thead>
<tr>
<th>Data collection</th>
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<tbody>
<tr>
<td>Wavelength</td>
<td>0.872900 Å</td>
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<tr>
<td>Cell parameters</td>
<td>a = 36.600 Å b = 71.370 Å c = 27.050 Å β = 92.42°</td>
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<tr>
<td>Crystal system</td>
<td>monoclinic</td>
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<tr>
<td>Space Group</td>
<td>C 2</td>
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<tr>
<td>Resolution limits</td>
<td>35.62-1.6(1.70-1.60) Å</td>
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<tr>
<td>Number of reflections</td>
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<tr>
<td>Rsym</td>
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<tr>
<td>Multiplicity</td>
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<tr>
<td>Completeness (%)</td>
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<tr>
<td>&lt; I / σ(I) &gt;</td>
<td>6.04(0.45)</td>
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</tr>
<tr>
<td>CC (1/2)</td>
<td>99.2 (22.5)</td>
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<table>
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<tr>
<th>Refinement</th>
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<tr>
<td>Resolution range</td>
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<td>Unique reflections</td>
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<tr>
<td>(working/free)</td>
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<tr>
<td>Rfactor</td>
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<td>RMSD angles</td>
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</table>
Figure S1  Skeleton of the disordered [Au(NHC)2]+ complex, spread over four crystallographic positions. The following color code has been used to identify each single position: salmon (Au1), tan (Au2), light brown (Au3), light pink (Au4). OMIT electron density map (meshed) and anomalous Fourier difference map for the gold ions (continuous) contoured at 1.5$\sigma$ and 3$\sigma$ levels, respectively.