Synthesis, Characterization and Spectroscopic Studies of Luminescent L-Valine Modified Alkynyl Based Cyclometalated Gold(III) Complexes with Gelation Properties Driven by $\pi-\pi$ Stacking, Hydrogen-Bonding and Hydrophobic–Hydrophobic Interactions

Steven Kin-Lok Siu, Charlotte Po, King-Chin Yim, Vonika Ka-Man Au and Vivian Wing-Wah Yam*

Institute of Molecular Functional Materials [Area of Excellence Scheme, University Grants Committee (Hong Kong)] and Department of Chemistry, The University of Hong Kong, Pokfulam Road, Hong Kong, P. R. China

E-mail: wwyam@hku.hk

Supporting Information
Figure S1 2D $^1$H-$^1$H COSY NMR spectrum of the complex 7 in DMSO-d$_6$. 
Figure S2 2D $^1$H-$^1$H NOESY NMR spectrum of the complex 7 in DMSO-$d_6$. 
Figure S3 2D $^1$H-$^1$H TOCSY NMR spectrum of the complex 7 in DMSO-d$_6$.

Figure S4 TEM image of metallogel of complex 5 in DMSO.
**Figure S5** TEM image of metallogel of complex 8 in DMSO.

**Figure S6** Variable-temperature $^1$H NMR spectra of complex 9 in DMSO-d$_6$. 
**Figure S7** IR spectra of complex 9 in solid (dotted line) and gel state (solid line).

**Figure S8** XRD pattern of complex 7.
**Figure S9** XRD pattern of complex 9.

$d = 3.49 \text{ Å}$