

## Supporting Information

### **Multivalent stimulation of $\beta_1$ -, but not $\beta_2$ -receptors by adrenaline ligated to gold nanoparticles**

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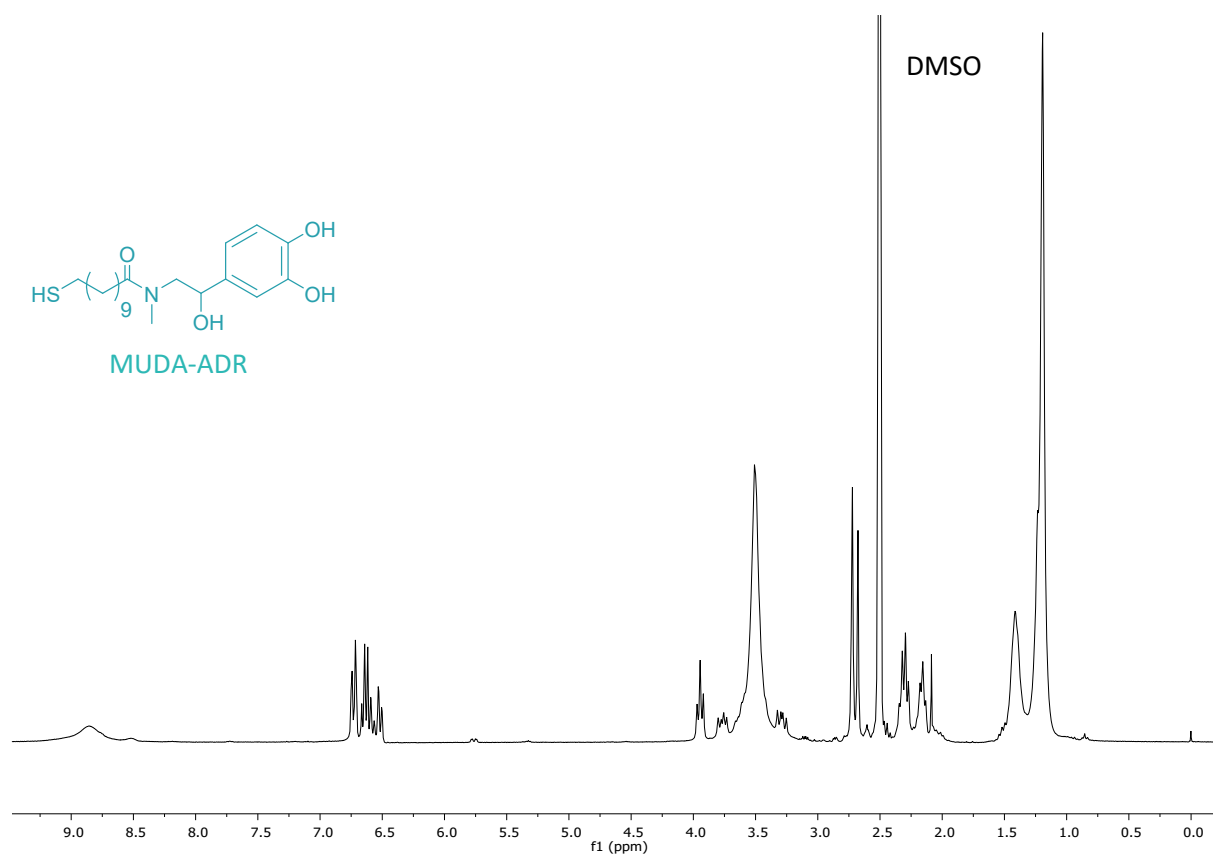


Figure 1:  $^1\text{H-NMR}$  (400 MHz) of the ligand MUDA-ADR, measured in  $\text{DMSO-d}_6$  (chemical shifts in ppm).

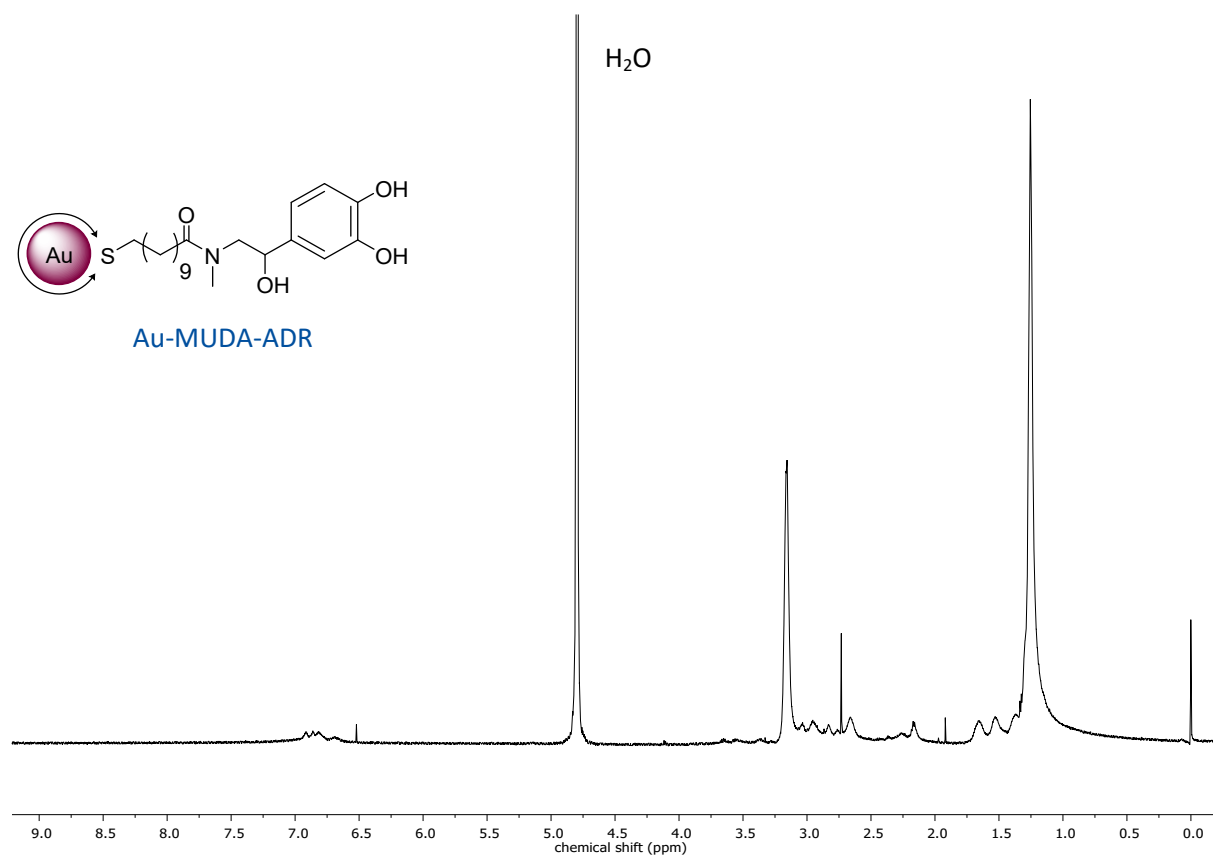


Figure 2:  $^1\text{H-NMR}$  (600 MHz) of Au-MUDA-ADR, measured in  $\text{D}_2\text{O}$  (chemical shifts in ppm).

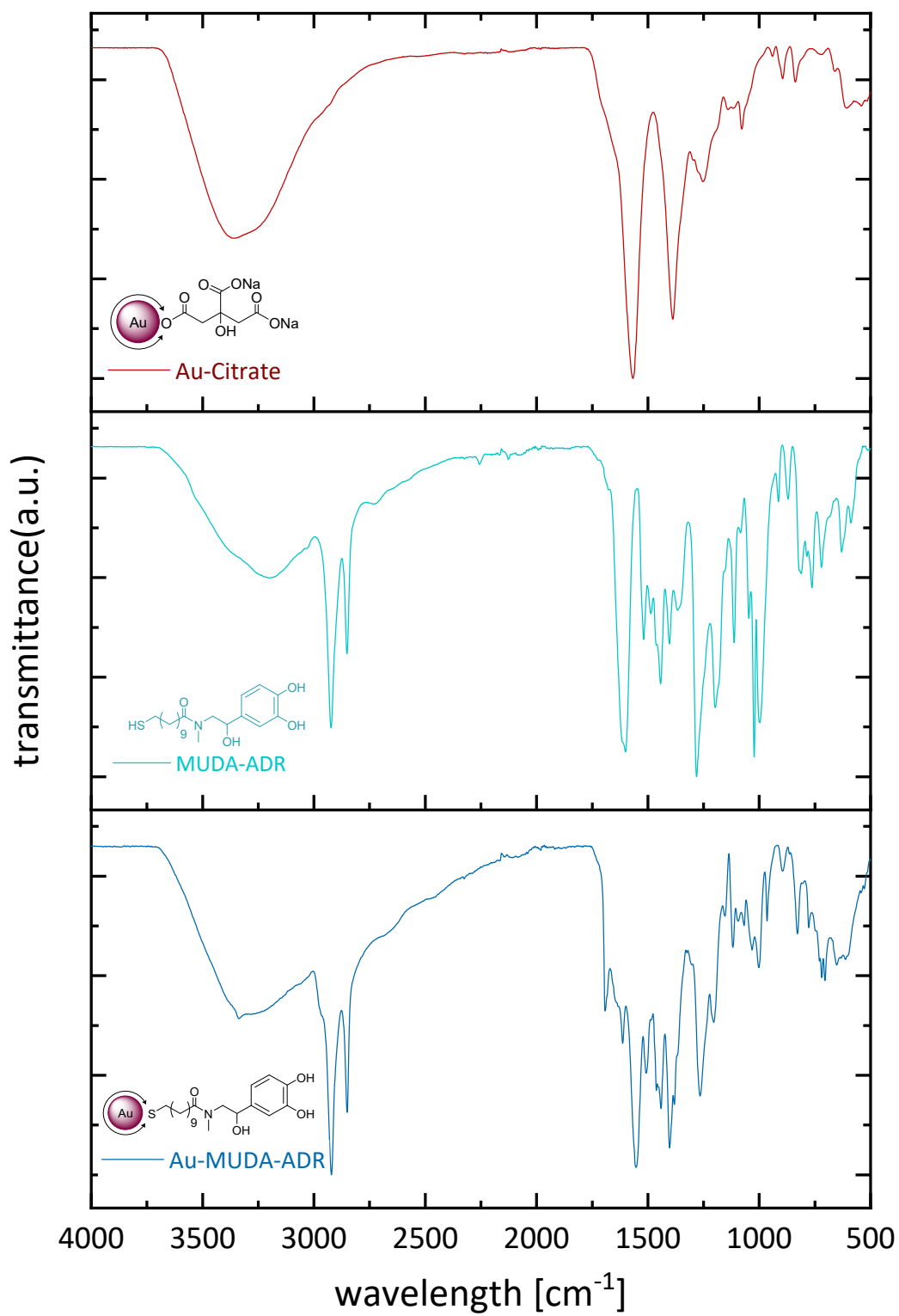


Figure 3: Normalised IR spectra of Au-Citrate NPs (above), the ligand MUDA-ADR (centre) and Au-MUDA-ADR NPs (below).

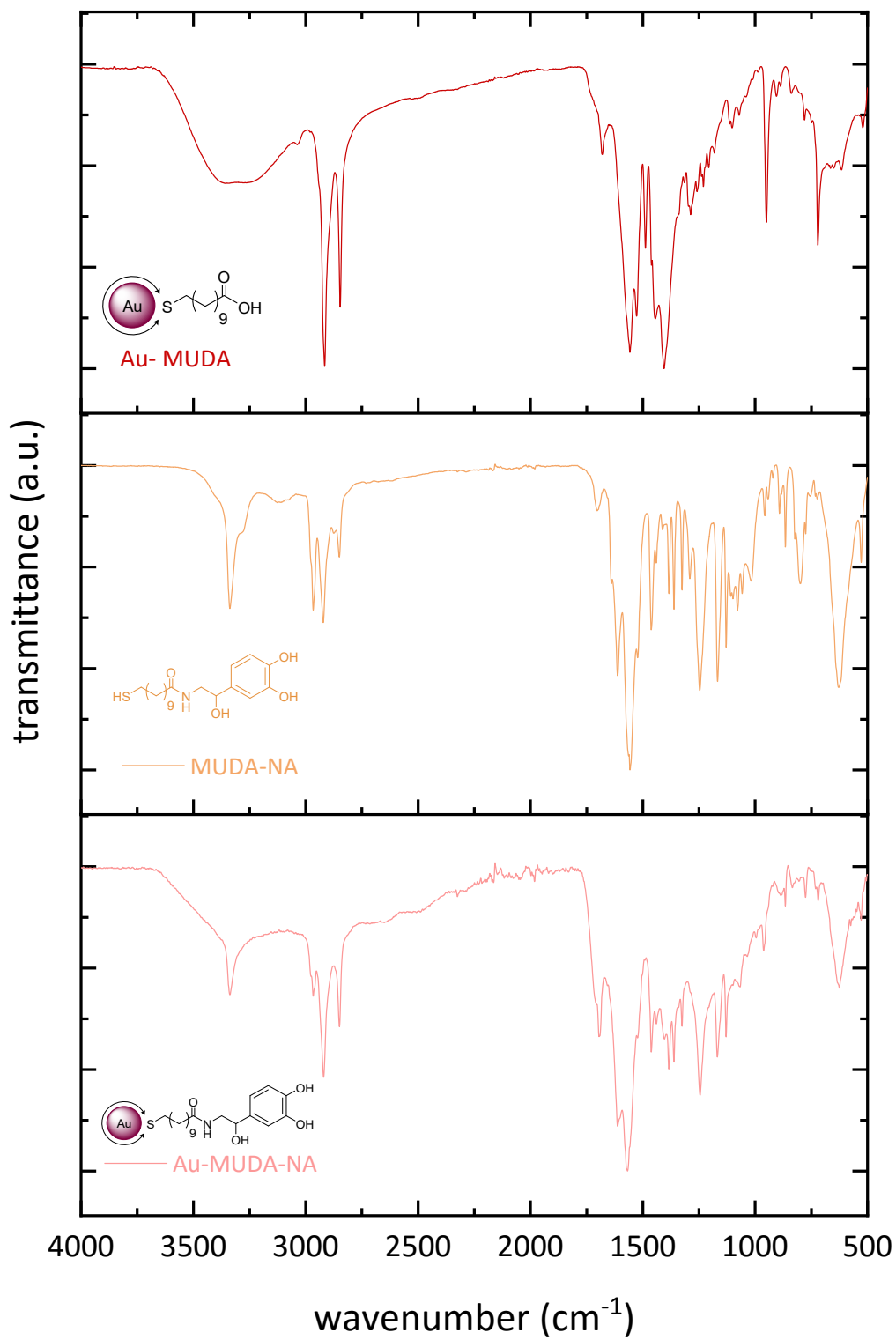


Figure 4: Normalised IR spectra of Au-MUDA NPs (above), the ligand MUDA-NA (centre) and Au-MUDA-NA NPs (below).