Supplemental Information

Synthesis, Characterization, and Cellular uptake of a Glycylglycine Chelate of Magnesium

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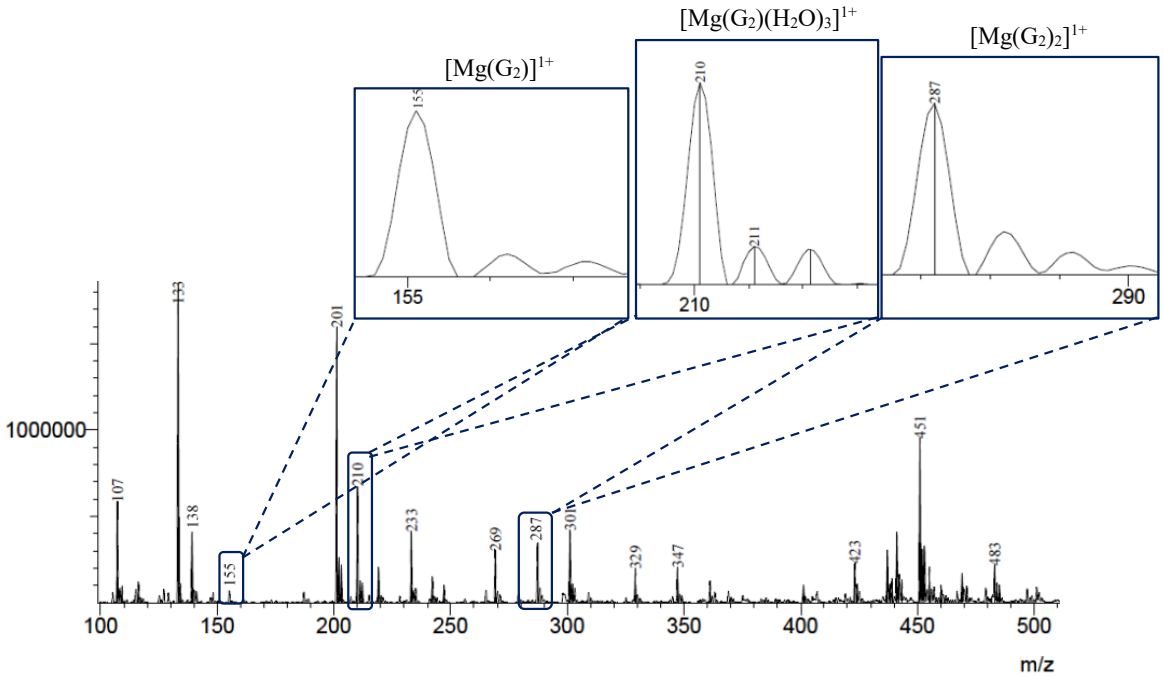


Figure S1. ESI-MS mass spectrum of **1** exhibiting an appropriate magnesium isotopic distribution pattern (IDP) and the presence of **1** along with an *in situ* formed 1:2 complex.

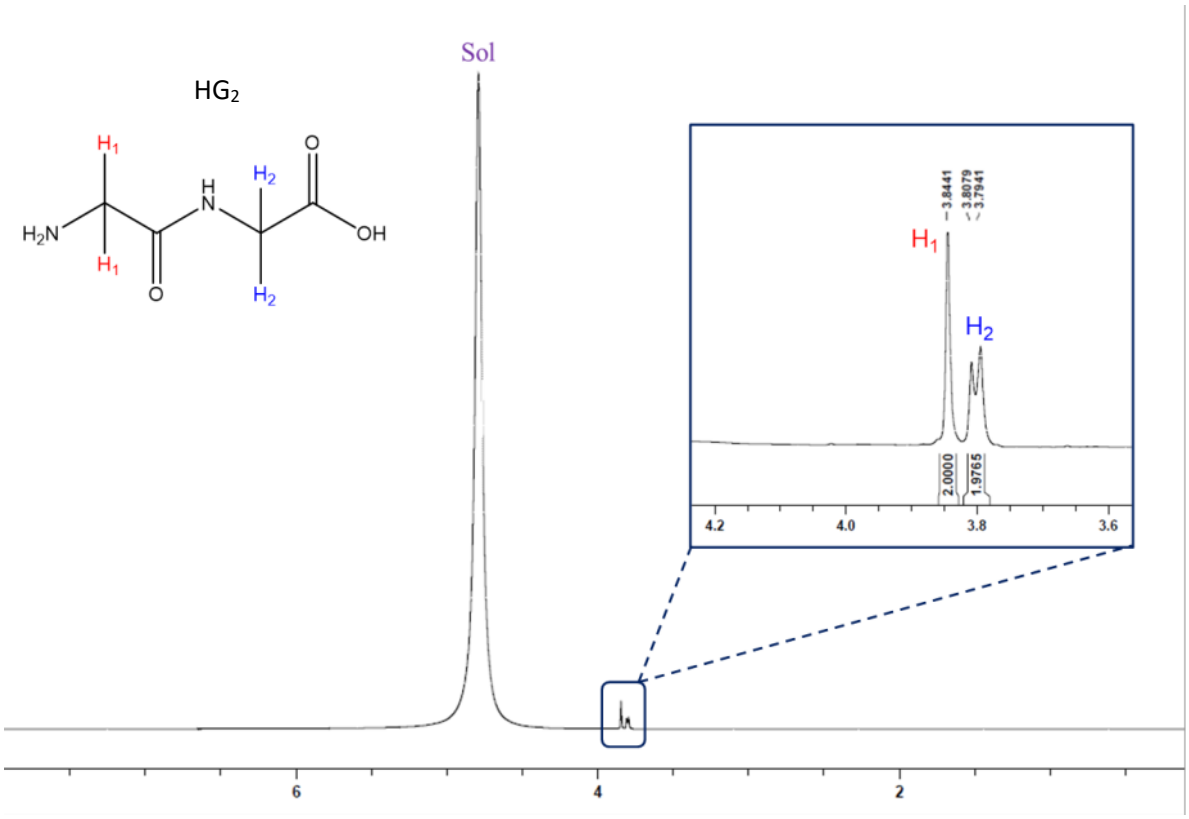


Figure S2. The full spectrum ^{1}H NMR of HG_2 showing a clean singlet and a signal with observed coupling – the observed integration coincides with the expected integration.

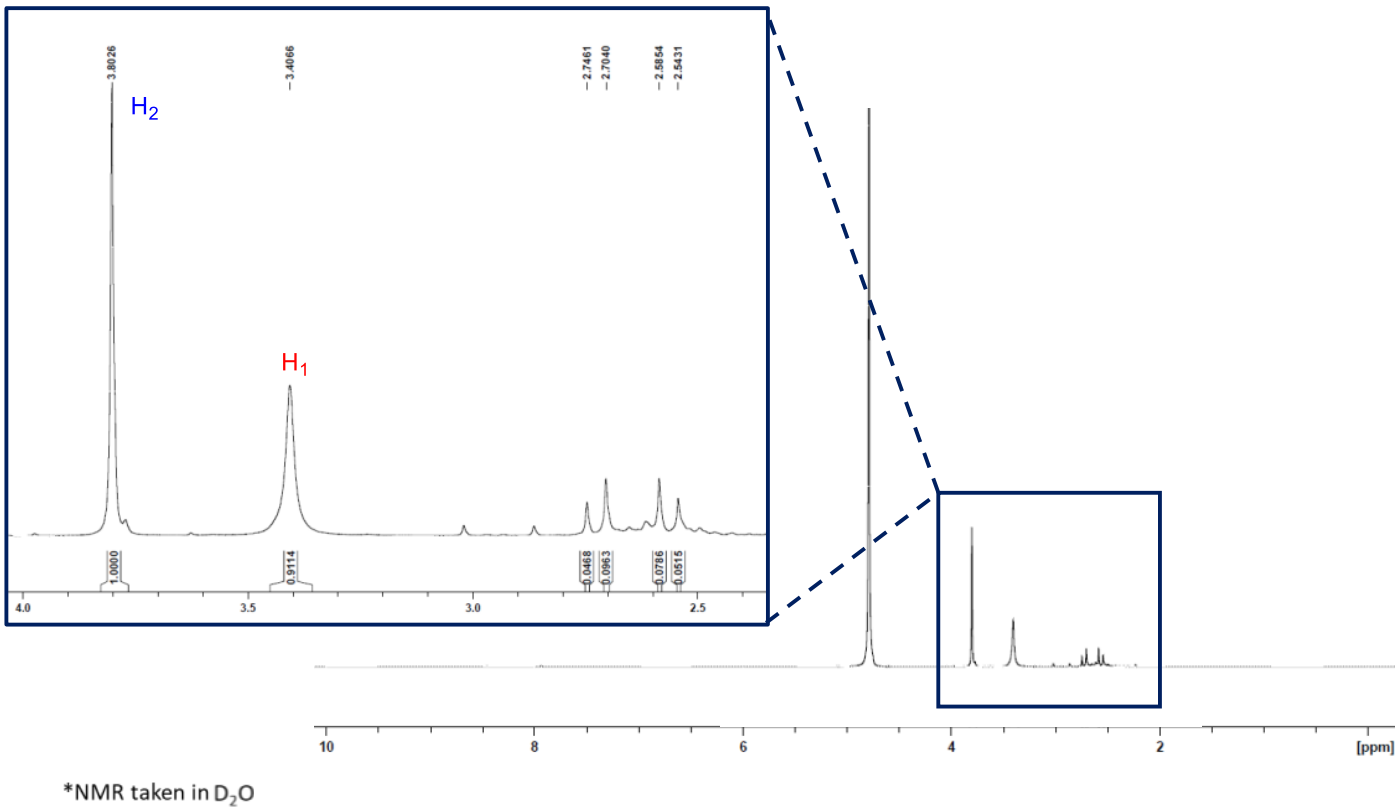


Figure S3. Full spectrum ^{1}H NMR of **1** showing two singlets and the presence of magnesium citrate. The observed integration coincides with the expected integration values.

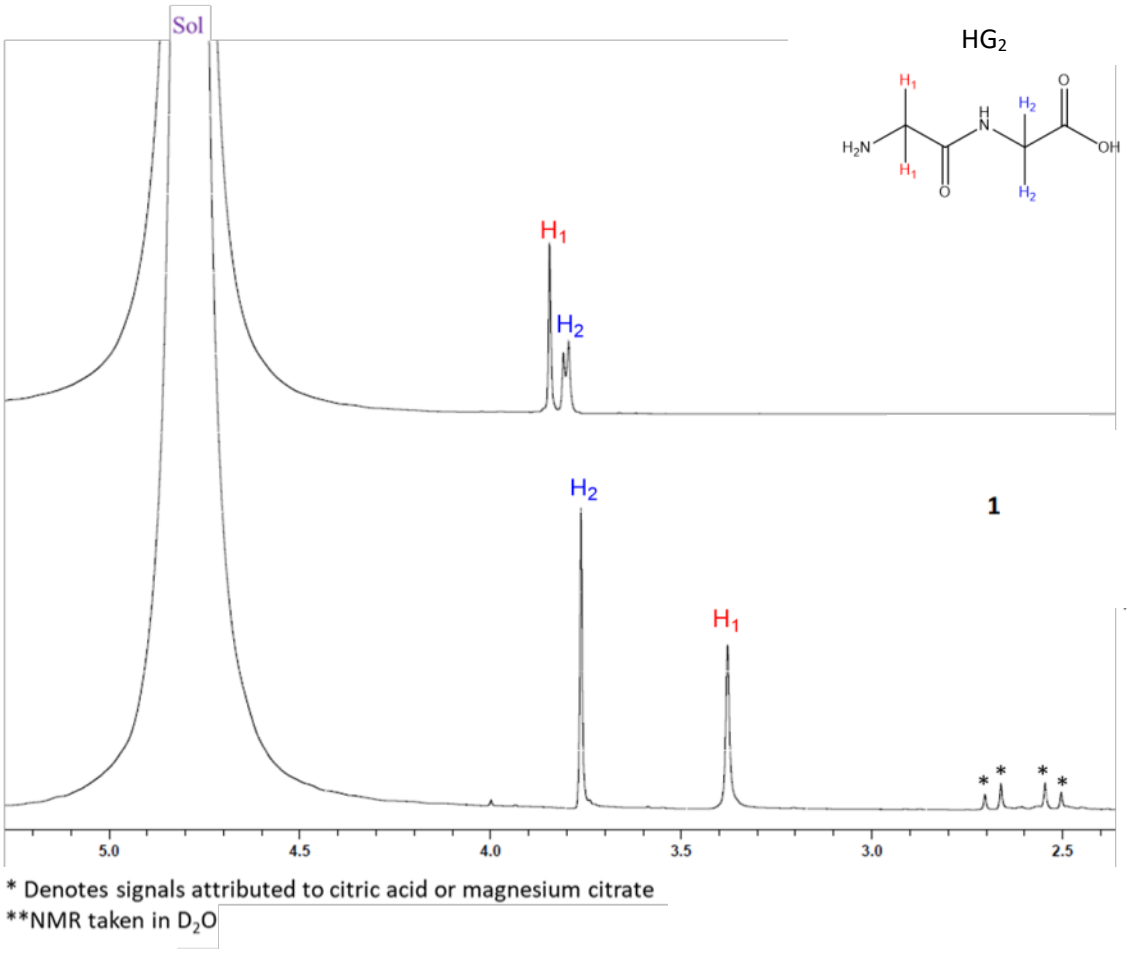


Figure S4. ^{1}H NMR spectra overlay of HG_2 (**Top**) and the 1 complex (**Bottom**) – the ^{1}H NMR spectrum of **1** shows the presence of magnesium citrate, but the desired integration is conserved between HG_2 and **1**. Observed coupling of the H_2 proton of HG_2 is no longer observed for **1**.

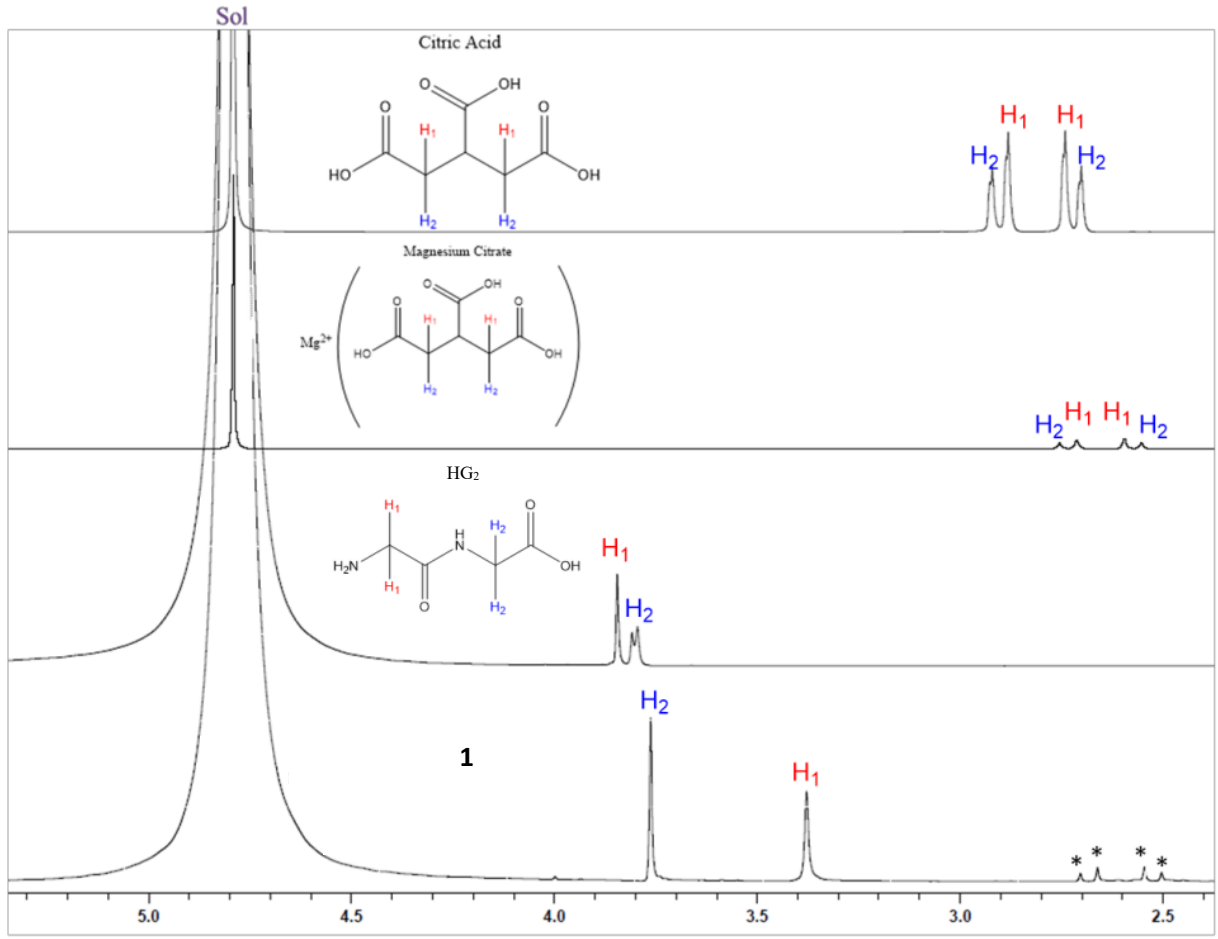


Figure S5. ^{1}H NMR spectra overlay for citric acid (**Top**), magnesium citrate (**Second from Top**), HG_2 (**Third from Top**), and **1**(**Bottom**). The integration is conserved between HG_2 and **1**, consistent with the formation of magnesium citrate.

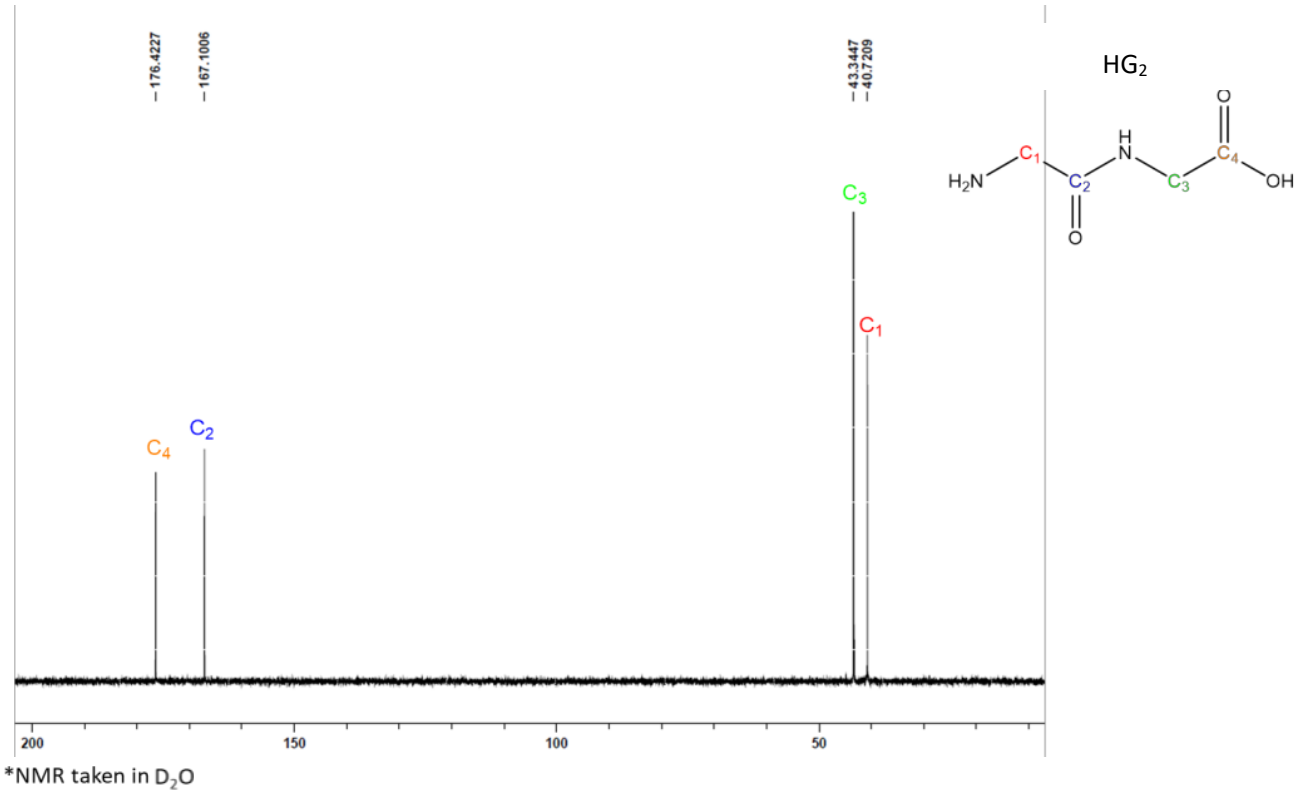


Figure S6. Full spectrum ^{13}C NMR of HG_2 .

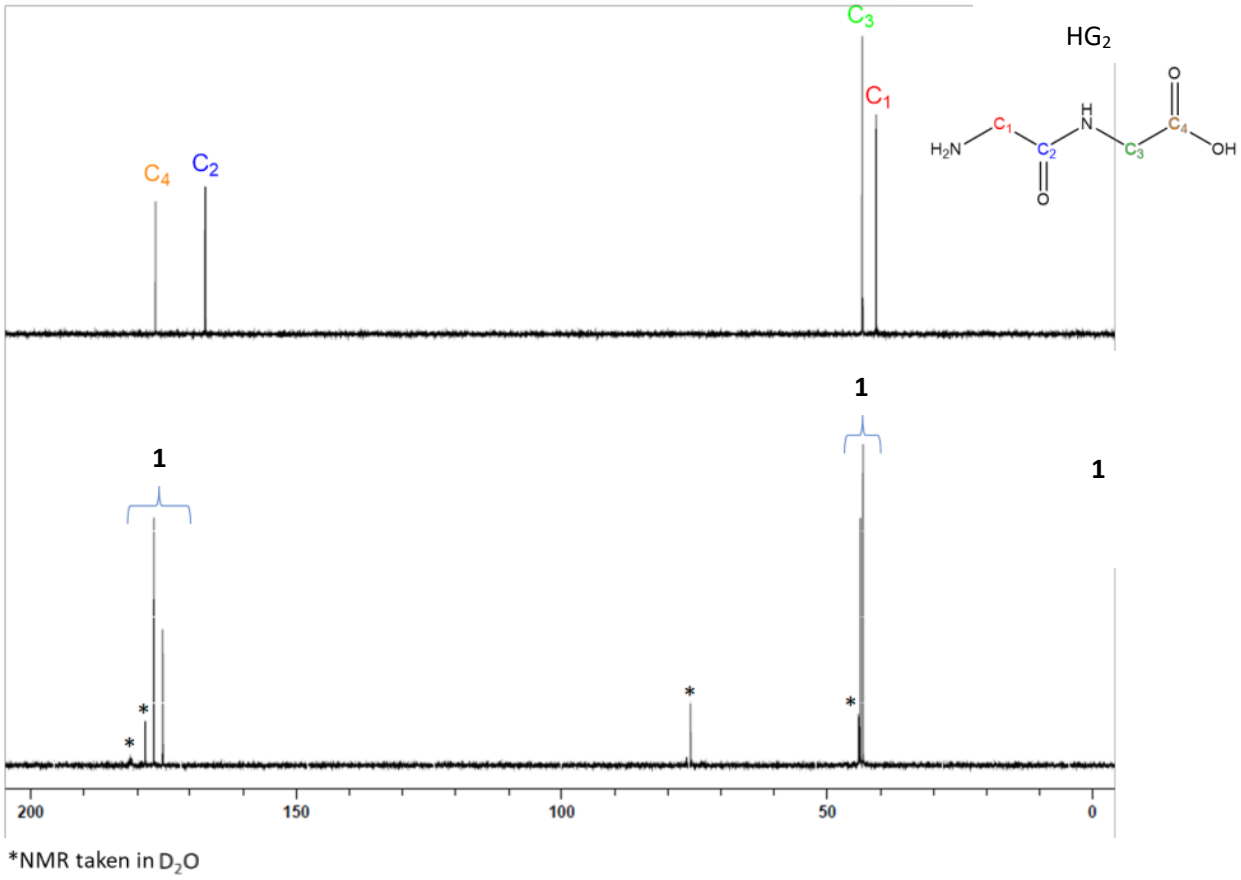


Figure S7. Full spectra ^{13}C NMR overlay of HG_2 (**Top**) and **1** (**Bottom**). **1** showed four signals attributed to magnesium citrate as marked by the asterisks, but the observation of four carbon signals attributed to HG_2 are conserved.

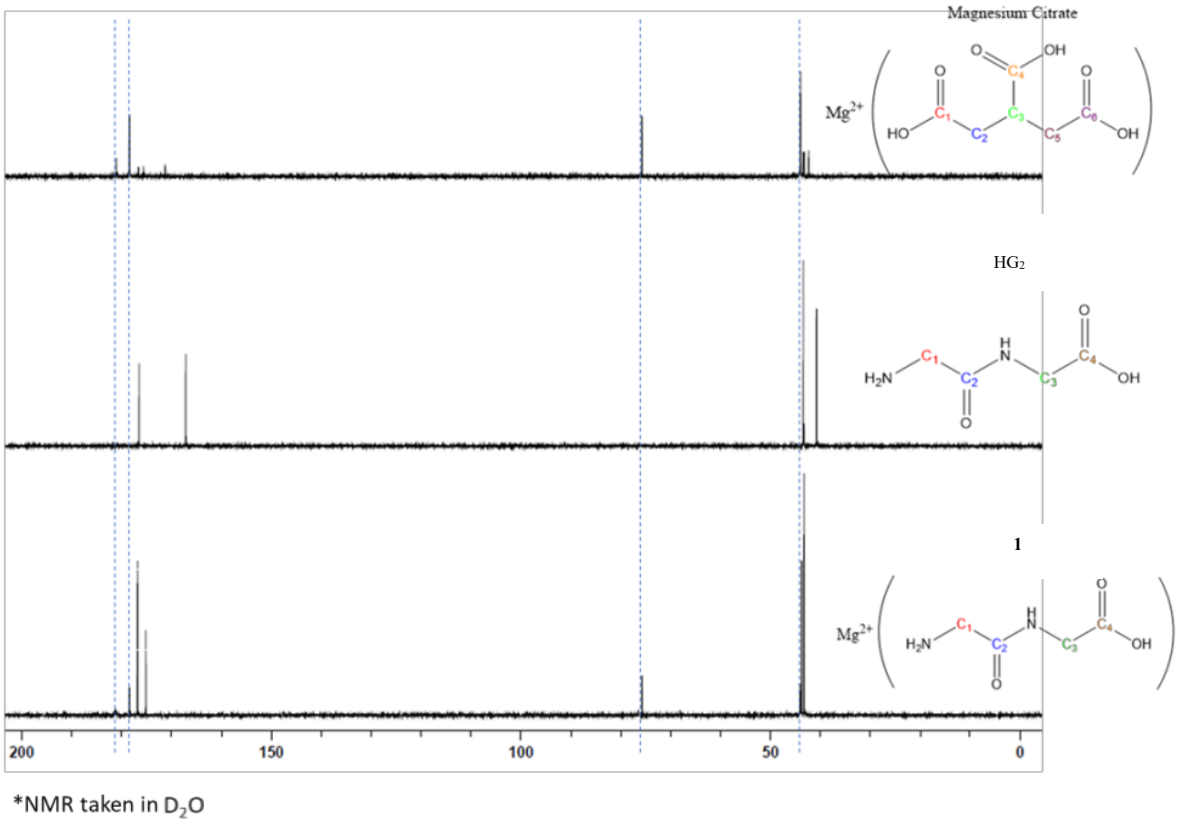


Figure S8. Full spectra ^{13}C NMR overlay of magnesium citrate (**Top**), HG_2 (**Middle**), and **1** (**Bottom**). The overlay illustrates the impurity observed in the spectra of **1** attributed to magnesium citrate, while the carbon signals attributed to HG_2 are conserved.

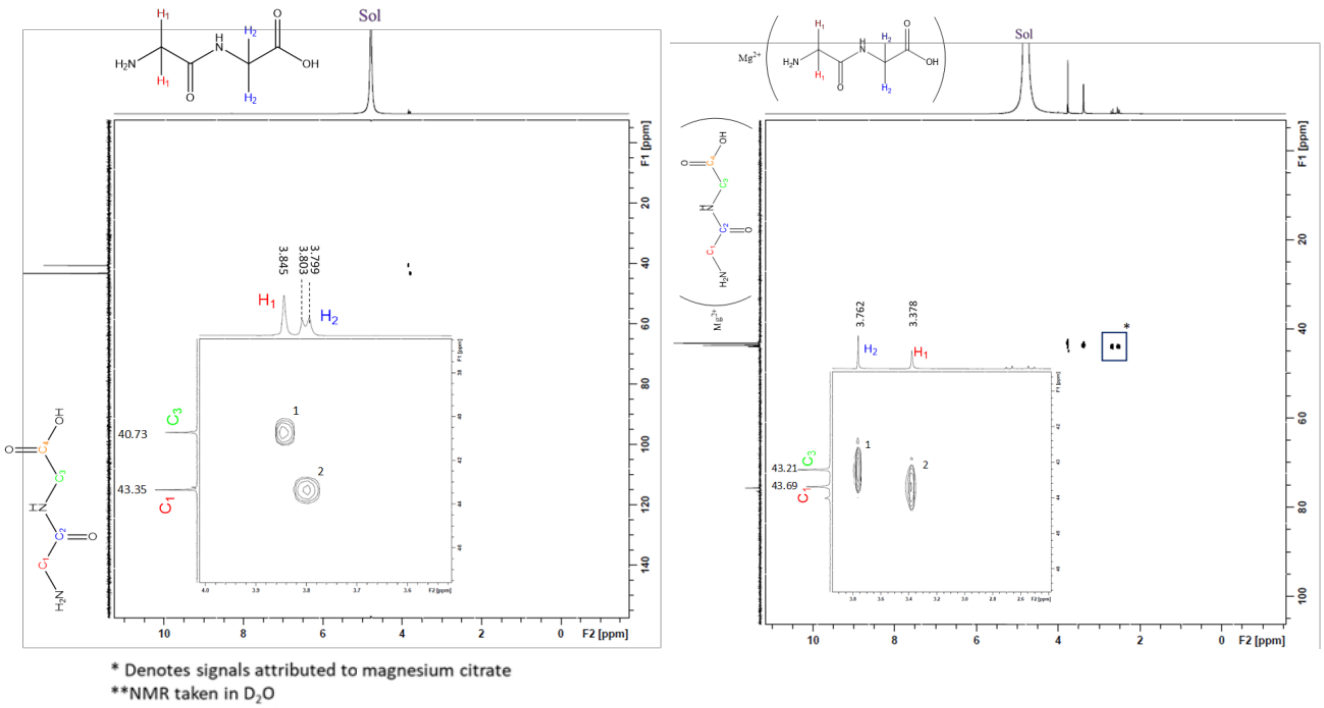
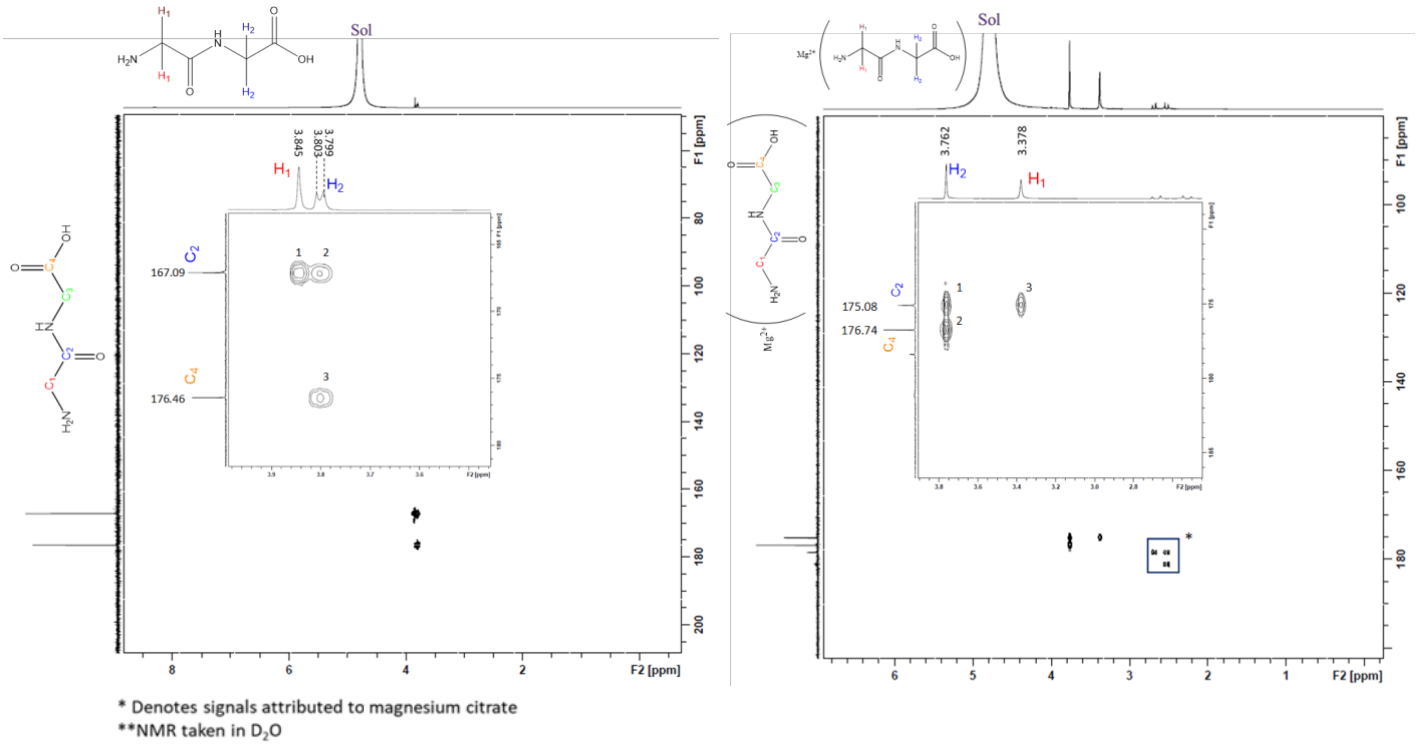


Figure S9. Full spectra HSQC of HG_2 (**Left**) and HSQC of **1** (**Right**) utilized to confirm the proton and carbon assignments of HG_2 and **1**.



* Denotes signals attributed to magnesium citrate
**NMR taken in D_2O

Figure S10. Full spectra HMBC of HG_2 (**Left**) and HMBC (**Right**) of **1** utilized to confirm the proton and carbon assignments of HG_2 and **1**.

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Mg	N
8.78 %	9.85 %
	9.92 %

Figure S11. ICP analysis of **1**.

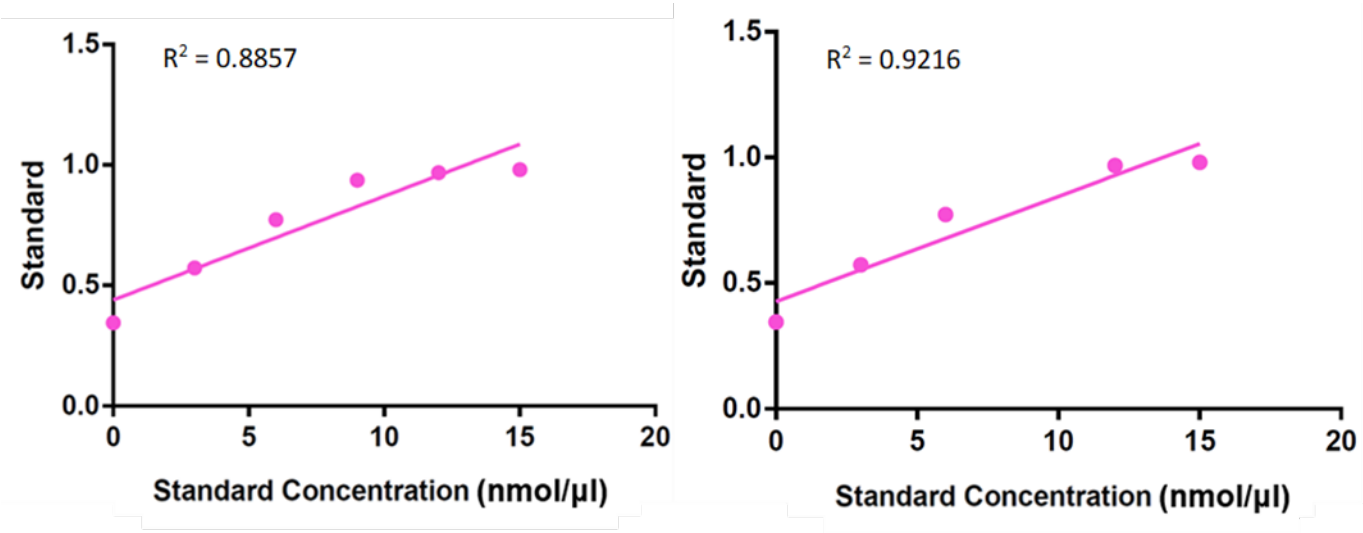

Figure S12. Plot of the linear regression of magnesium assay kit standard to confirm linearity.