

Supporting Information

Glycosylated copper(II) ionophores as prodrugs for β -glucosidase activation in targeted cancer therapy.

Valentina Oliveri¹, Maurizio Viale², Giulia Caron³, Cinzia Aiello², Rosaria Gangemi² and Graziella Vecchio^{1*}

¹ University of Catania, Dipartimento di Scienze Chimiche, Viale A. Doria, 6, 95125 – Catania (Italy).

² IRCCS Azienda Ospedaliera Universitaria San Martino – IST Istituto Nazionale per la Ricerca sul Cancro, U.O.C. Terapia Immunologia, L.go R. Benzi, 10, 16132 – Genova (Italy)

³ University of Torino, BMSS, Via Quarello, 11, 10135 – Torino (Italy)

TABLE OF CONTENTS:

Figure S1-S6: The ^1H NMR, COSY, TOCSY, gHSQCAD, ESI-MS spectra of GluMeHQ

Figure S7-S16: The ^1H NMR, COSY, gHSQCAD, gHMBC and ESI-MS spectra of GluClHQ

Figure S17-S23: The ^1H NMR, COSY, gHSQCAD, gHMBC and ESI-MS spectra of GluCl₂HQ

Figure S24-S26: Enzymatic kinetic assay of GluClHQ, GluCl₂HQ and GluMeHQ in the presence of β -glucosidase

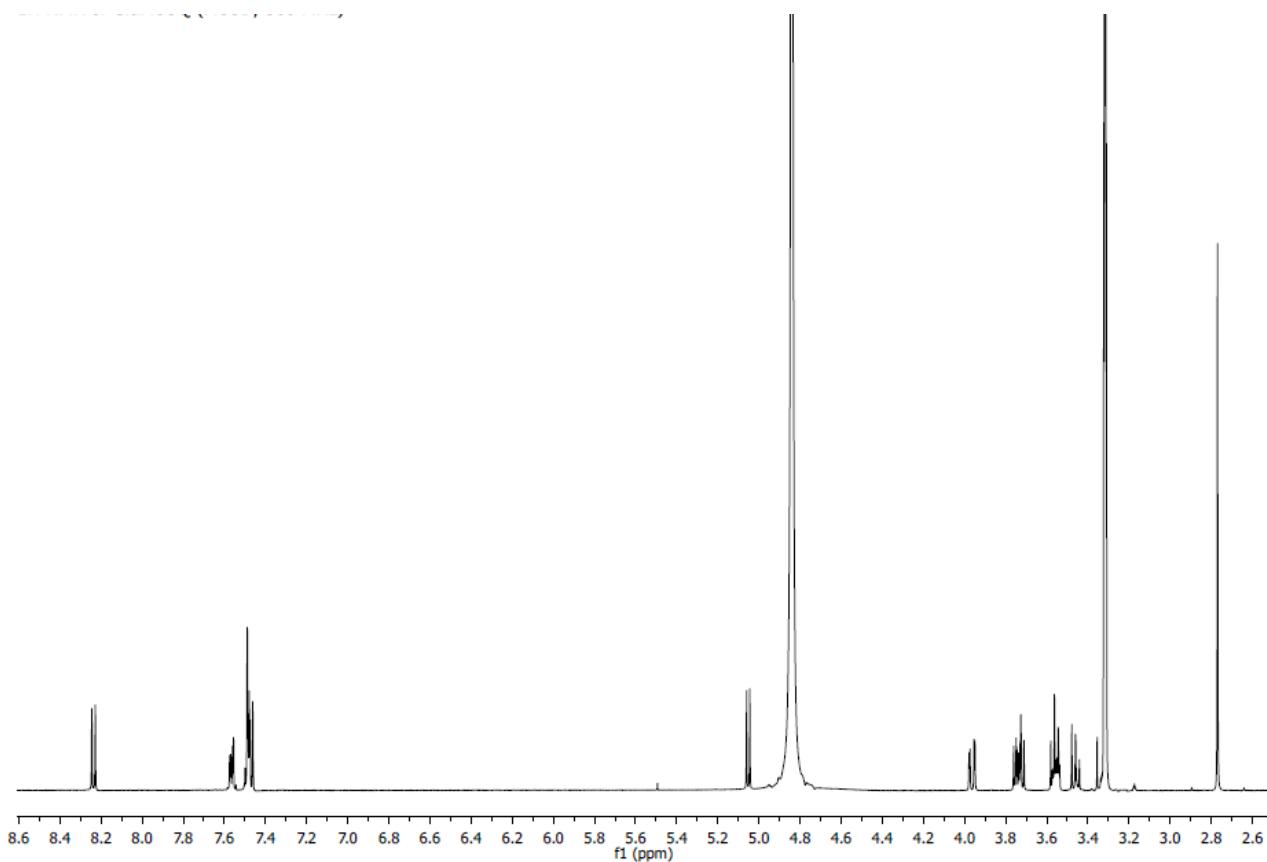


Figure S1: ¹H NMR spectrum of GluMeHQ (500 MHz, CD₃OD)

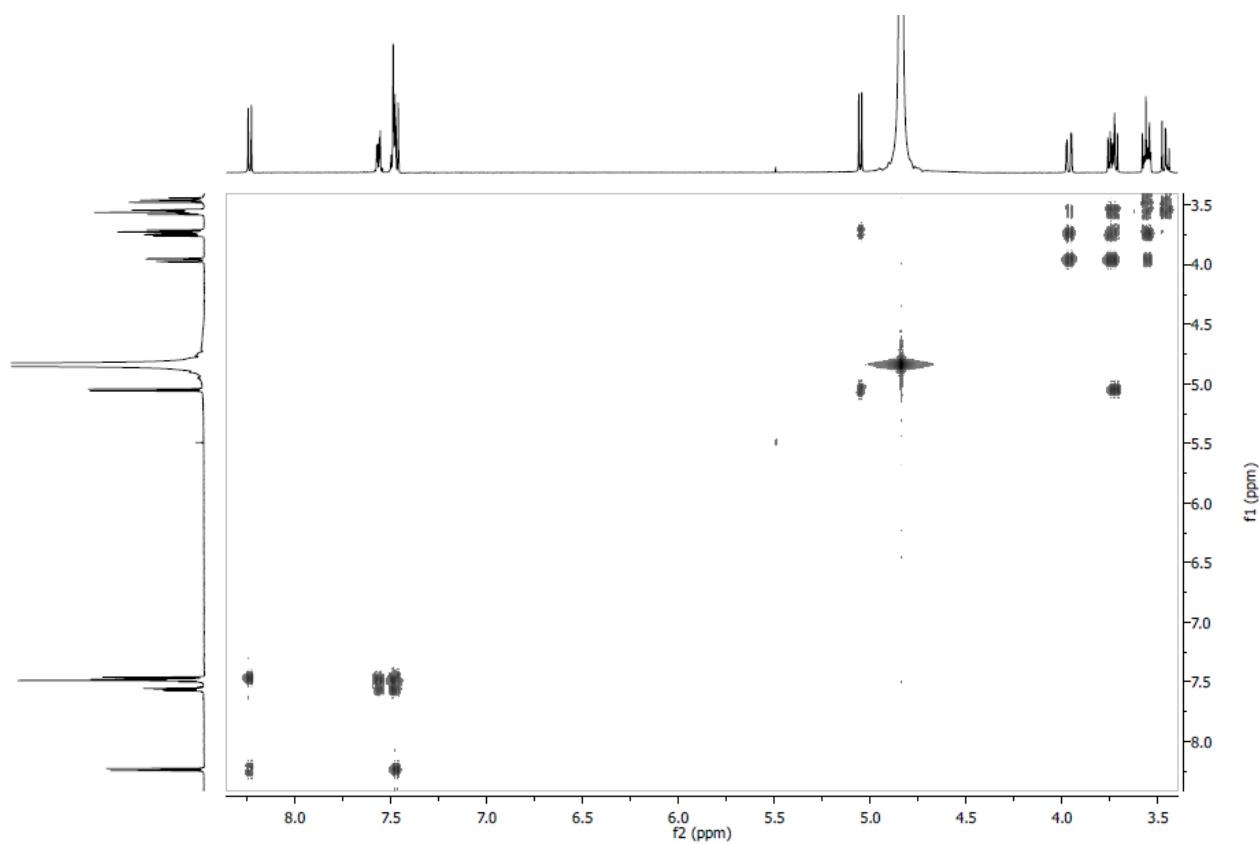


Figure S2: COSY spectrum of GluMeHQ (500 MHz, CD₃OD)

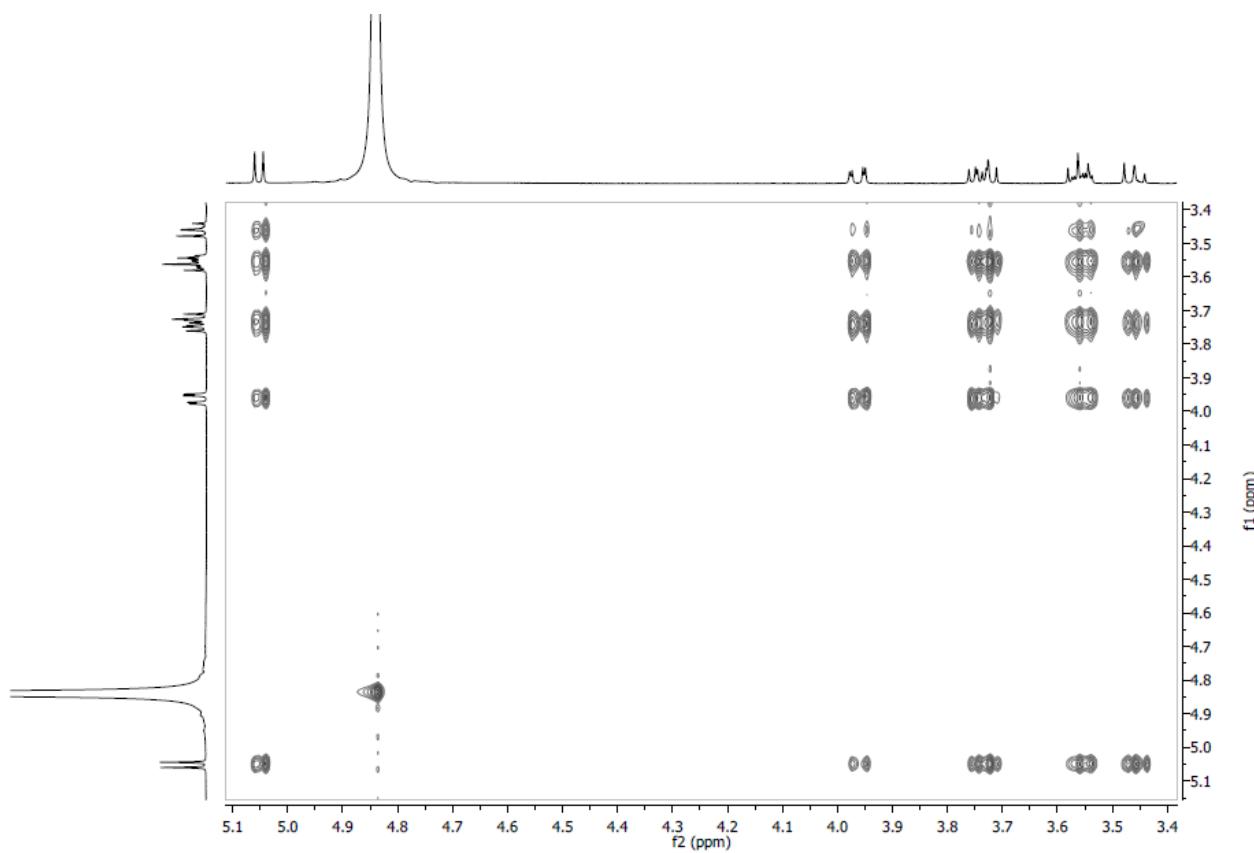


Figure S3: TOCSY spectrum of GluMeHQ (500 MHz, CD_3OD)

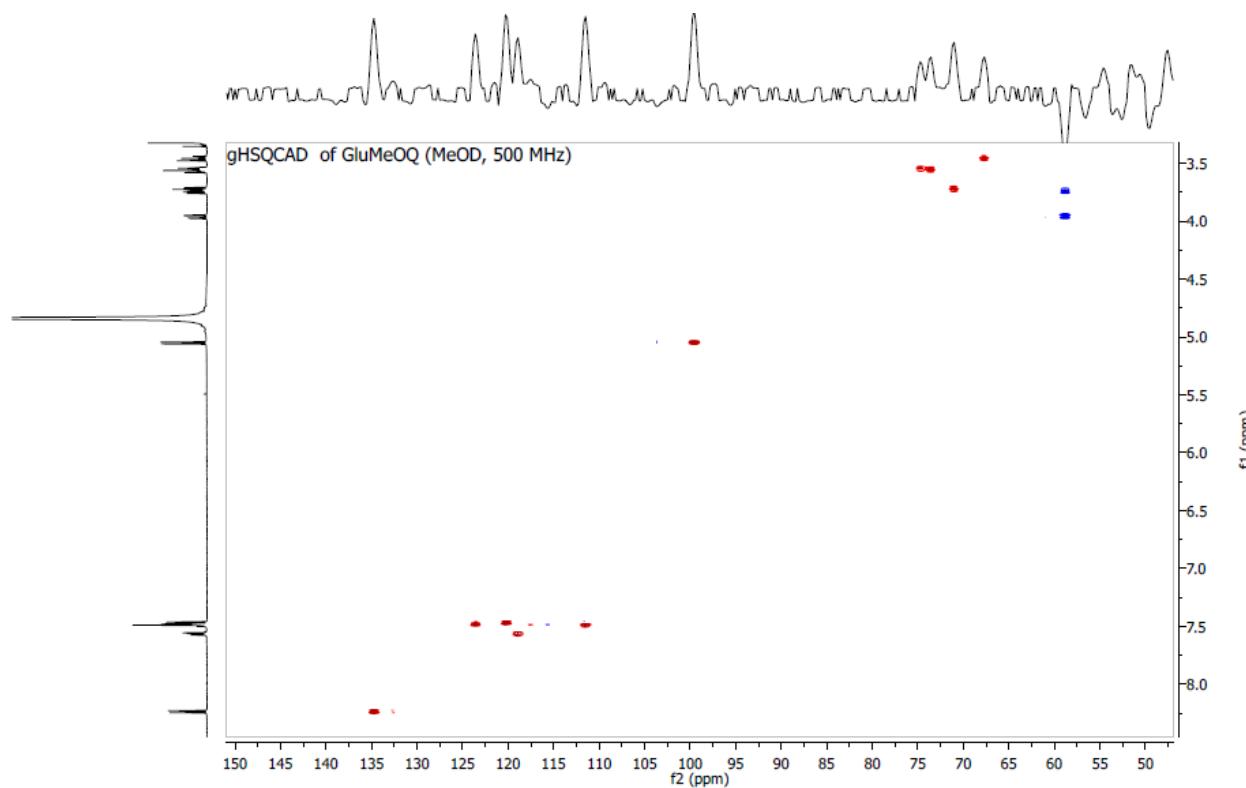


Figure S4: gHSQCAD spectrum of GluMeHQ (500 MHz, CD_3OD)

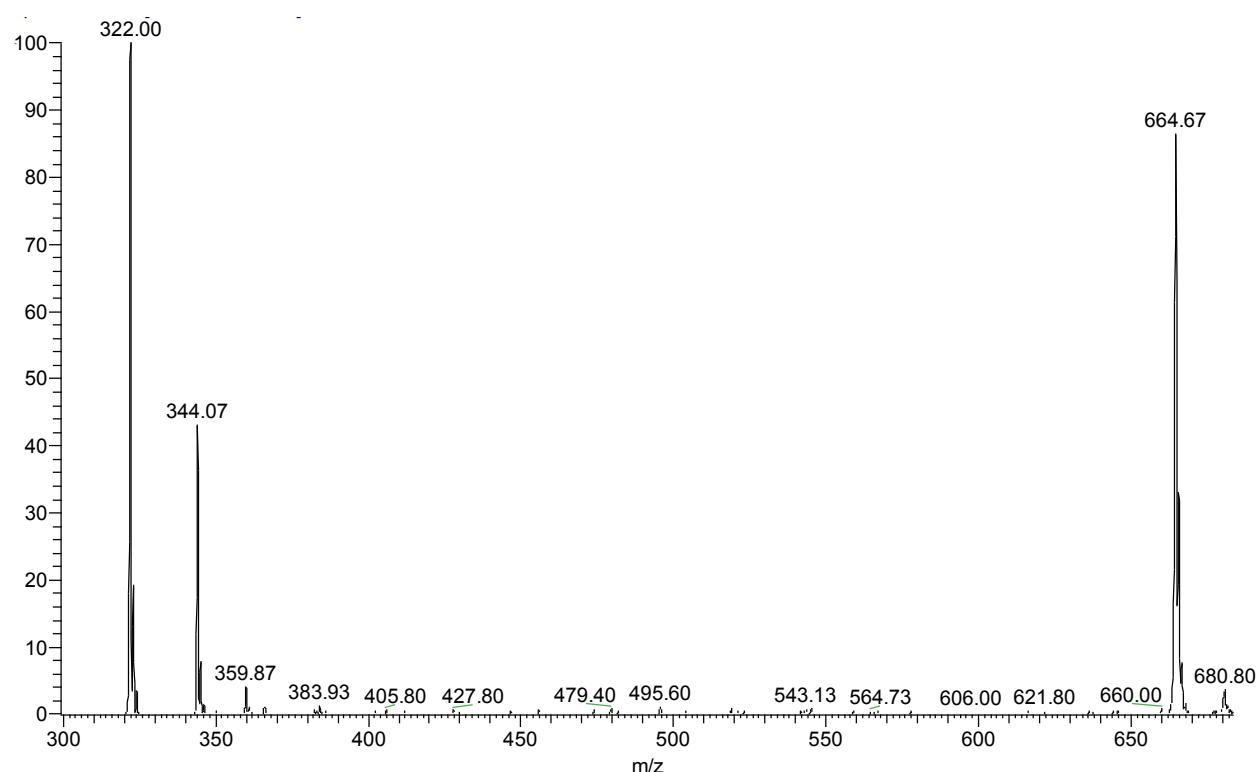


Figure S5. ESI-MS spectrum of GluMeHQ (CH_3OH)

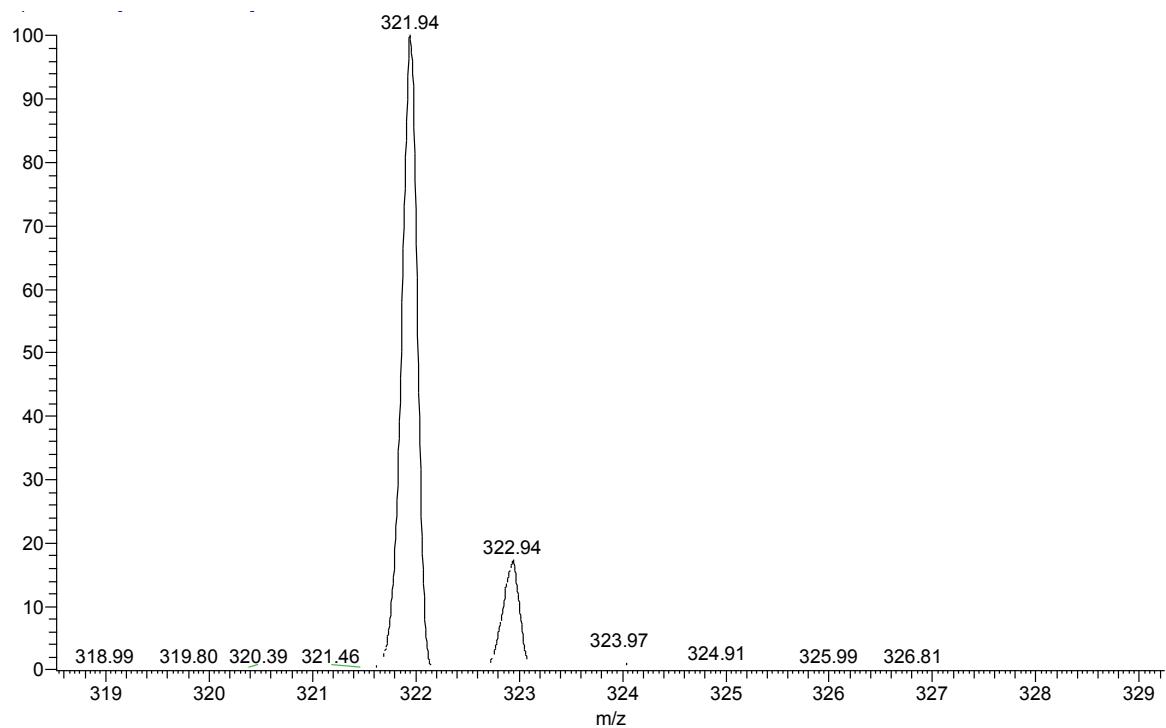


Figure S6. Zoom scan spectrum of GluMeHQ

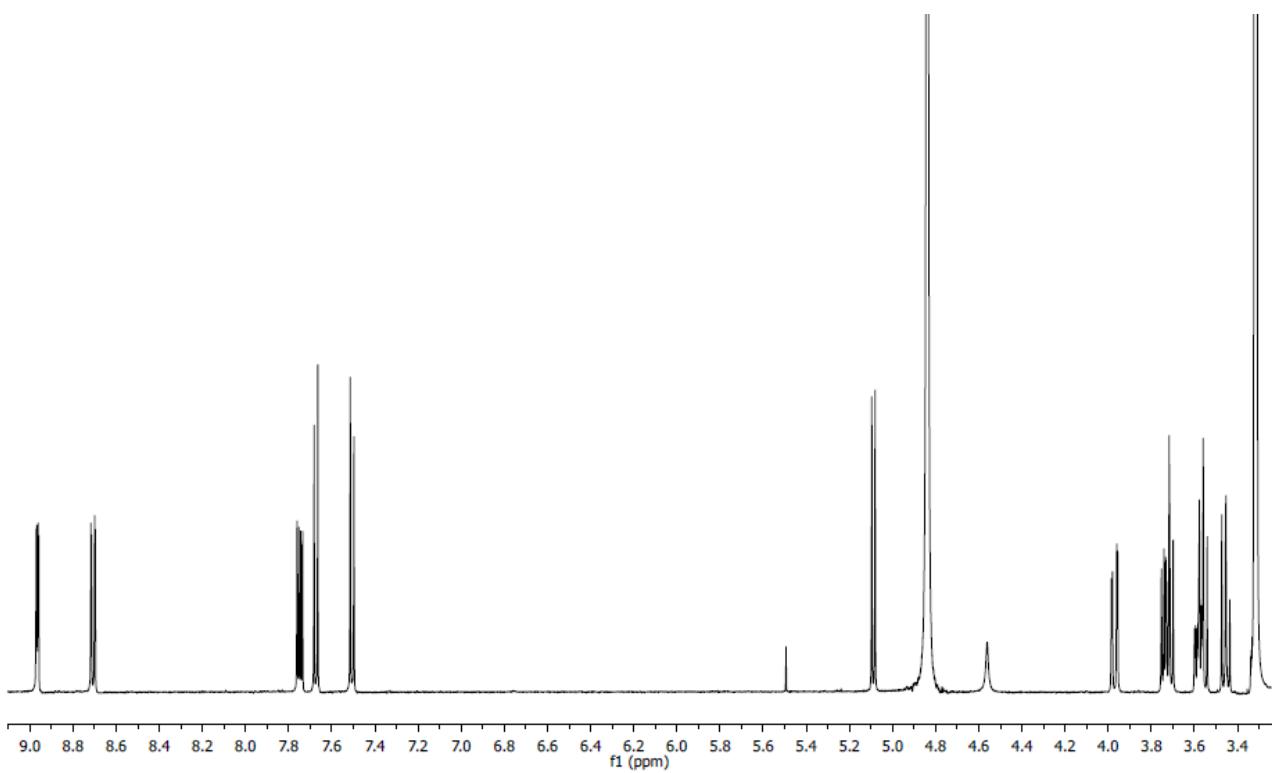


Figure S7: ¹H NMR spectrum of GluClHQ (500 MHz, CD₃OD)

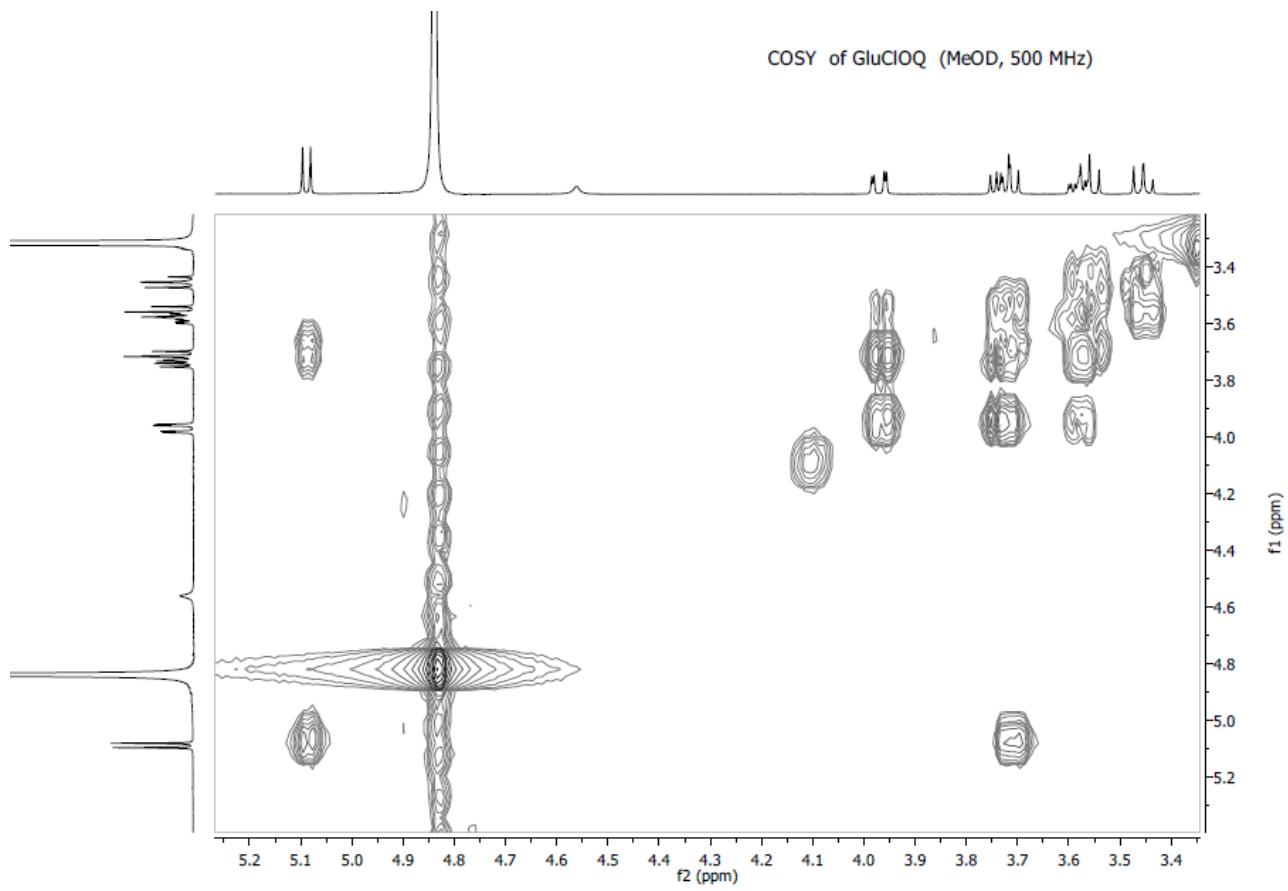


Figure S8: ¹H-¹H COSY spectrum of GluClHQ (500 MHz, CD₃OD)

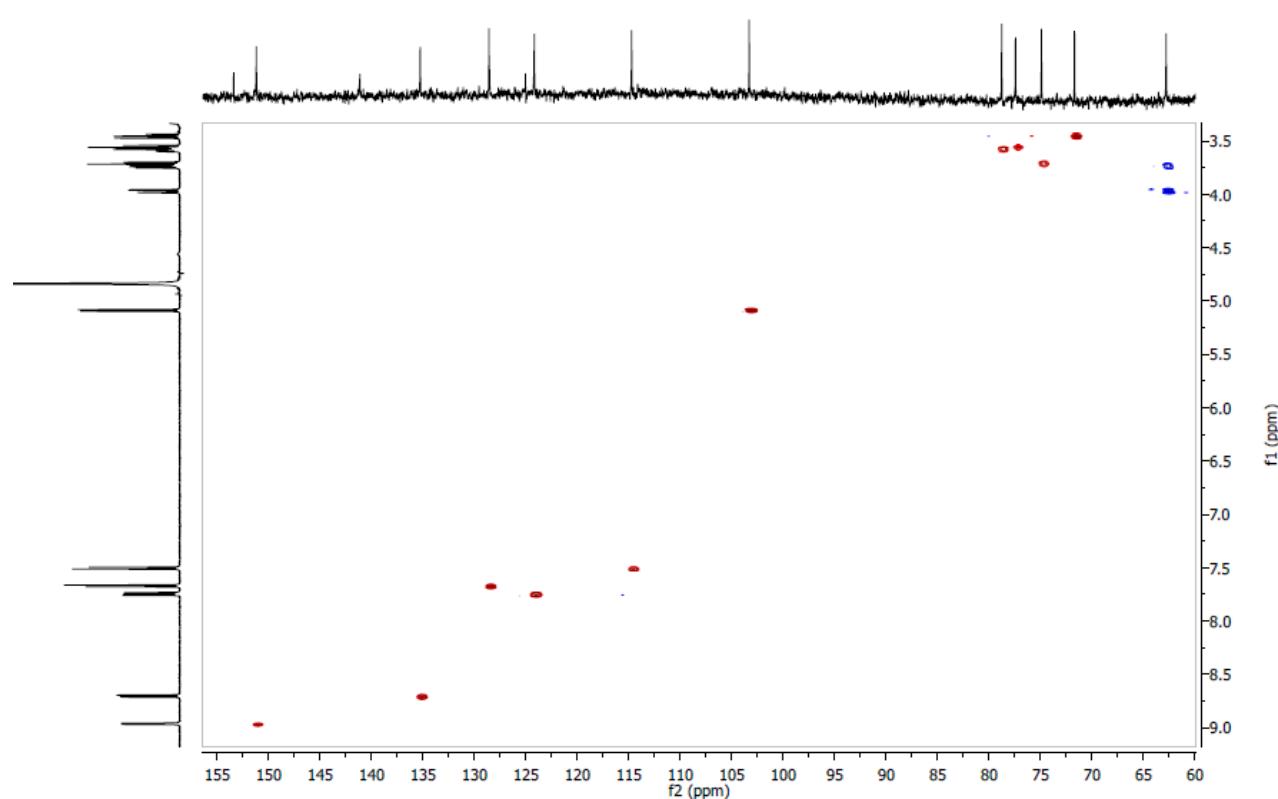


Figure S9: gHSQCAD spectrum of GluClHQ (500 MHz, CD₃OD)

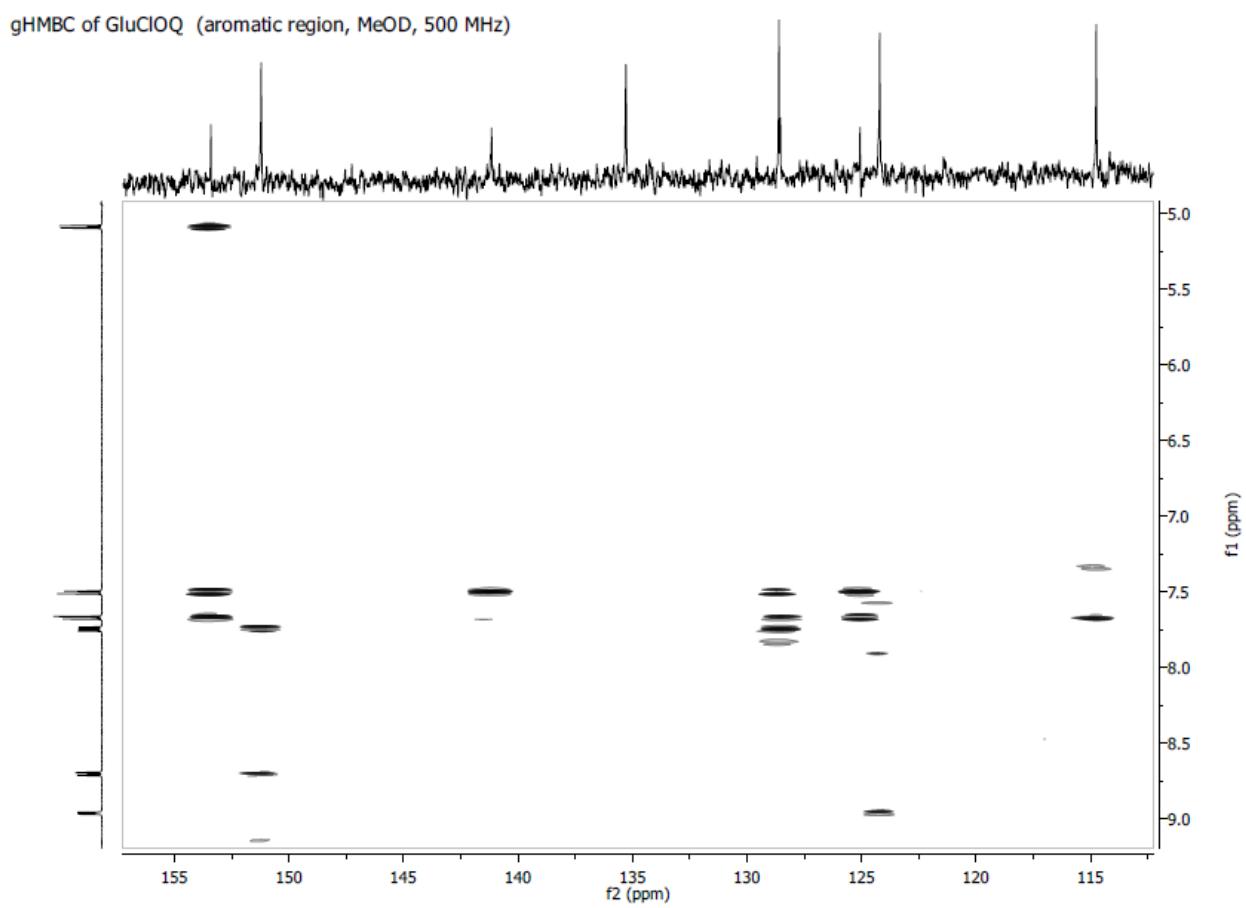


Figure S10: gHMBC spectrum of GluClHQ (aromatic region, 500 MHz, CD_3OD)

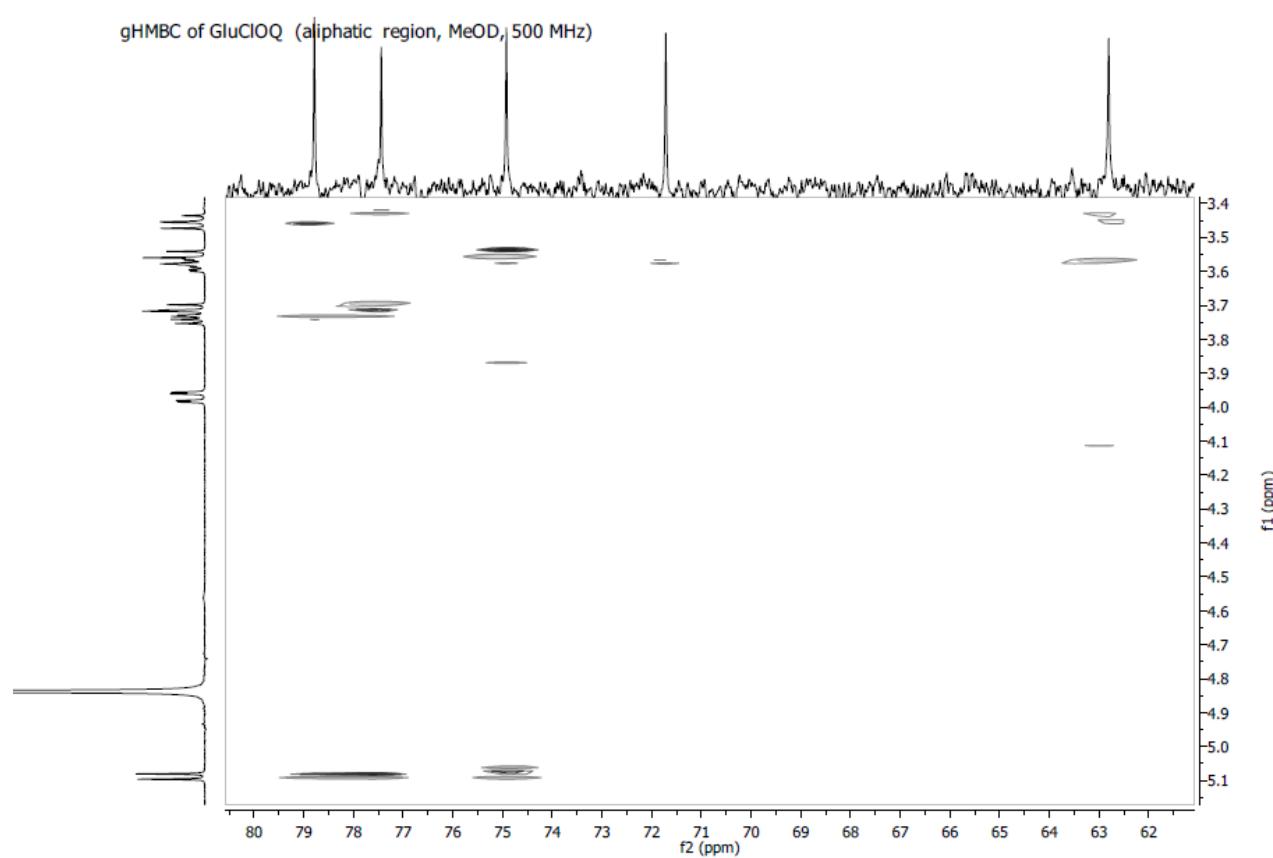


Figure S11: gHMBC spectrum of GluClHQ (aliphatic region, 500 MHz, CD_3OD)

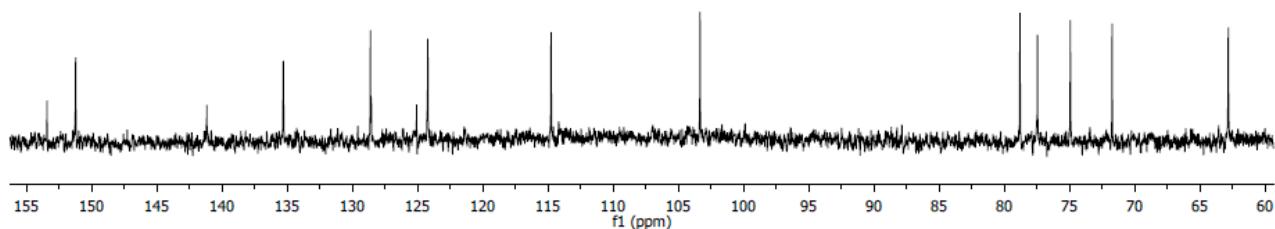


Figure S12: ^{13}C NMR spectrum of GluClHQ (125 MHz, CD_3OD)

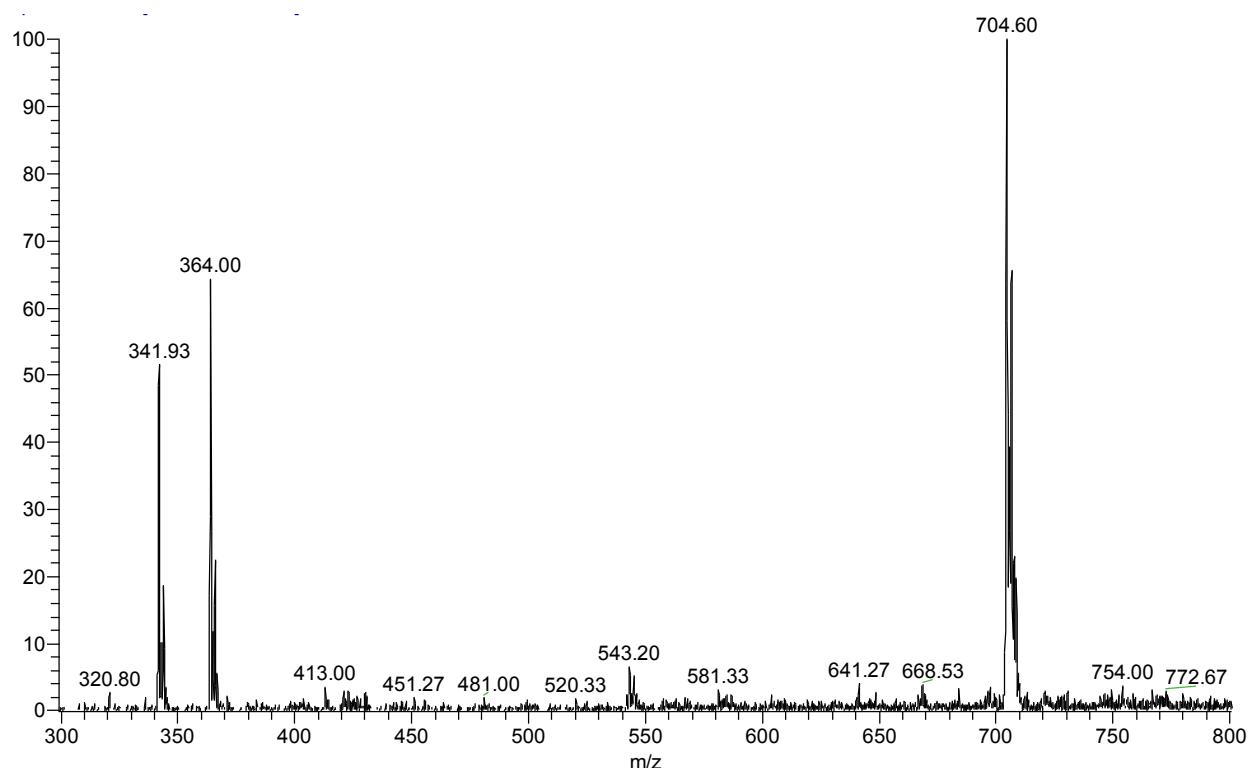


Figure S13. ESI-MS spectrum of GluClHQ (CH_3OH)

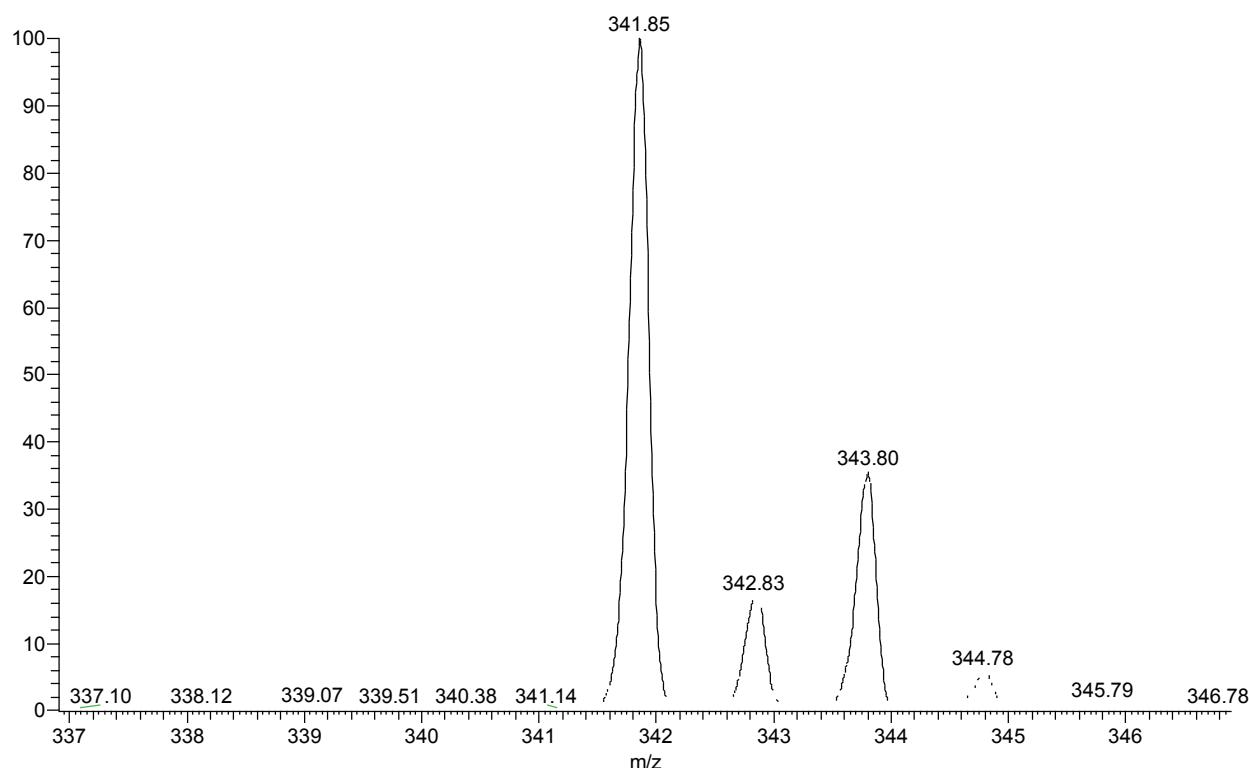


Figure S14. ESI-MS spectrum (zoom scan) of GluClHQ (CH_3OH)

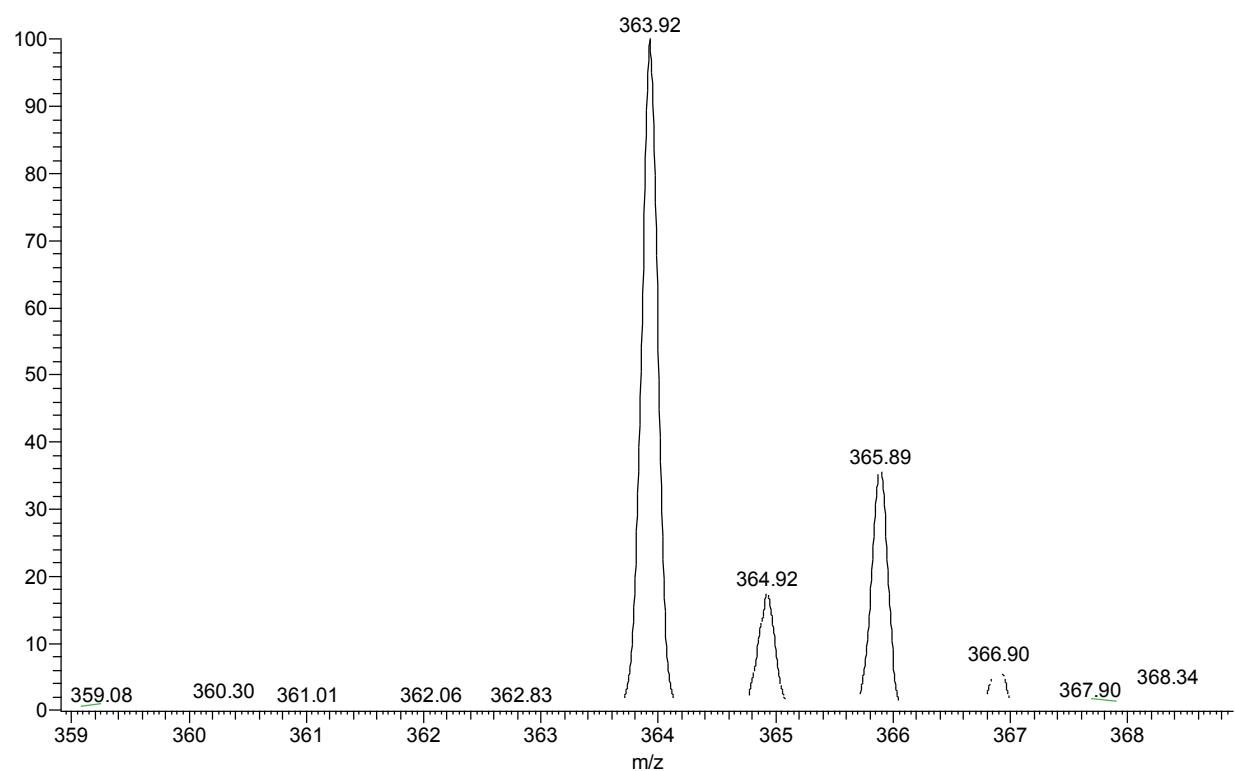


Figure S15. ESI-MS spectrum (zoom scan) of GluClHQ (CH_3OH)

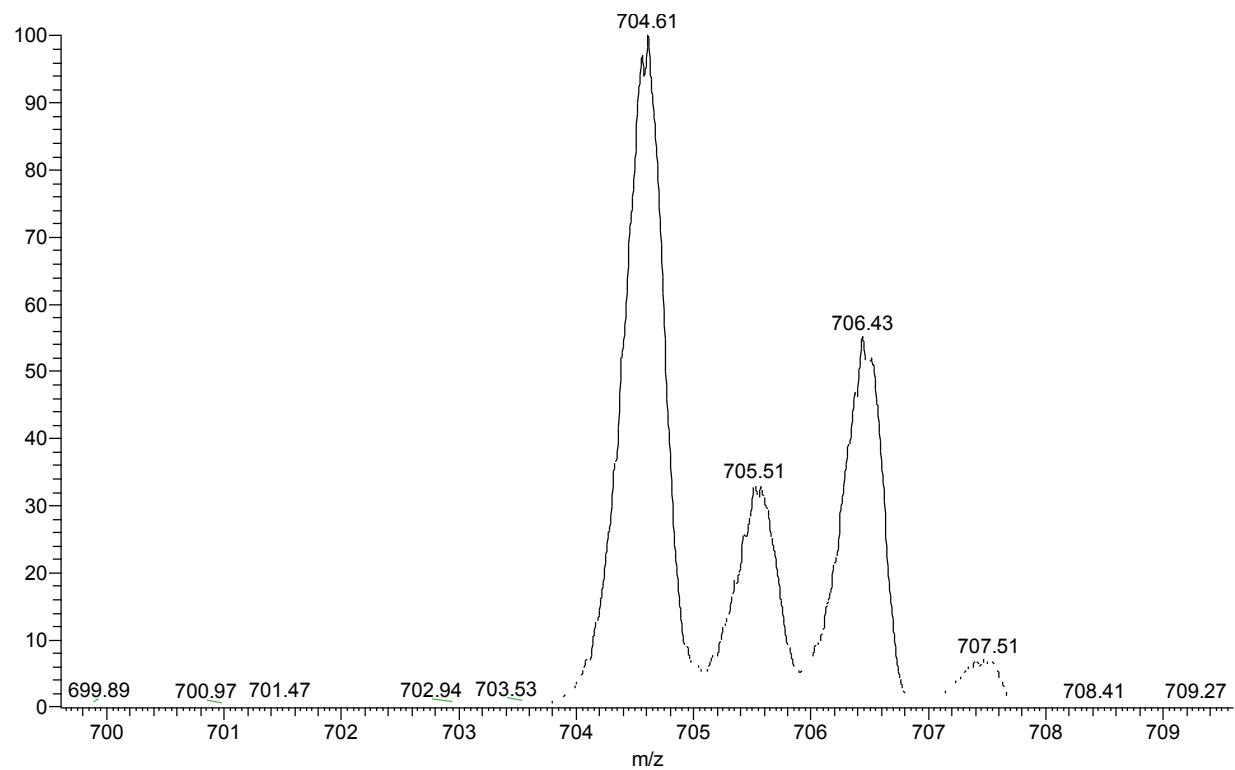


Figure S16. ESI-MS spectrum (zoom scan) of GluClHQ (CH_3OH)

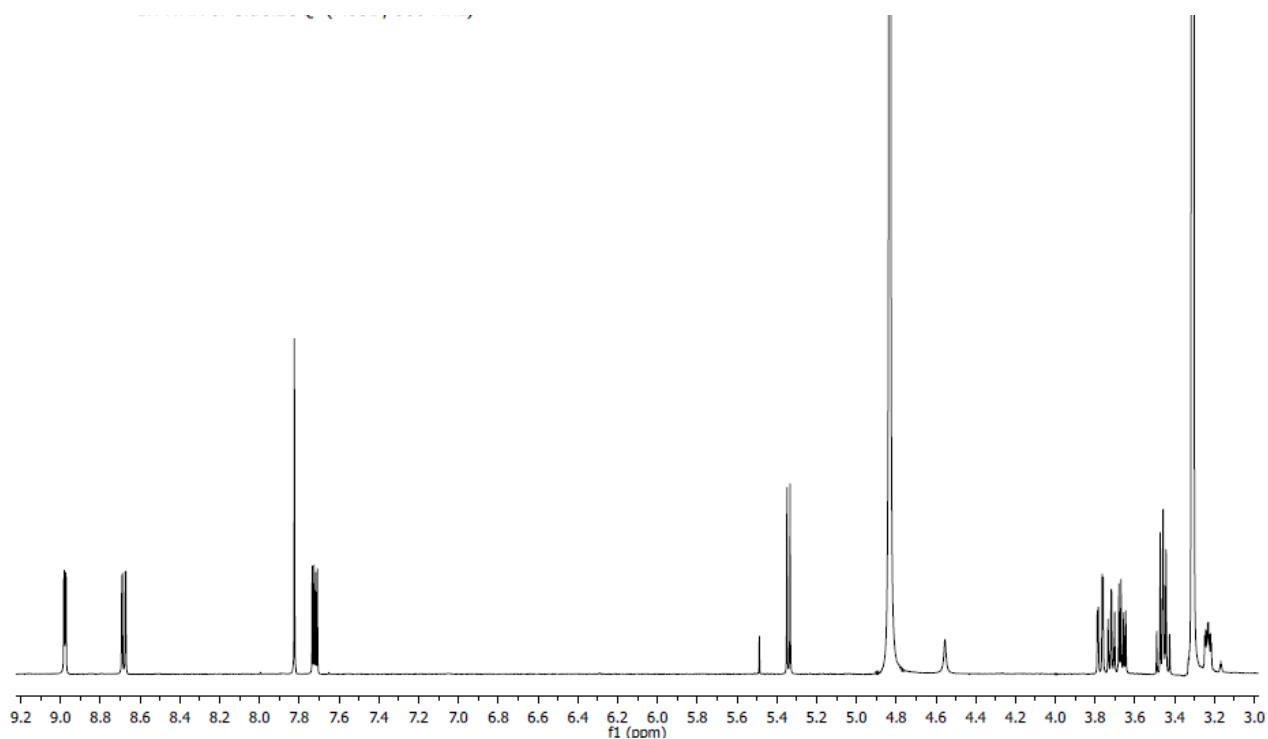


Figure S17: ¹H NMR spectrum of GluCl₂HQ (500 MHz, CD₃OD)

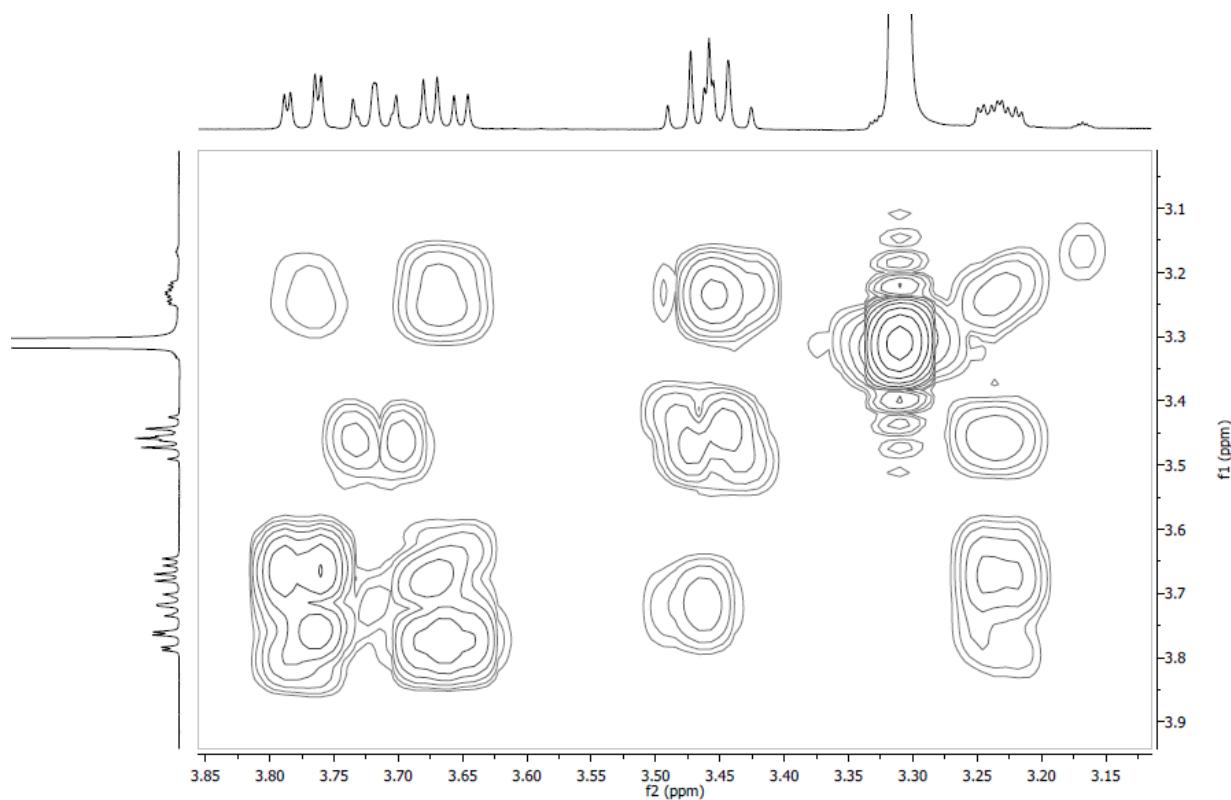


Figure S18: ¹H-¹H COSY spectrum of GluCl₂HQ (500 MHz, CD₃OD)

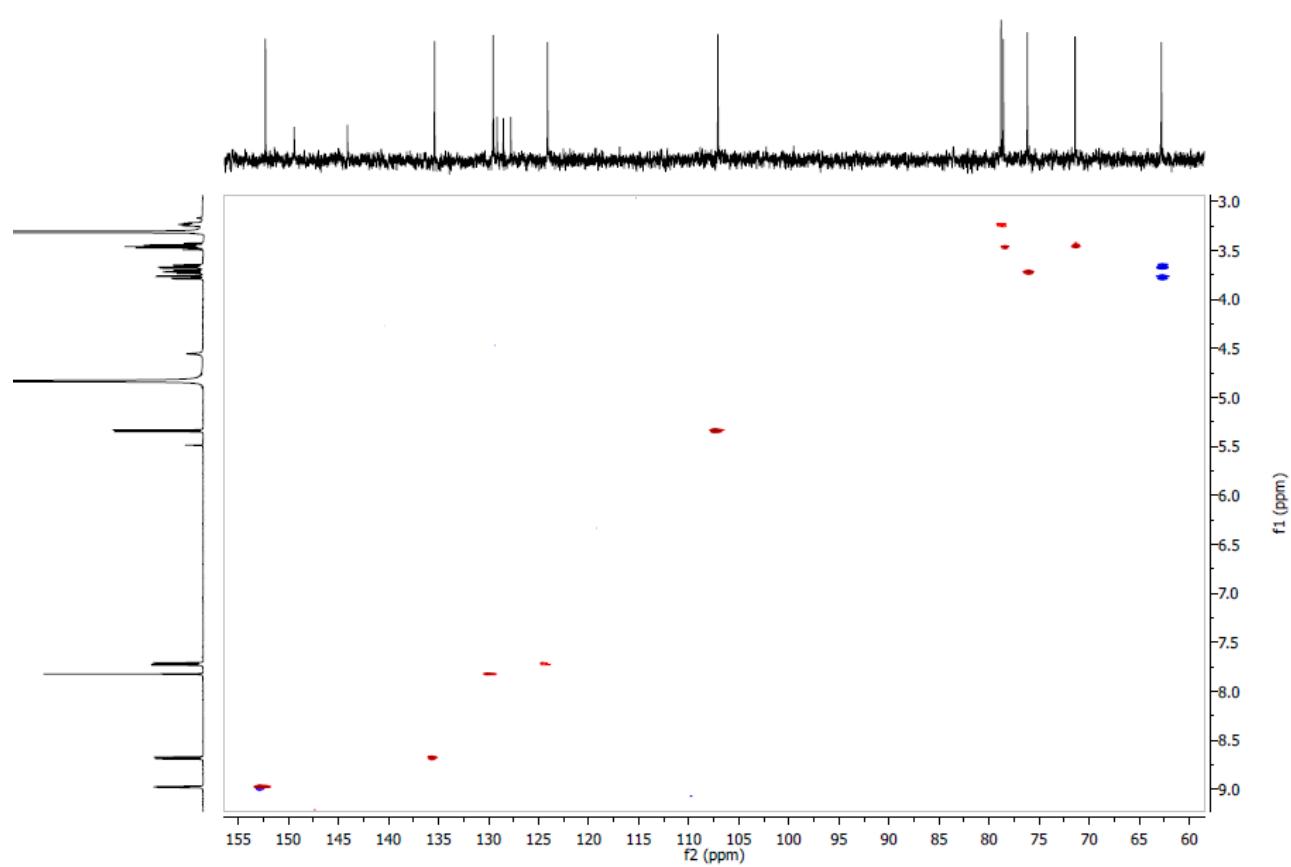


Figure S19: gHSQCAD spectrum of GluCl_2HQ (500 MHz, CD_3OD)

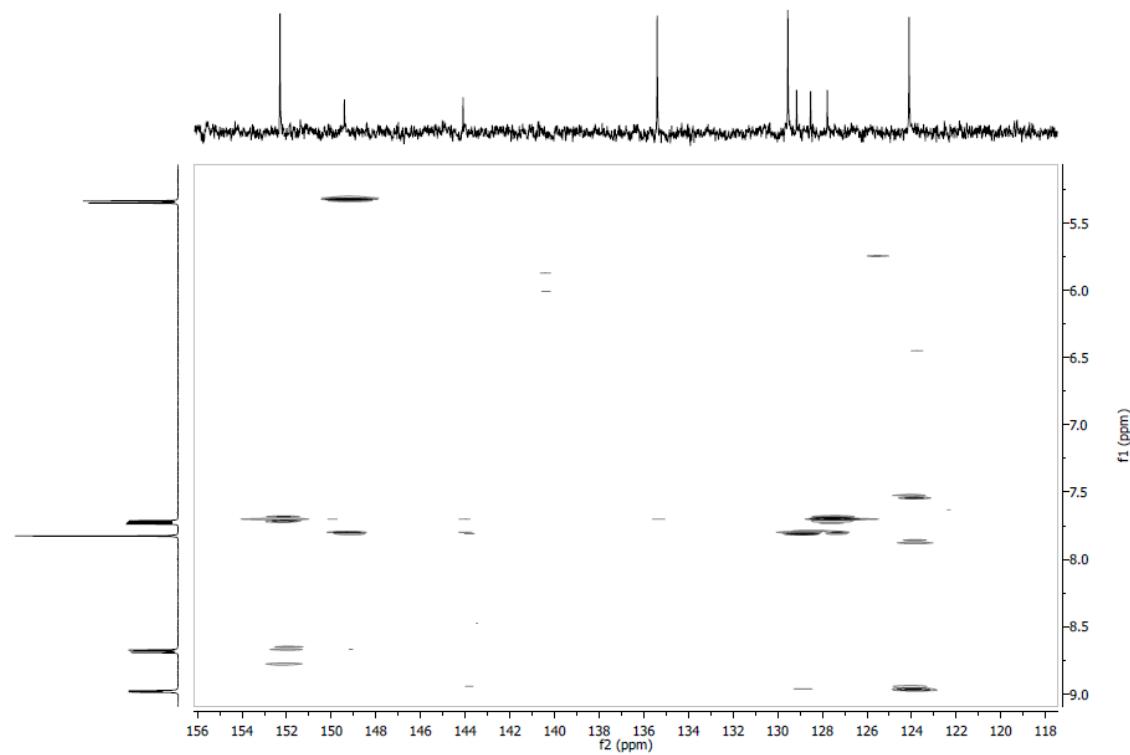


Figure S20: HMBC spectrum of GluCl_2HQ (500 MHz, CD_3OD)

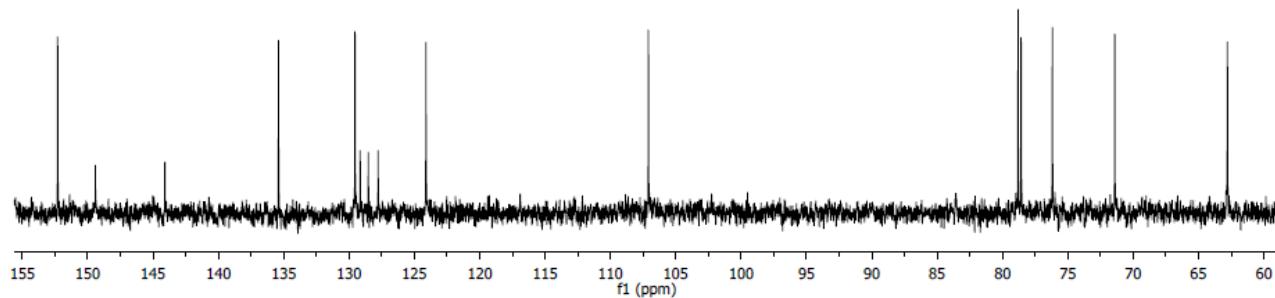


Figure S21: ¹³C NMR spectrum of GluCl₂HQ (125 MHz, CD₃OD)

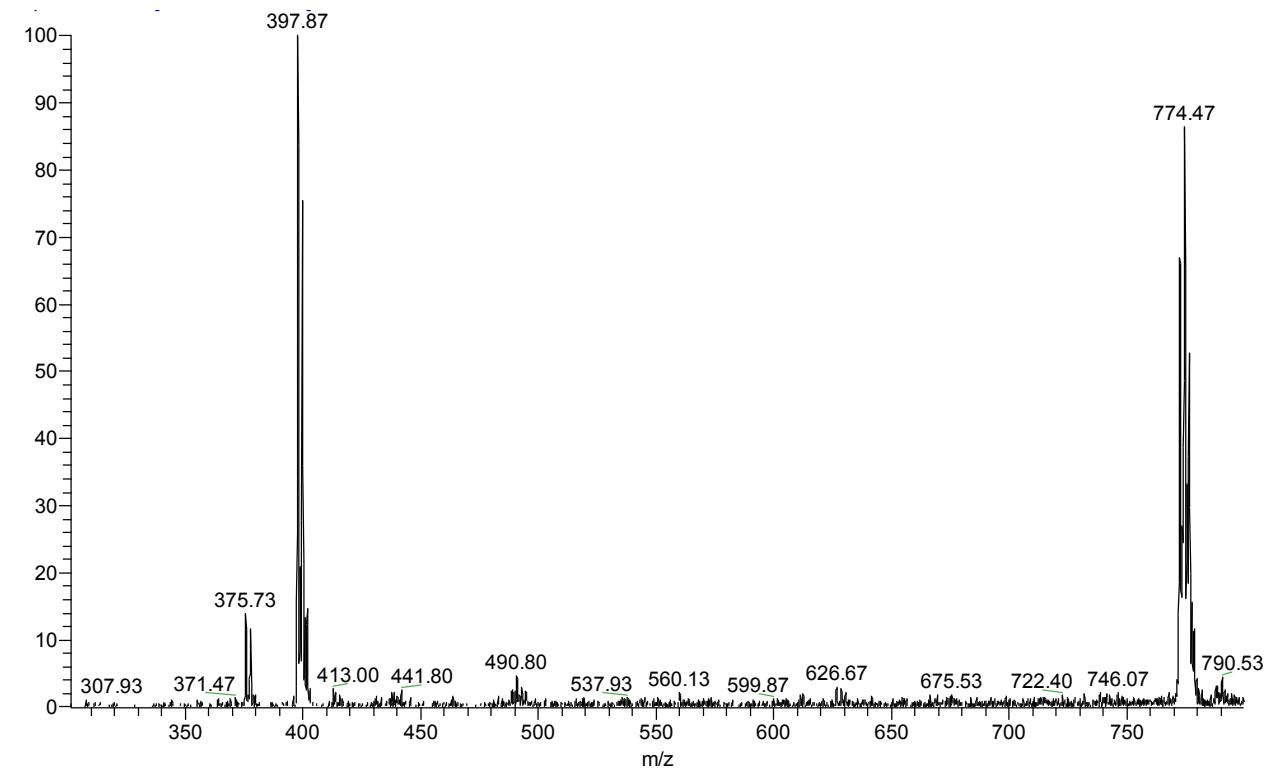


Figure S22: ESI-MS spectrum of GluCl₂HQ (CH₃OH)

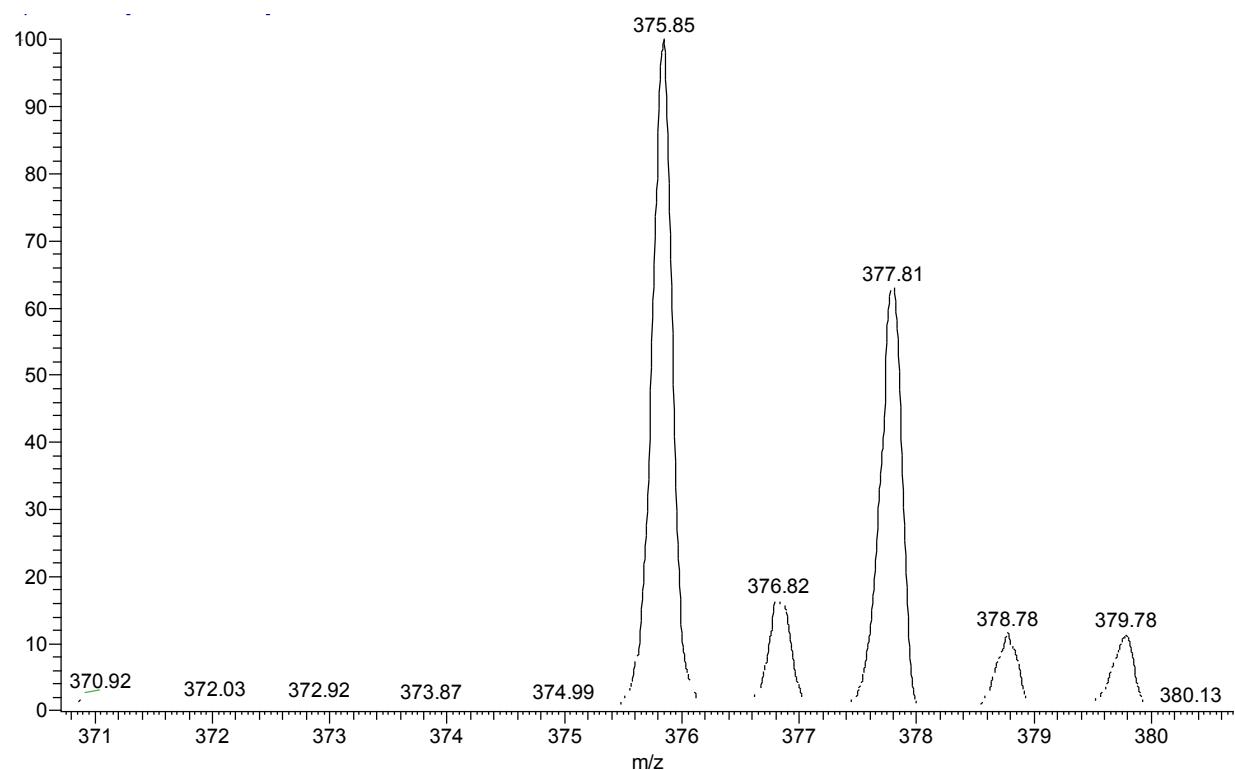


Figure S23: ESI-MS spectrum (zoom scan) of GluCl_2HQ (CH_3OH)

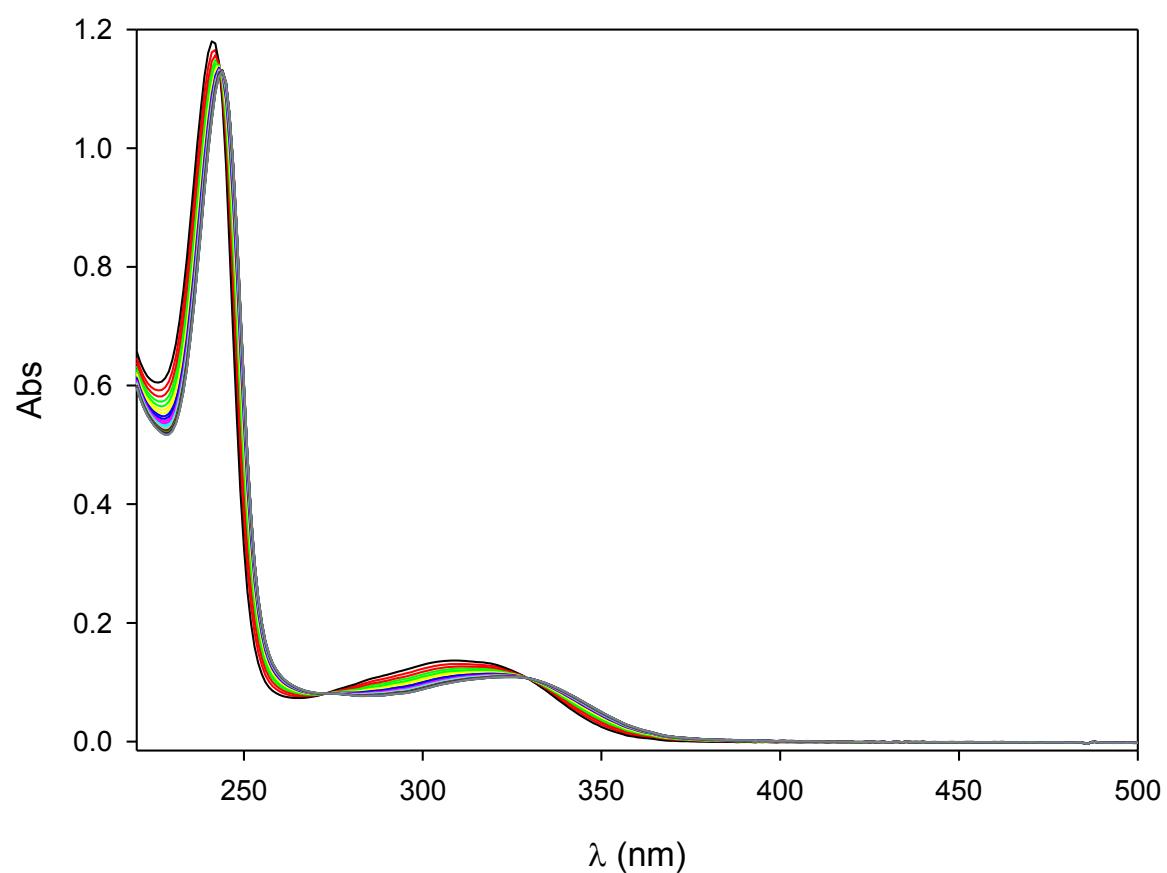


Figure S24: Enzymatic kinetic assay of GluClHQ (6×10^{-5} M) in the presence of glucosidase (1.1×10^{-6} M) at pH 7.4 (phosphate buffer 5 mM). UV-vis spectra were recorded every 12 min.

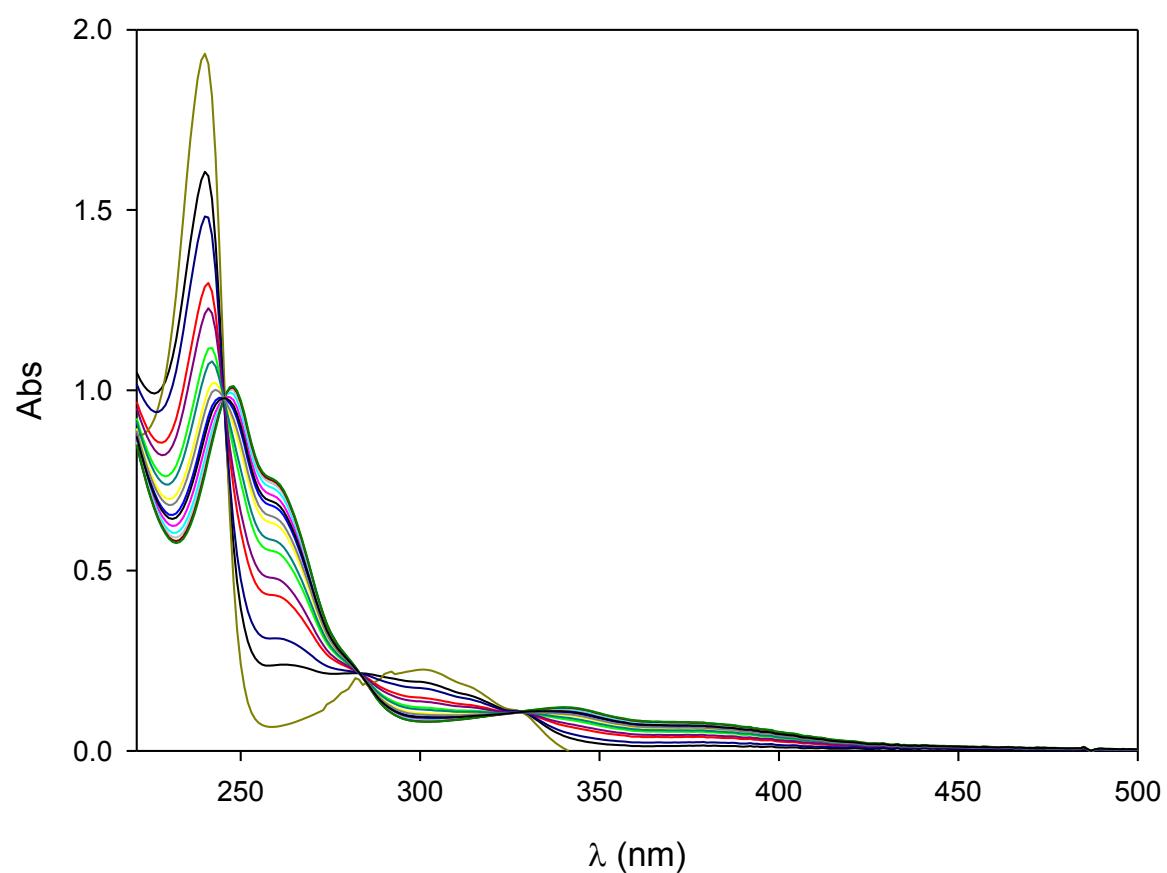


Figure S25: Enzymatic kinetic assay of GluCl_2HQ (6×10^{-5} M) in the presence of glucosidase (1.1×10^{-6} M) at pH 7.4 (phosphate buffer 5 mM). UV-vis spectra were recorded every 9 min.

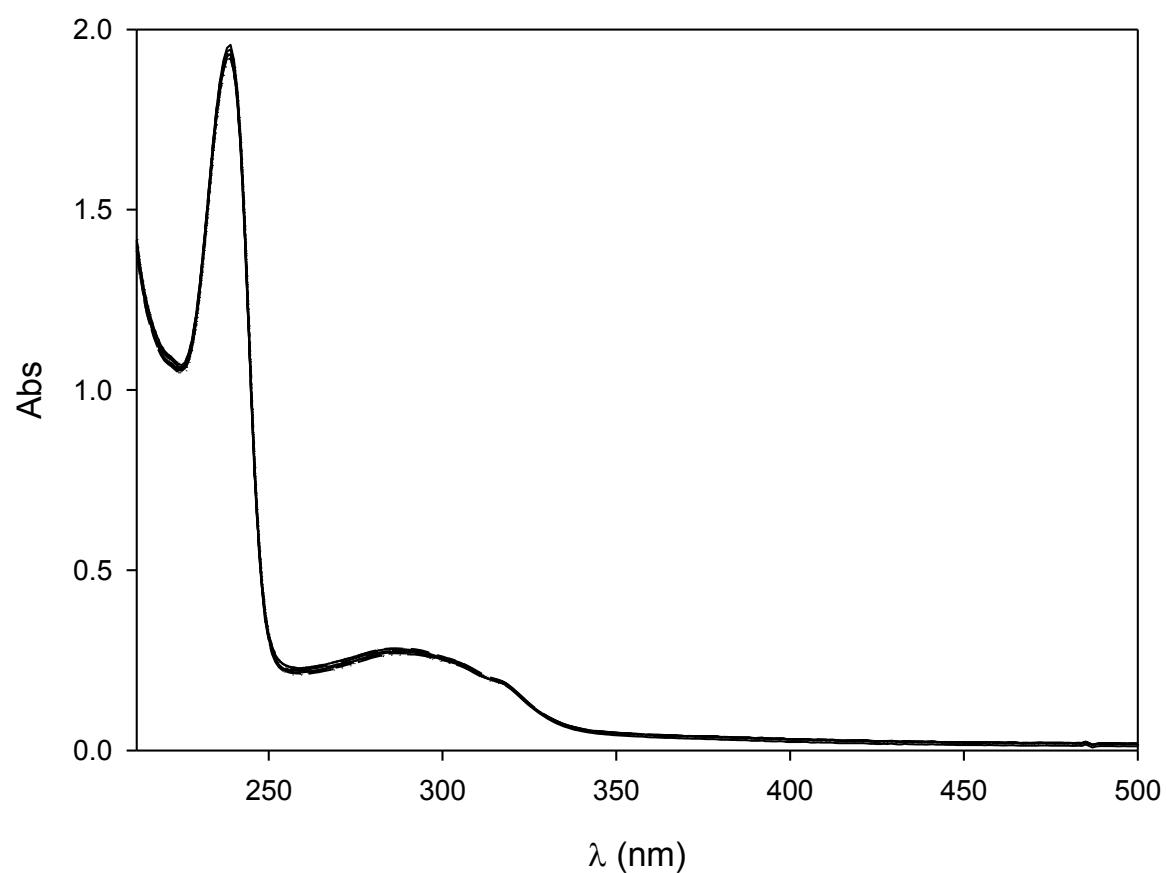


Figure S26: Enzymatic kinetic assay of GluMeHQ (6×10^{-5} M) in the presence of glucosidase (1.1×10^{-6} M) and copper (II) at pH 7.4 (phosphate buffer 5 mM). UV-vis spectra were recorded every 12 min. No significant hydrolysis was observed.