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Supporting Information

Synthetic antibody protein mimics of infliximab by molecular scaffolding on novel CycloTriVeratrilene (CTV) derivatives

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1 Product characterisation

1.1 Semi-orthogonally protected scaffold 2

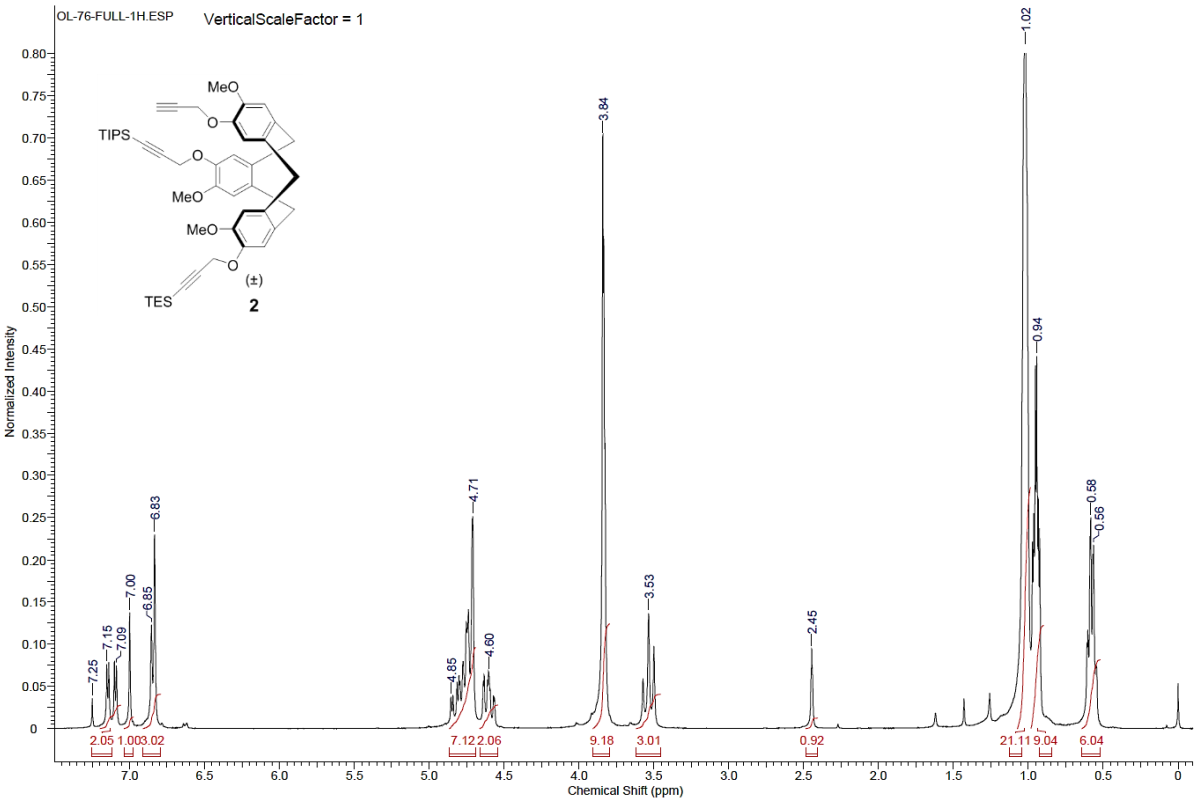

Figure S1: ^{1}H-NMR spectrum of semi-orthogonally protected scaffold 2.

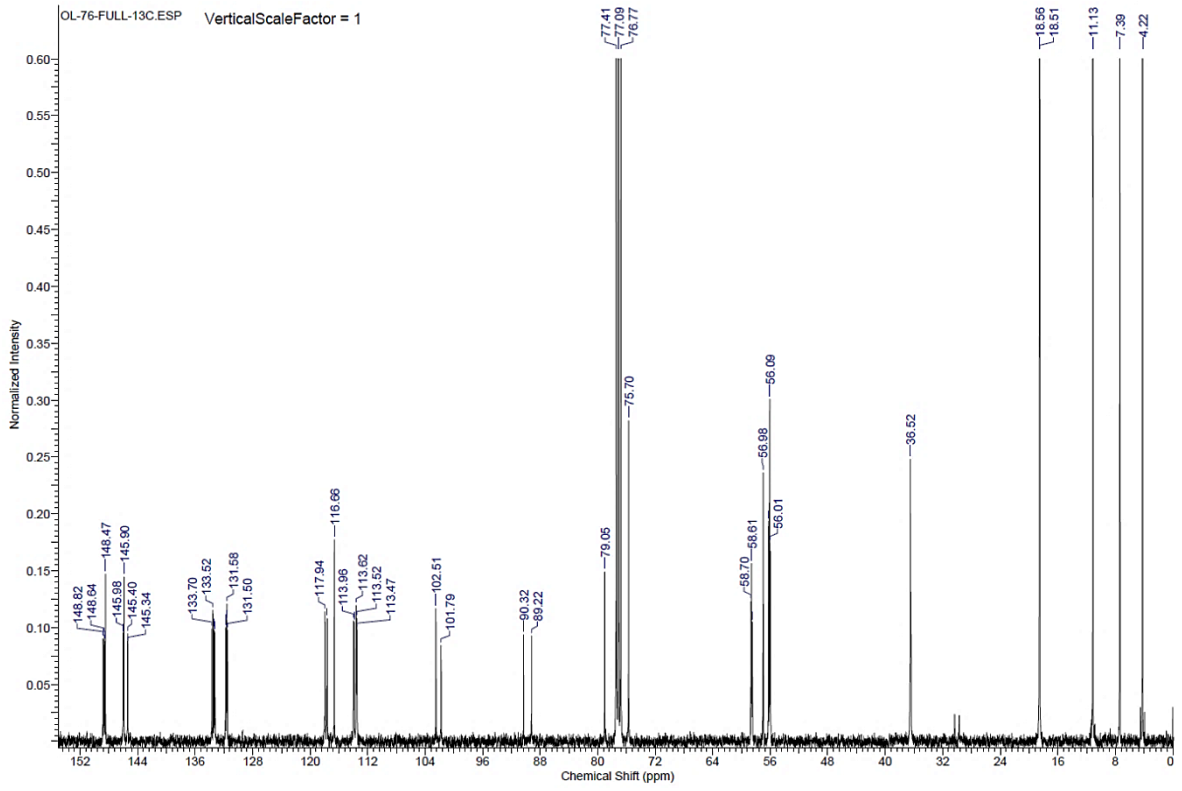

Figure S2: ^{13}C-NMR spectrum of semi-orthogonally protected scaffold 2.

1.2 Semi-orthogonally protected scaffold 3

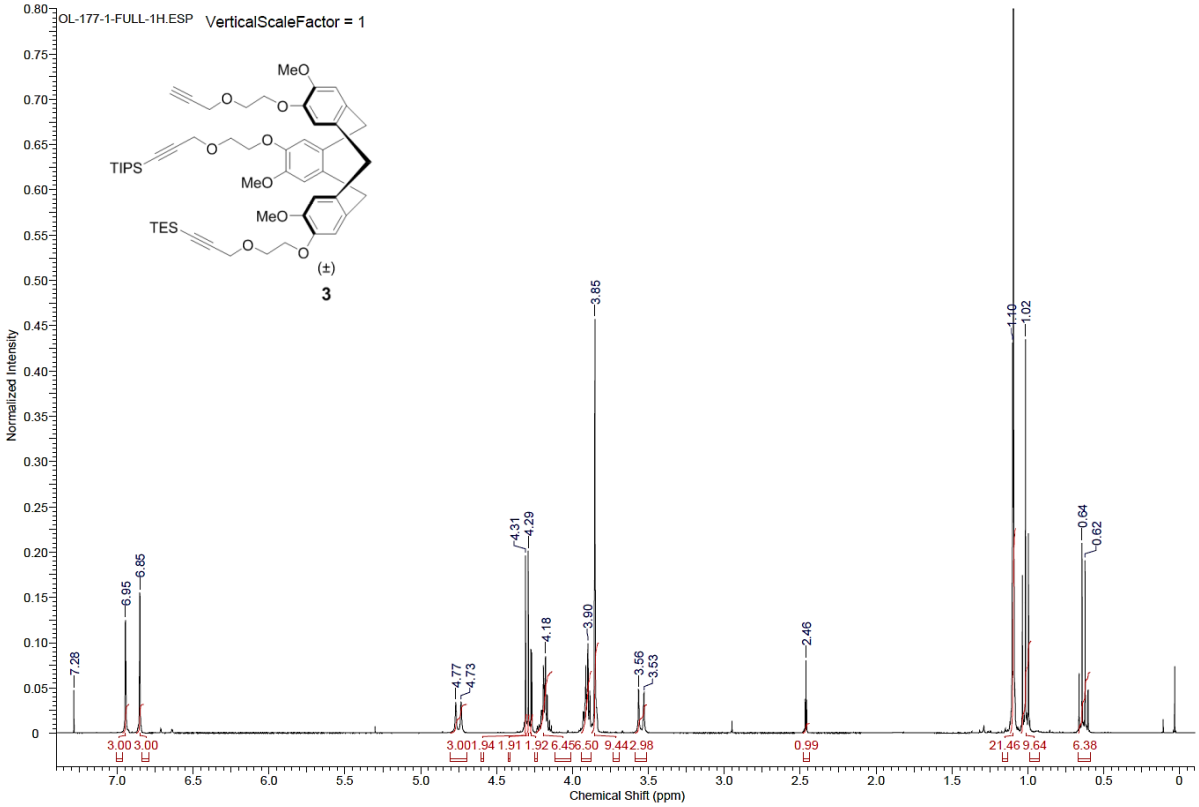

Figure S3: ^{1}H-NMR spectrum of semi-orthogonally protected scaffold 3.

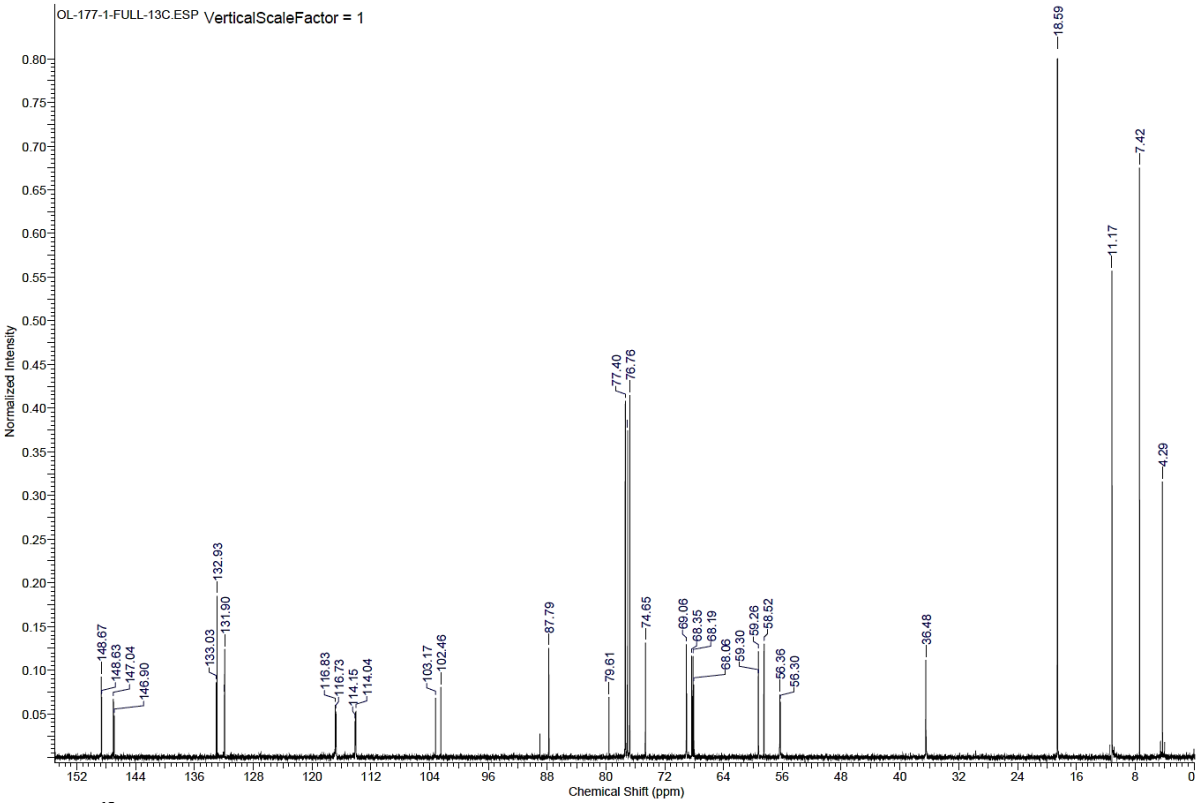

Figure S4: ^{13}C-NMR spectrum of semi-orthogonally protected scaffold 3.

1.3 Semi-orthogonally protected scaffold 4

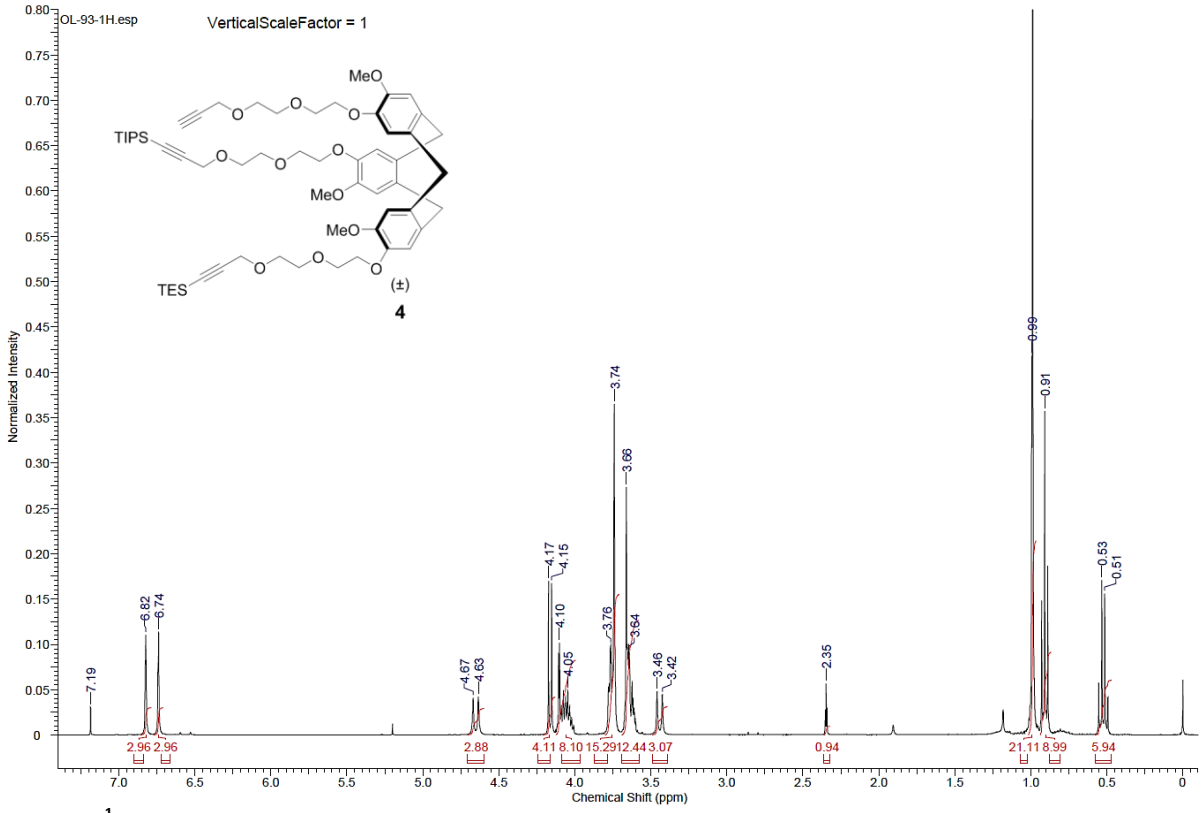

Figure S5: ^{1}H-NMR spectrum of semi-orthogonally protected scaffold 4.

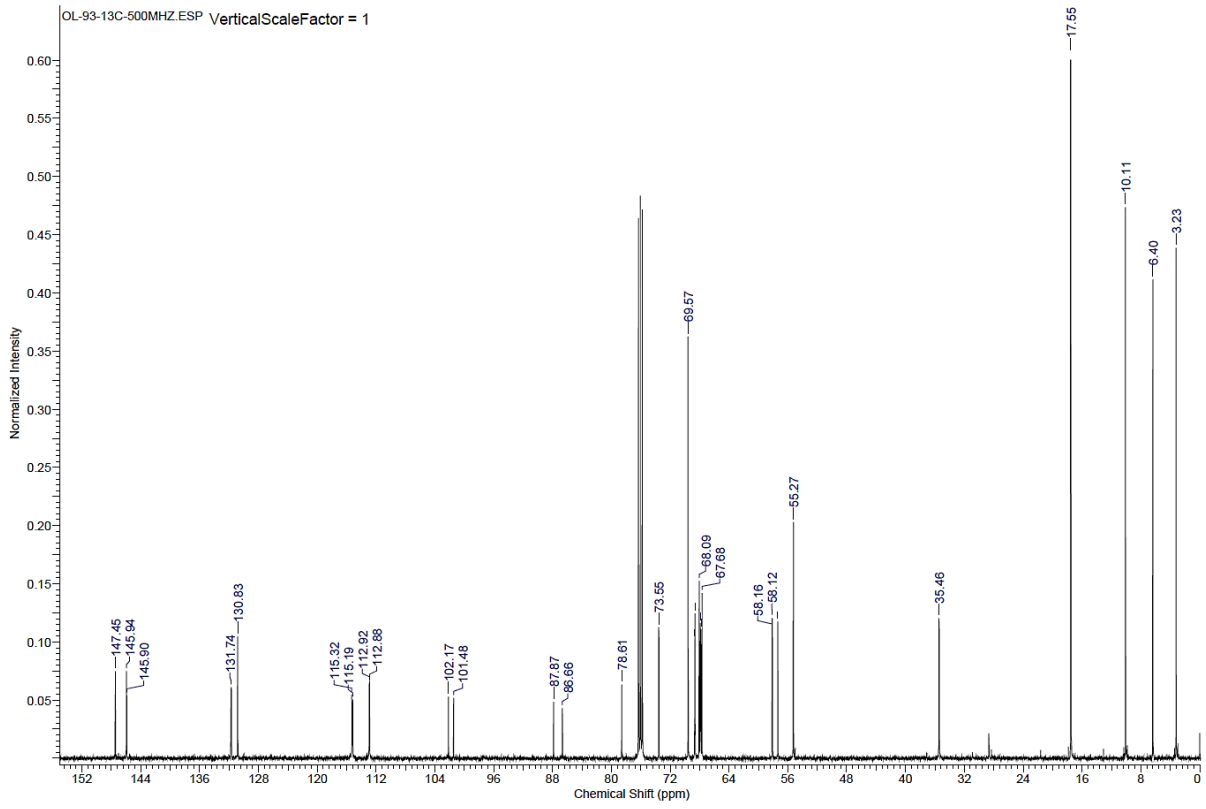

Figure S6: ^{13}C-NMR spectrum of semi-orthogonally protected scaffold 4.

1.4 Propargyl-MEG-OH 7a

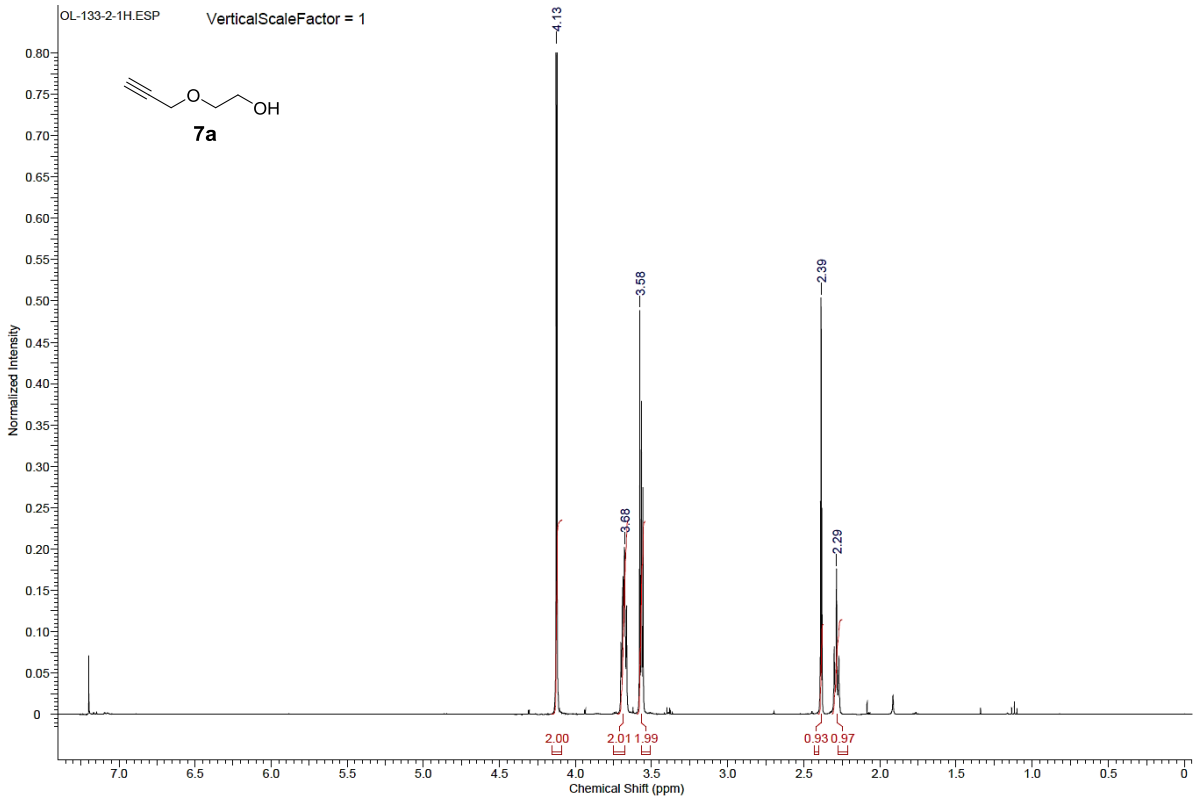

Figure S7: ^{1}H-NMR spectrum of compound 7a.

1.5 *O*-THP-Propargyl-MEG 8a

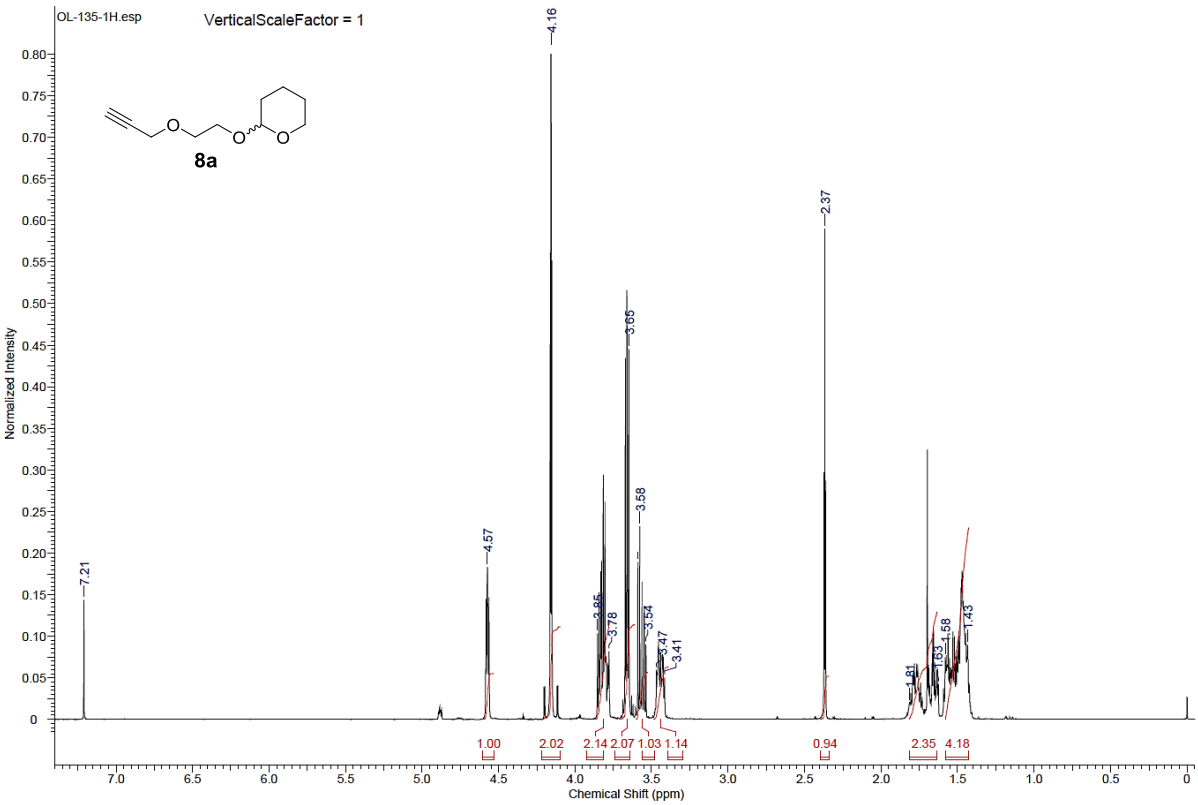

Figure S8: ^{1}H-NMR spectrum of compound 8a.

1.6 *O*-THP-(TES)Propargyl-MEG 9a

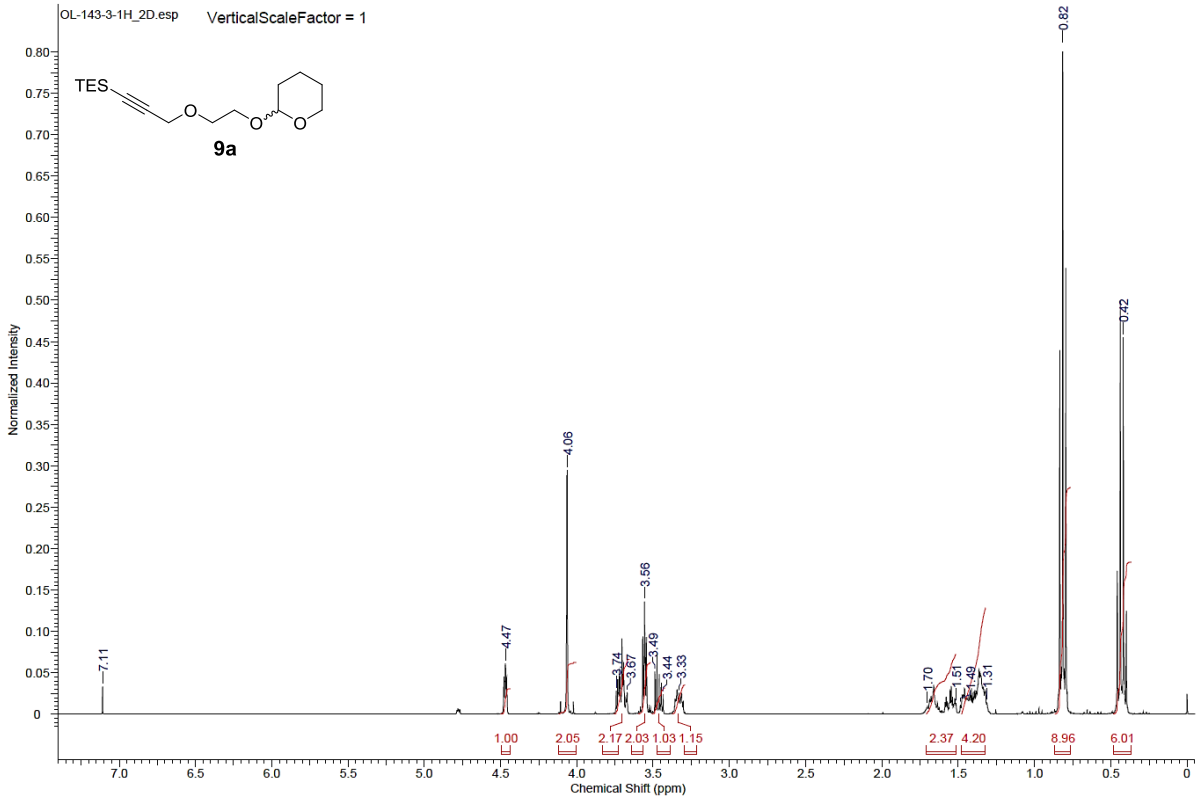

Figure S9: ^{1}H-NMR spectrum of compound 9a.

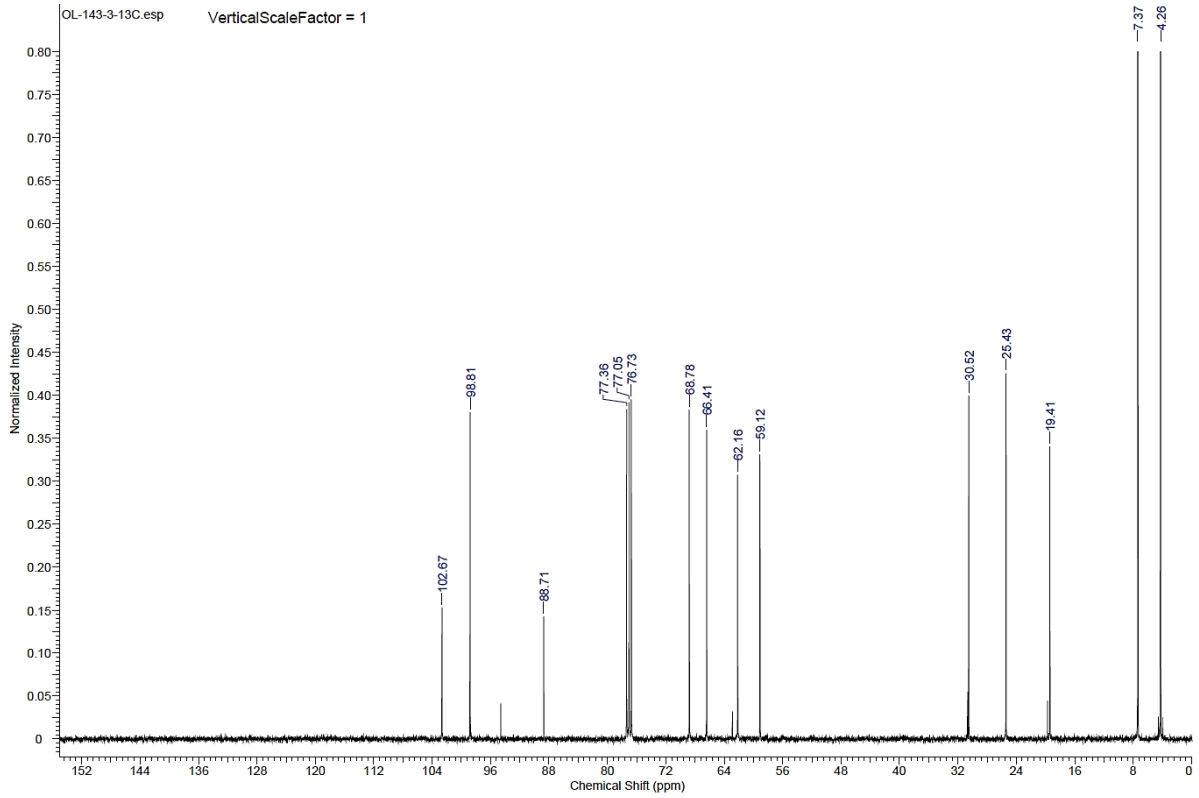

Figure S10: ^{13}C-NMR spectrum of compound 9a.

1.7 *O*-THP-(TIPS)Propargyl-MEG 10a

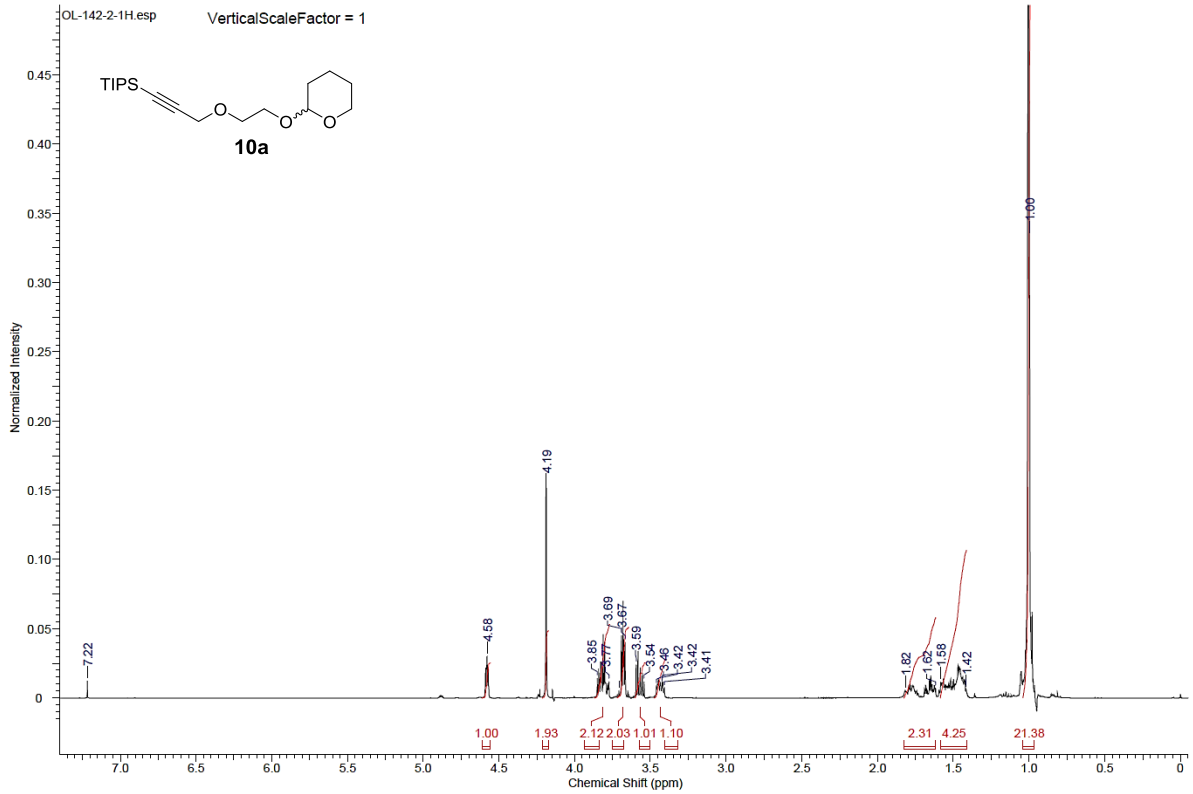

Figure S11: ^{1}H-NMR spectrum of compound 10a.

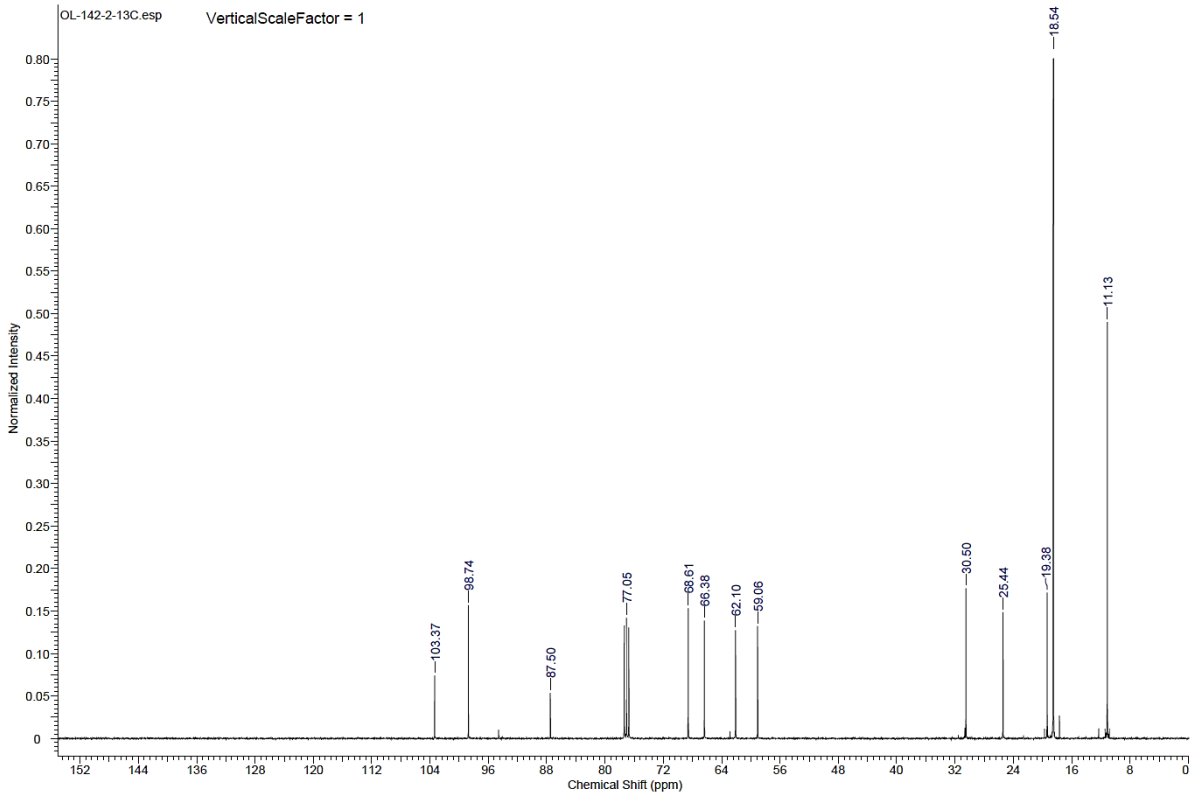

Figure S12: ^{13}C-NMR spectrum of compound 10a.

1.8 (TES)Propargyl-MEG bromide 11a

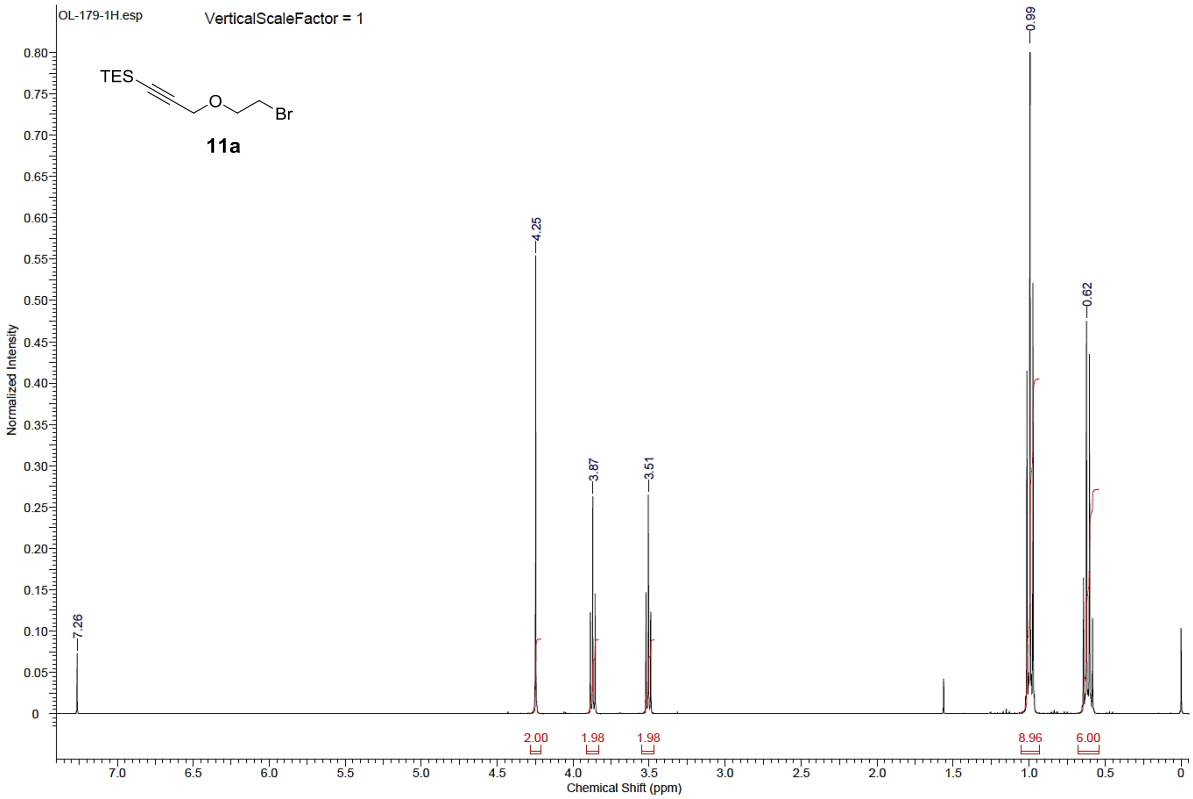

Figure S13: ^{1}H-NMR spectrum of compound 11a.

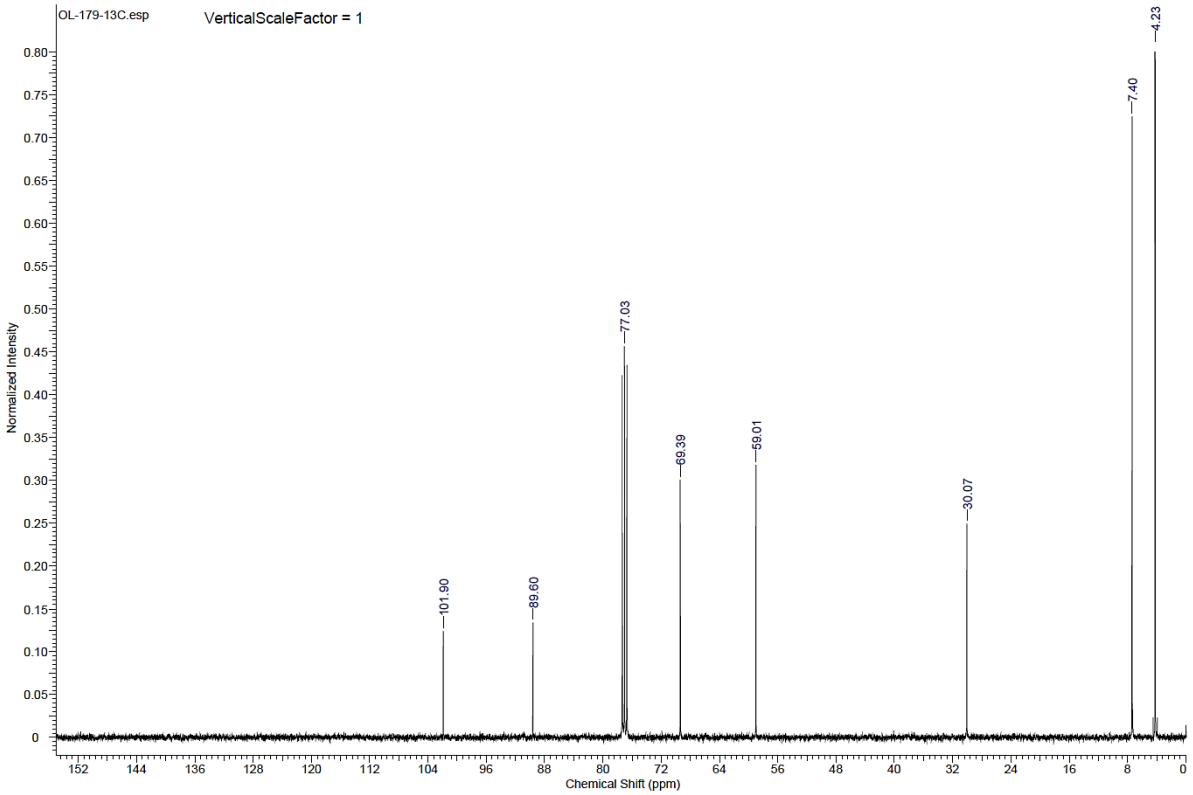

Figure S14: ^{13}C-NMR spectrum of compound 11a.

1.9 (TIPS)Propargyl-MEG bromide 12a

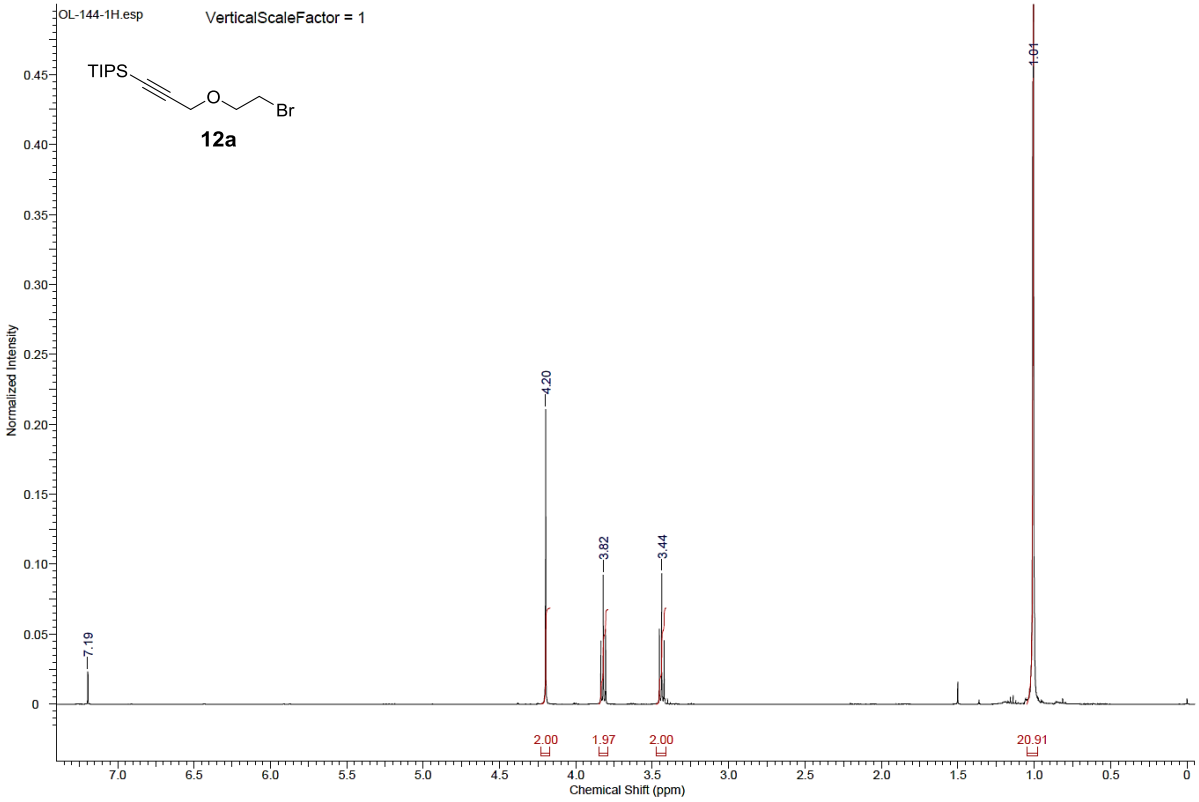

Figure S15: ^{1}H-NMR spectrum of compound 12a.

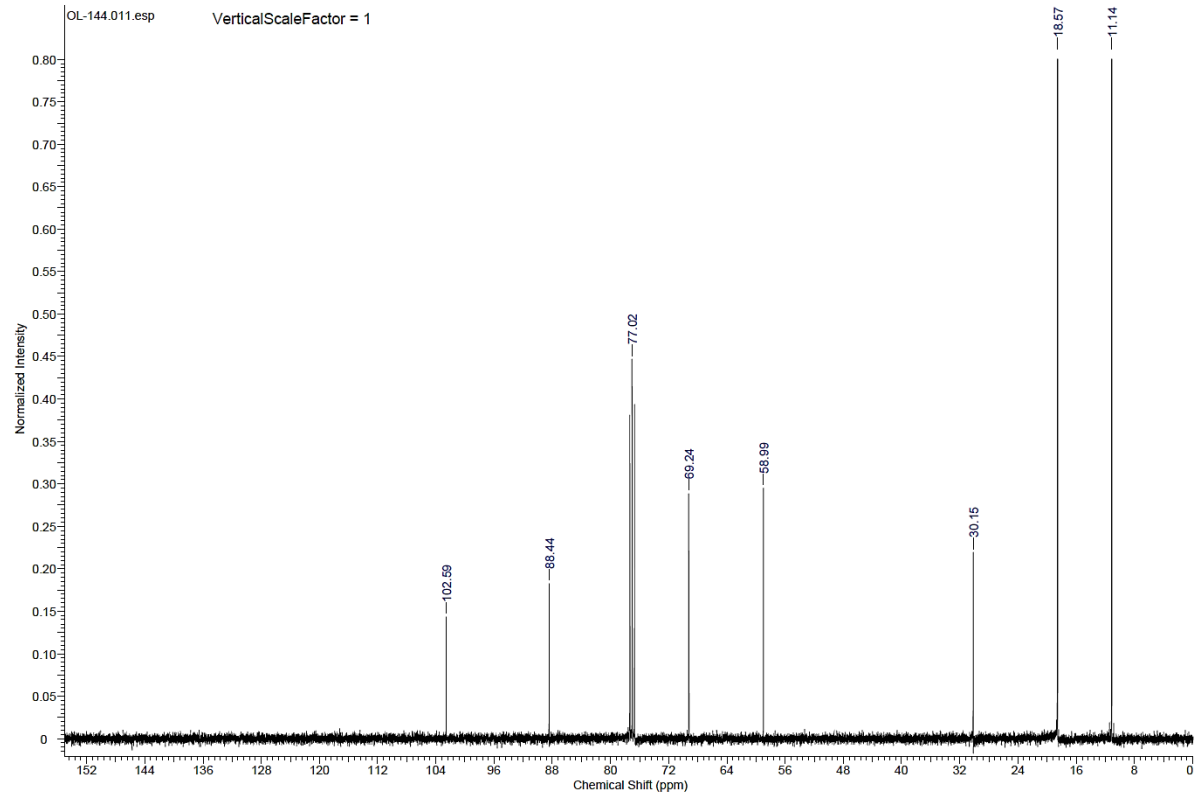

Figure S16: ^{13}C-NMR spectrum of compound 12a.

1.10 Propargyl-MEG iodide 13a

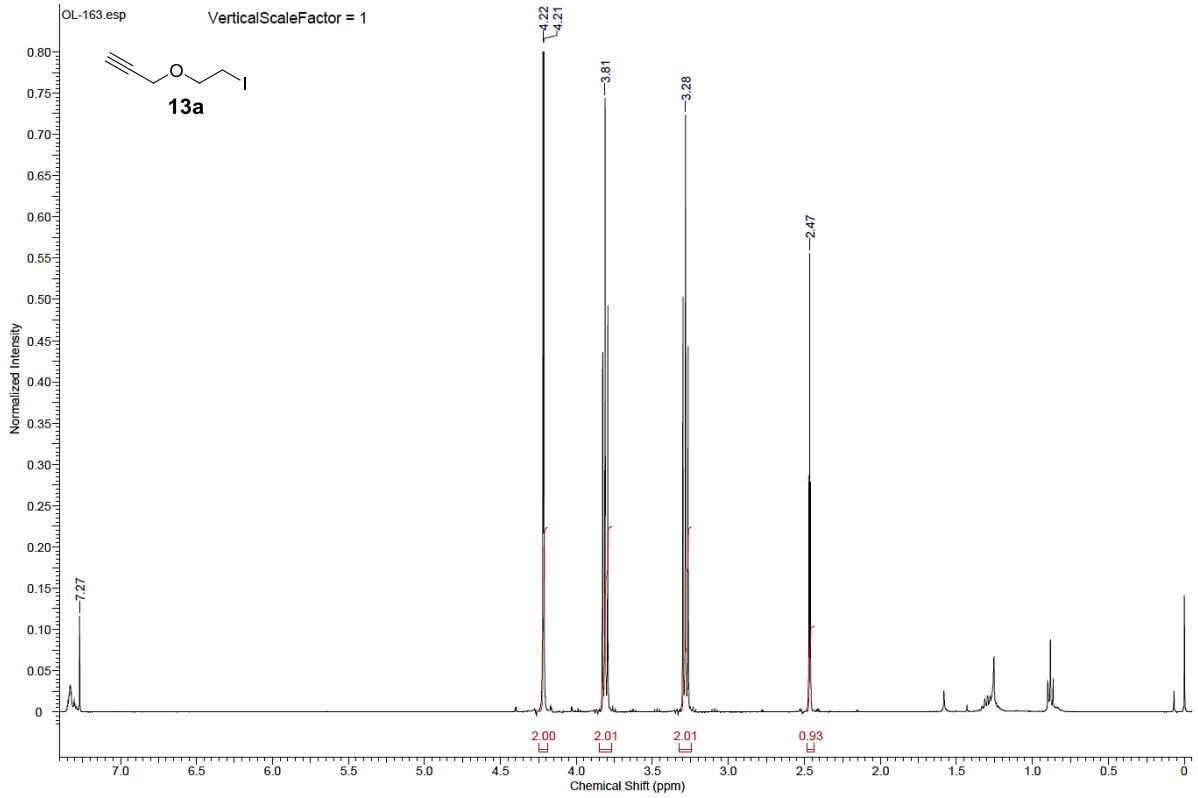

Figure S17: ^{1}H-NMR spectrum of compound 13a.

1.11 Di(*O*-THP)-*O*-MEG-propargyl CTV 15a

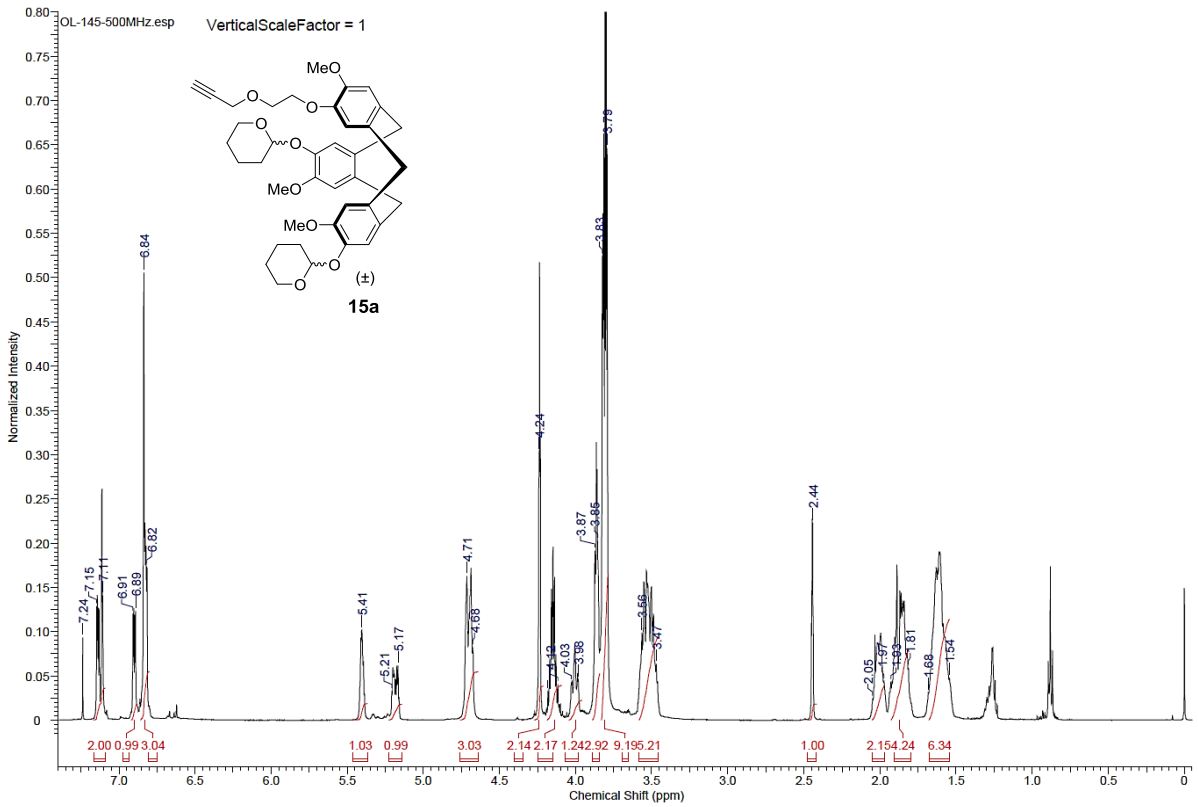

Figure S18: ^{1}H-NMR spectrum of compound 15a.

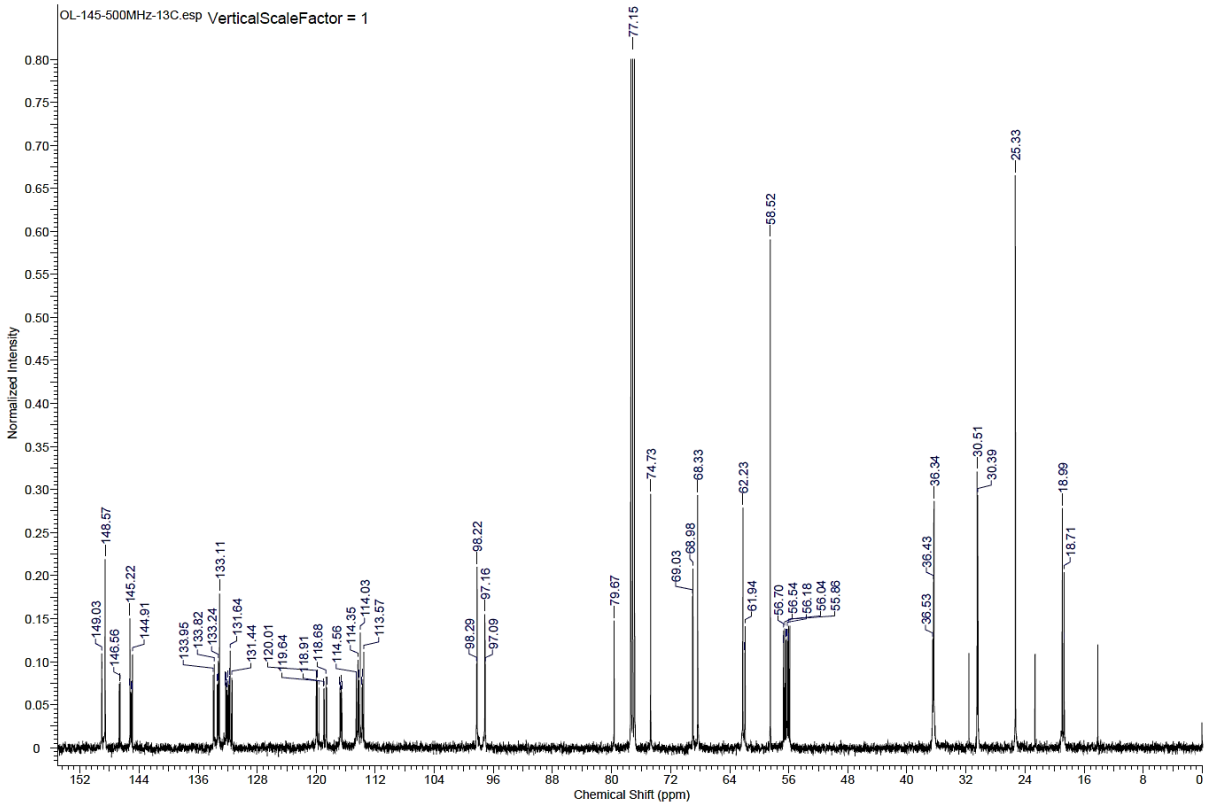

Figure S19: ^{13}C-NMR spectrum of compound 15a.

1.12 *O*-MEG-Propargyl CTV-diOH 16a

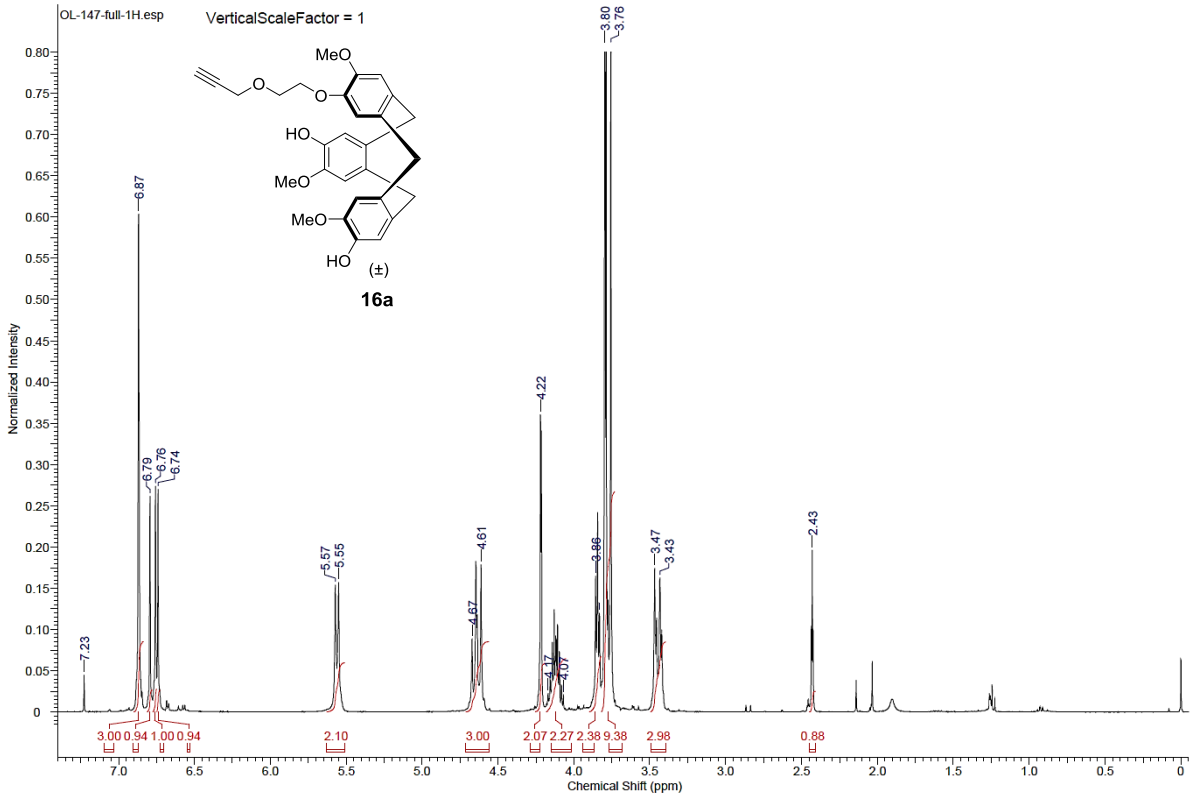

Figure S20: ^{1}H-NMR spectrum of compound 16a.

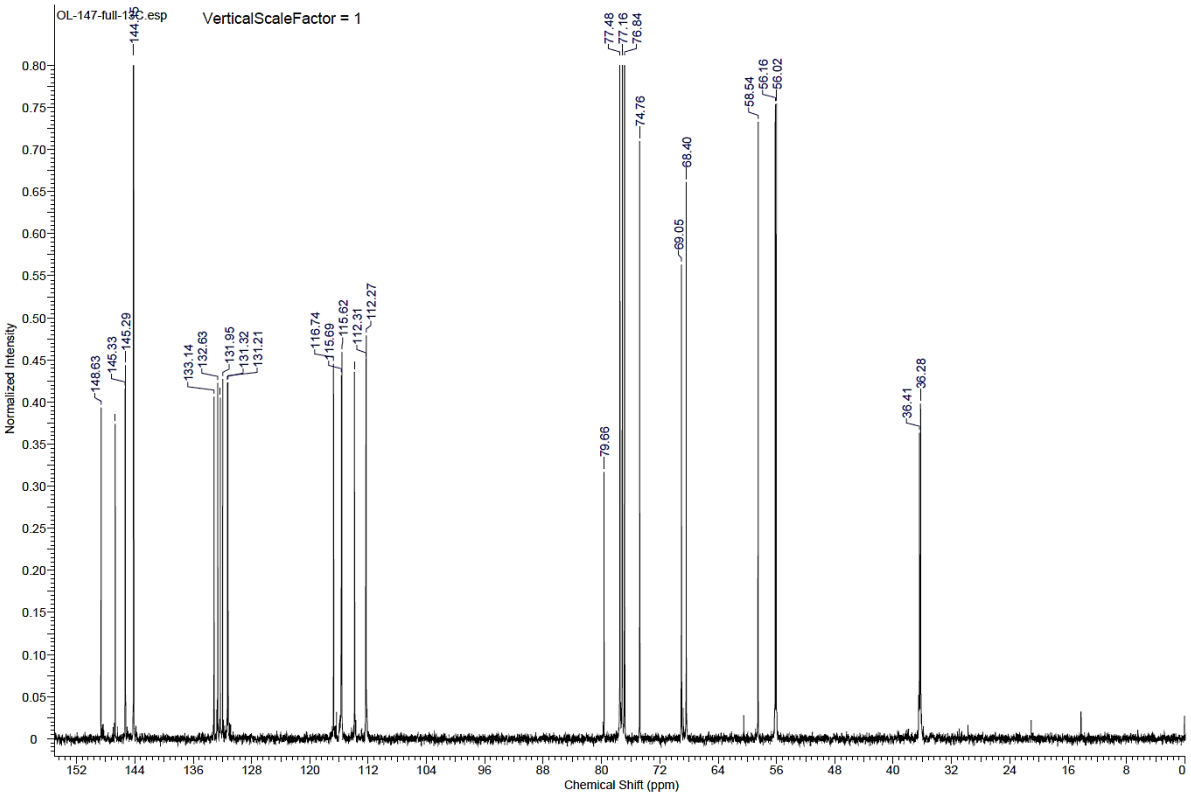

Figure S21: ^{13}C-NMR spectrum of compound 16a.

1.13 *O*-MEG-Propargyl-*O*-MEG-(TIPS)propargyl CTV-OH 17a

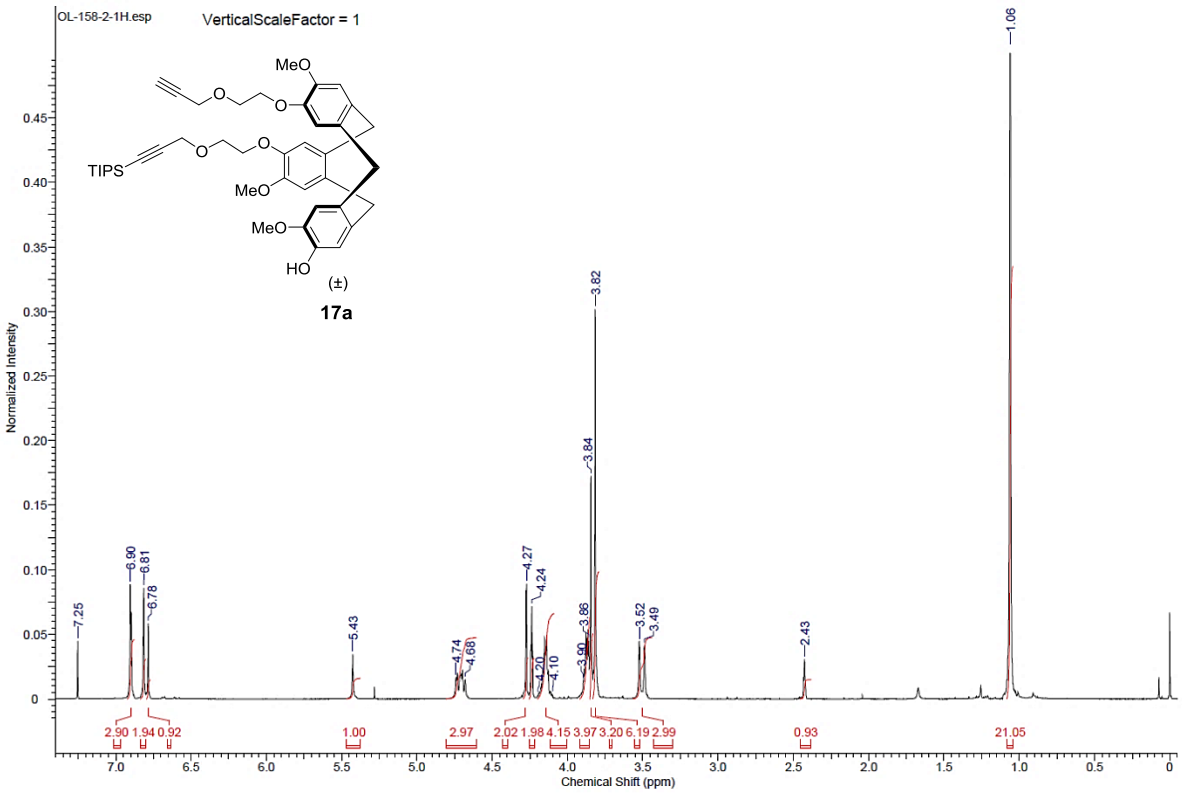

Figure S22: ^{1}H-NMR spectrum of compound 17a.

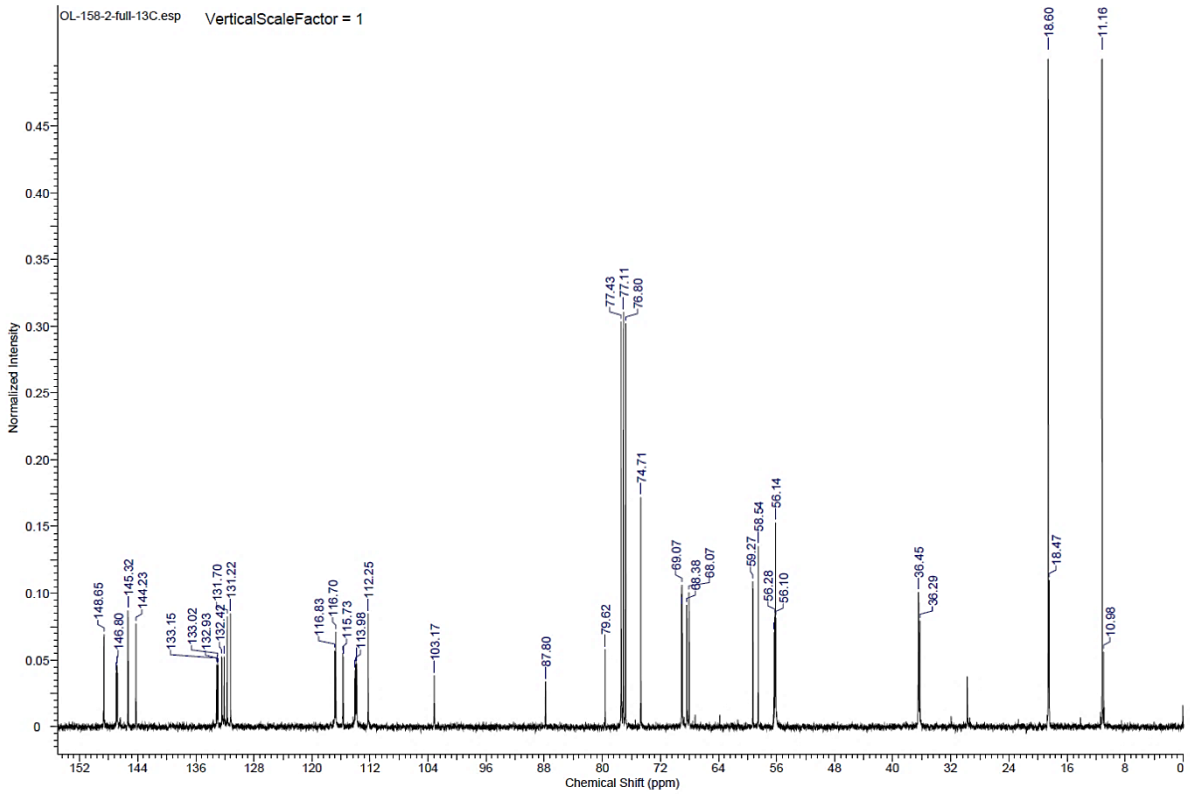

Figure S23: ^{13}C-NMR spectrum of compound 17a.

1.14 Side product 18a

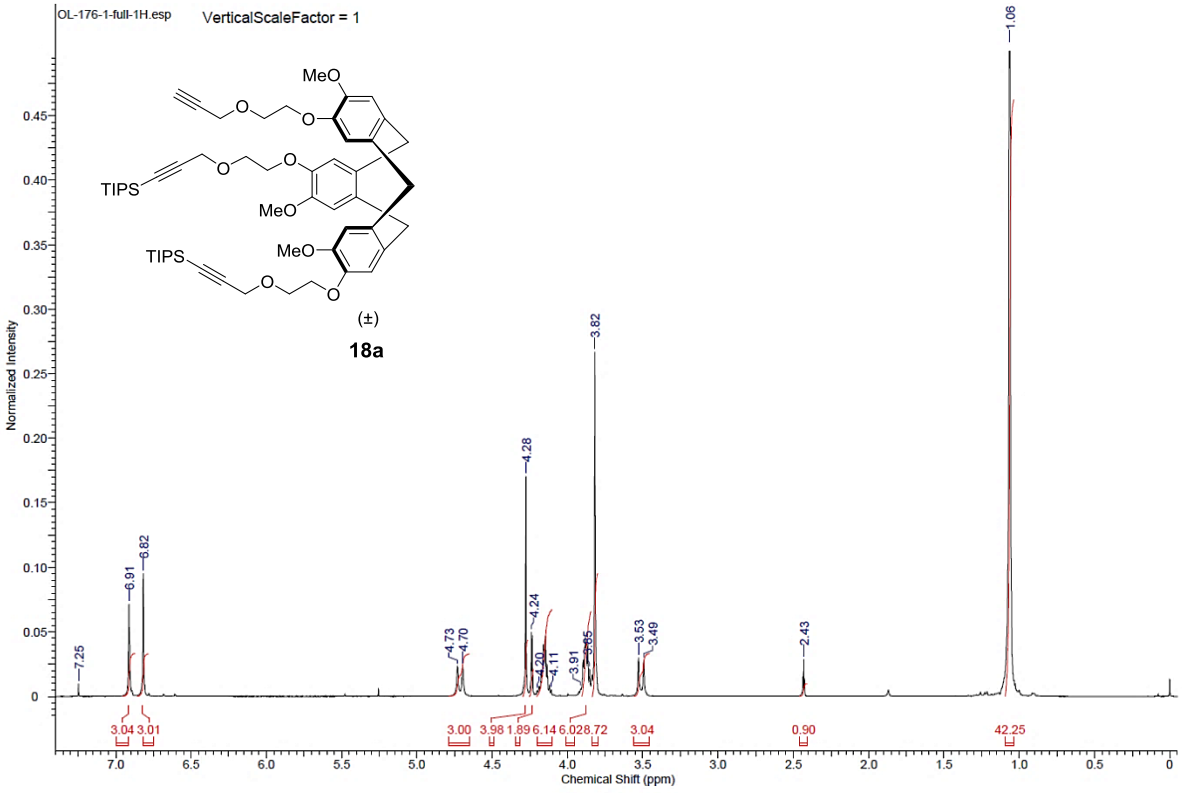

Figure S24: ^{1}H-NMR spectrum of compound 18a.

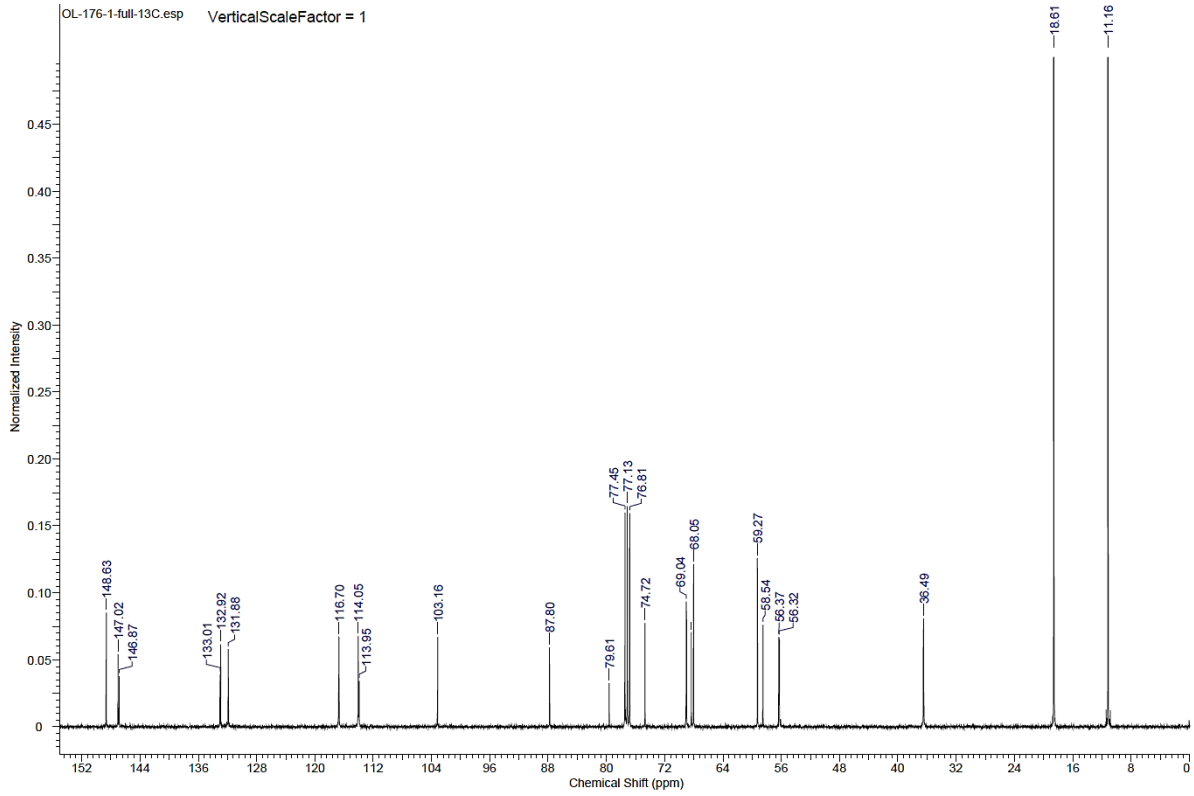

Figure S25: ^{13}C-NMR spectrum of compound 18a.

1.15 Side product 5

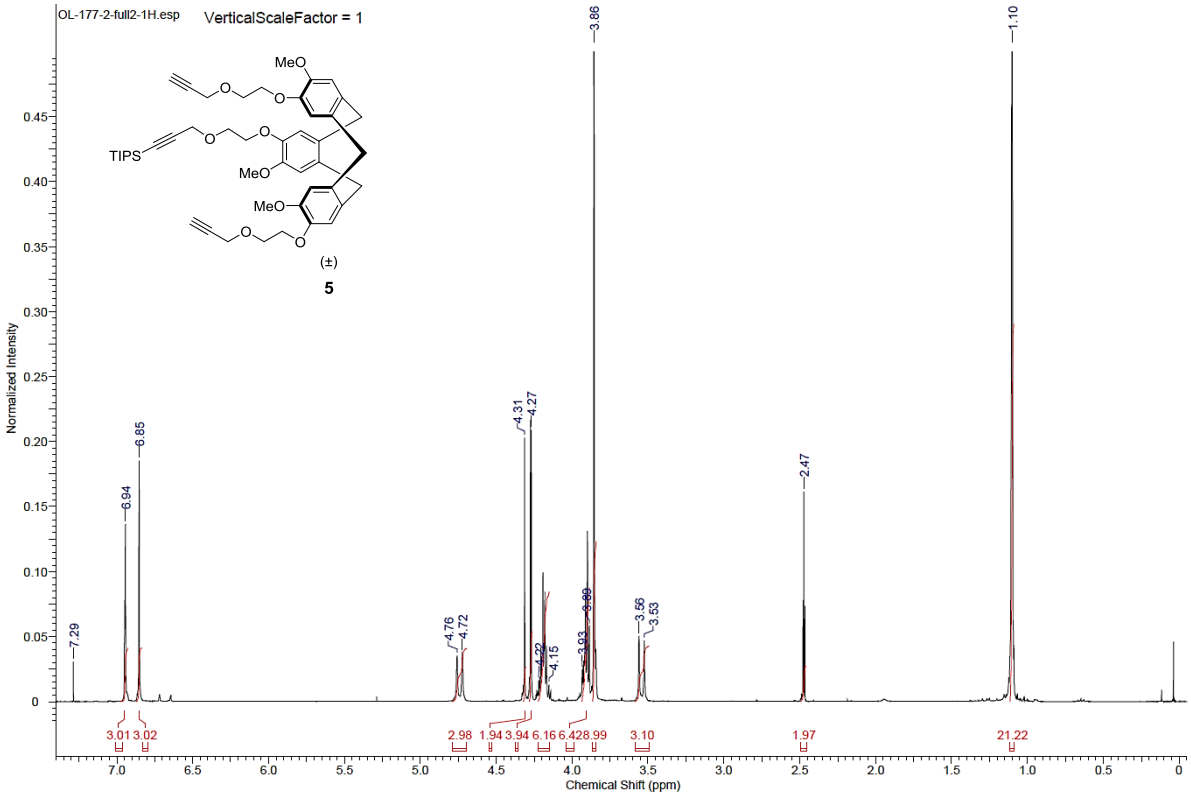

Figure S26: ^{1}H-NMR spectrum of compound 5.

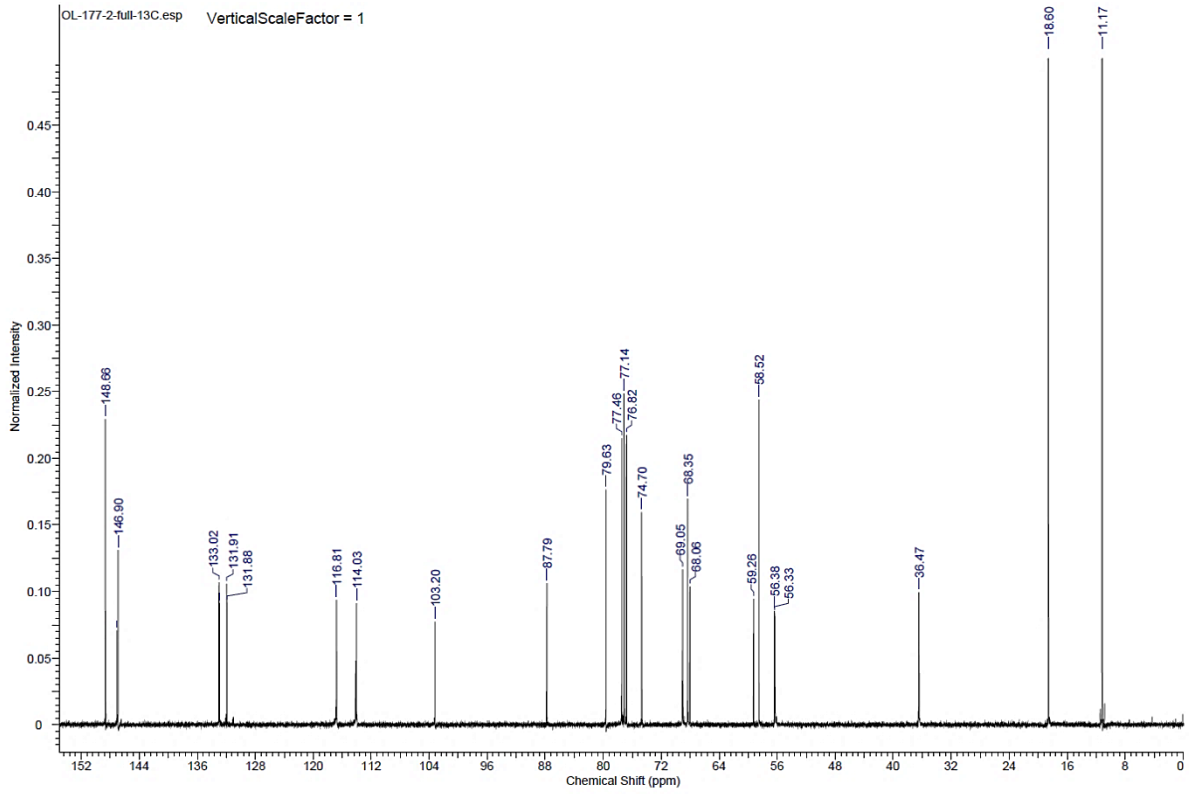

Figure S27: ^{13}C-NMR spectrum of compound 5.

1.16 Propargyl-DEG-OH 7b

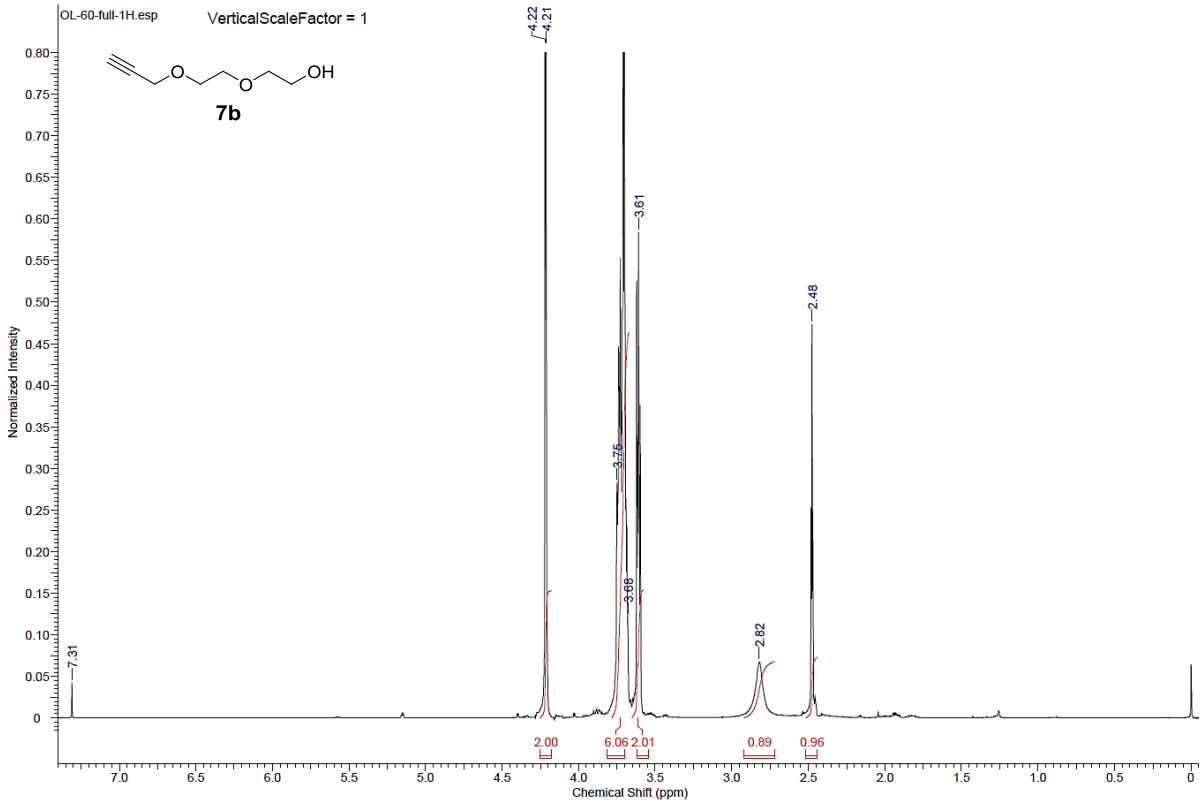

Figure S28: ^{1}H-NMR spectrum of compound 7b.

1.17 *O*-THP-Propargyl-DEG 8b

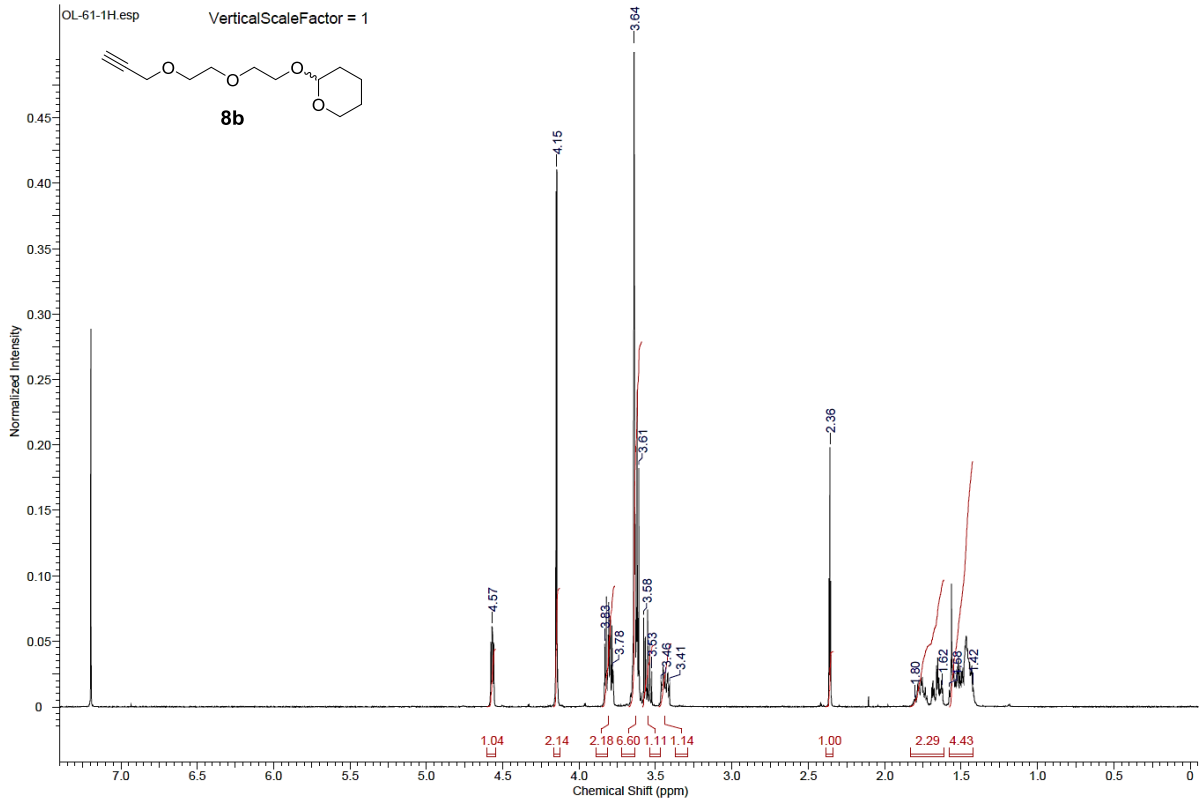

Figure S29: ^{1}H-NMR spectrum of compound 8b.

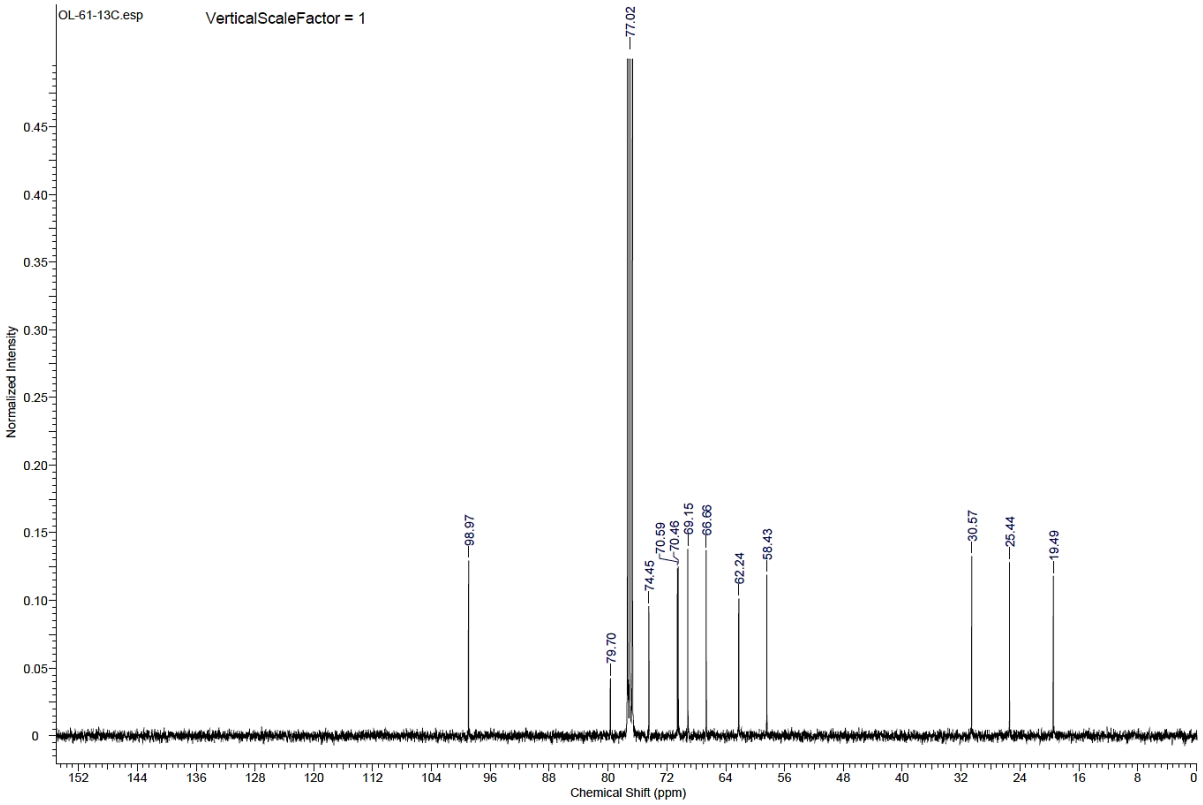

Figure S30: ^{13}C-NMR spectrum of compound 8b.

1.18 *O*-THP-(TES)Propargyl-DEG 9b

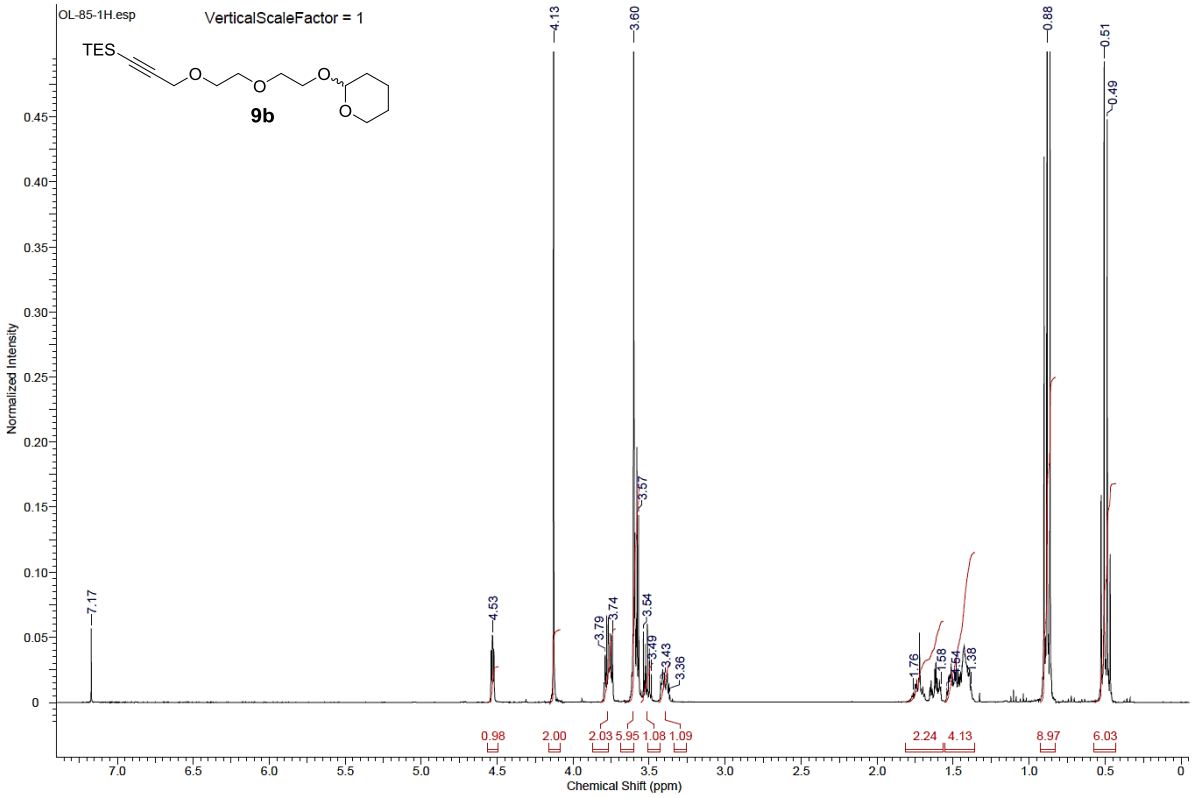

Figure S31: ^{1}H-NMR spectrum of compound 9b.

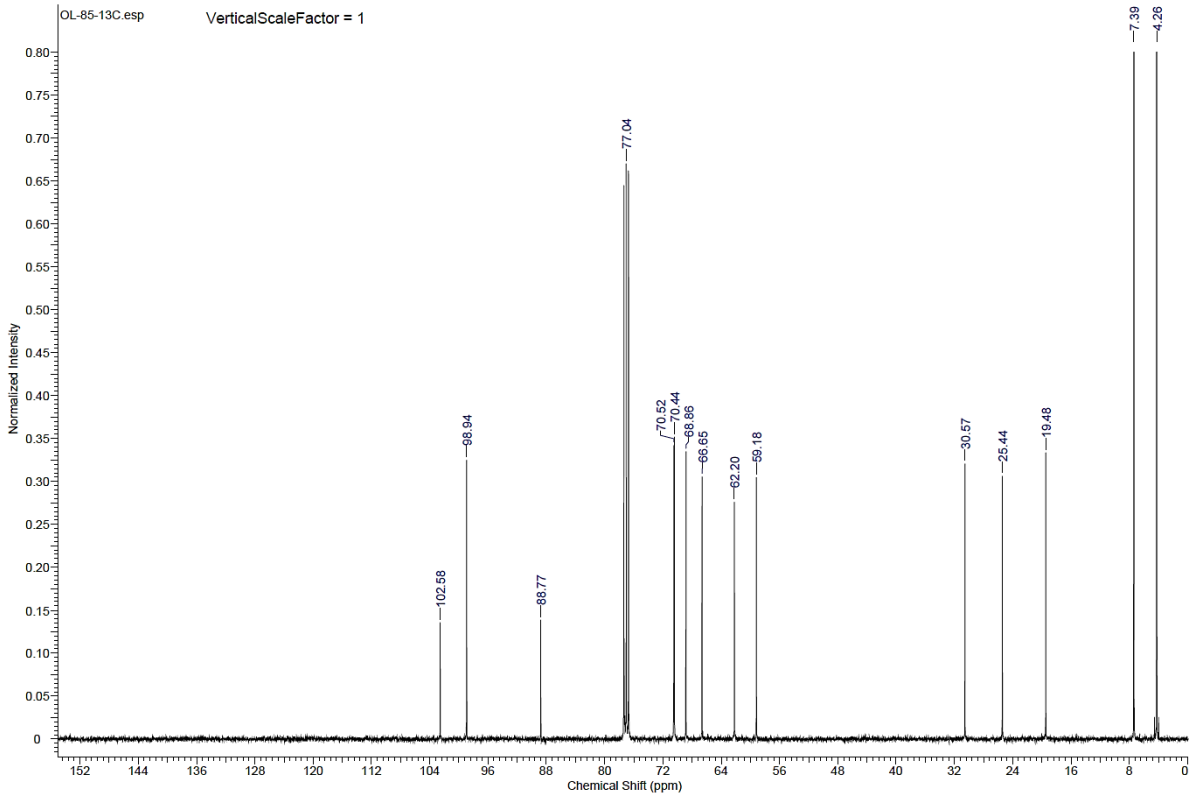

Figure S32: ^{13}C-NMR spectrum of compound 9b.

1.19 *O*-THP-(TIPS)Propargyl-DEG 10b

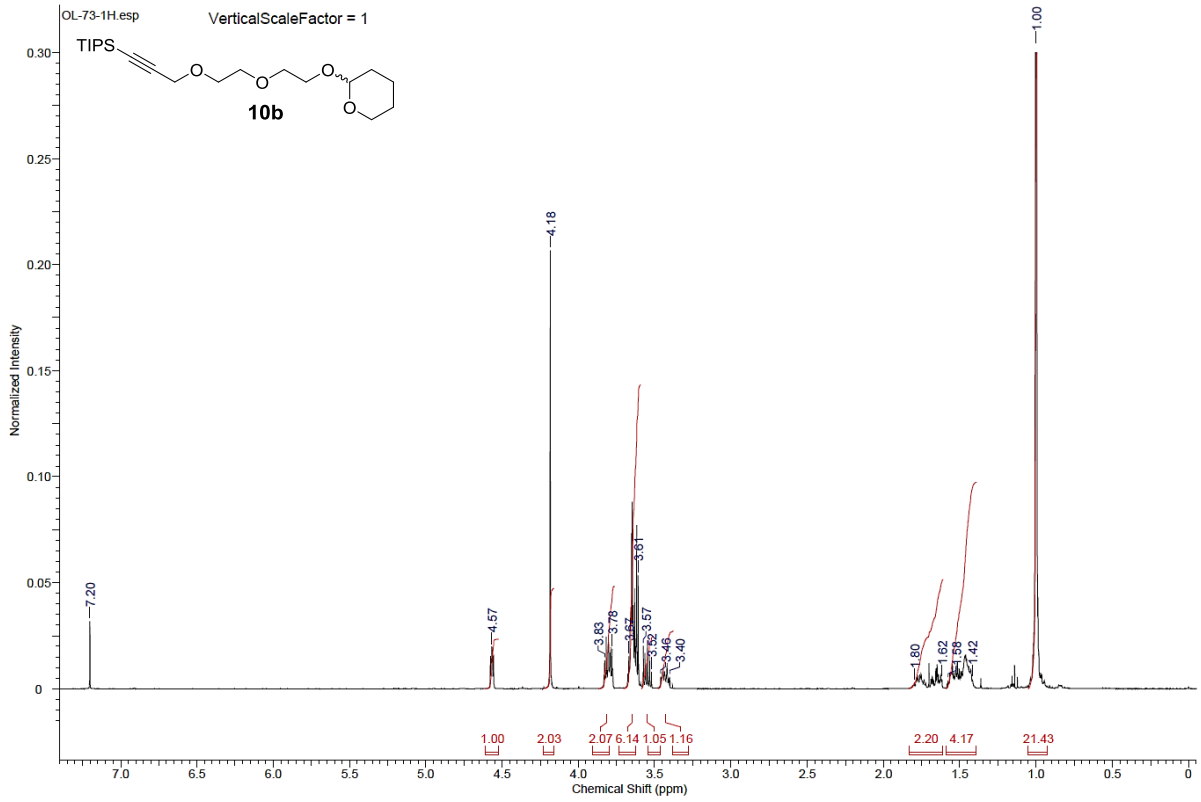

Figure S33: ^{1}H-NMR spectrum of compound 10b.

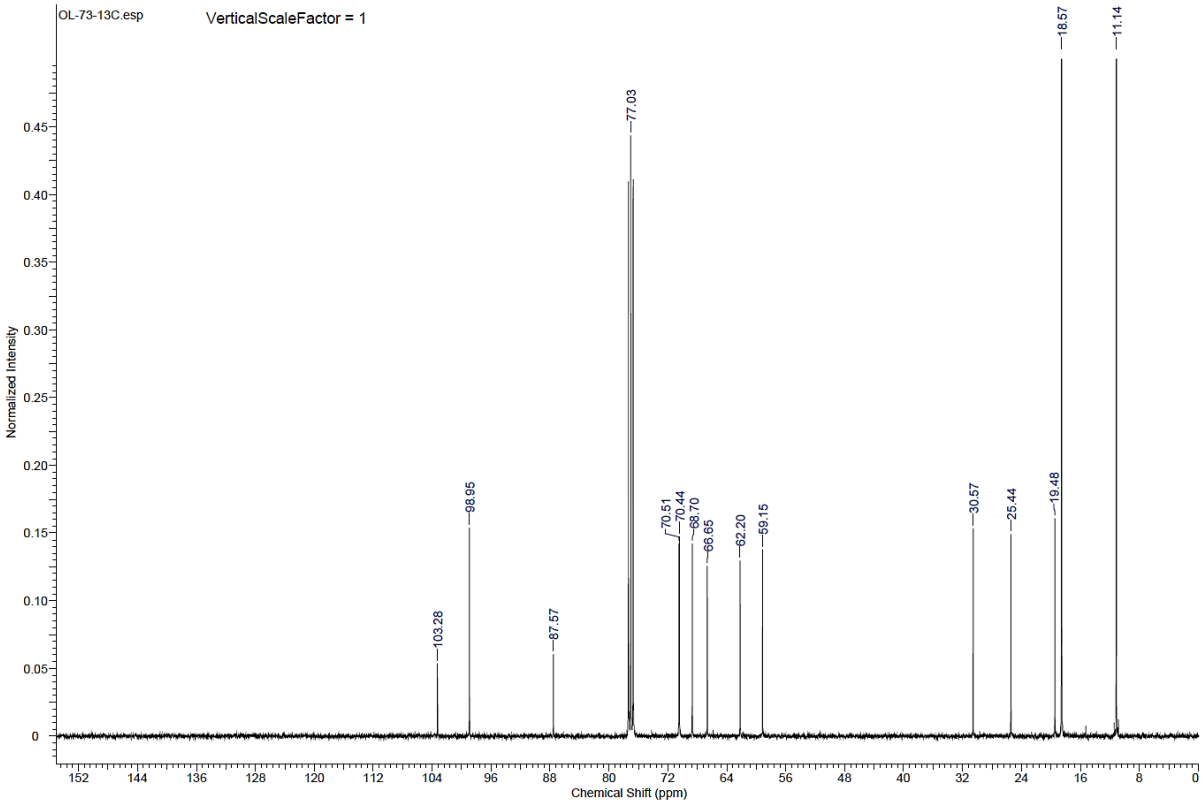

Figure S34: ^{13}C-NMR spectrum of compound 10b.

1.20 (TES)Propargyl-DEG bromide 11b

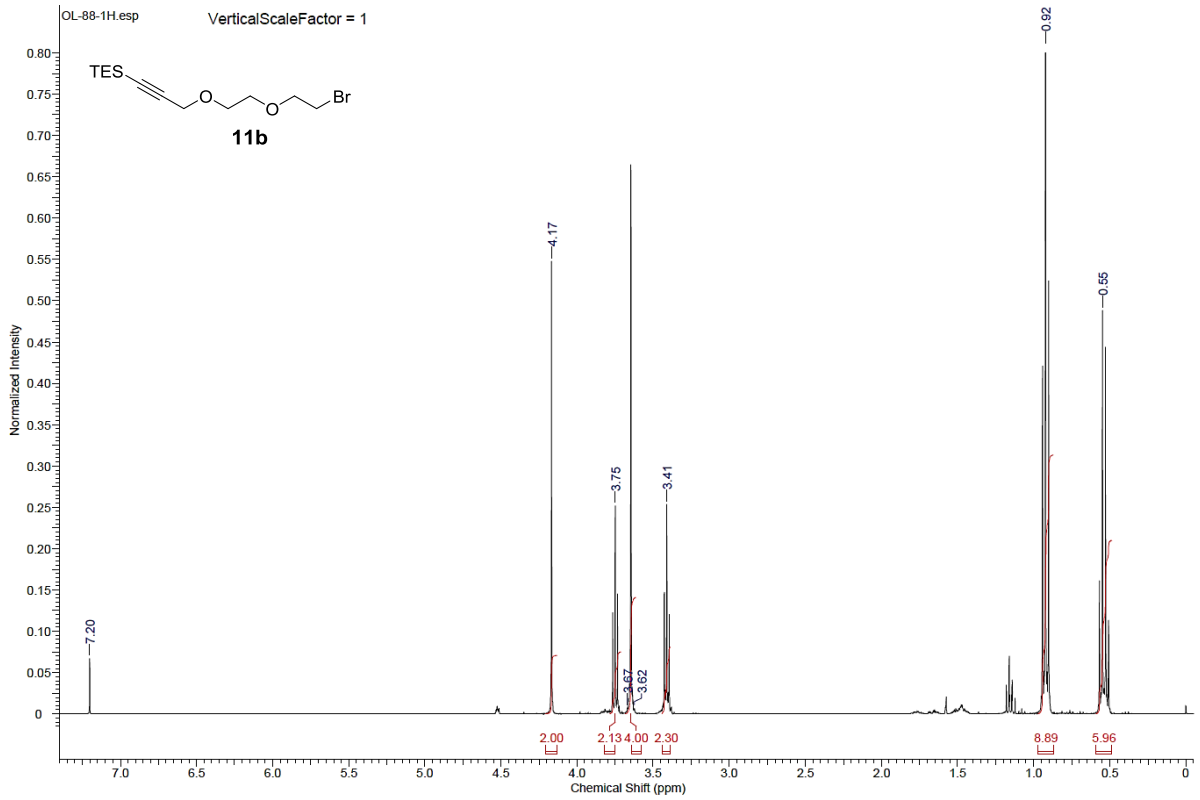

Figure S35: ^{1}H-NMR spectrum of compound 11b.

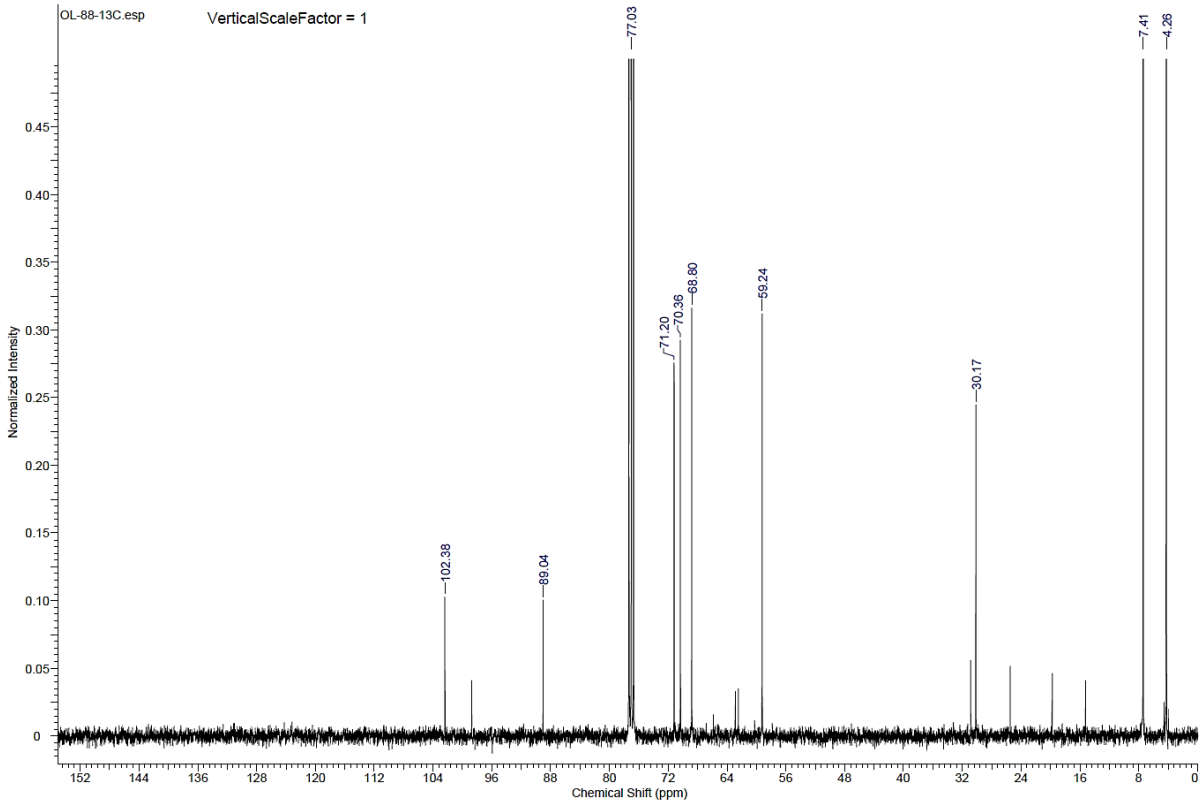

Figure S36: ^{13}C-NMR spectrum of compound 11b.

1.21 (TIPS)Propargyl-DEG bromide 12b

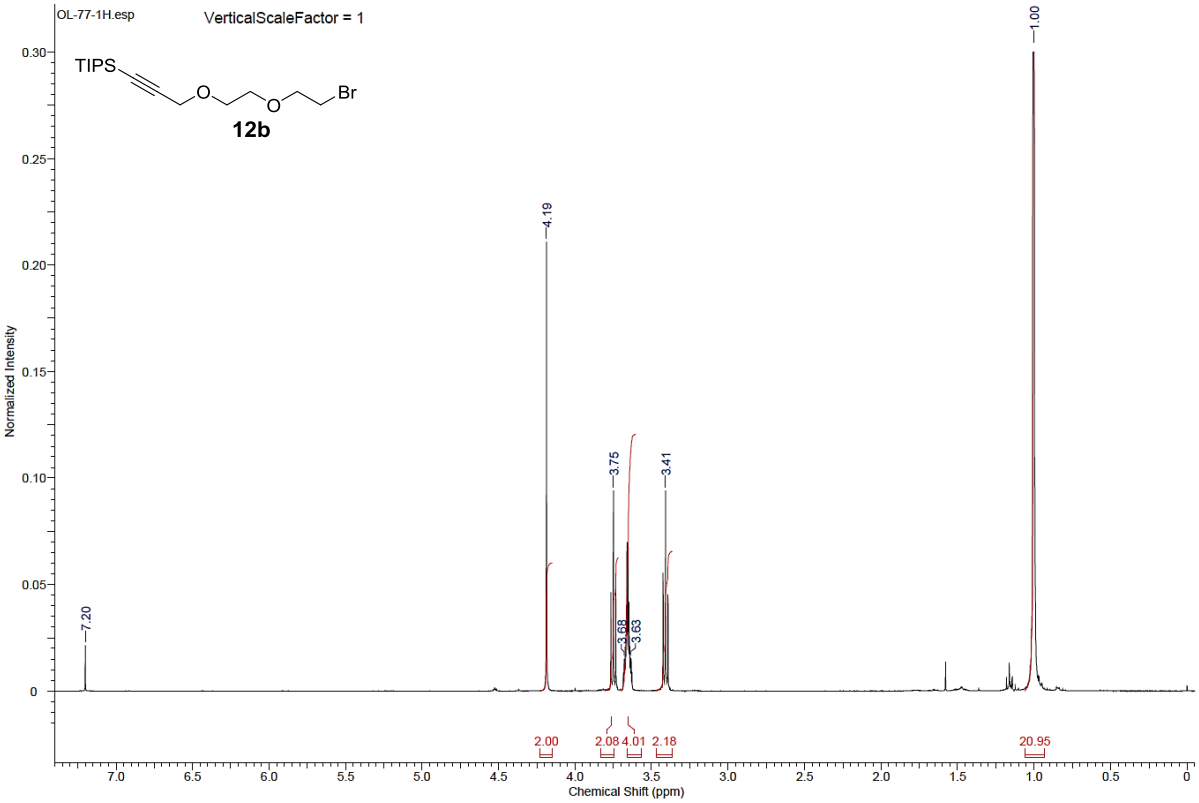

Figure S37: ^{1}H-NMR spectrum of compound 12b.

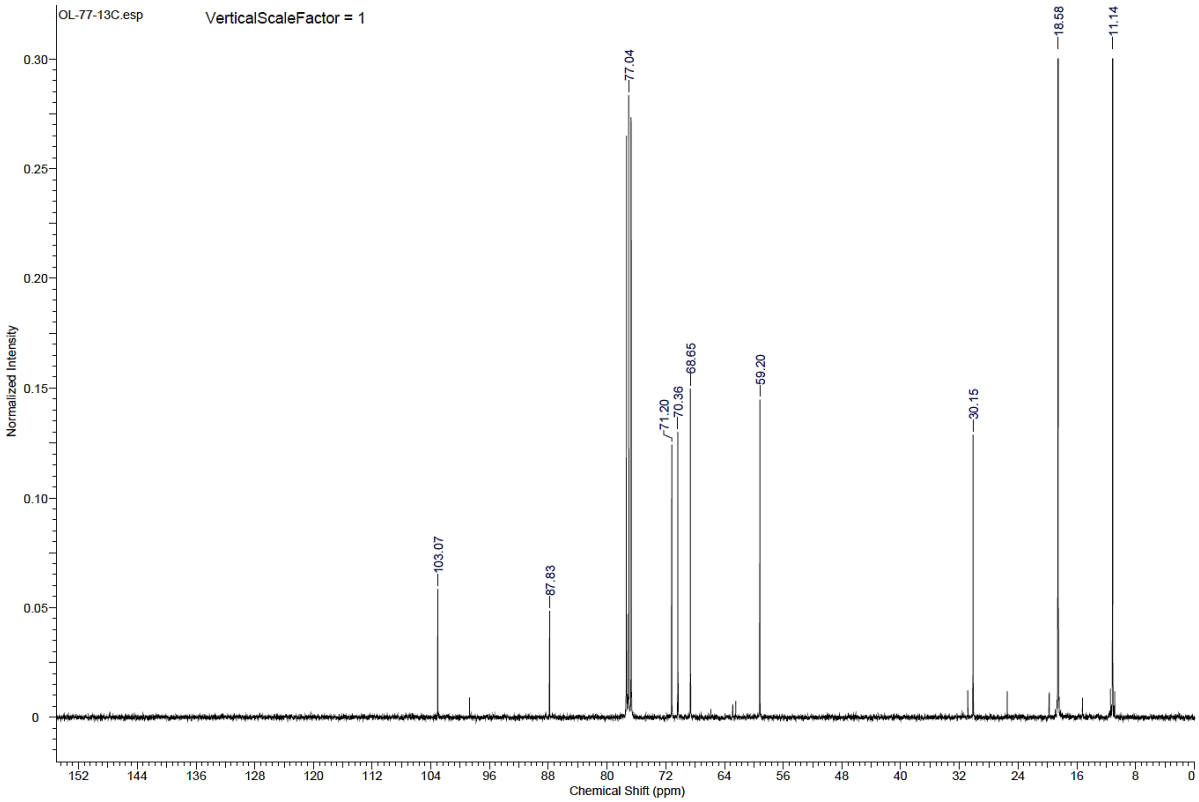

Figure S38: ^{13}C-NMR spectrum of compound 12b.

1.22 Propargyl-DEG bromide 13b

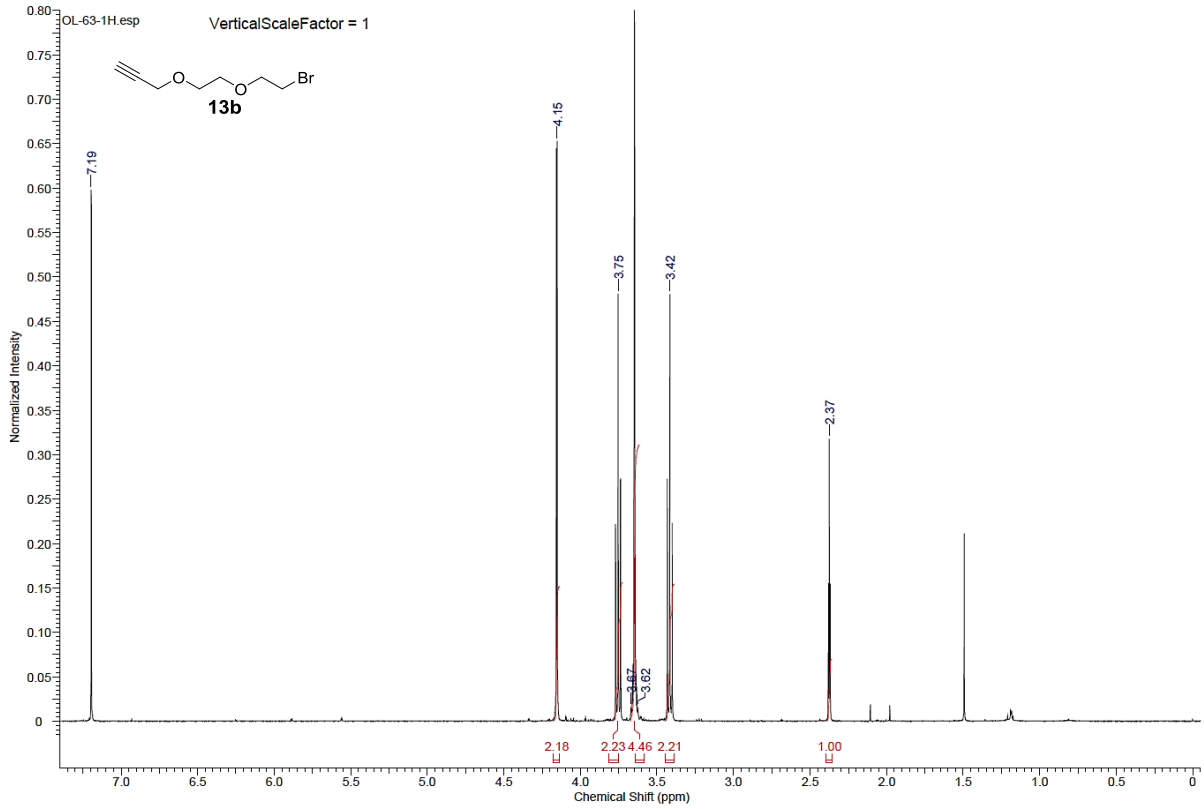

Figure S39: ^{1}H-NMR spectrum of compound 13b.

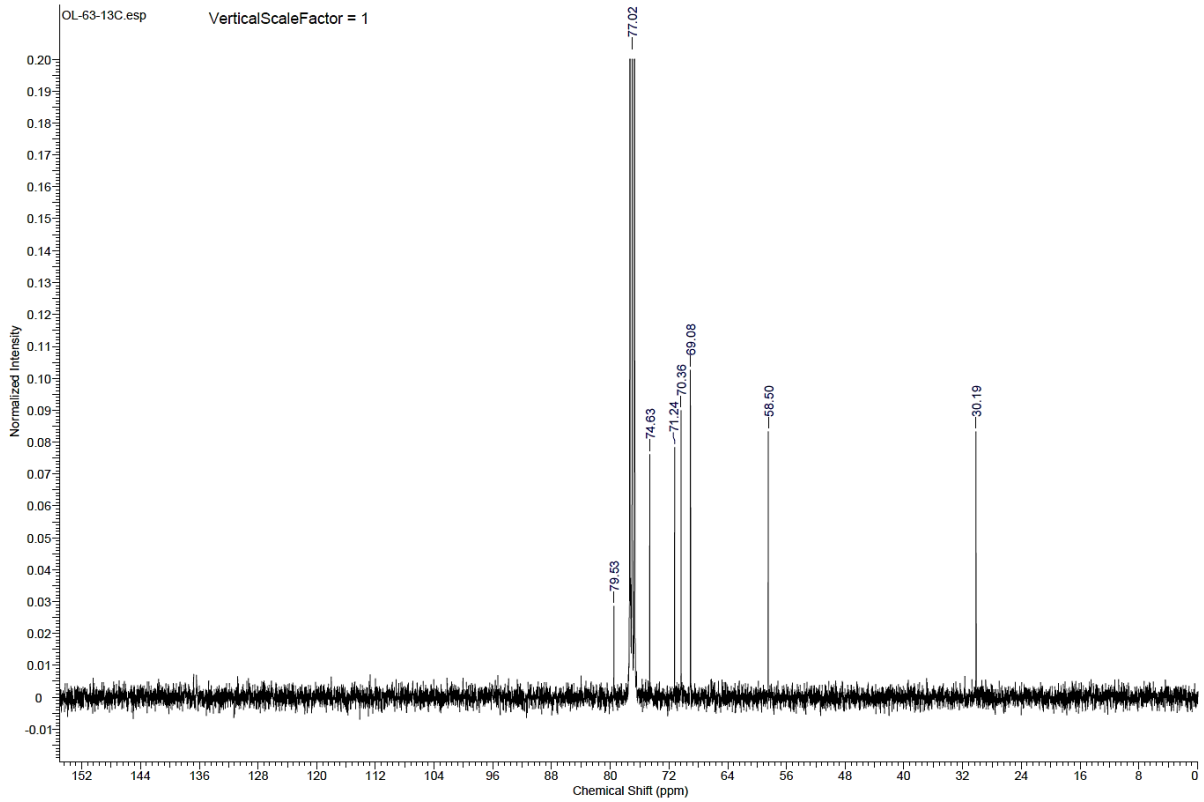

Figure S40: ^{13}C-NMR spectrum of compound 13b.

1.23 Di(*O*-THP)-*O*-DEG-propargyl CTV 15b

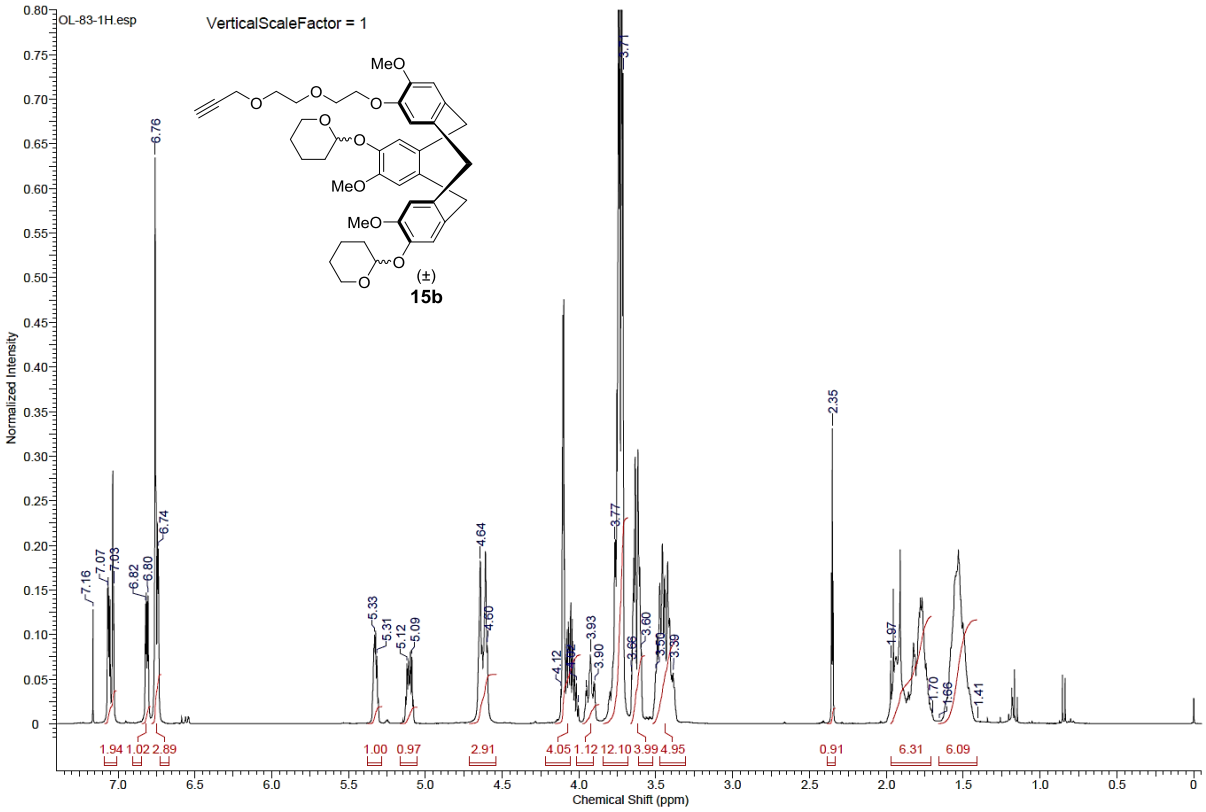

Figure S41: ^{1}H-NMR spectrum of compound 15b.

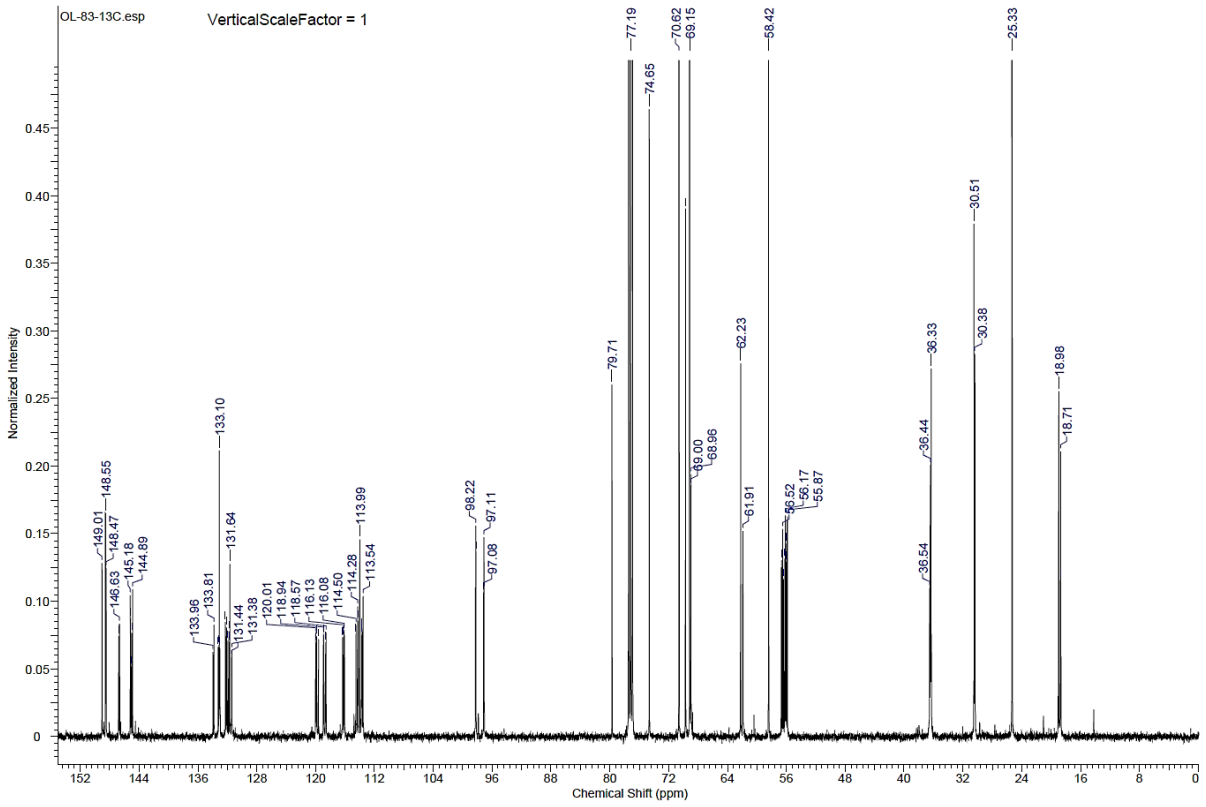

Figure S42: ^{13}C-NMR spectrum of compound 15b.

1.24 *O*-DEG-Propargyl CTV-diOH 16b

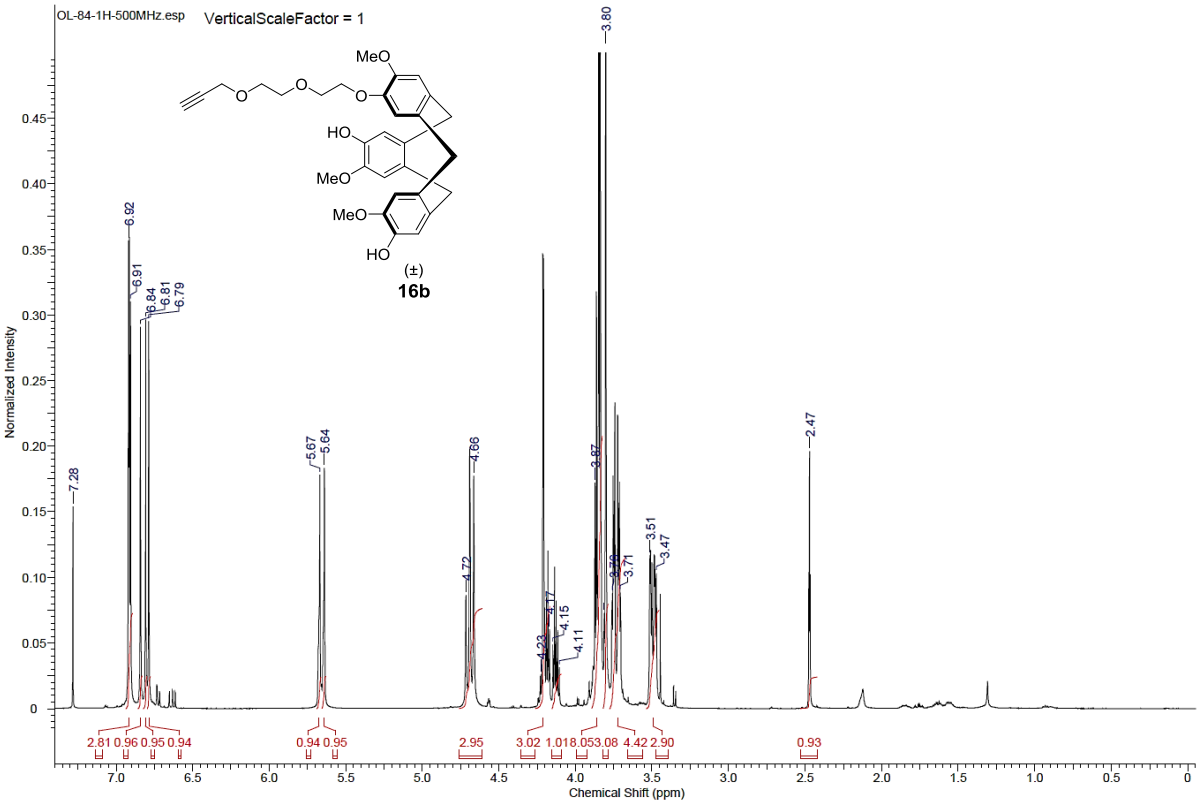

Figure S43: ^{1}H-NMR spectrum of compound 16b.

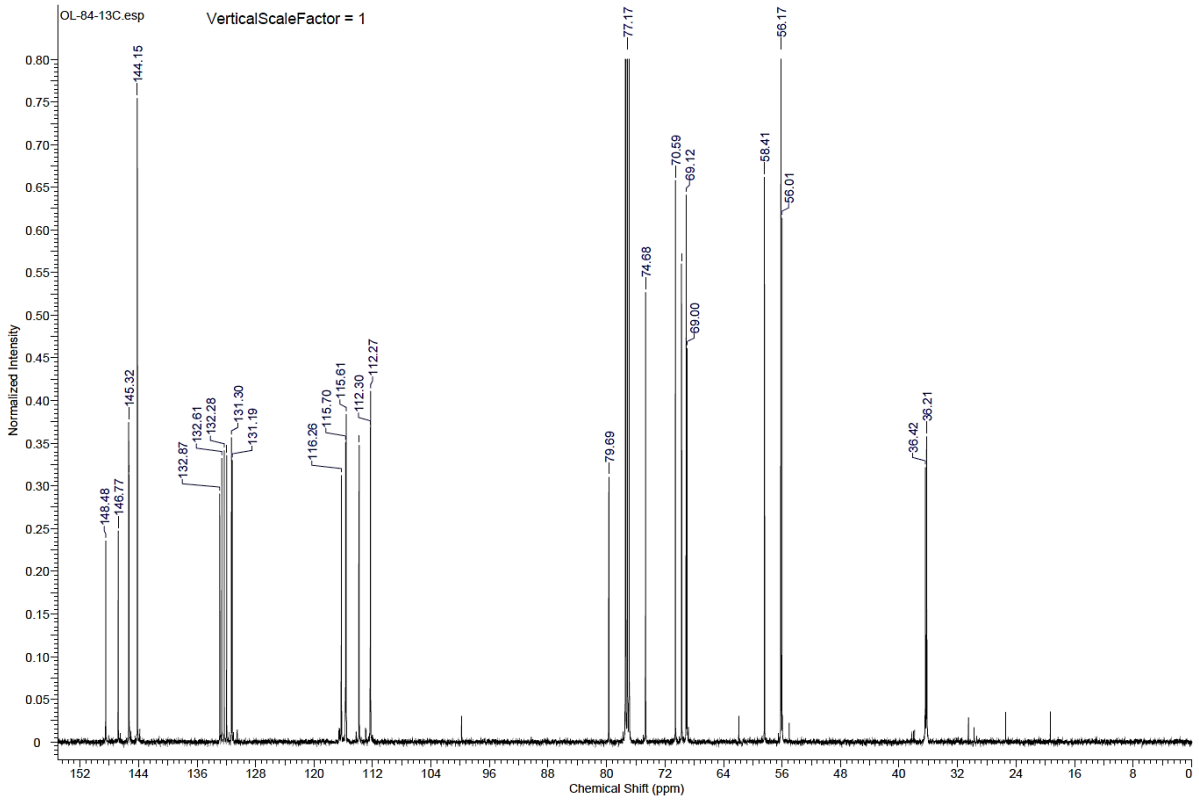

Figure S44: ^{13}C-NMR spectrum of compound 16b.

1.25 *O*-DEG-Propargyl-*O*-DEG-(TIPS)propargyl CTV-OH 17b

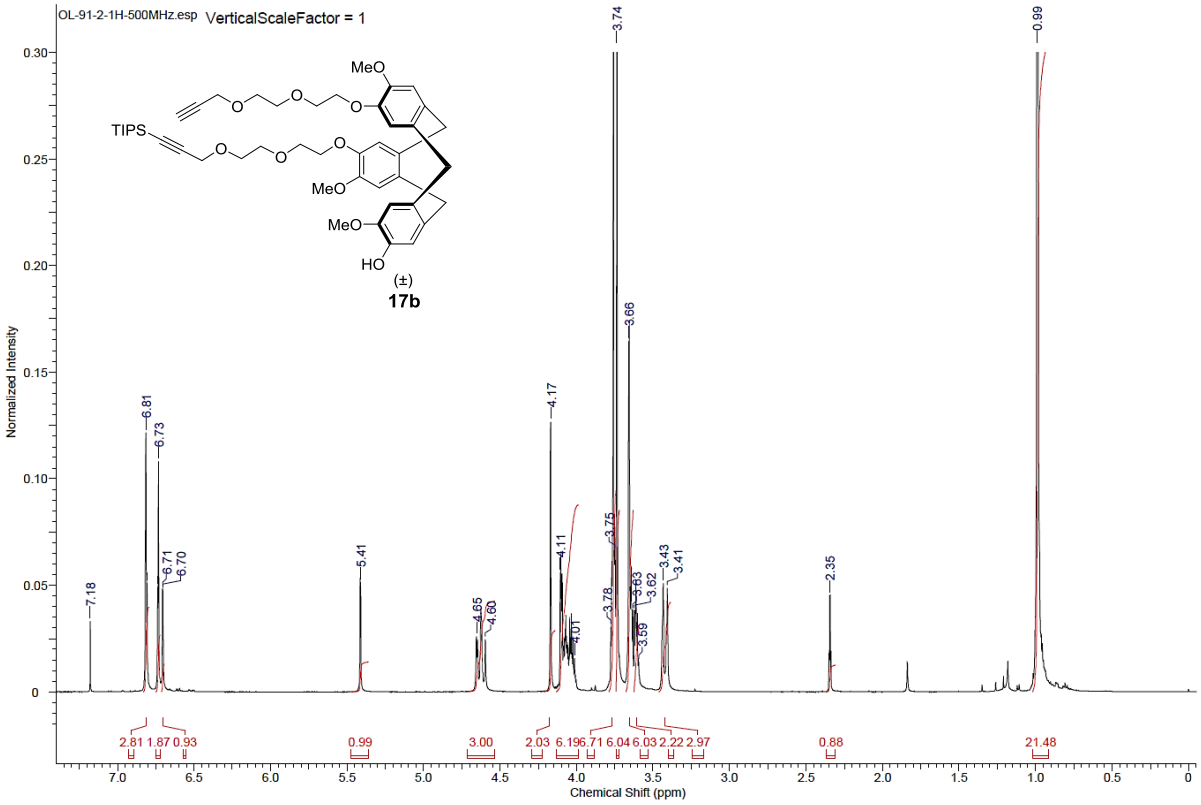

Figure S45: ^{1}H-NMR spectrum of compound 17b.

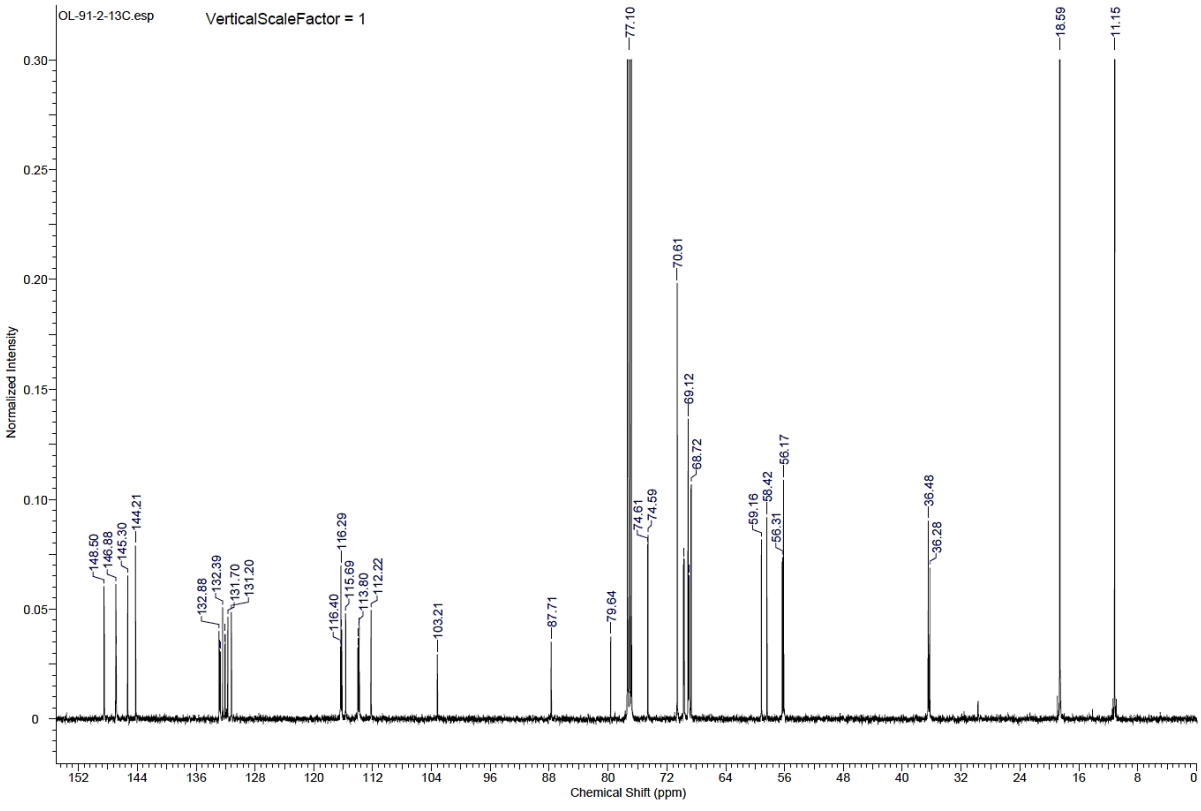

Figure S46: ^{13}C-NMR spectrum of compound 17b.

1.26 Side product 18b

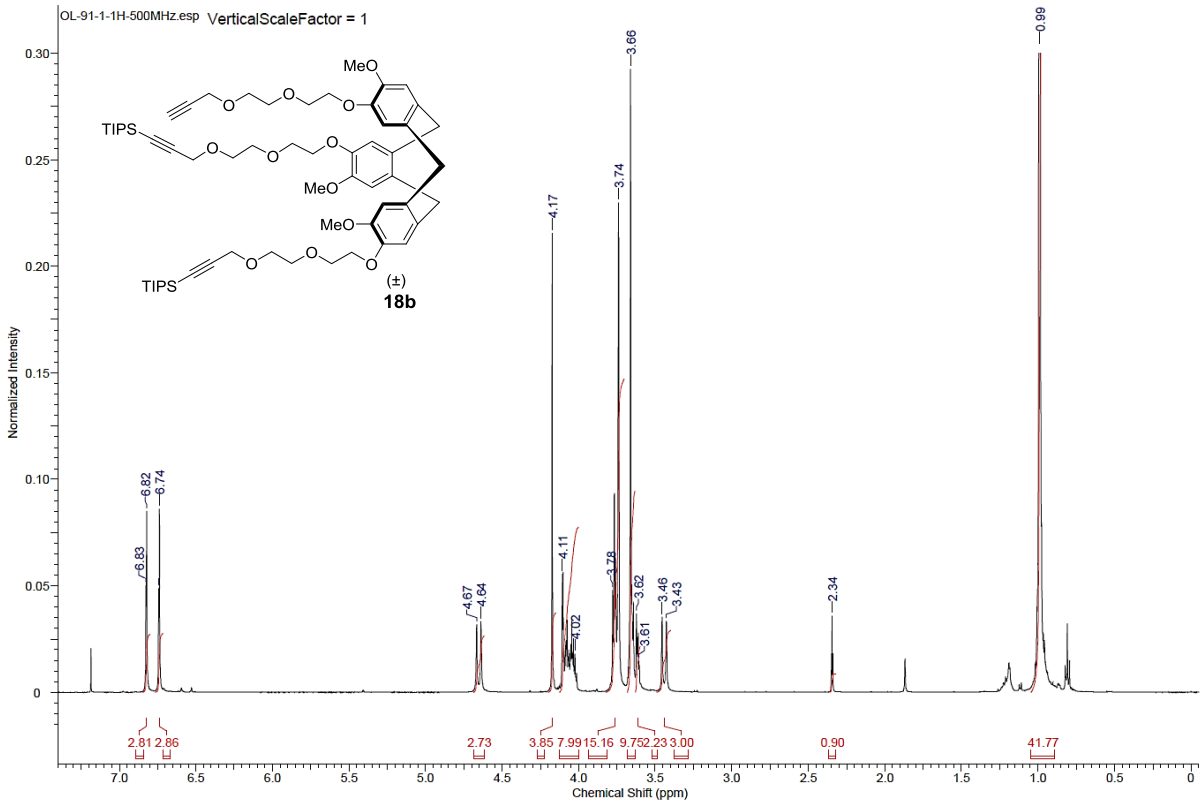

Figure S47: ^{1}H-NMR spectrum of compound 18b.

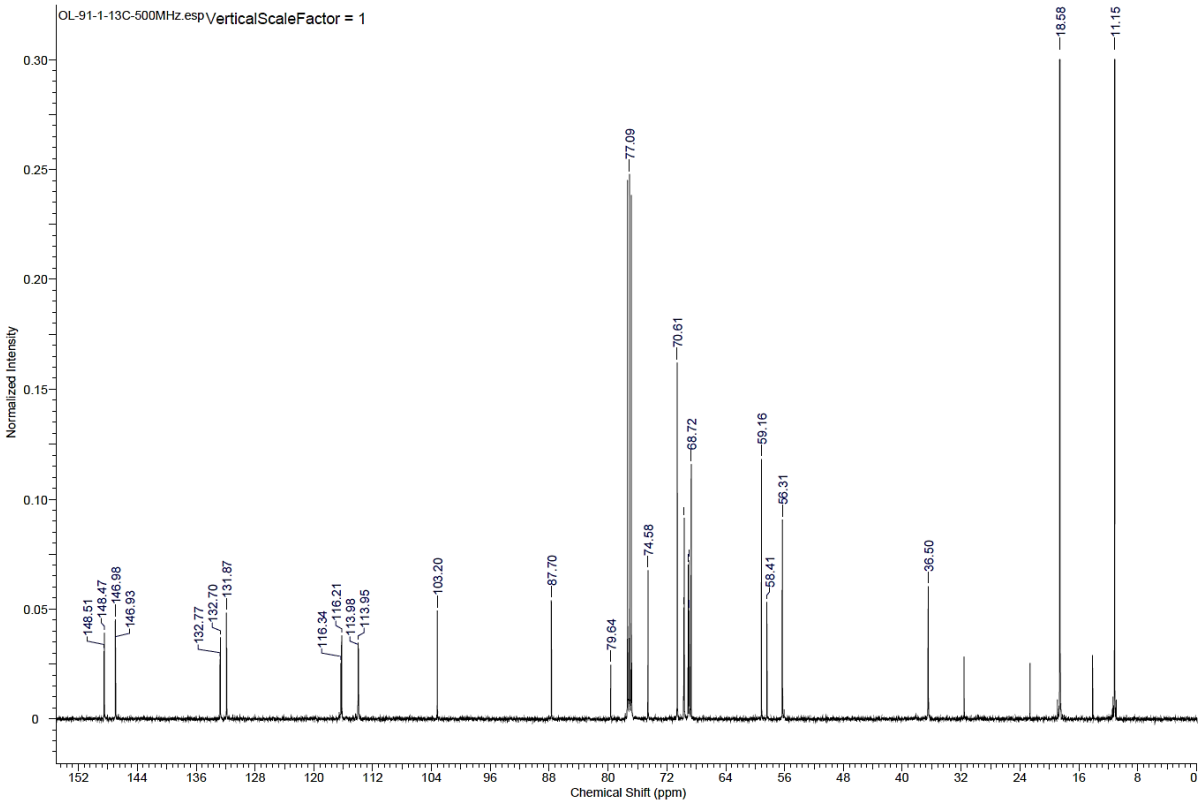

Figure S48: ^{13}C-NMR spectrum of compound 18b.

1.27 Tri-*O*-Propargyl CTV 20

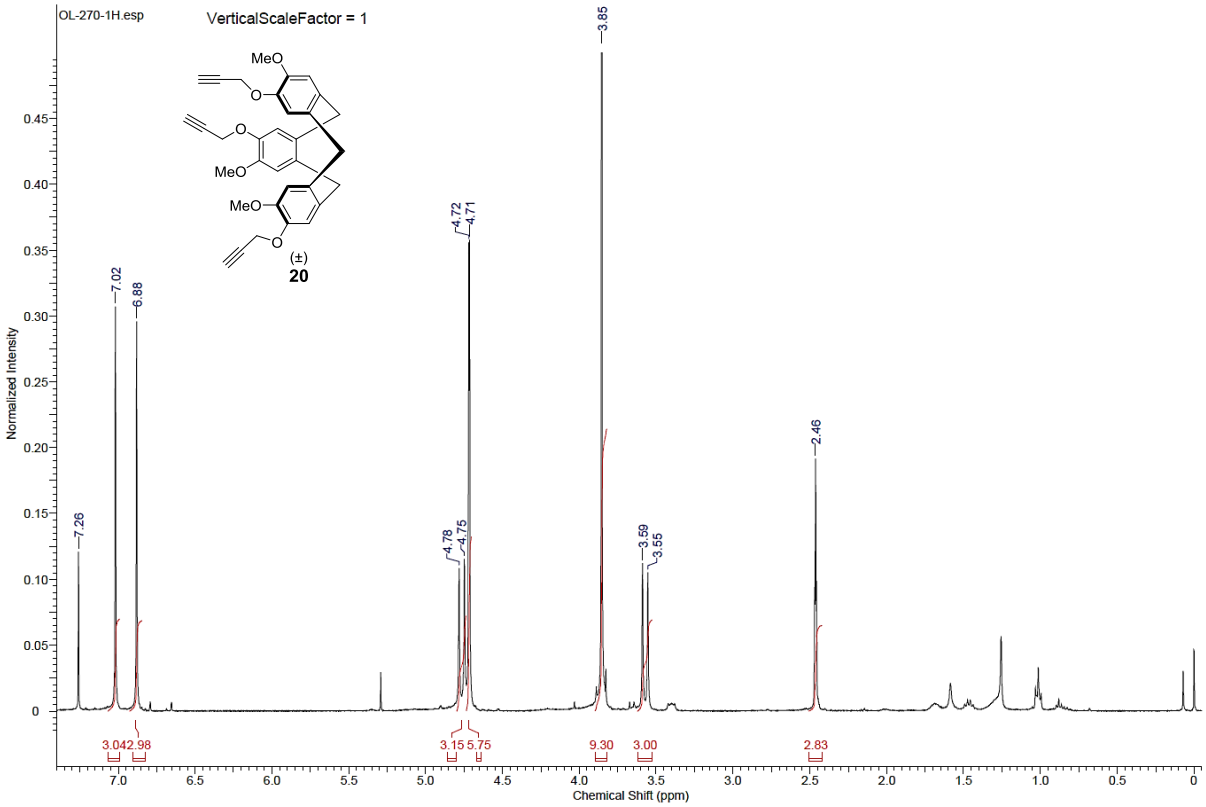

Figure S49: ^{1}H-NMR spectrum of compound 20.

1.28 Tri-*O*-MEG-Propargyl CTV 21

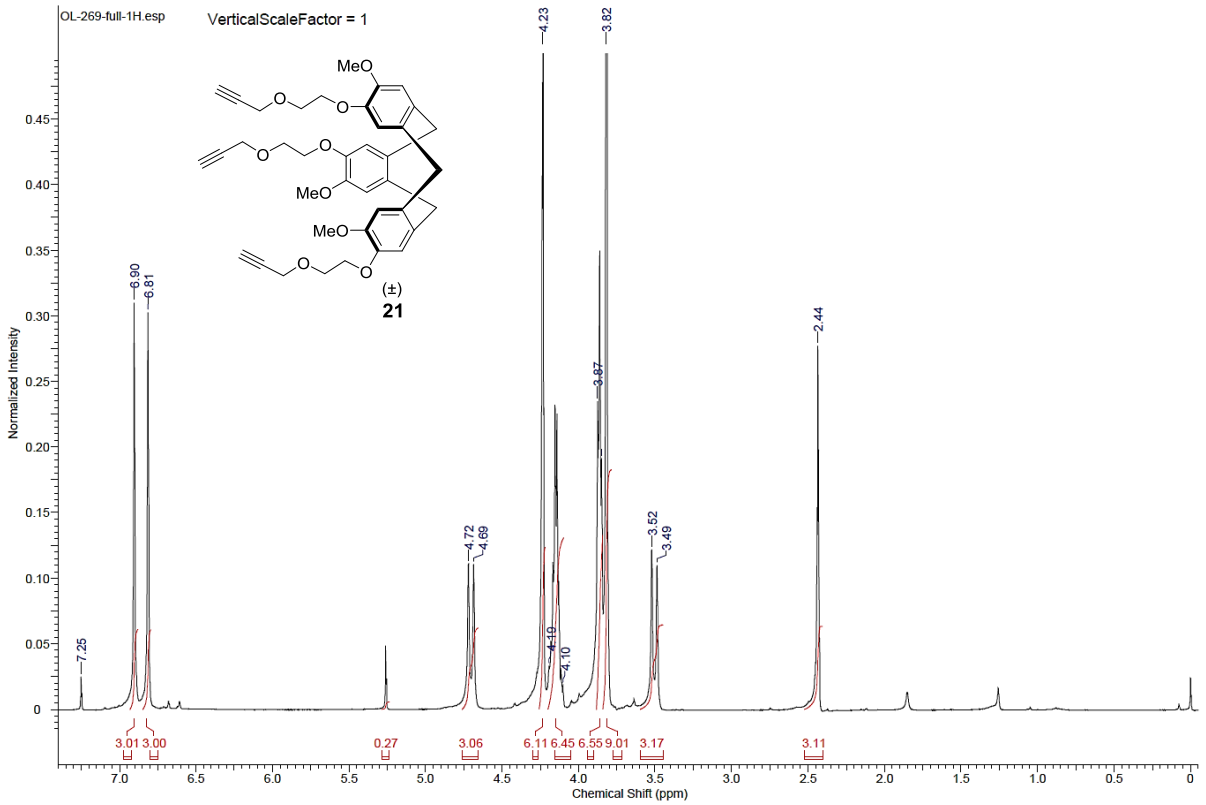

Figure S50: ^{1}H-NMR spectrum of compound 21.

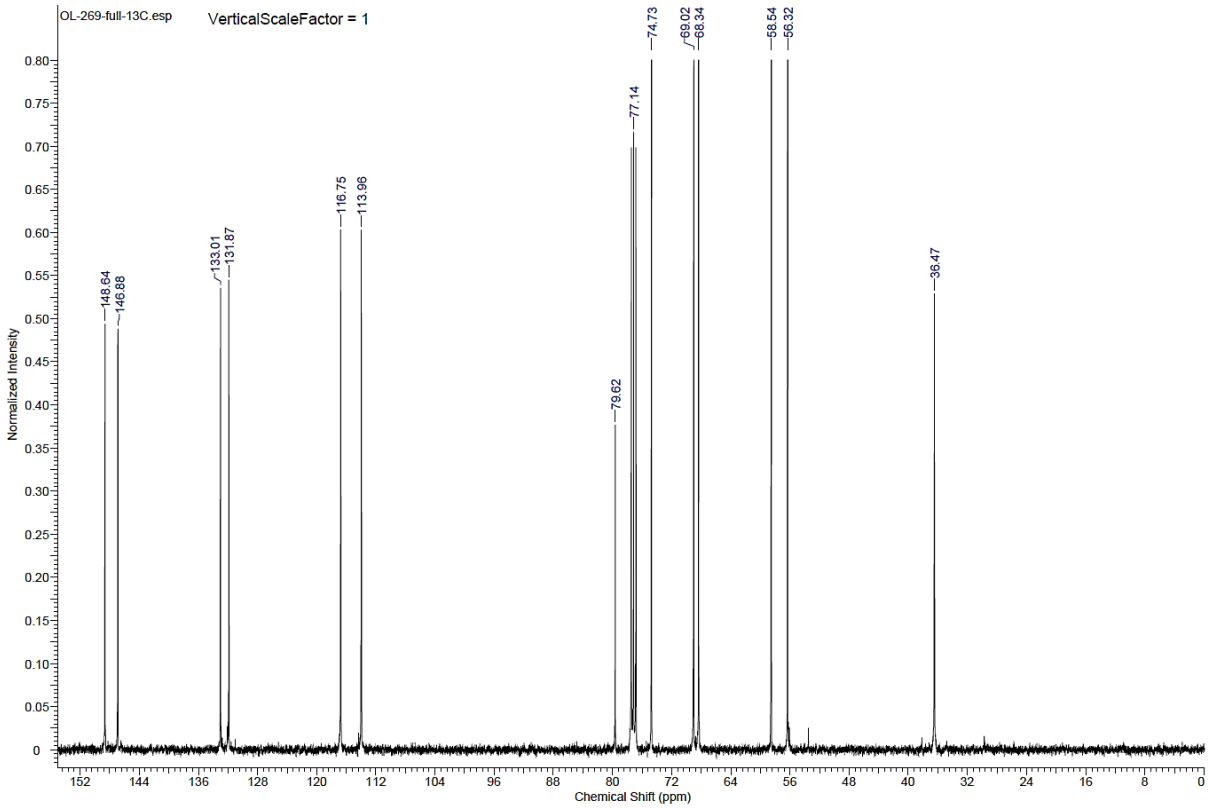

Figure S51: ^{13}C-NMR spectrum of compound 21.

1.29 Tri-*O*-DEG-Propargyl CTV 22

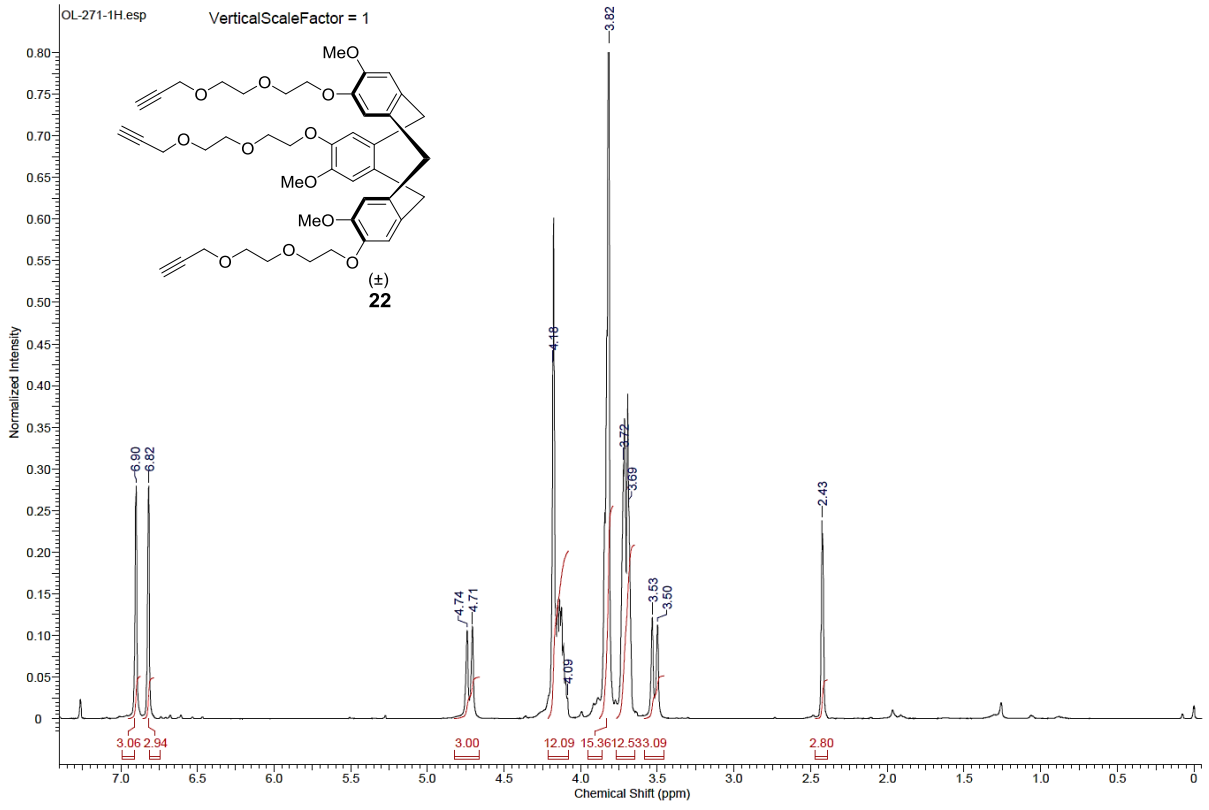

Figure S52: ^{1}H-NMR spectrum of compound 22.

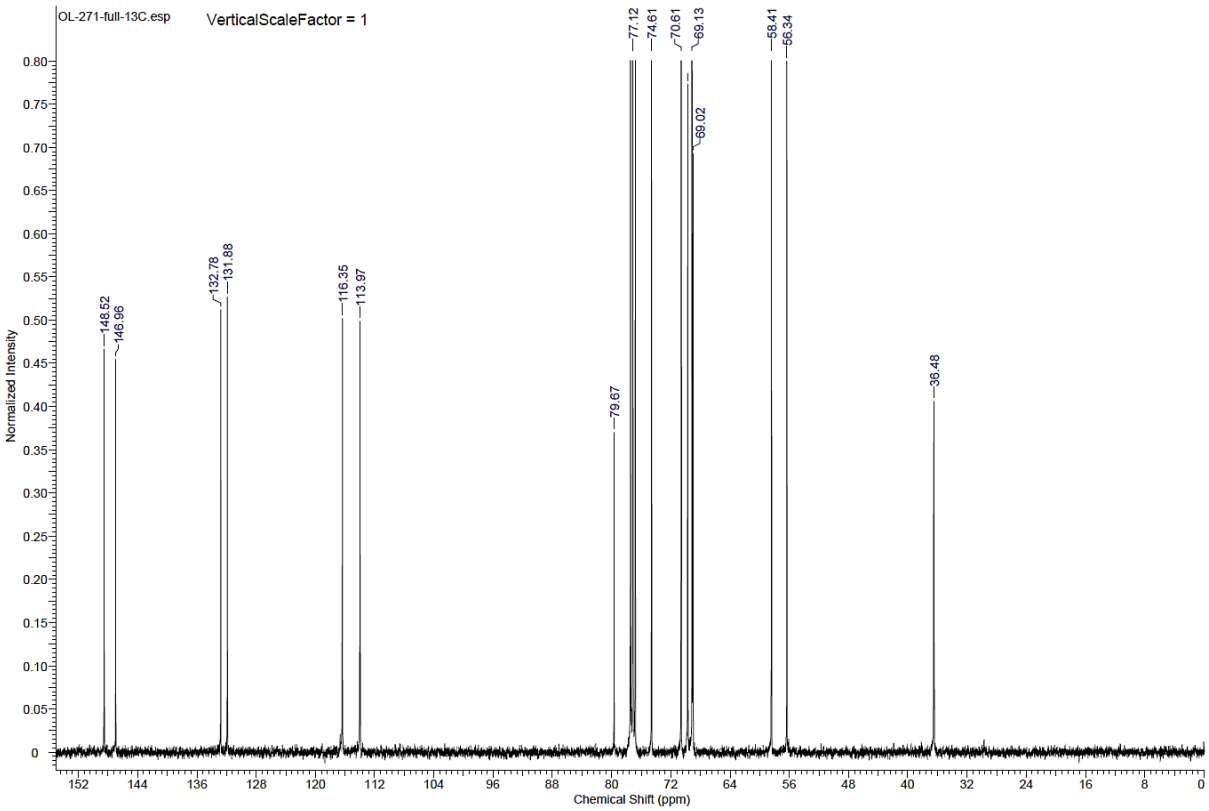

Figure S53: ^{13}C-NMR spectrum of compound 22.

1.30 Synthetic antibody 35

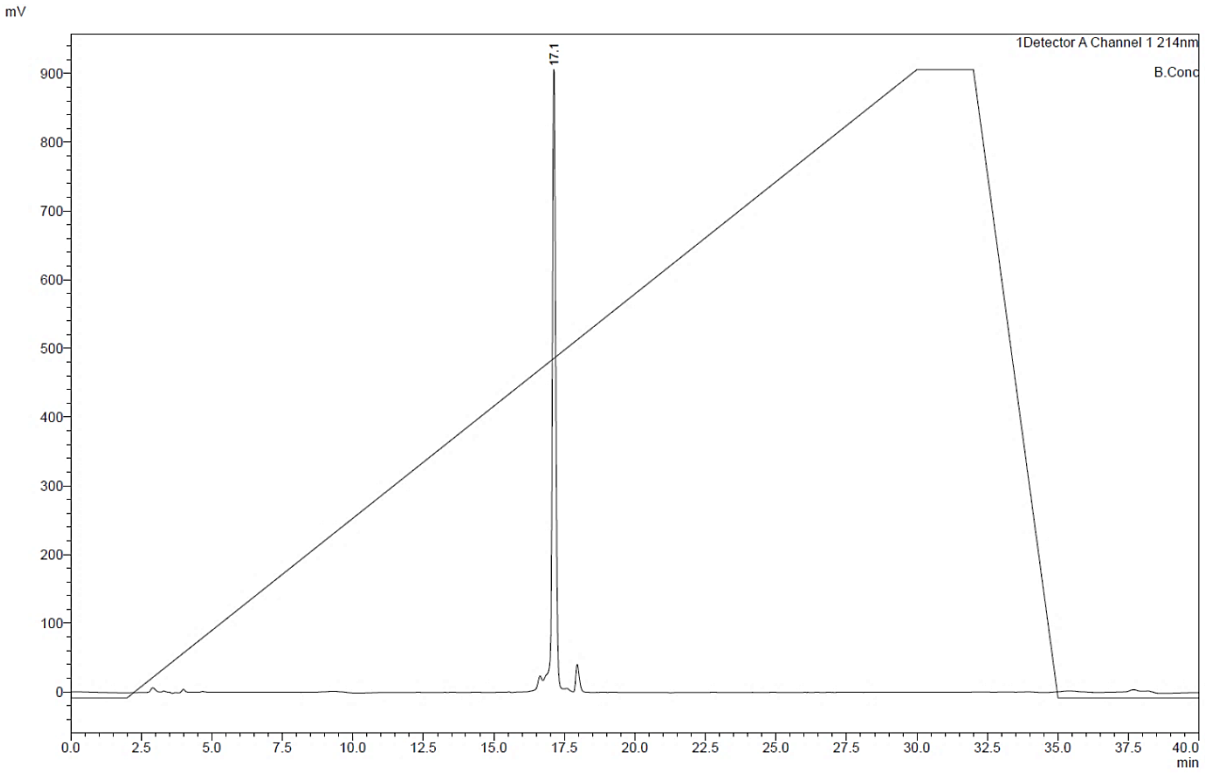

Figure S54: Analytical HPLC chromatogram of synthetic antibody 35.

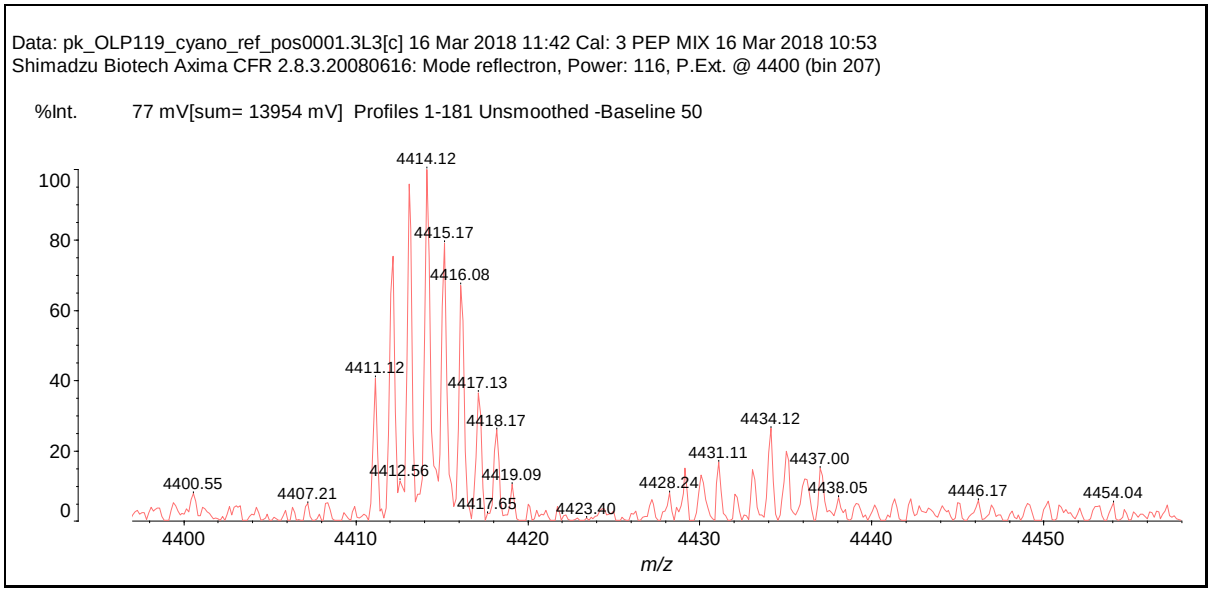

Figure S55: MALDI spectrum of synthetic antibody 35.

1.31 Synthetic antibody 36

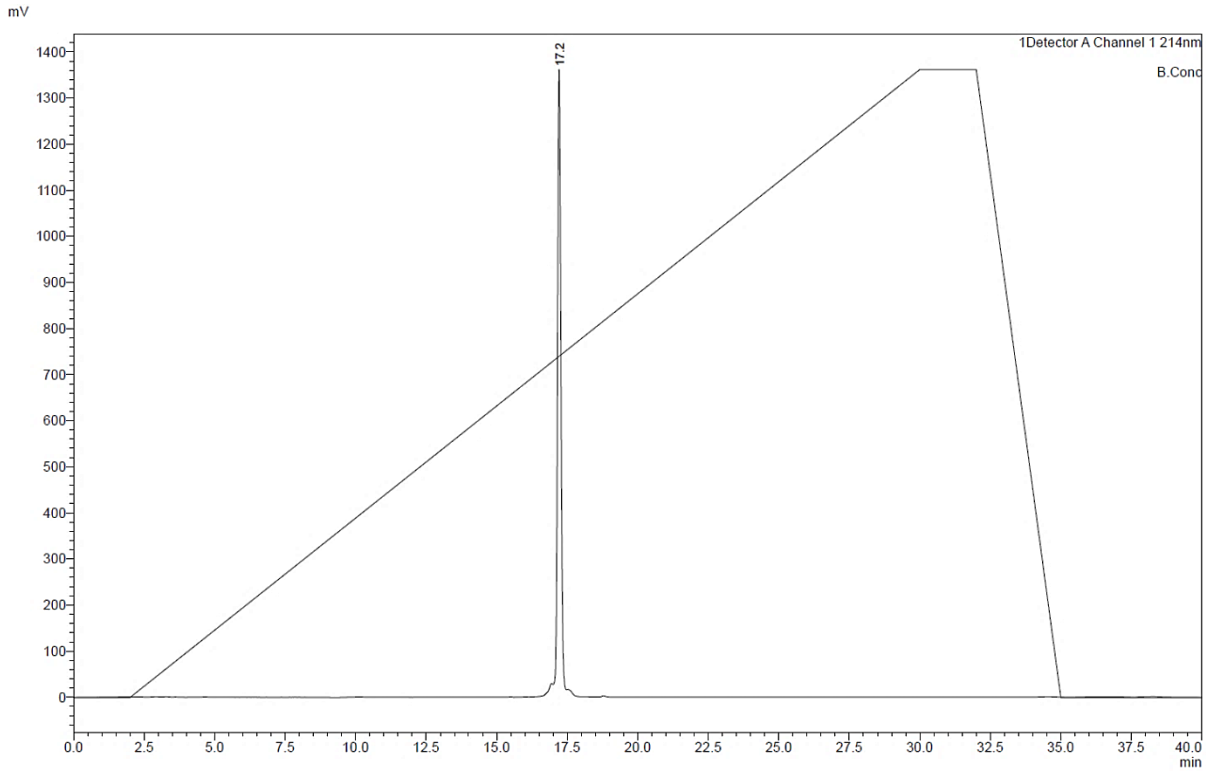

Figure S56: Analytical HPLC chromatogram of synthetic antibody 36.

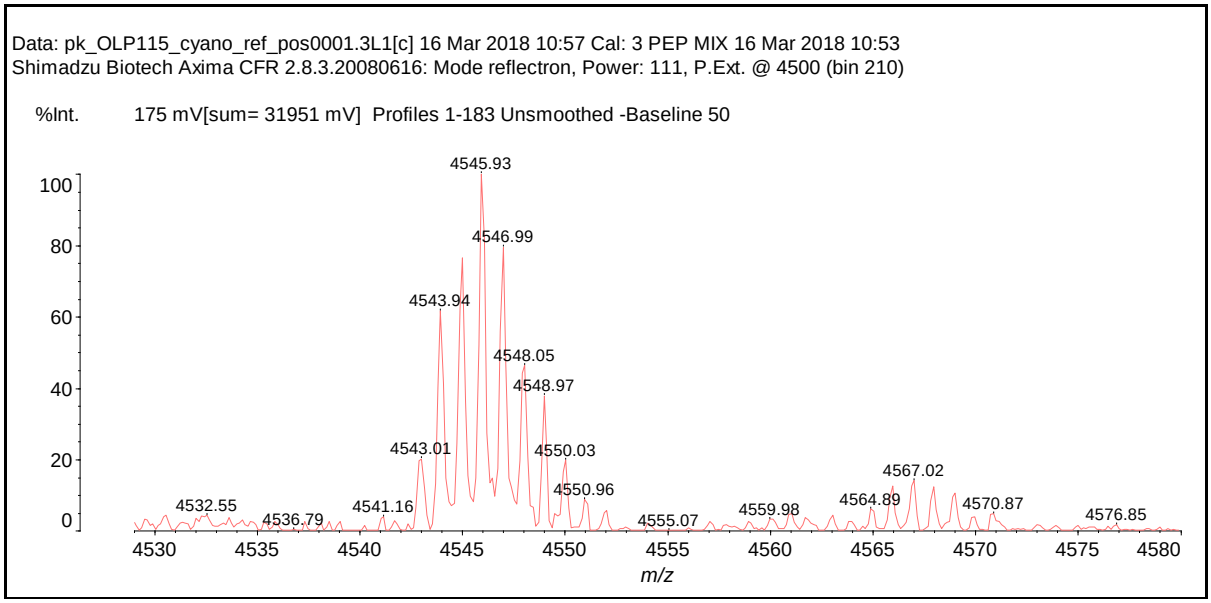

Figure S57: MALDI spectrum of synthetic antibody 36.

1.32 Synthetic antibody 37

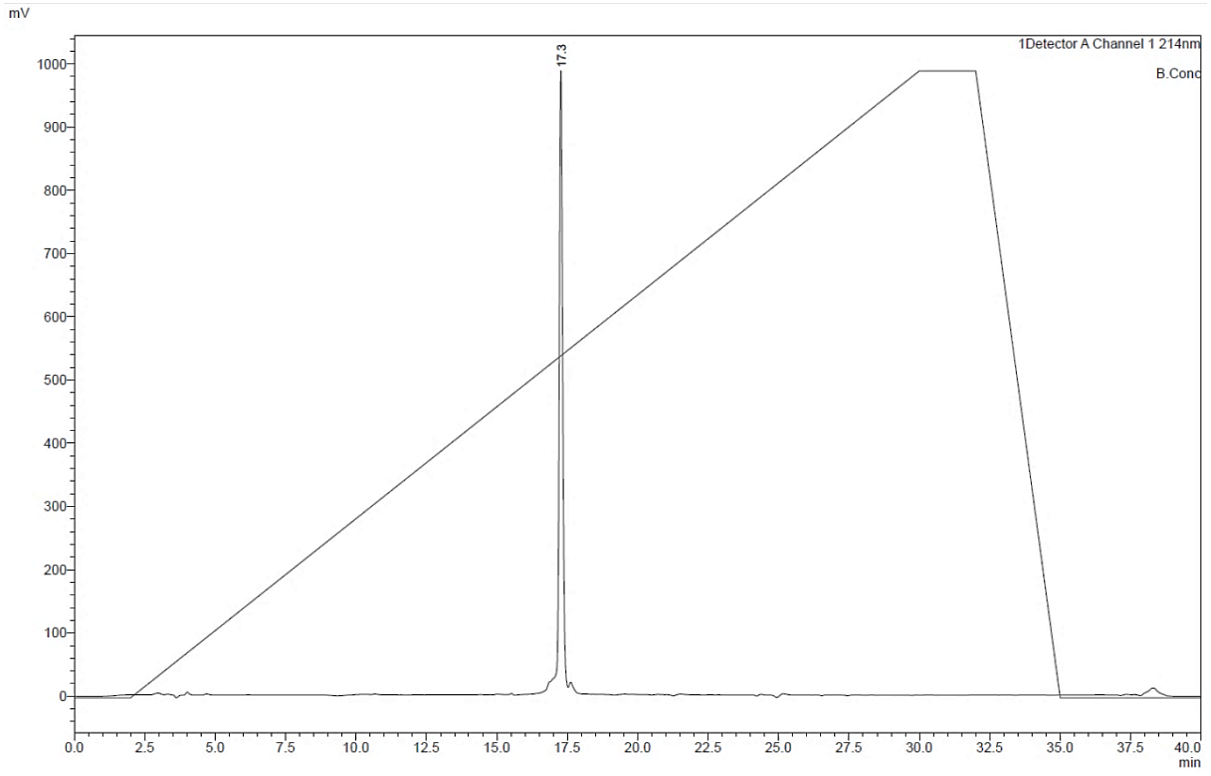

Figure S58: Analytical HPLC chromatogram of synthetic antibody 37.

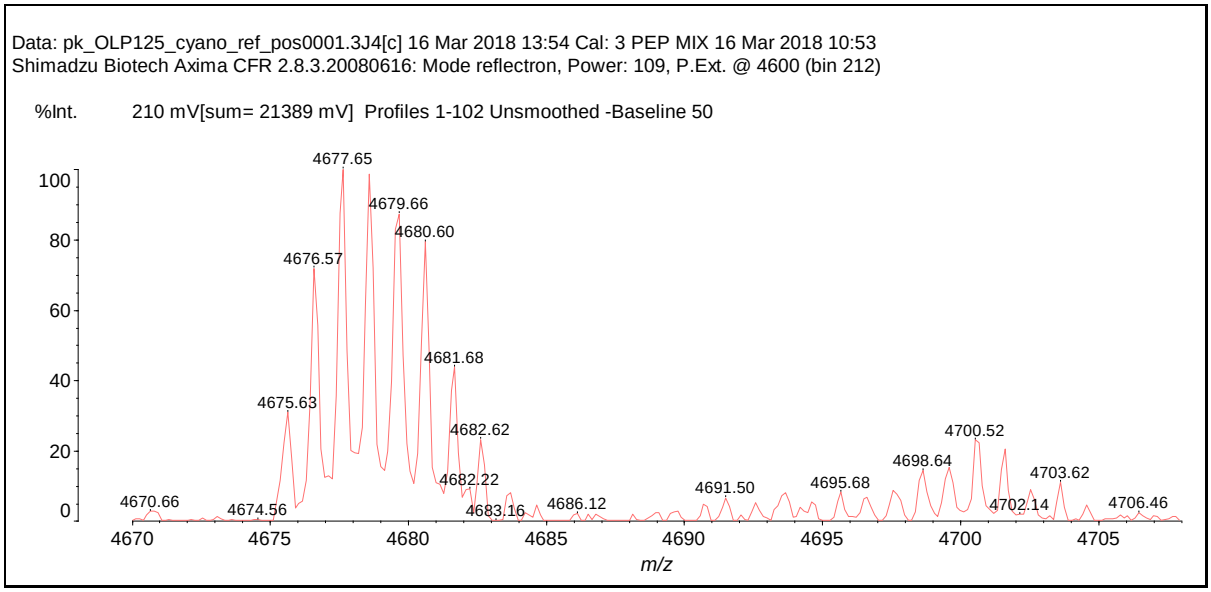

Figure S59: MALDI spectrum of synthetic antibody 37.

1.33 Synthetic antibody 38

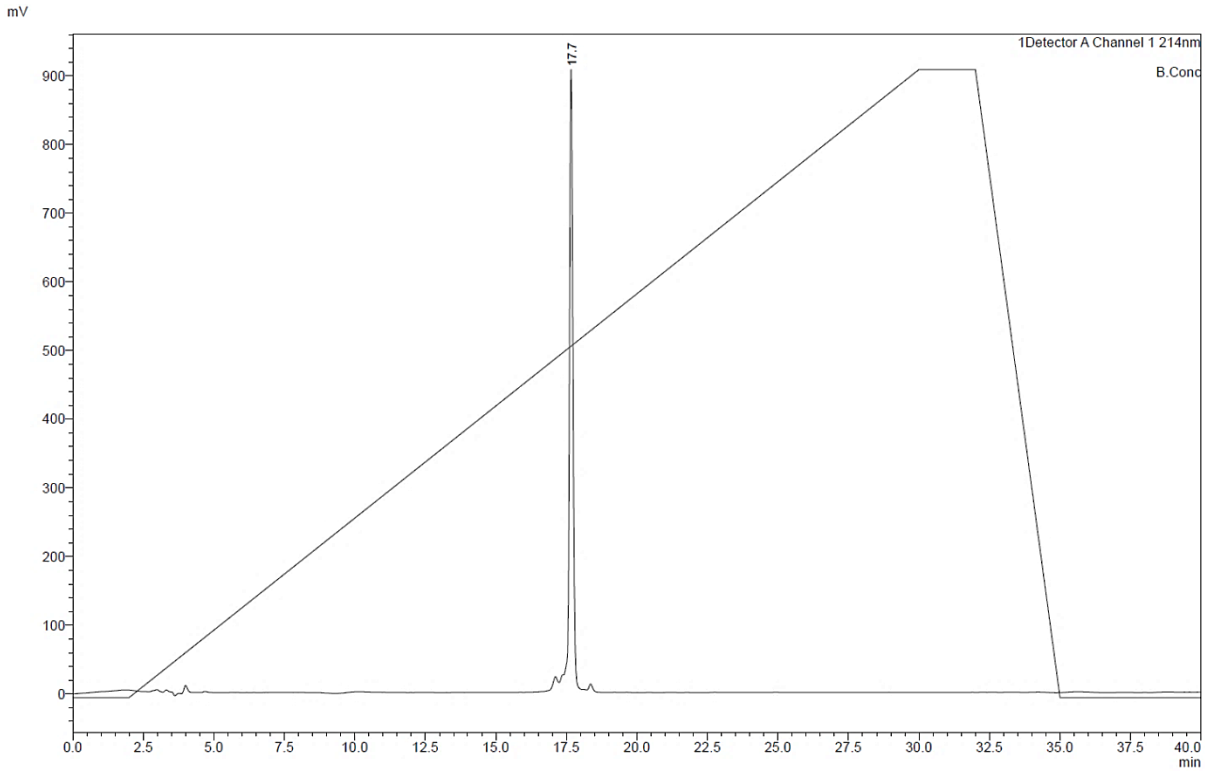

Figure S60: Analytical HPLC chromatogram of synthetic antibody 38.

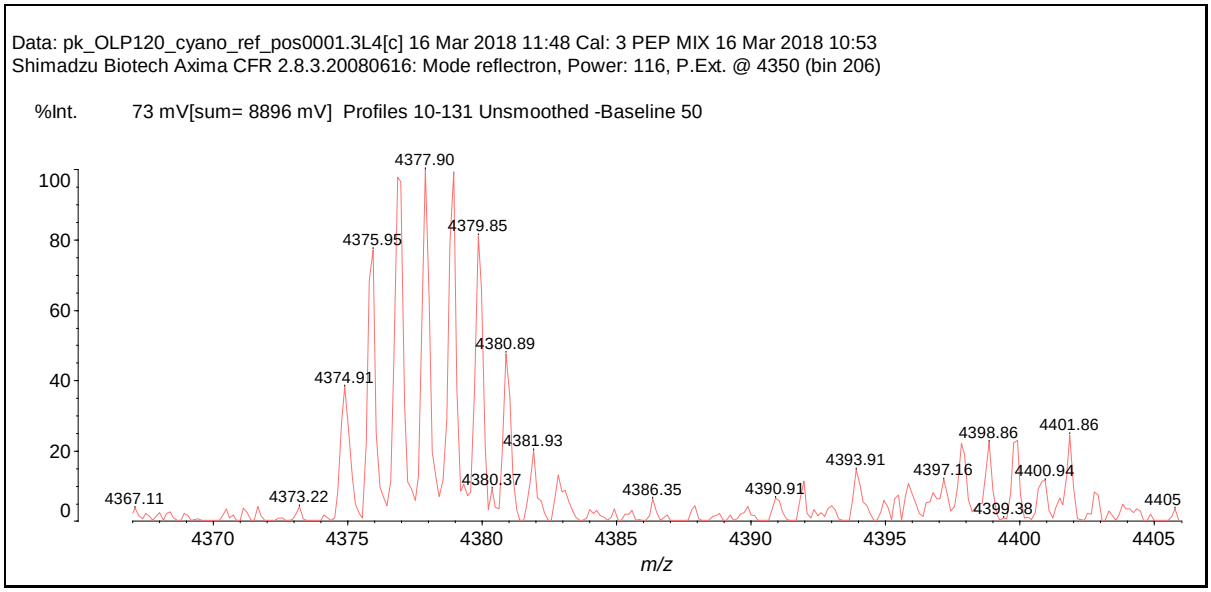

Figure S61: MALDI spectrum of synthetic antibody 38.

1.34 Synthetic antibody 39

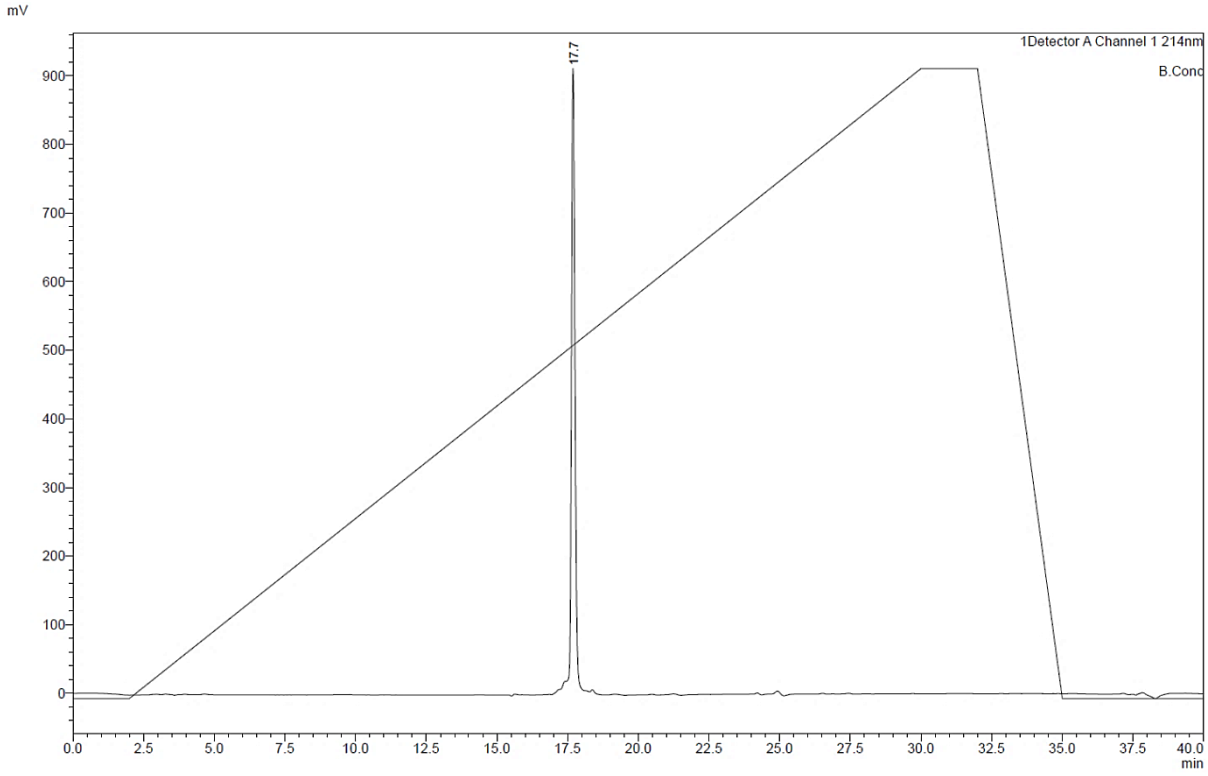

Figure S62: Analytical HPLC chromatogram of synthetic antibody 39.

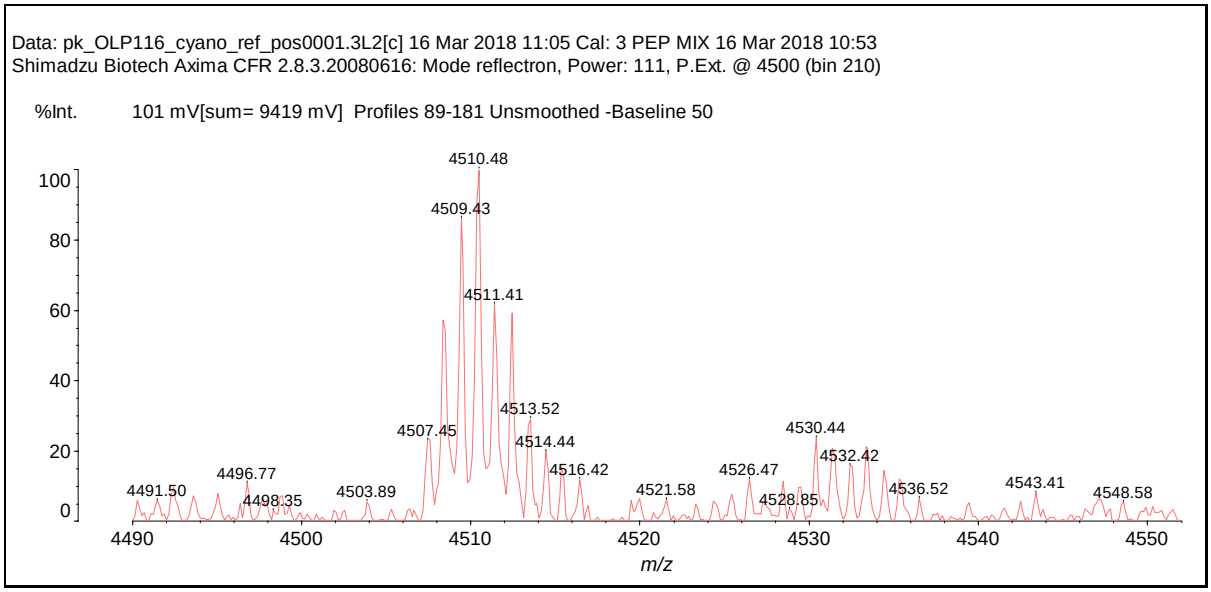

Figure S63: MALDI spectrum of synthetic antibody 39.

1.35 Synthetic antibody 40

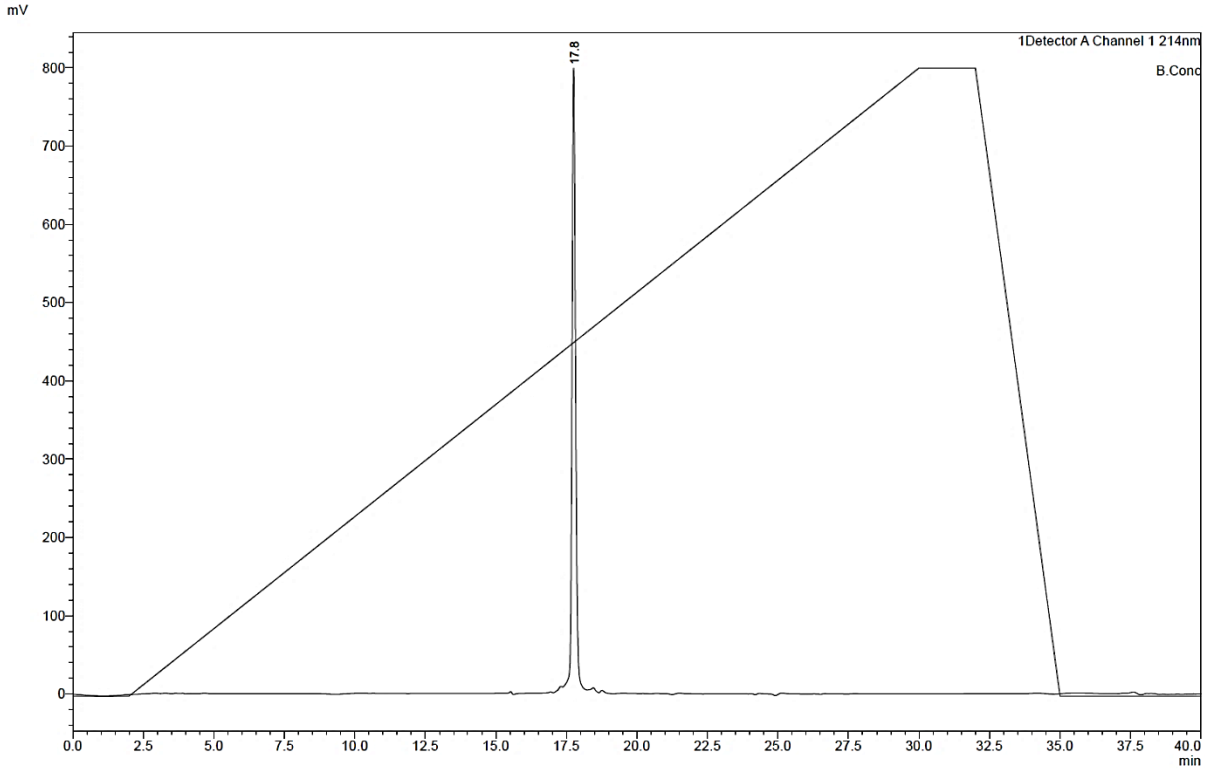

Figure S64: Analytical HPLC chromatogram of synthetic antibody 40.

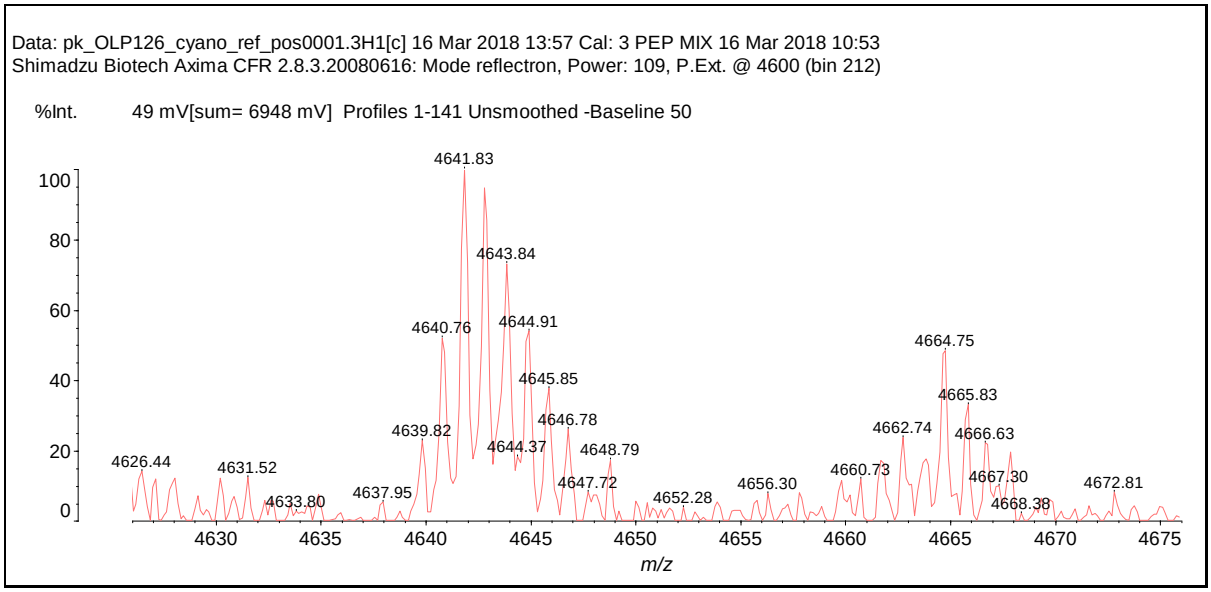

Figure S65: MALDI spectrum of synthetic antibody 40.

1.36 Synthetic antibody 44

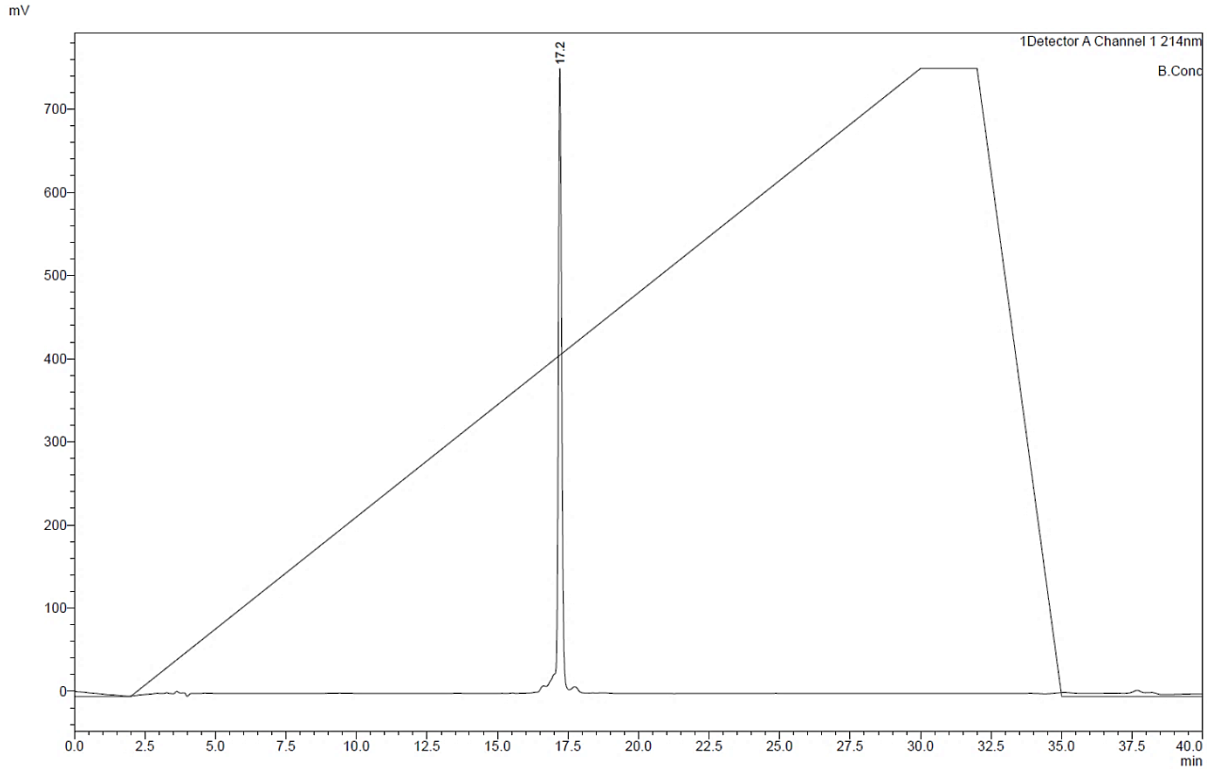

Figure S66: Analytical HPLC chromatogram of synthetic antibody 44.

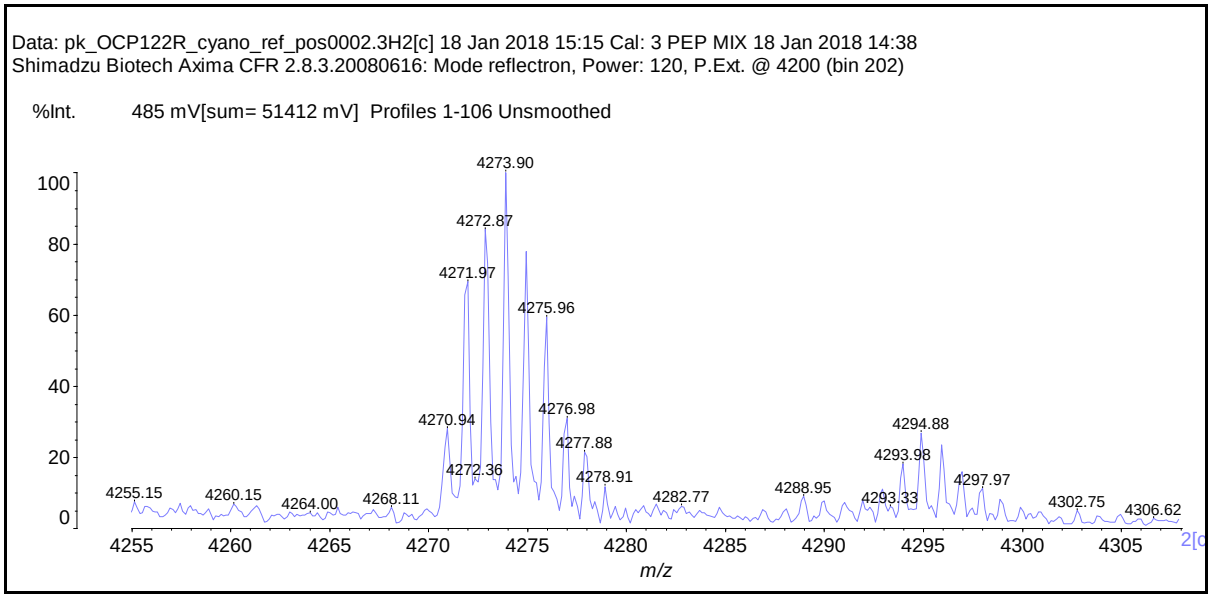

Figure S67: MALDI spectrum of synthetic antibody 44.

1.37 Synthetic antibody 45

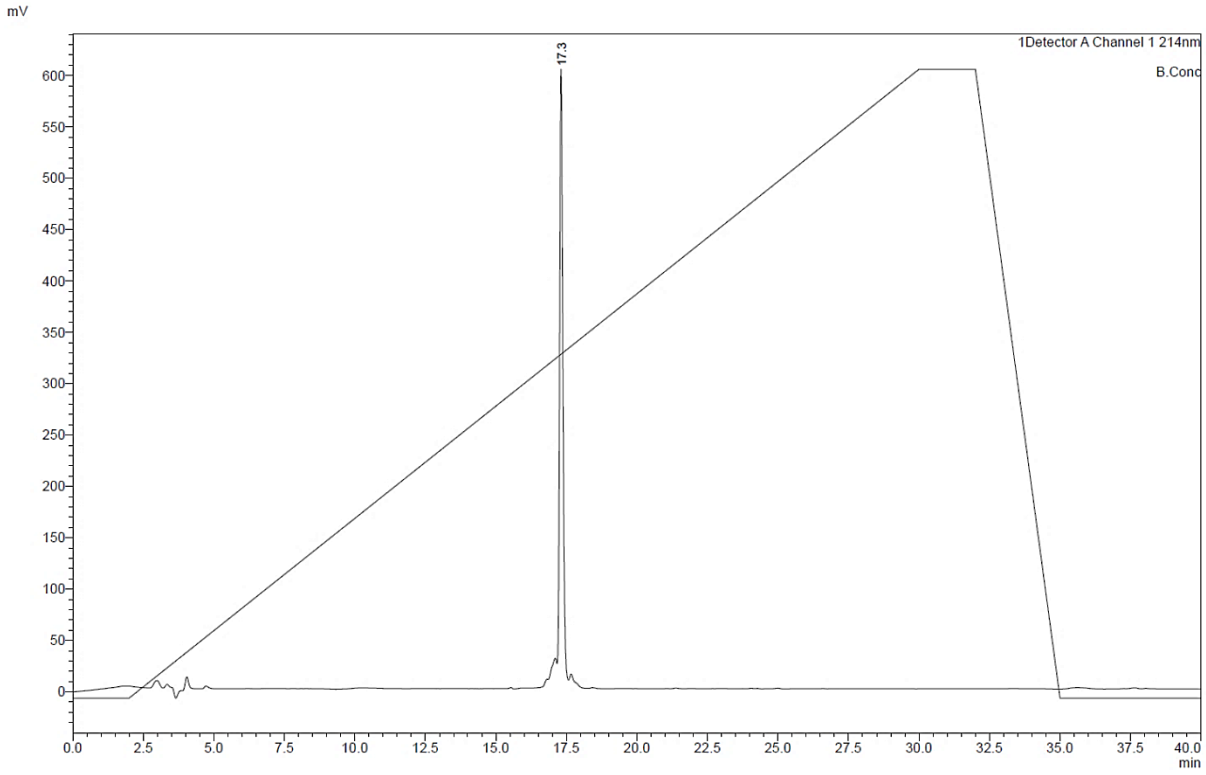

Figure S68: Analytical HPLC chromatogram of synthetic antibody 45.

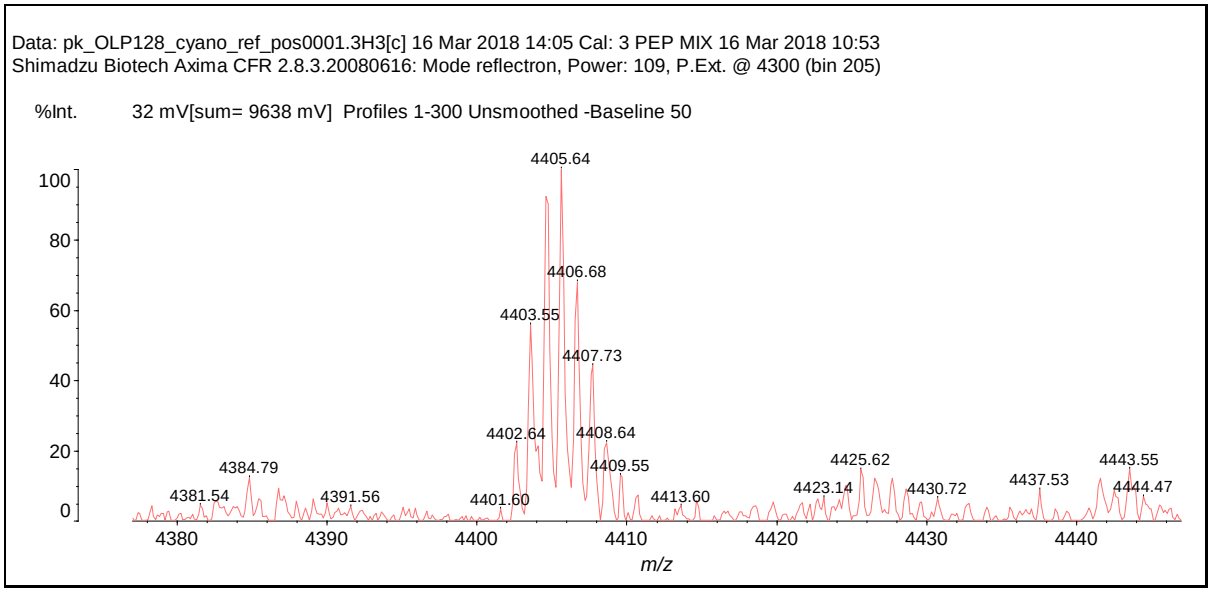

Figure S69: MALDI spectrum of synthetic antibody 45.

1.38 Synthetic antibody 46

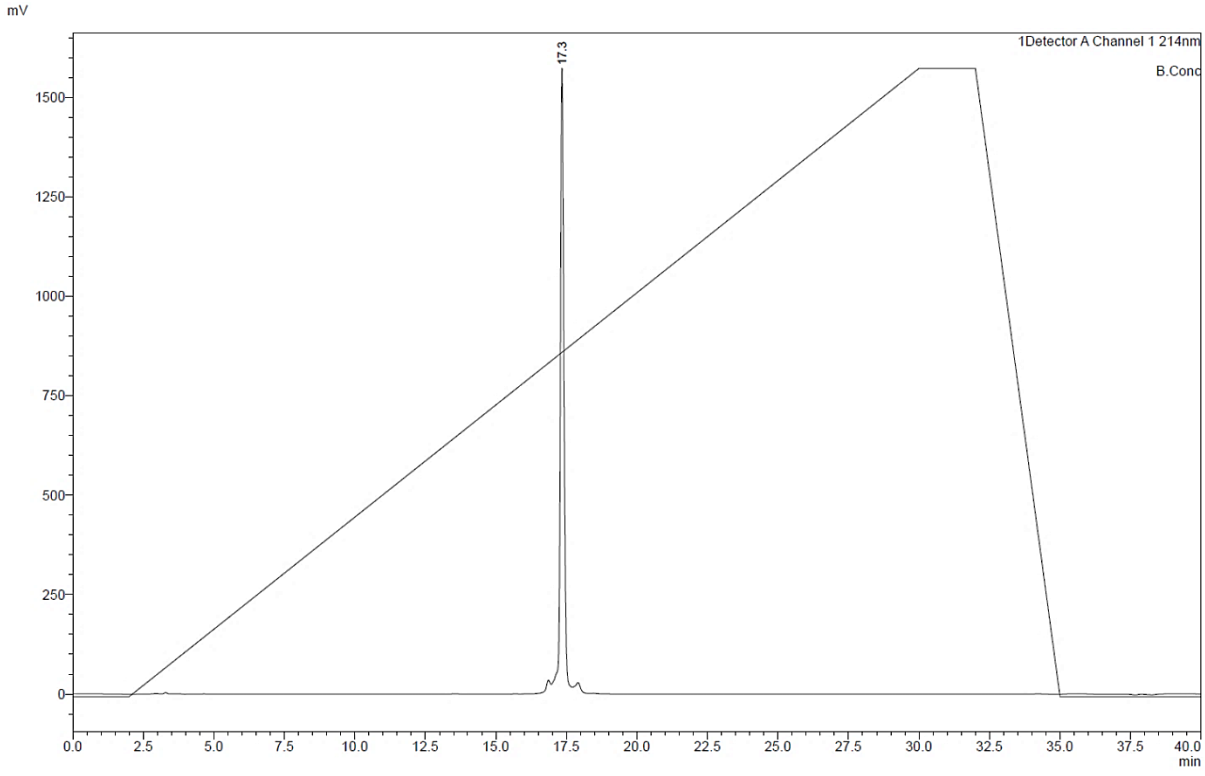

Figure S70: Analytical HPLC chromatogram of synthetic antibody 46.

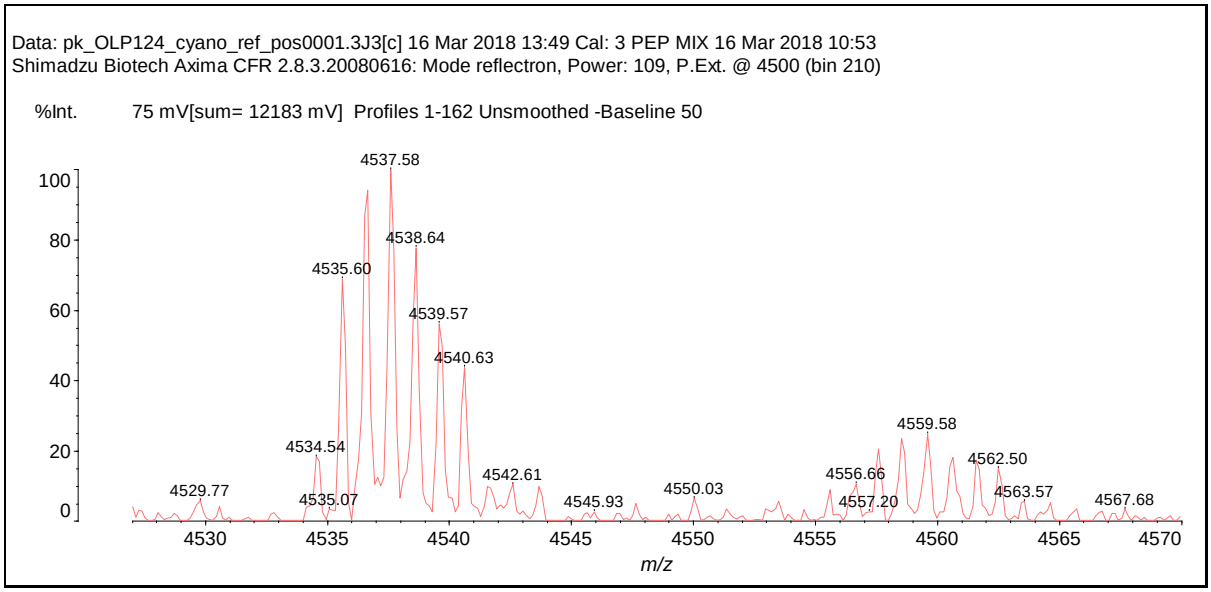

Figure S71: MALDI spectrum of synthetic antibody 46.

1.39 Synthetic antibody 47

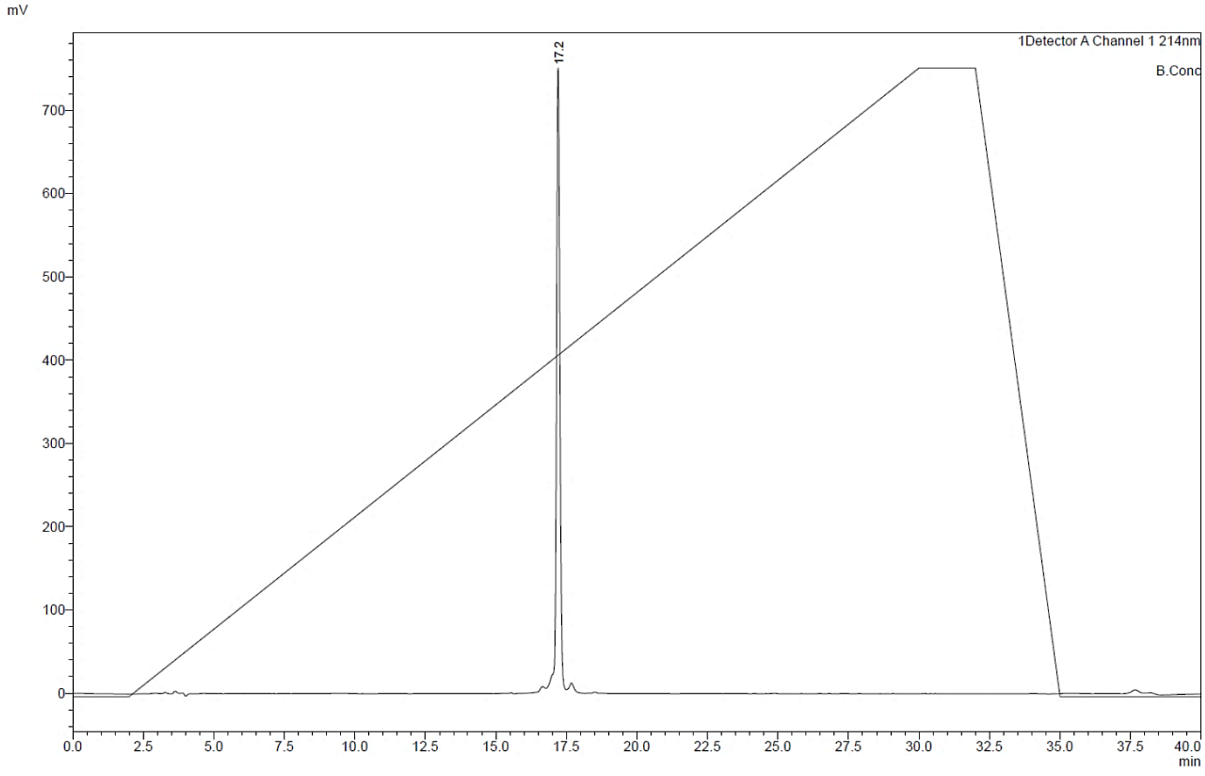

Figure S72: Analytical HPLC chromatogram of synthetic antibody 47.

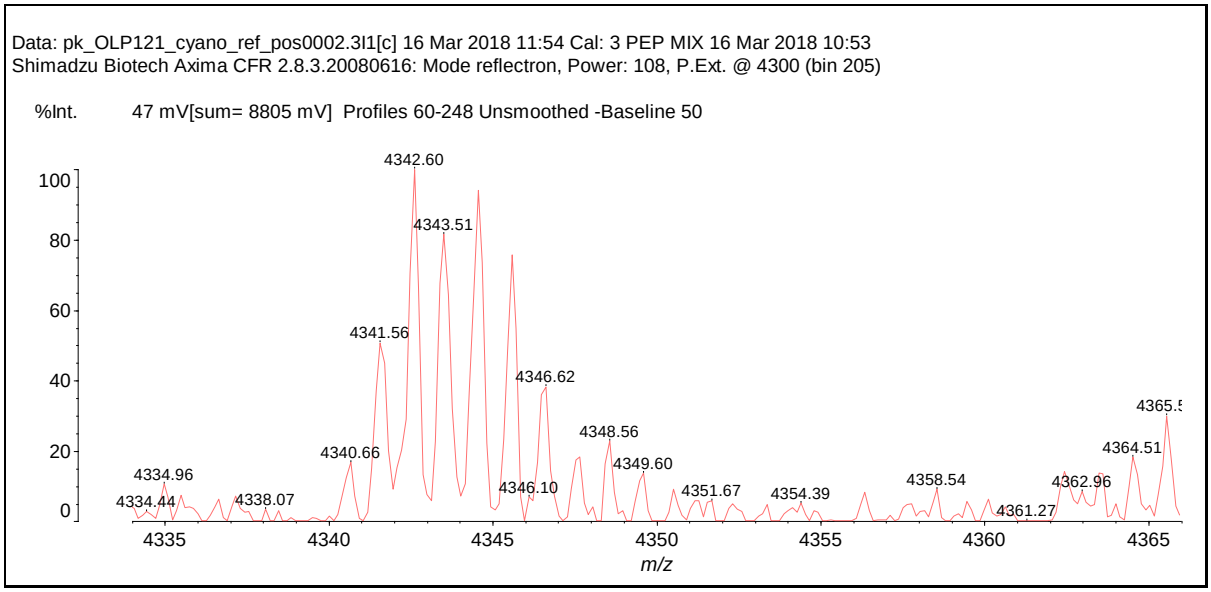

Figure S73: MALDI spectrum of synthetic antibody 47.

1.40 Synthetic antibody 48

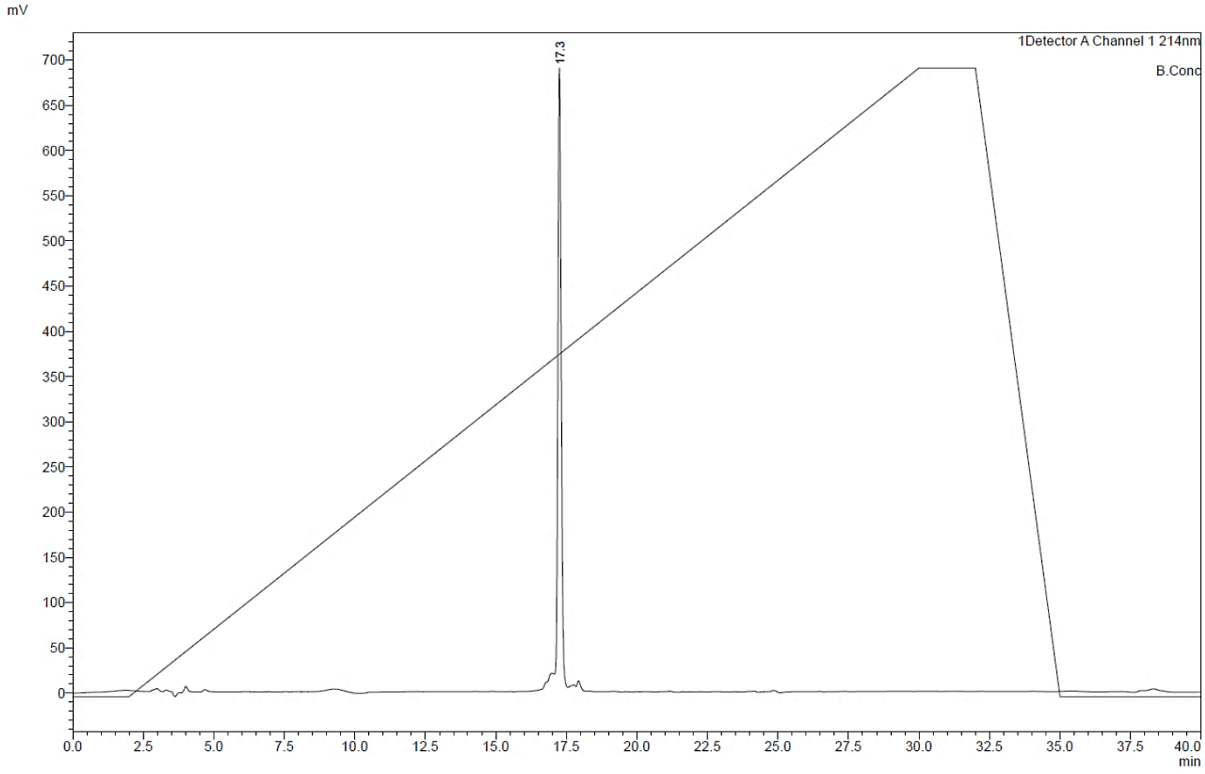

Figure S74: Analytical HPLC chromatogram of synthetic antibody 48.

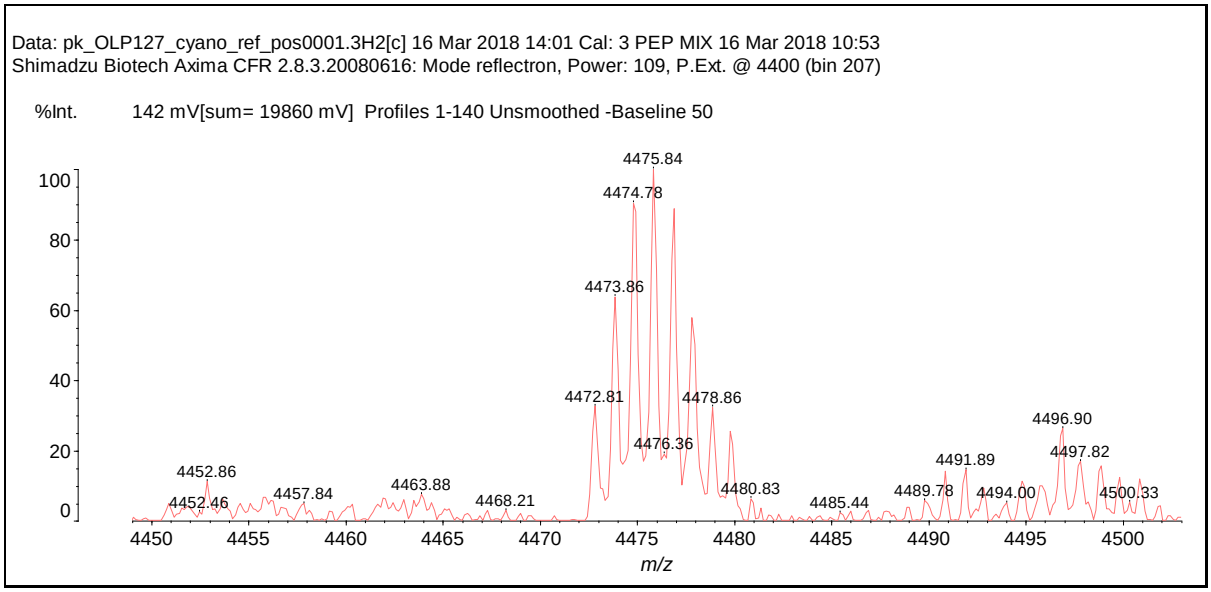

Figure S75: MALDI spectrum of synthetic antibody 48.

1.41 Synthetic antibody 49

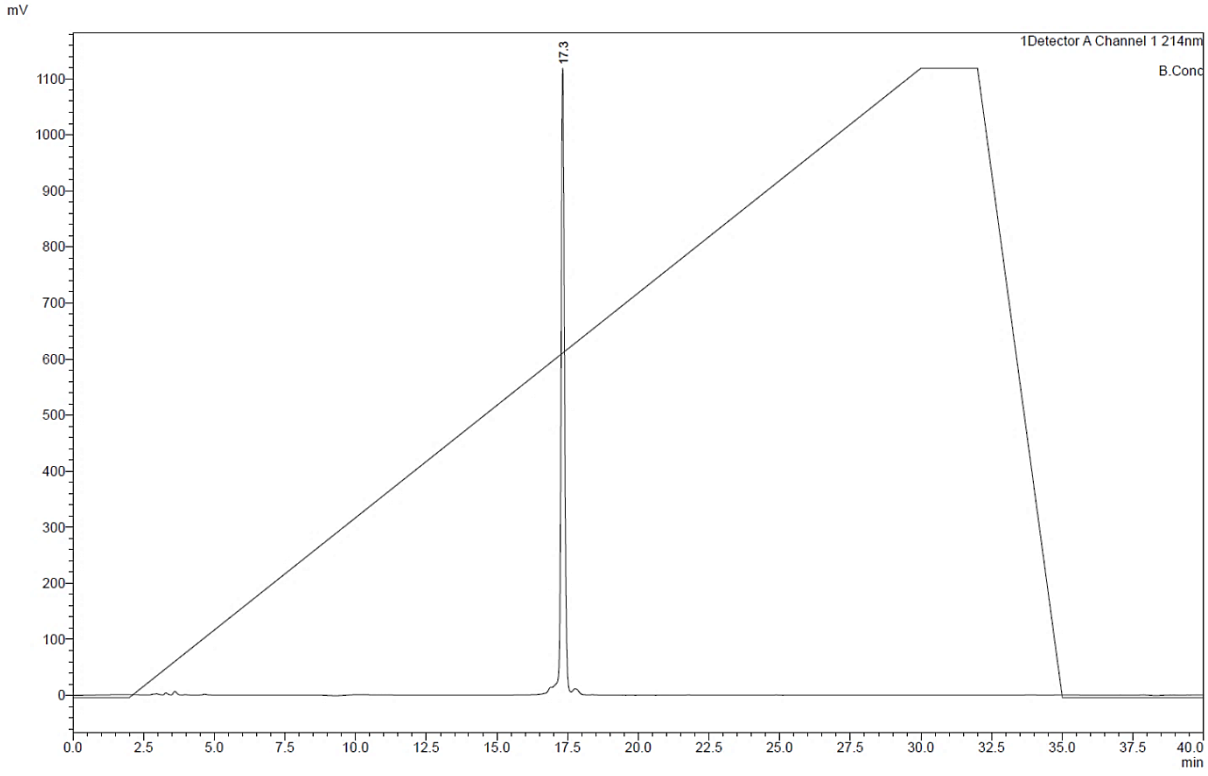

Figure S76: Analytical HPLC chromatogram of synthetic antibody 49.

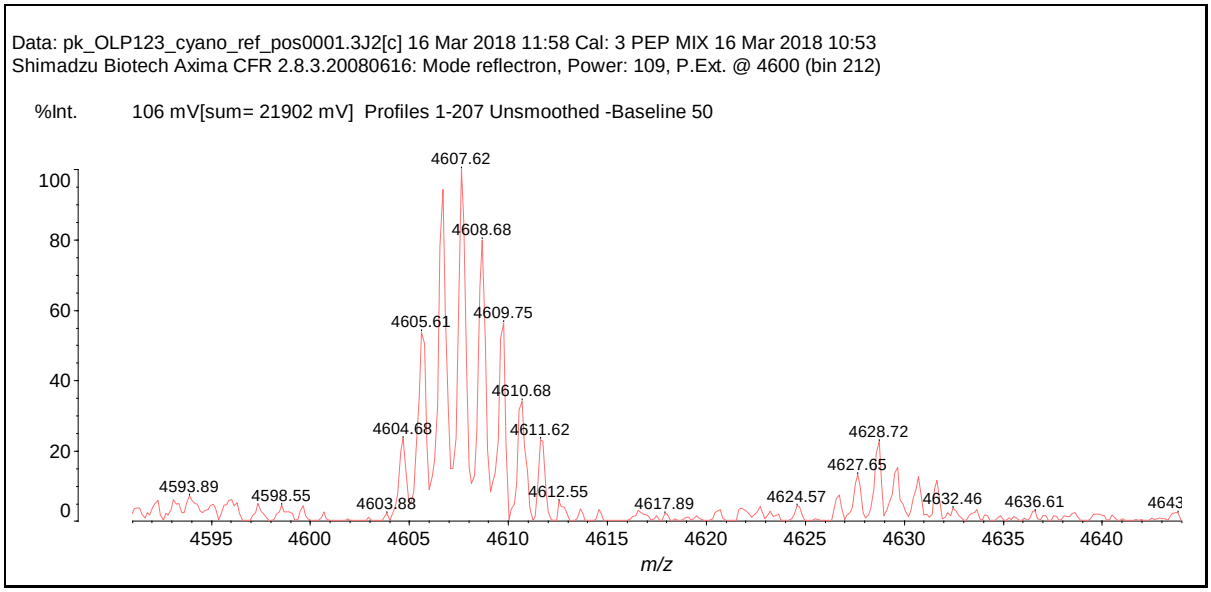

Figure S77: MALDI spectrum of synthetic antibody 49.

2 Fitted SPR sensograms

Data shown only for compounds which bound TNFα. One representative sensogram selected for each such compound. Fitting was performed using Biacore X100 Evaluation software version 2.0.1 on blank subtracted and injection peaks cleaned data with heterogeneous ligand fitting model.

2.1 Synthetic antibody 35

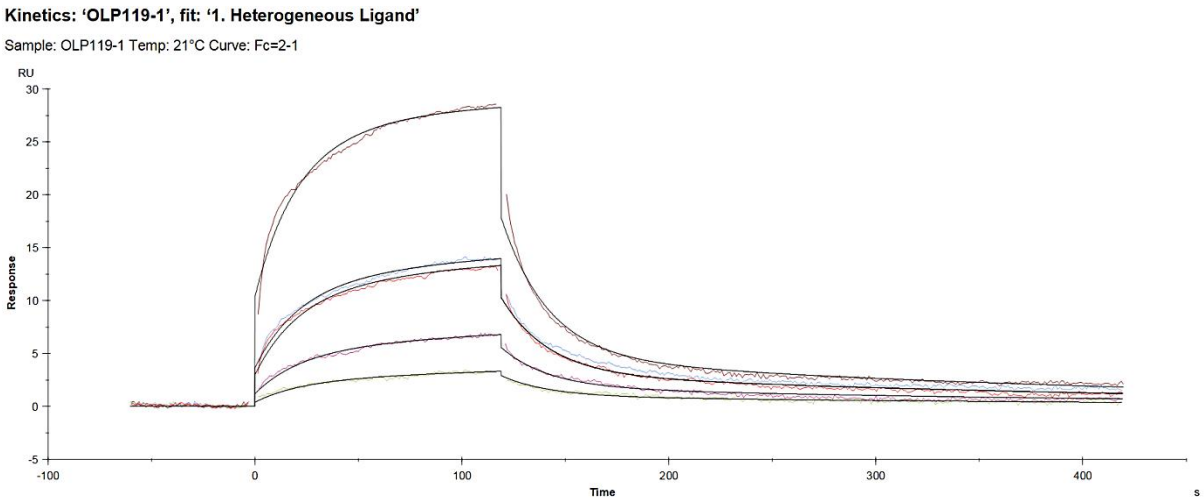

Figure S78: Representative sensogram for synthetic antibody 35 fitted with heterogeneous ligand model.

2.2 Synthetic antibody 36

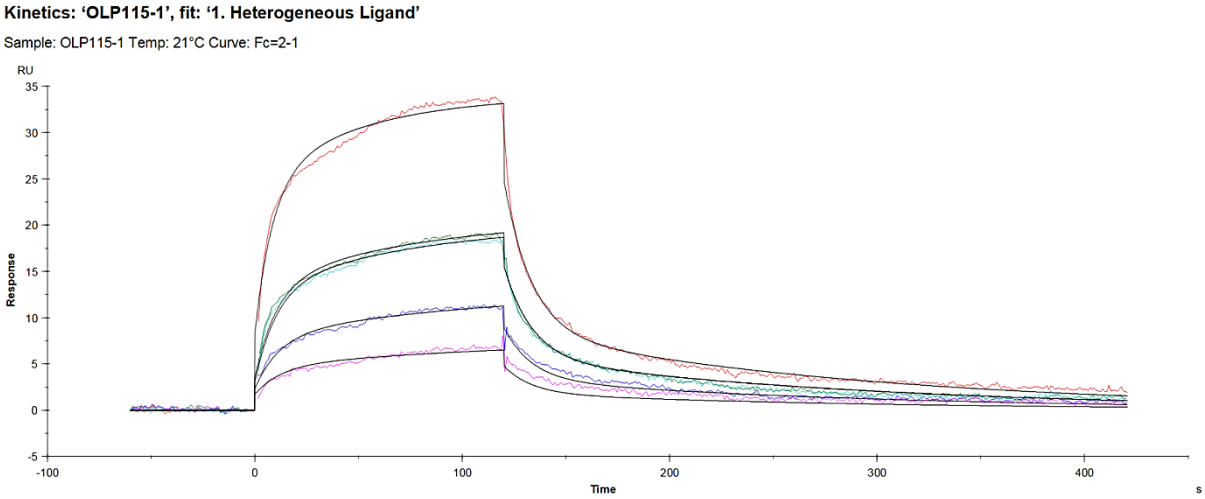

Figure S79: Representative sensogram for synthetic antibody 36 fitted with heterogeneous ligand model.

2.3 Synthetic antibody 37

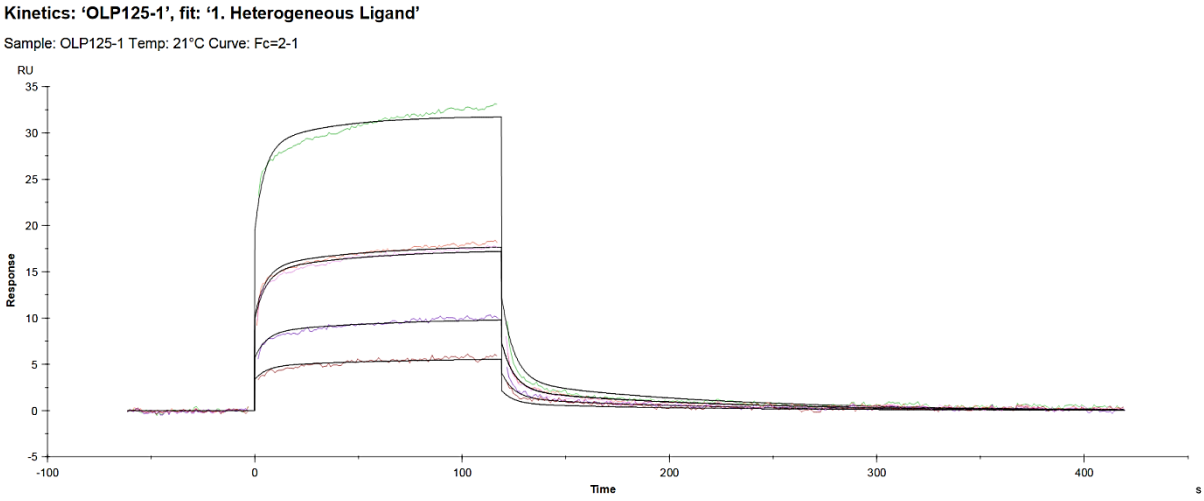

Figure S80: Representative sensogram for synthetic antibody 37 fitted with heterogeneous ligand model.

2.4 Synthetic antibody 44

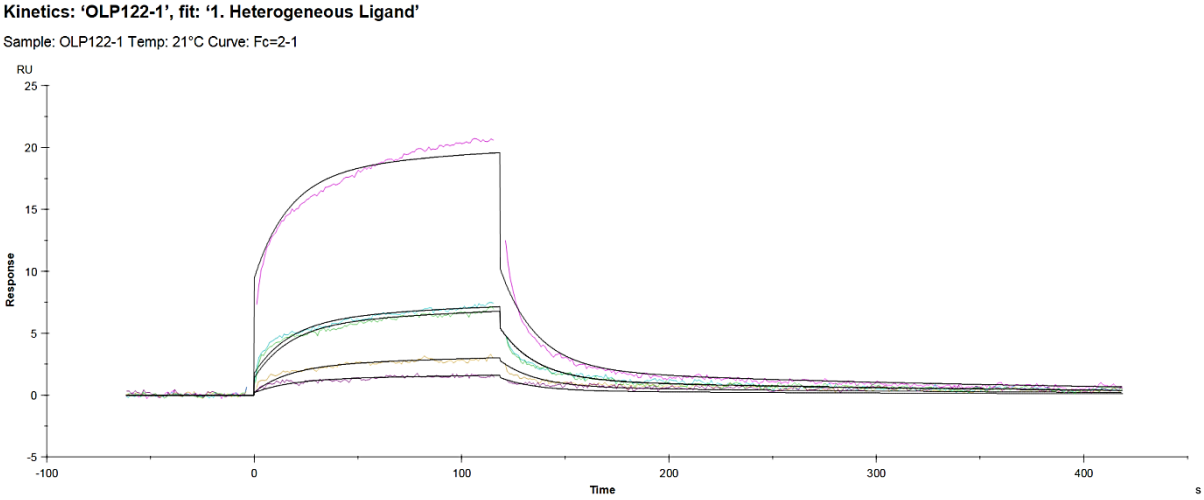

Figure S81: Representative sensogram for synthetic antibody 44 fitted with heterogeneous ligand model.

2.5 Synthetic antibody 47

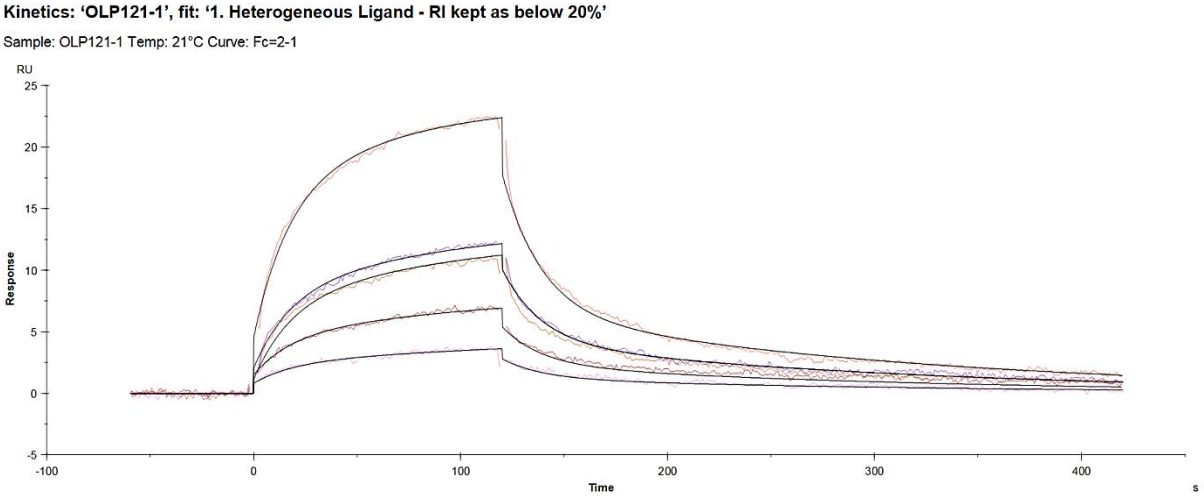

Figure S82: Representative sensogram for synthetic antibody 47 fitted with heterogeneous ligand model.

2.6 Synthetic antibody 48

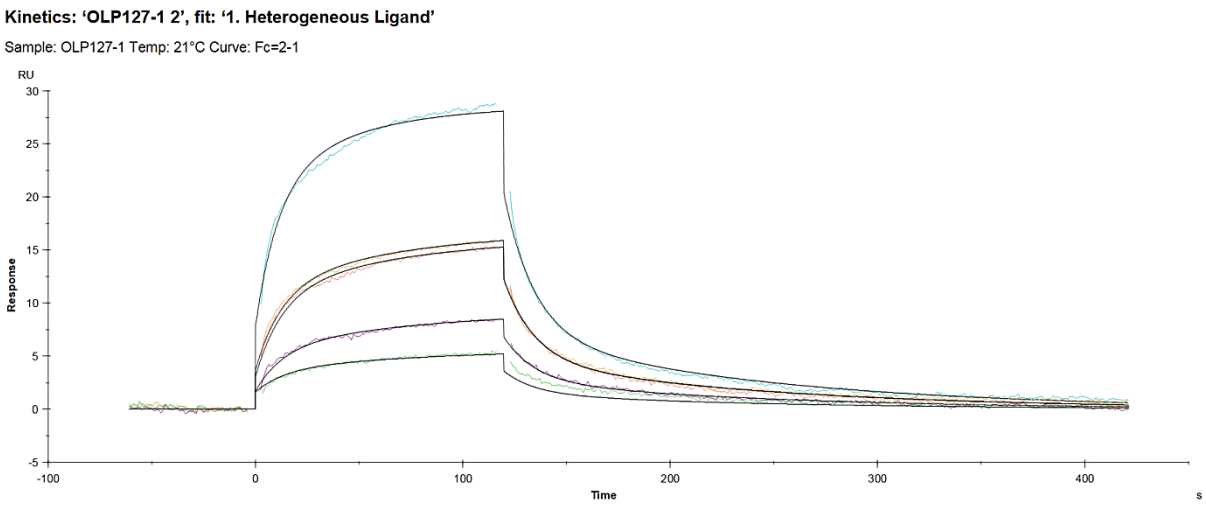

Figure S83: Representative sensogram for synthetic antibody 48 fitted with heterogeneous ligand model.

2.7 Synthetic antibody 49

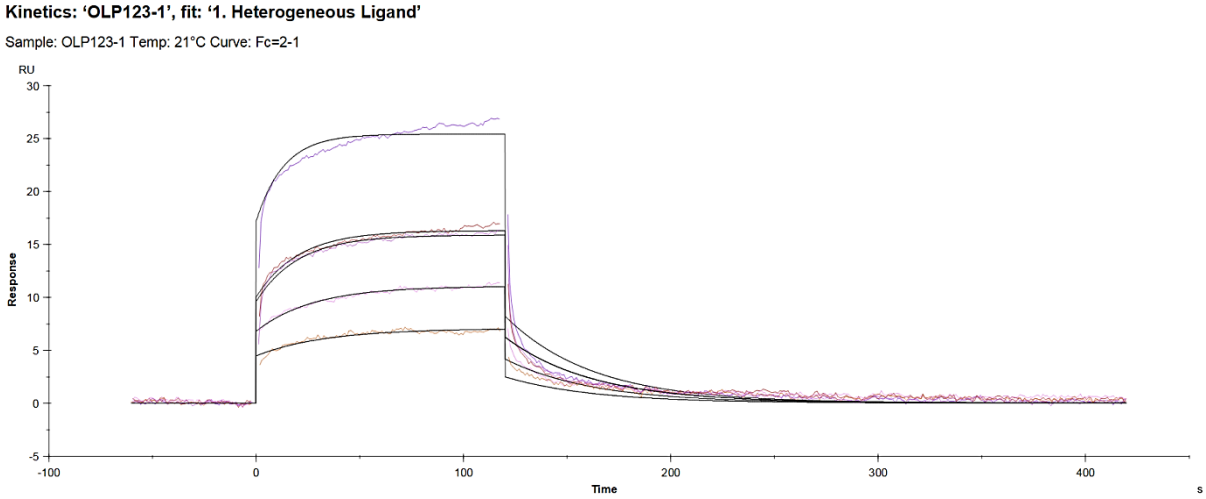

Figure S84: Representative sensogram for synthetic antibody 49 fitted with heterogeneous ligand model.

2.8 CDR mimic 31

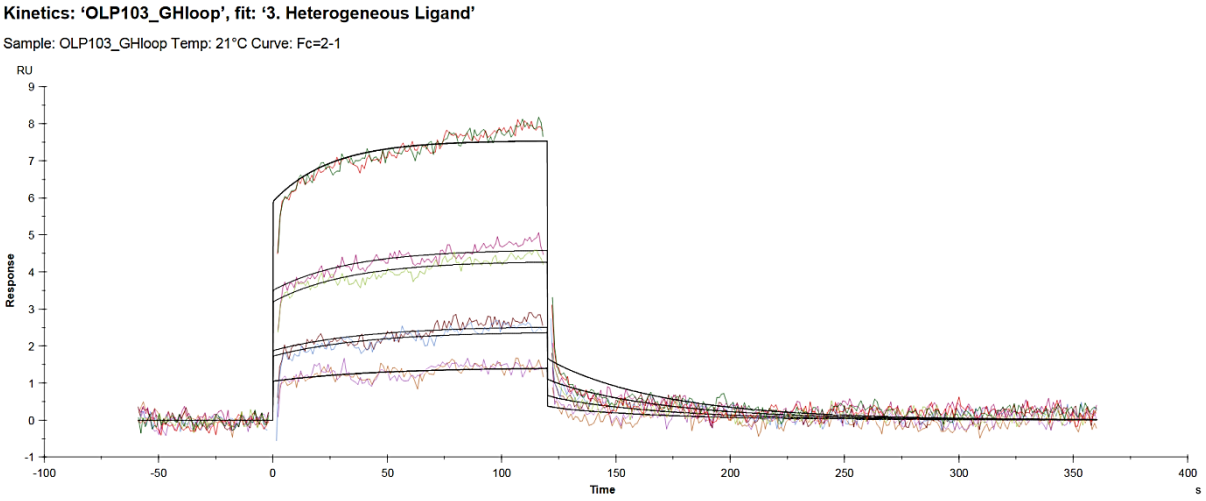

Figure S85: Representative sensogram for CDR loop mimic 31 fitted with heterogeneous ligand model.