Supplementary Information

Excellent catalytic activity of magnetically recoverable Fe_3O_4-graphene oxide nanocomposites prepared by a simple method

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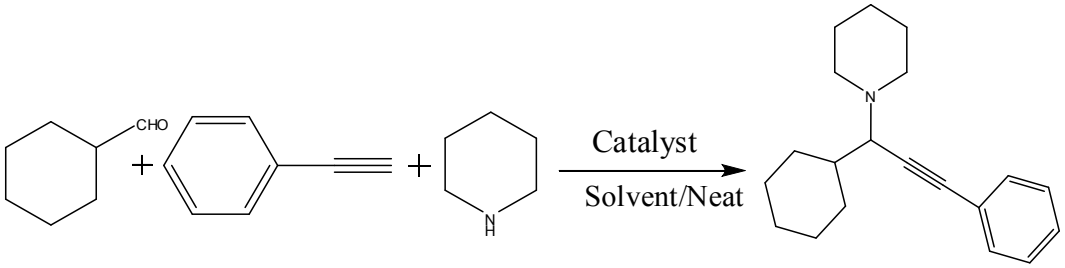
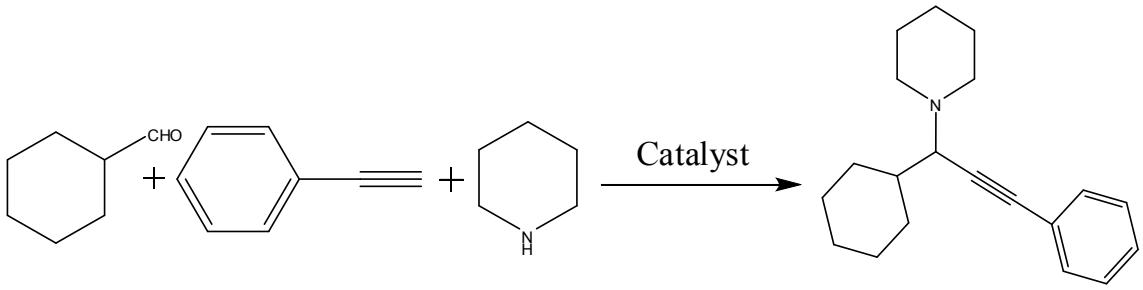
Table S1. Dependence of yield on time and temperature of an A^3 coupling reaction



Entry	Temperature (^{0}C)	Time (h)	Conversion (%)
1	80	6	52
2	90	6	58
3	80	16	74
4	60	16	68
5	90	16	84
6	120	16	93
7	Room Temperature	16	26

Conditions: aldehyde (1 equiv), amine (1.2 equiv), alkyne (1.5 equiv),GO-Fe_3O_4 (50 mg, 0.3 mol% Fe_3O_4 np) in 5 mL solvent or neat for 11 h, temperature above 90 ^{0}C.

Table S2. Size screening of GO-Fe_3O_4 nanocomposite on A^3 coupling of cyclohexanecarbaldehyde, phenylacetylene, and piperidine.



Entry	Particle size (nm)	Time (h)	Conversion (%)	Yield (%)
1	15	24	94	87
2	25	24	97	93
3	35	24	87	85
4	55	24	91	78
5	80	24	78	67

Conditions: aldehyde (1 equiv), amine (1.2 equiv), alkyne (1.5 equiv),GO-Fe_3O_4 (50 mg, 0.3 mol% Fe_3O_4 np) in 5 mL solvent or neat for 11 h, temperature above 90 ^{0}C.

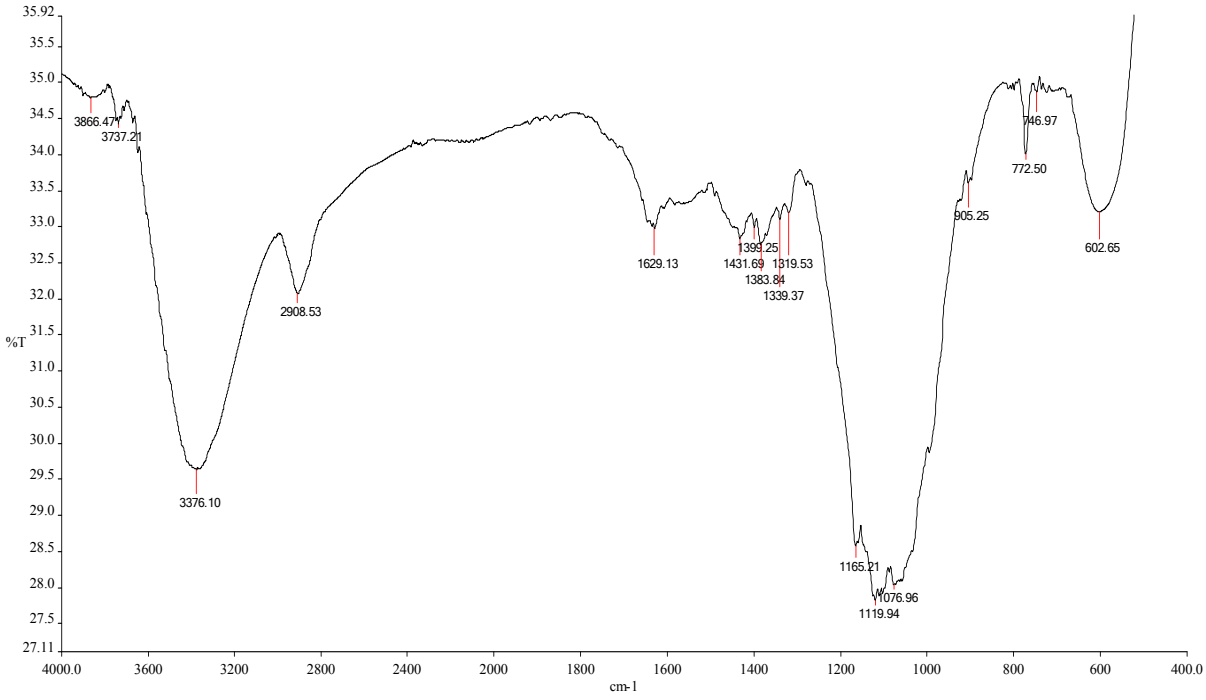


Fig. S1. FTIR spectrum of Fe_3O_4-GO nanocomposites after recycling 12 times

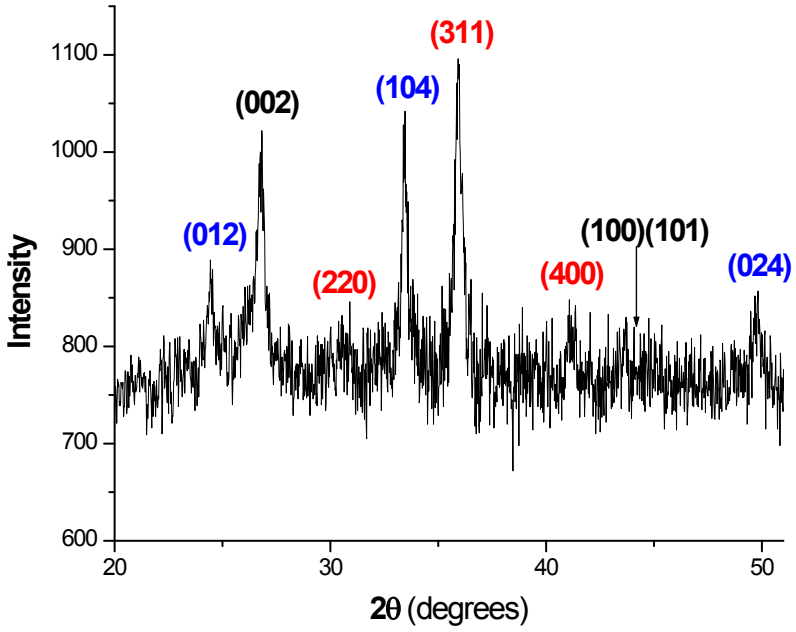


Fig. S2. XRD spectrum of Fe_3O_4-GO nanocomposites after recycling 12 times. GO peaks are denoted in black, Fe_3O_4 peaks are in red and Fe_2O_3 peaks are in blue.

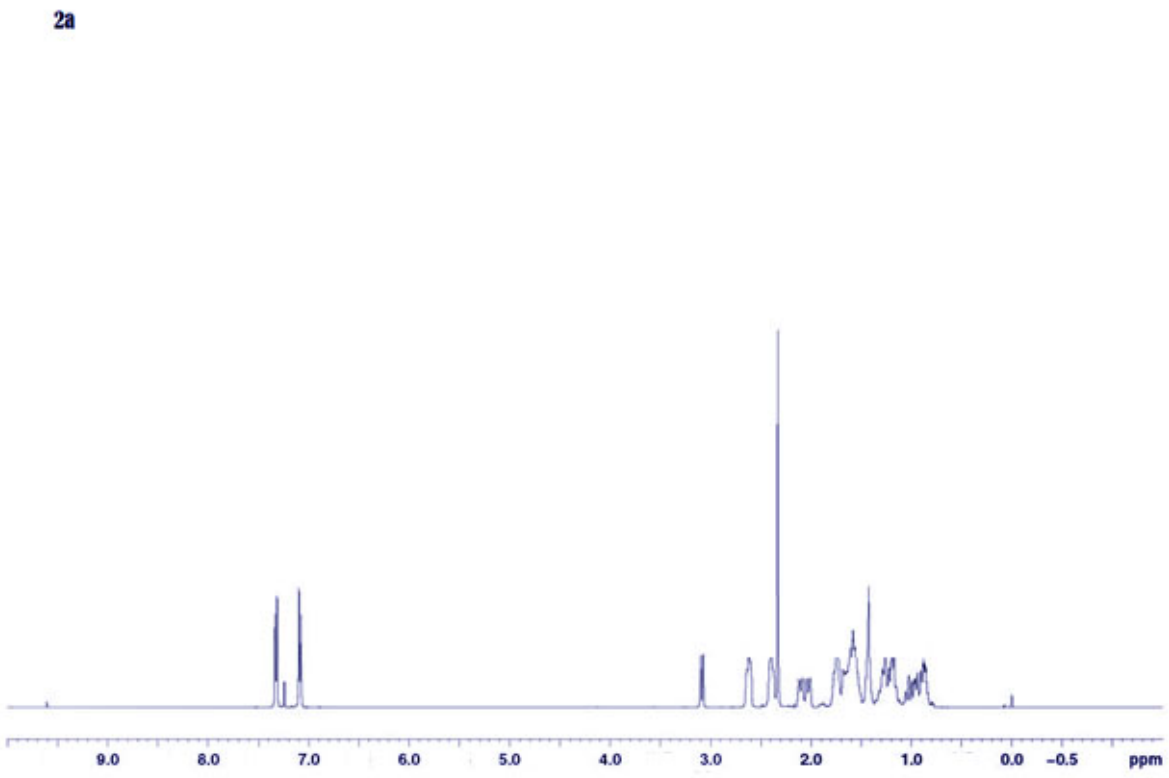


Fig. S3. ^{1}H NMR of 1-[1-Cyclohexyl-3-(4-methylphenyl)-2-propynyl]piperidine (2a)

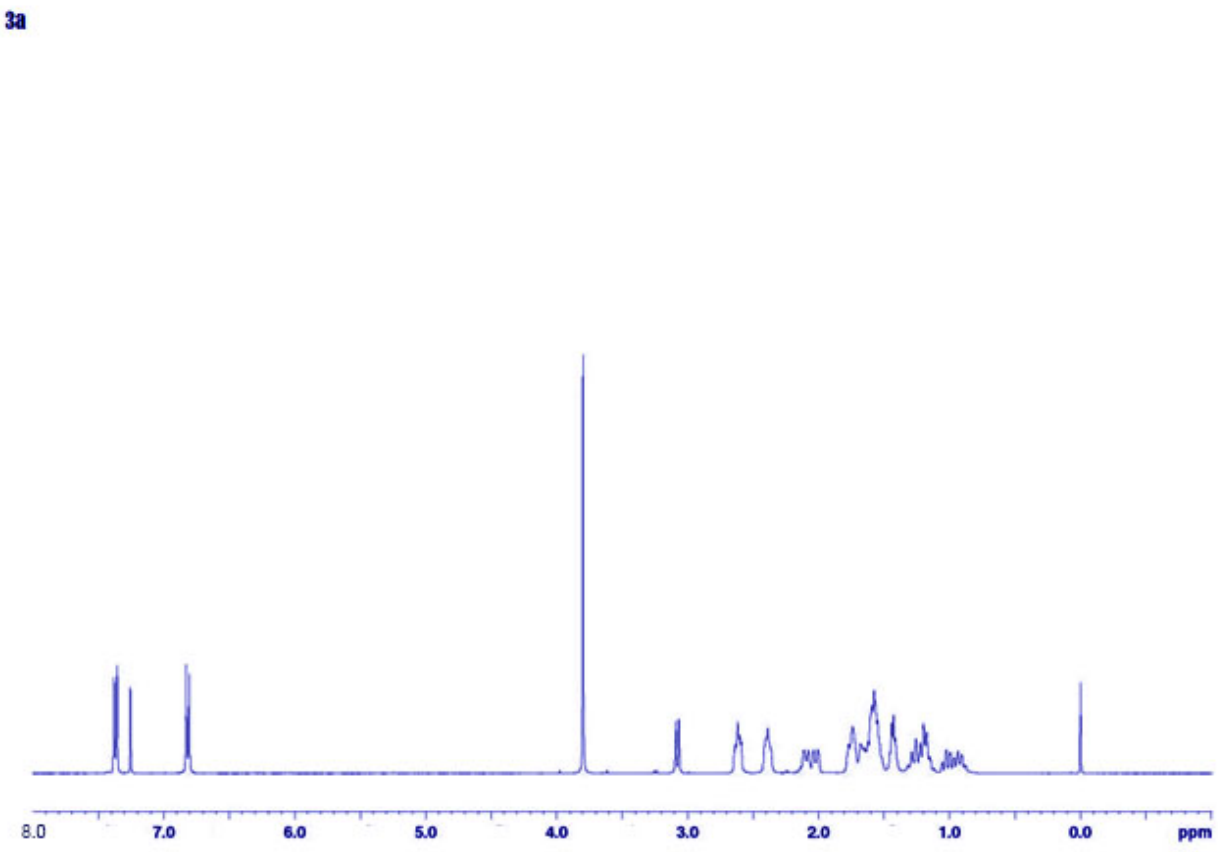


Fig. S4. ^{1}H NMR of 1-(1-cyclohexyl-3-(4-methoxyphenyl)prop-2-ynyl)piperidine (3a)

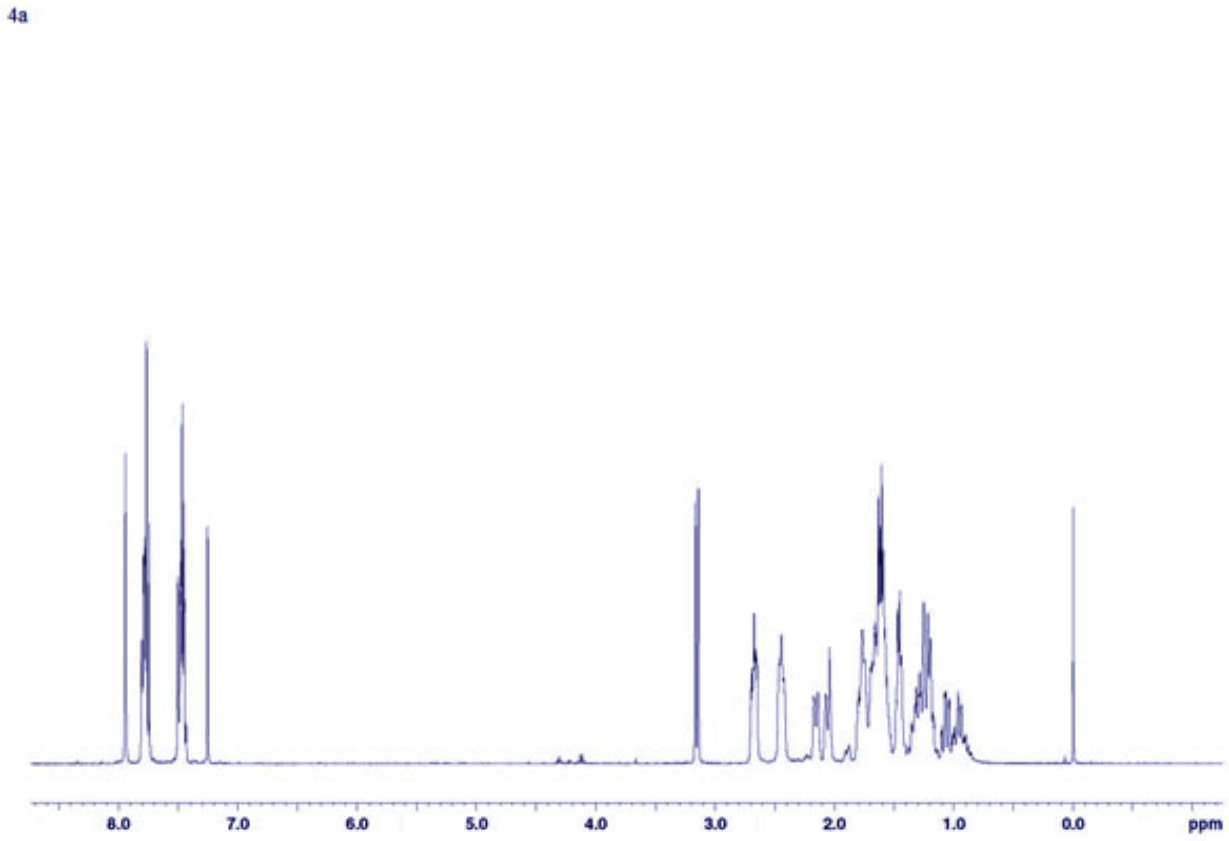


Fig. S5. ^{1}H NMR of 1-[1-Cyclohexyl-3-(1-naphathyl)-2-propynyl]piperidine (4a)

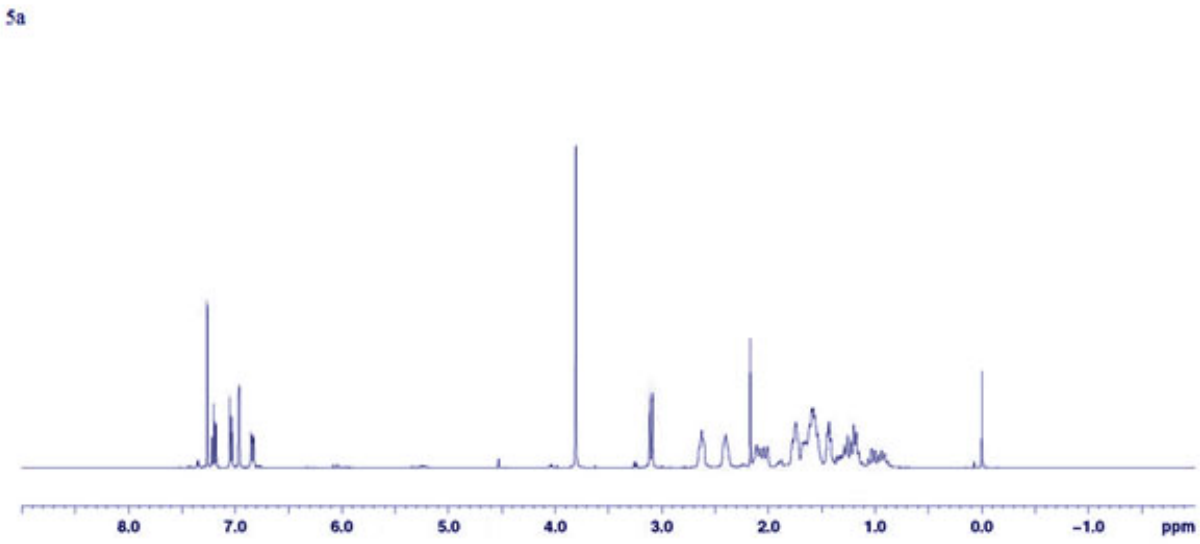


Fig. S6. ^{1}H NMR of 1-(1-cyclohexyl-3-(3-methoxyphenyl)prop-2-ynyl)piperidine (5a)

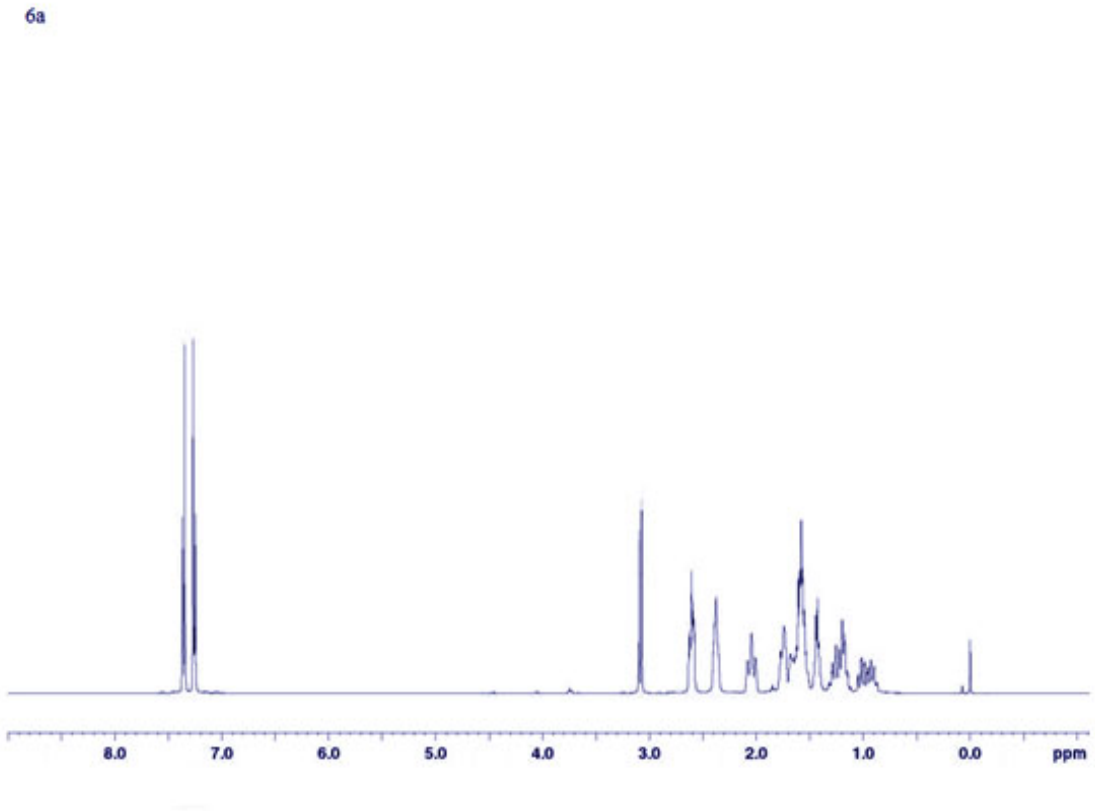


Fig. S7. ^{1}H NMR of 1-(3-(4-chlorophenyl)-1-cyclohexylprop-2-ynyl)piperidine (6a)

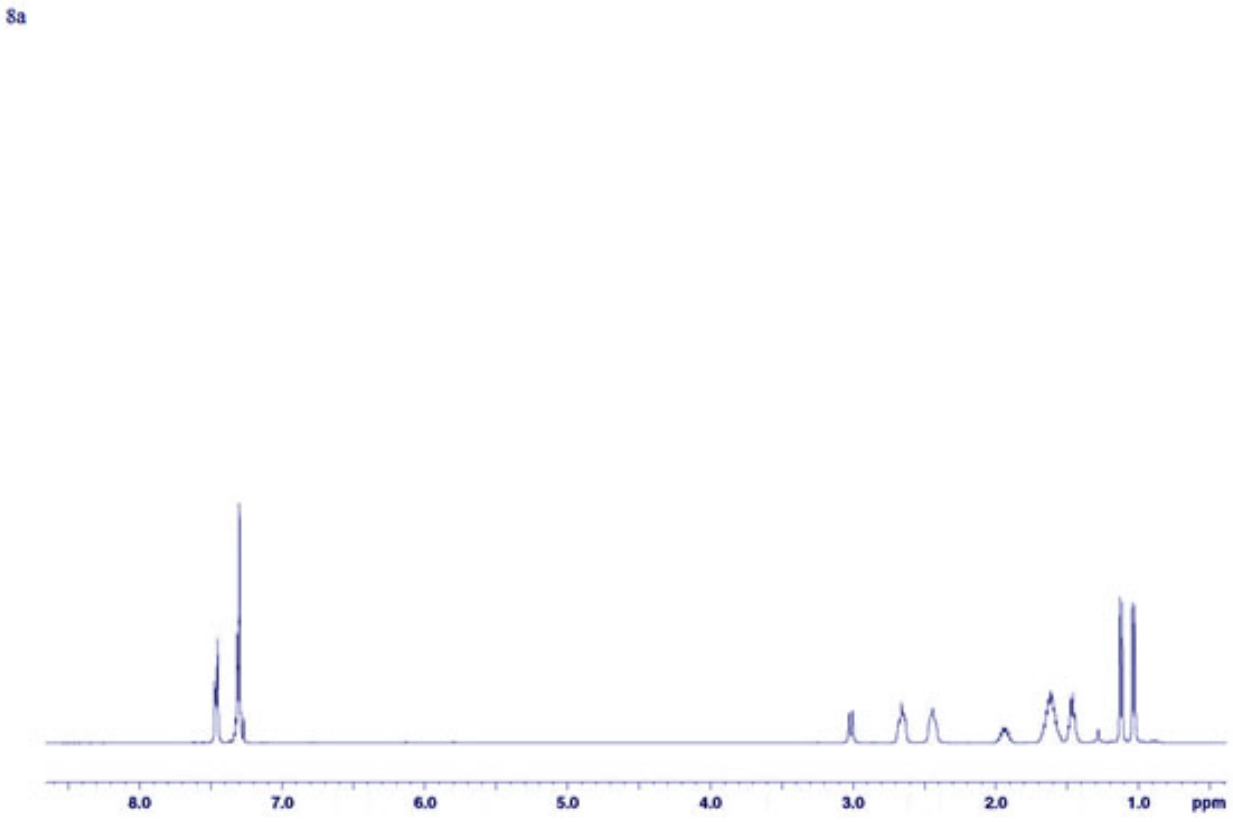


Fig. S8. ^{1}H NMR of *N*-(1-Isopropyl-3-phenyl-2-propynyl)piperidine (8a)

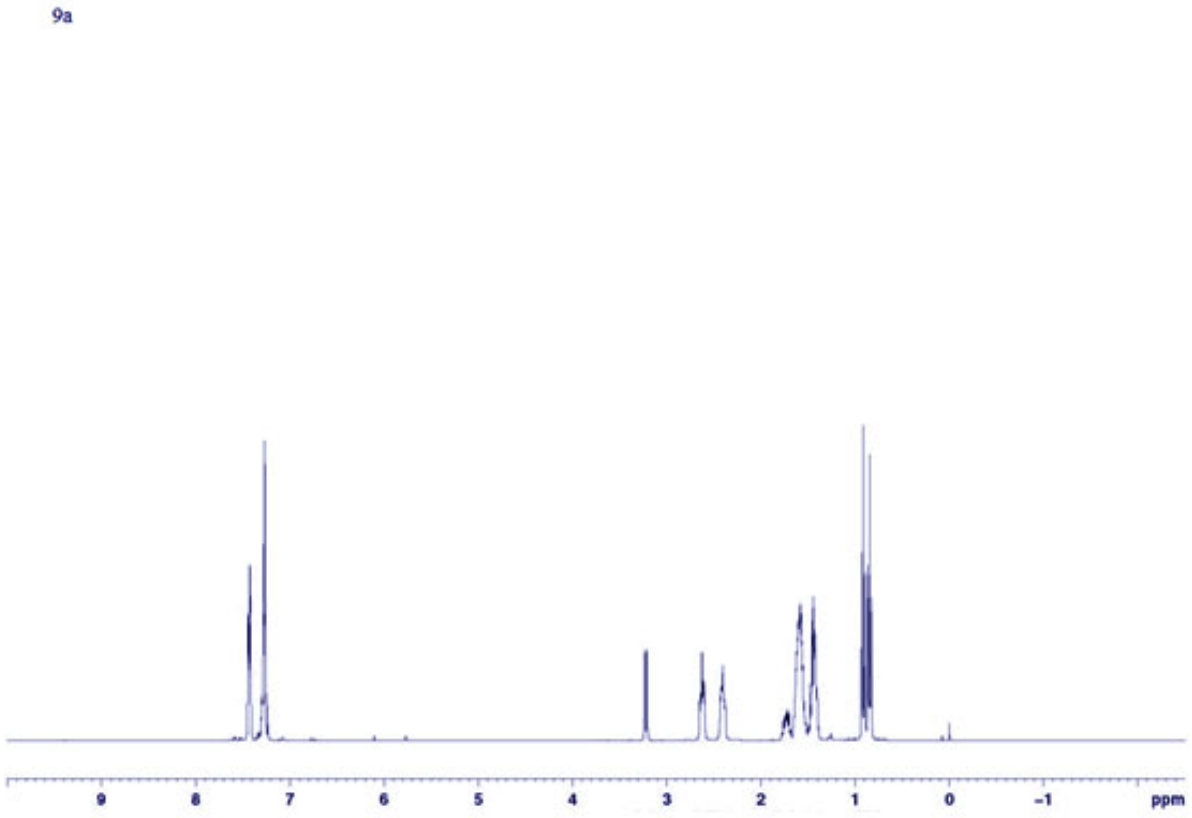


Fig. S9. ^{1}H NMR of 1-[1-(1-Ethylpropyl)-3-phenyl-2-propynyl]piperidine (9a)

10a

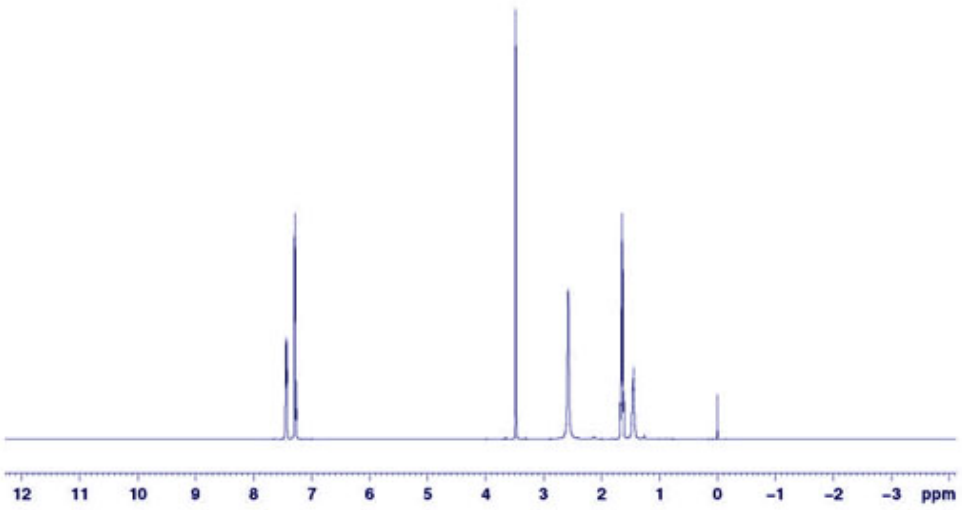


Fig. S10. ^{1}H NMR of *N*-(3-Phenyl)-prop-2-ynyl)piperidine (10a)

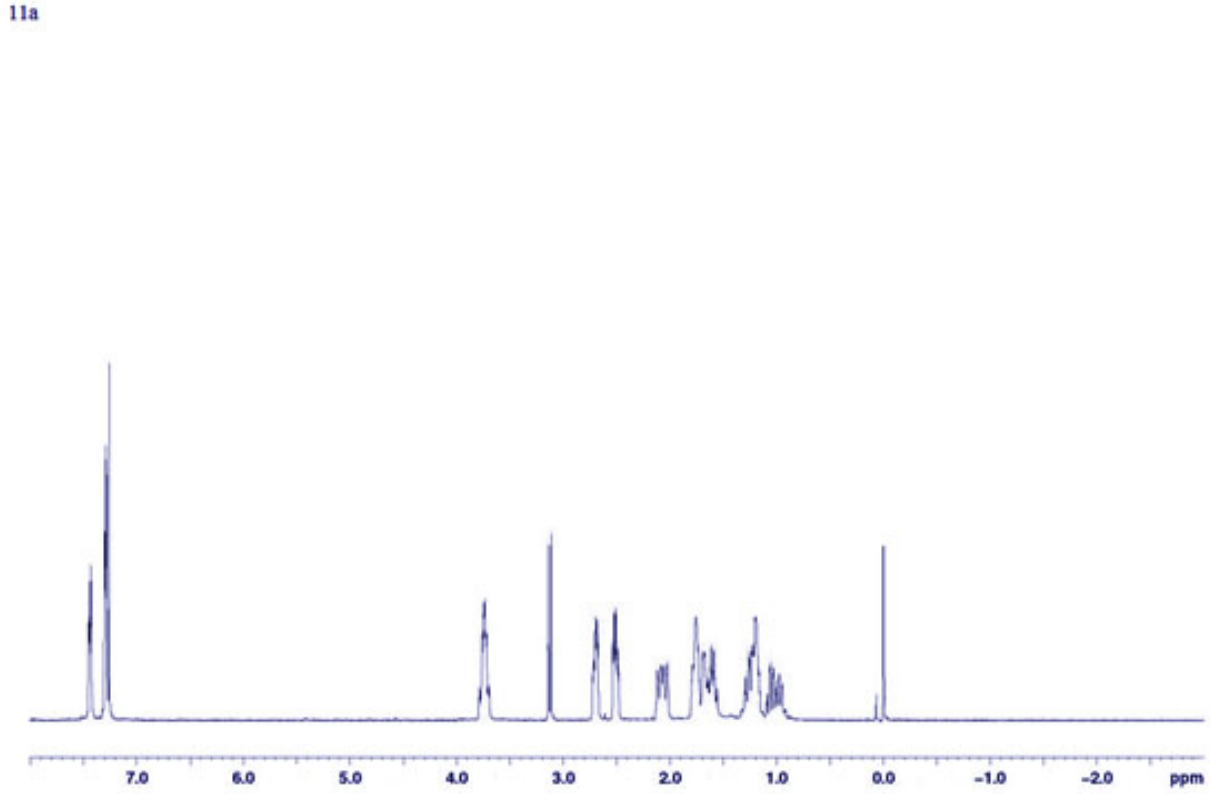


Fig. S11. ^{1}H NMR of *N*-(1-Isopropyl-3-phenyl-2-propynyl)morpholine (11a)

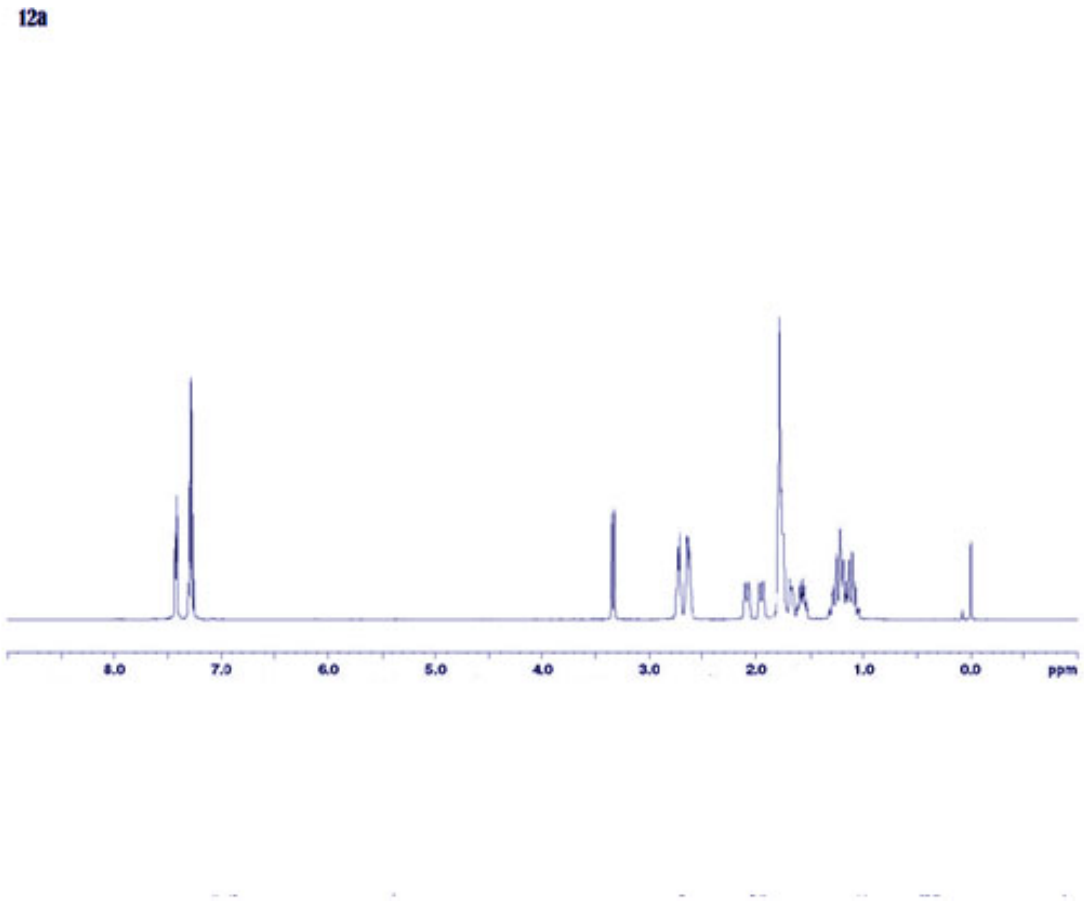


Fig. S12. ^{1}H NMR of 1-[1-Cyclohexyl-3-(4-methylphenyl)-2-propynyl]pyrrodine (12a)

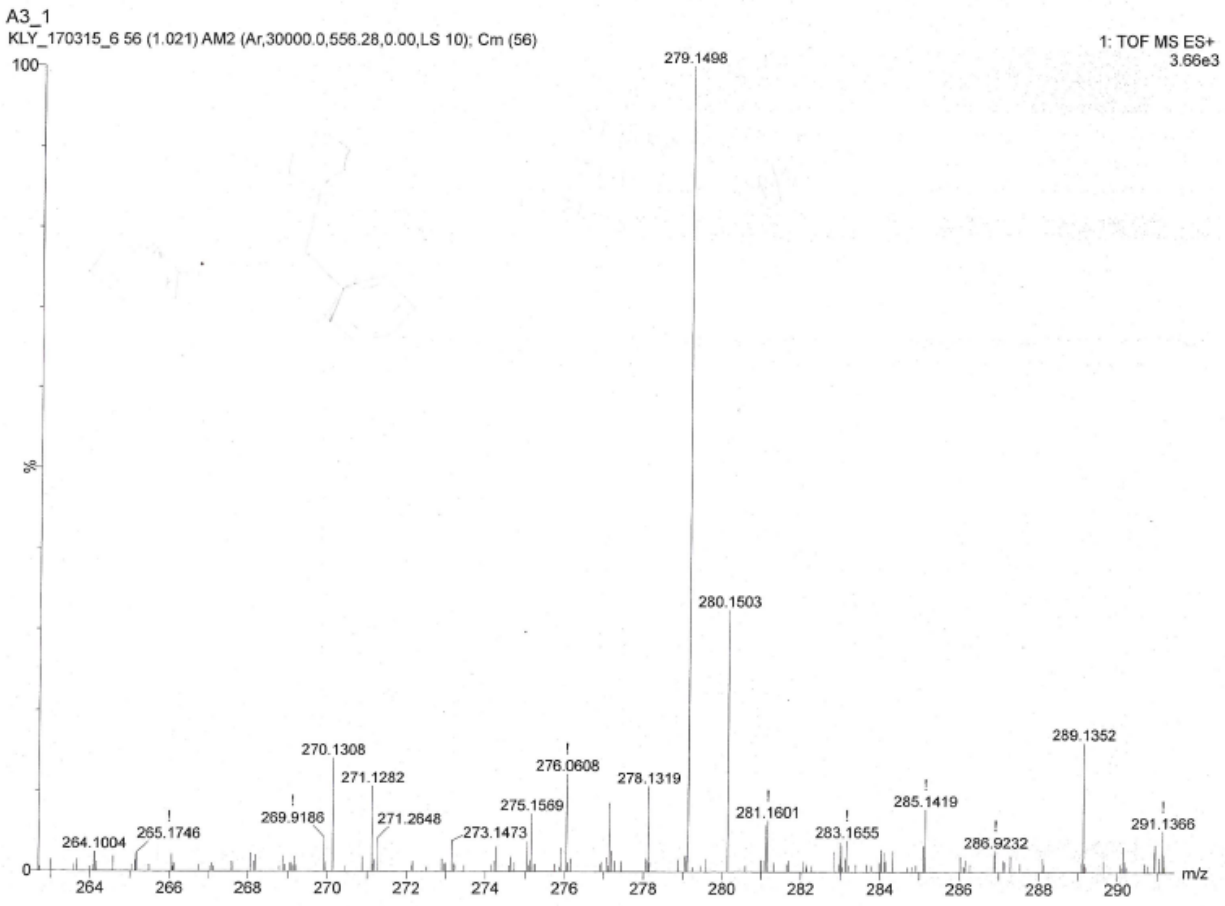


Fig. S13. Mass spectrum of 4-(1-phenyl-3-(pyridine-2-yl) prop-2-ynyl) morpholine (13a)

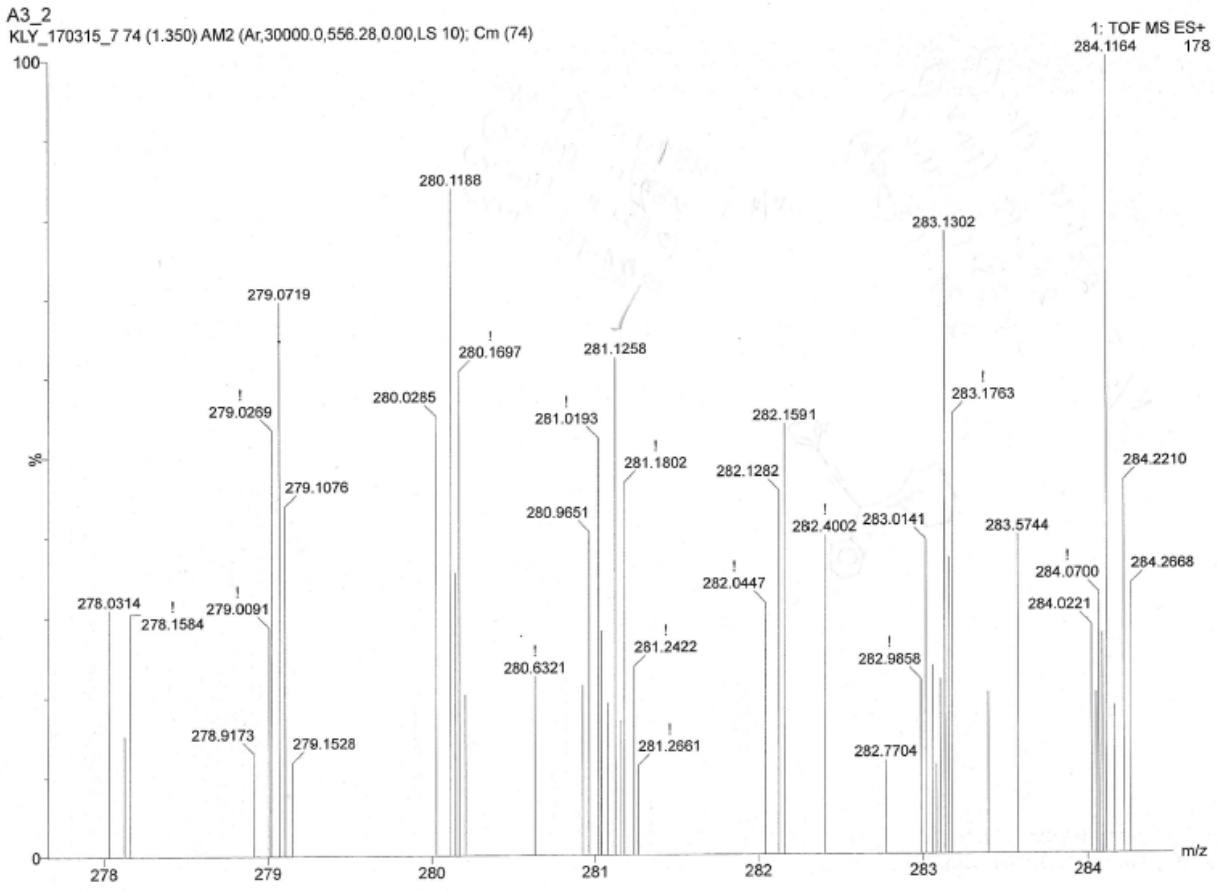


Fig. S14. Mass spectrum of 1-(1-phenyl-3-(thiophen-2-yl) prop-2-ynyl) piperidine (14a)