

Design, Synthesis and Anticancer Activity Studies of Novel Quinoline-Chalcone Derivatives

Yong-Feng Guan ^a, Xiu-Juan Liu ^c, Xin-Ying Yuan ^c, Wen-Bo Liu ^c, Yin-Ru Li ^b, Guang-Xi Yu ^b,
Xin-Yi Tian ^b, Yan-Bing Zhang ^c, Jian Song ^{c, *}, Wen Li ^{a, c, *}, Sai-Yang Zhang ^{b, *}

- a. School of Chemical Engineering, Zhengzhou University, Zhengzhou 450001, China.
- b. School of Basic Medical Sciences, Zhengzhou University, Zhengzhou, 450001, China
- c. School of Pharmaceutical Sciences, Institute of Drug Discovery & Development, Key Laboratory of Advanced Drug Preparation Technologies (Ministry of Education), Zhengzhou University, Zhengzhou, 450001, China
- * Corresponding authors: mumuangzz@163.com (Jian Song), liwen@zzu.edu.cn (Wen Li), saiyangz@zzu.edu.cn (Sai-Yang Zhang)

¹H NMR of compound 12a

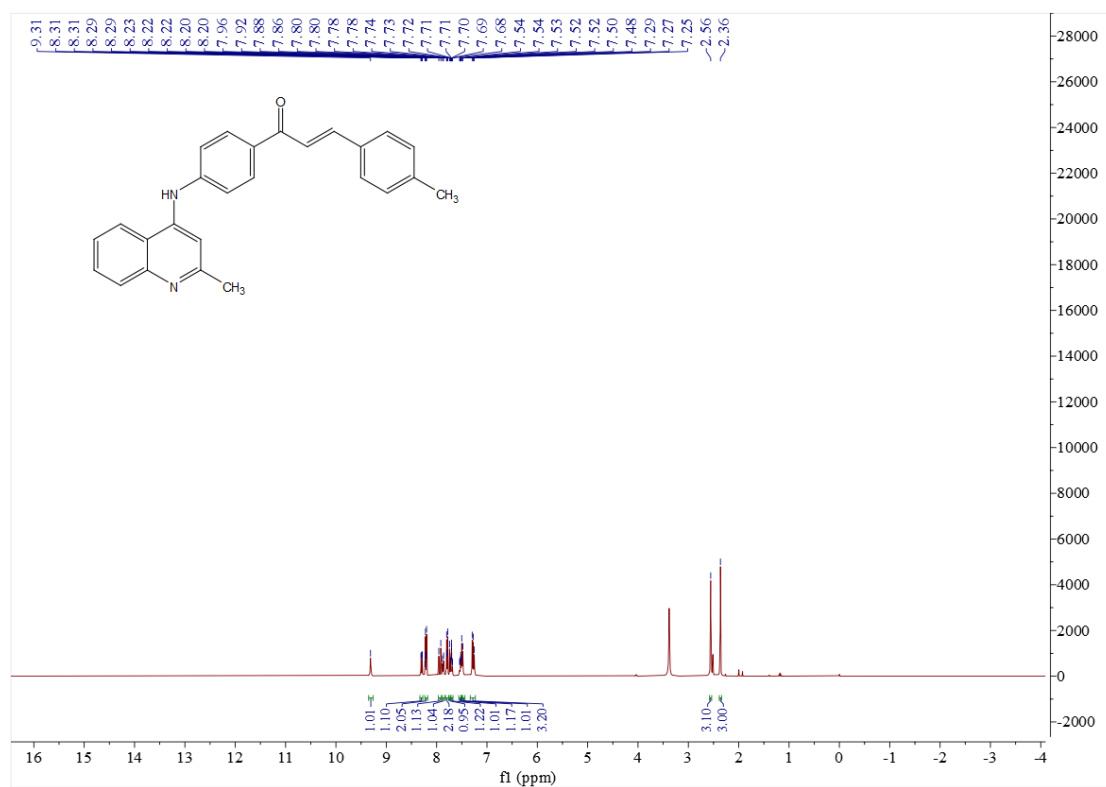


Figure S1. ¹H NMR spectrum of compound 12a

¹³C NMR of compound 12a

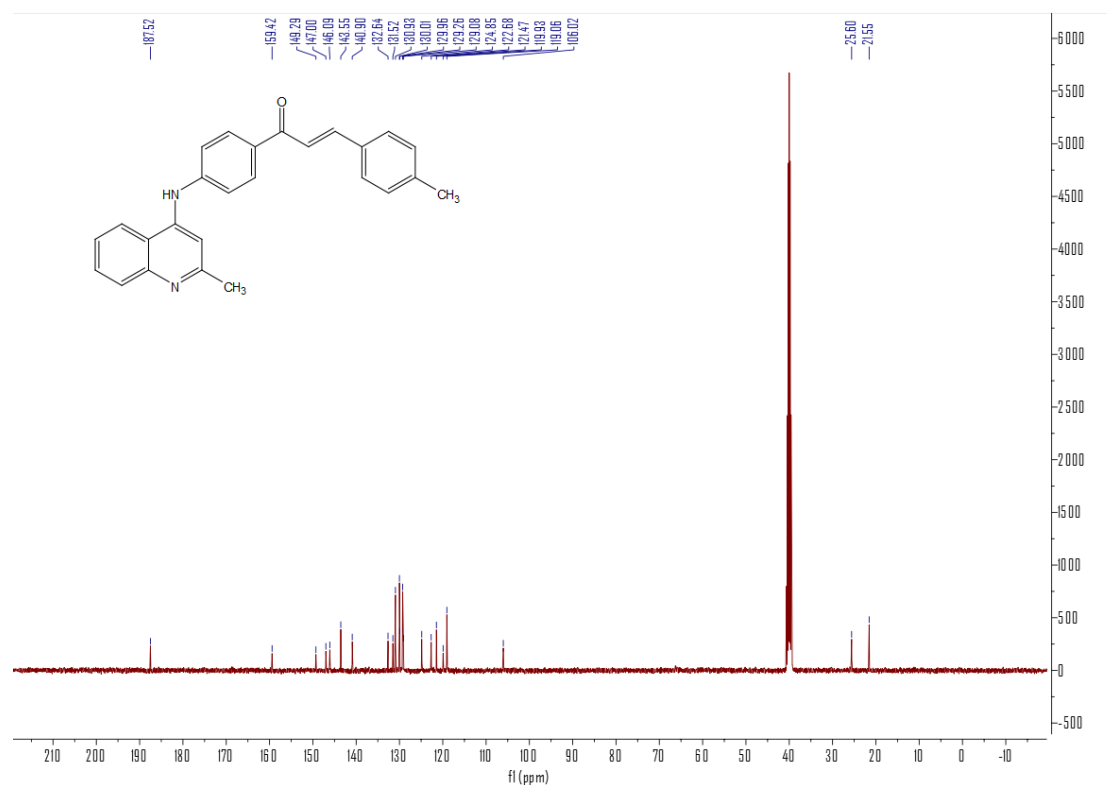


Figure S2 ¹³C NMR spectrum of compound 12a

HRMS spectrum of compound 12a

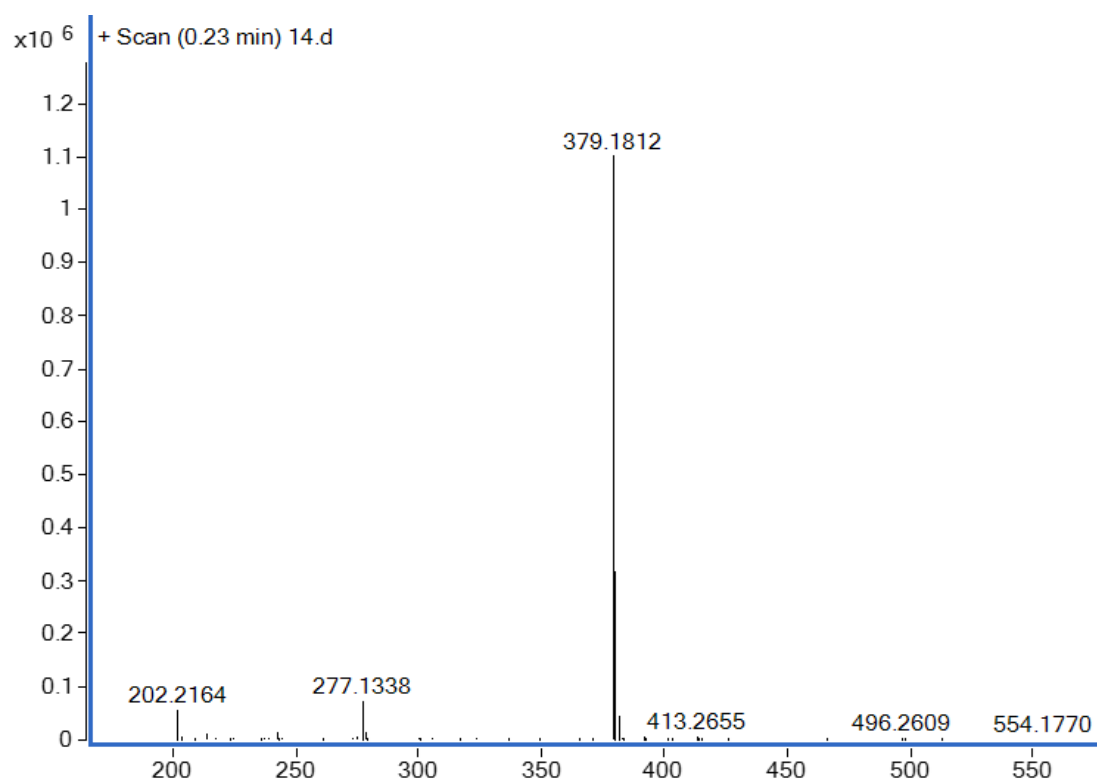


Figure S3 HRMS spectrum of compound 12a

¹H NMR of compound 12b

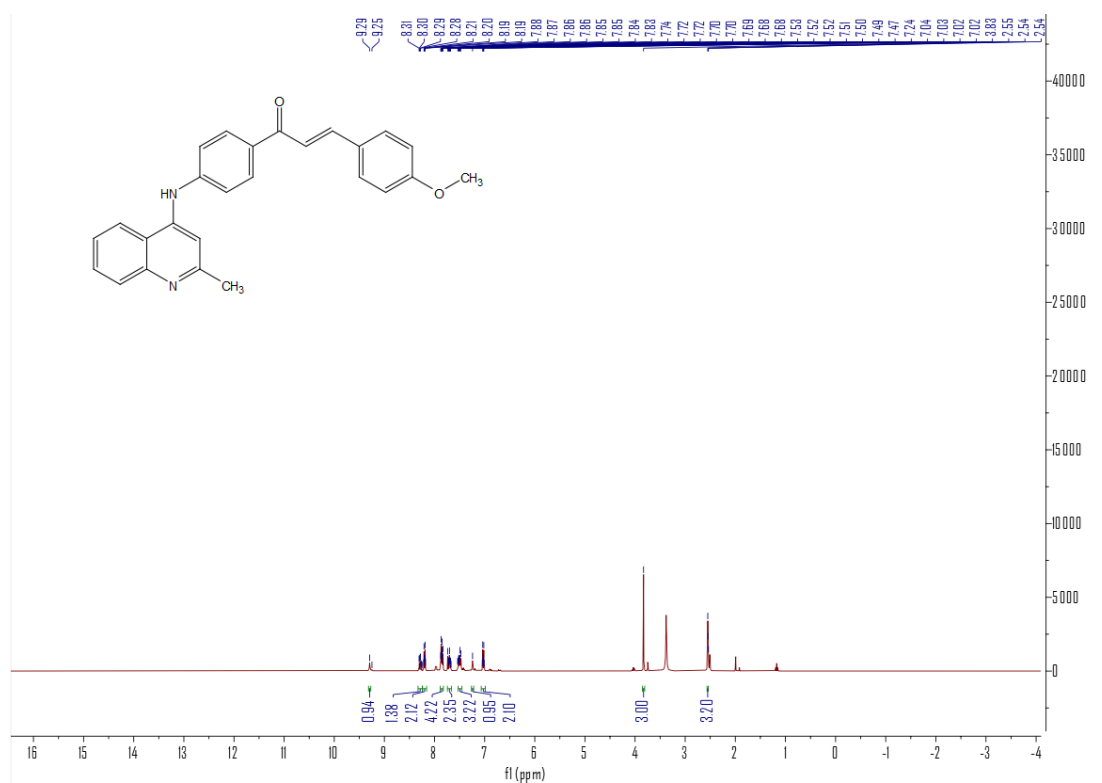


Figure S4 ¹H NMR spectrum of compound 12b

¹³C NMR of compound 12b

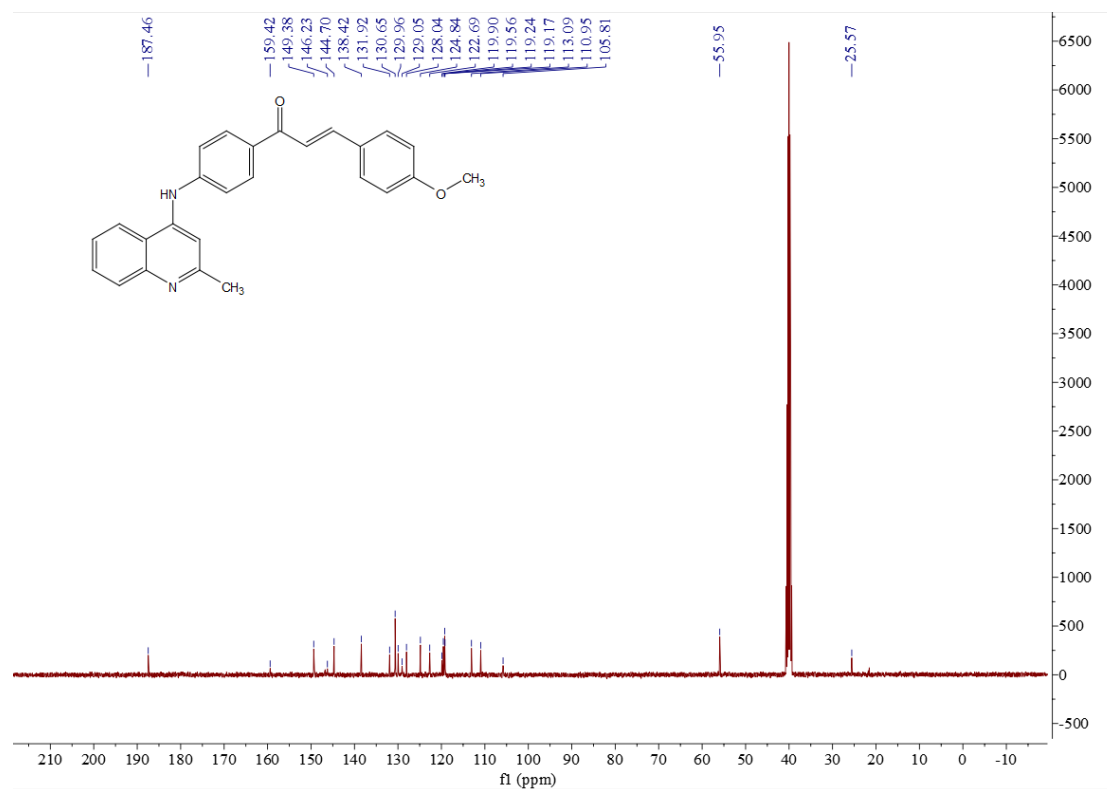


Figure S5 ¹³C NMR spectrum of compound 12b

HRMS spectrum of compound 12b

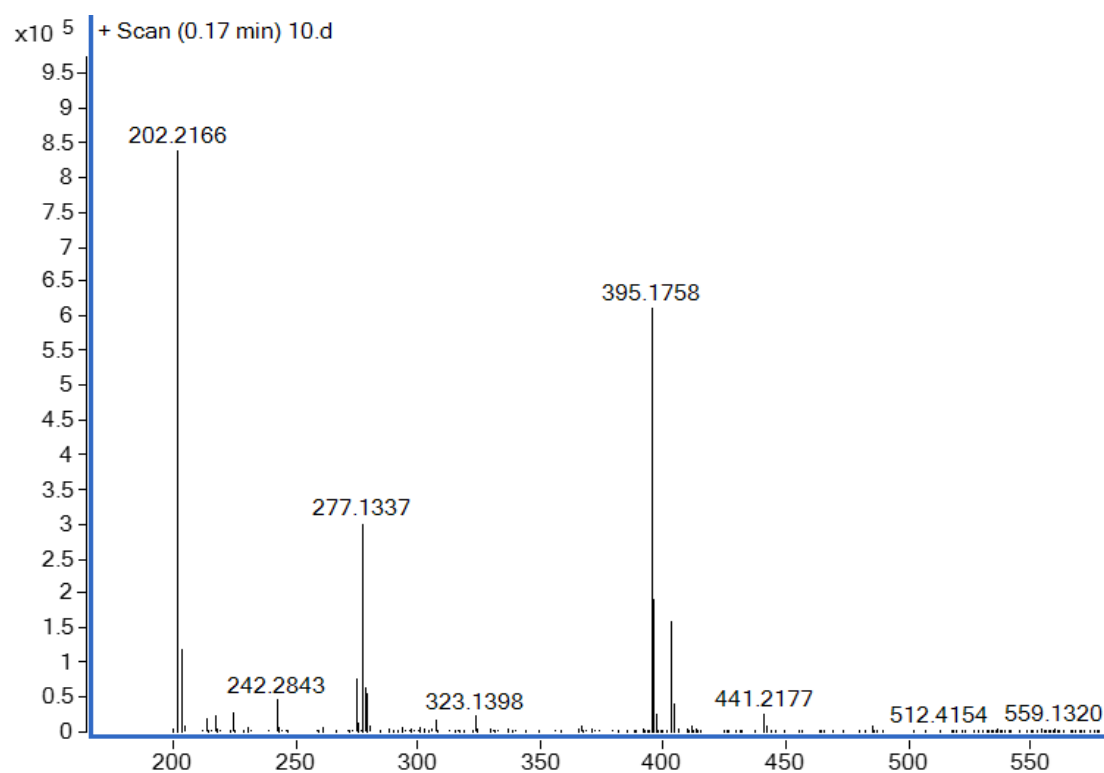


Figure S6 HRMS spectrum of compound 12b

¹H NMR of compound 12c

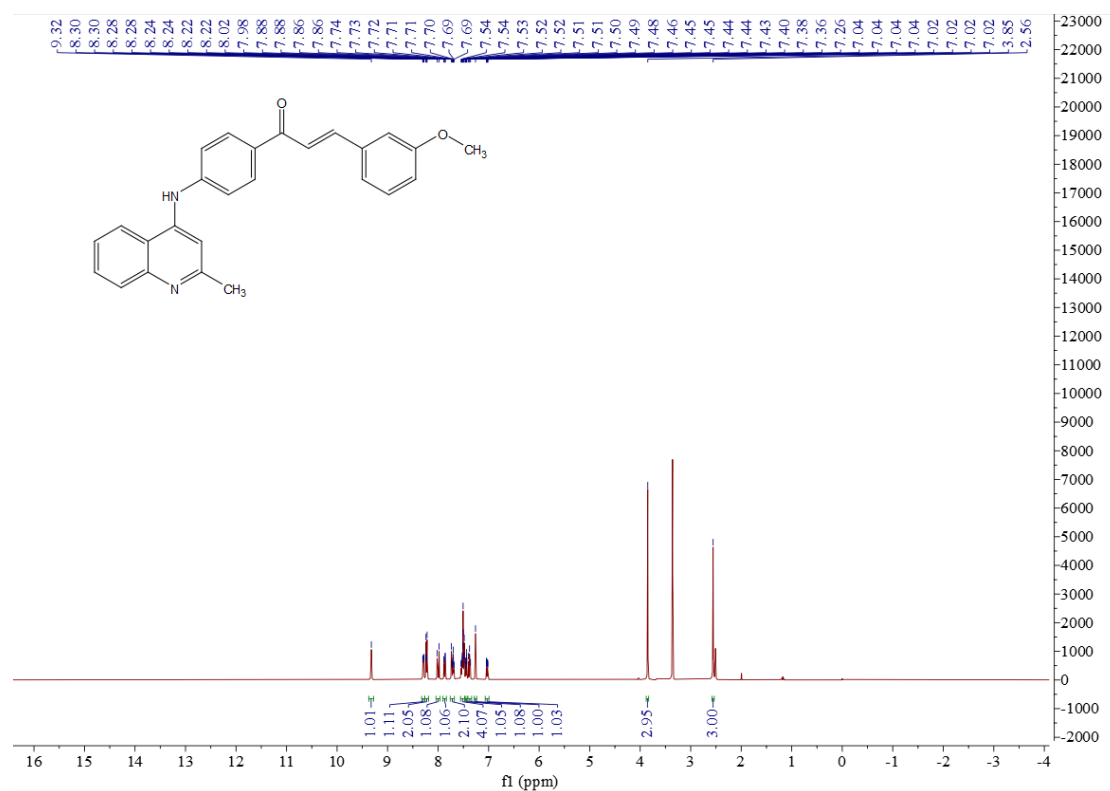


Figure S7 ¹H NMR spectrum of compound 12c

^{13}C NMR of compound 12c

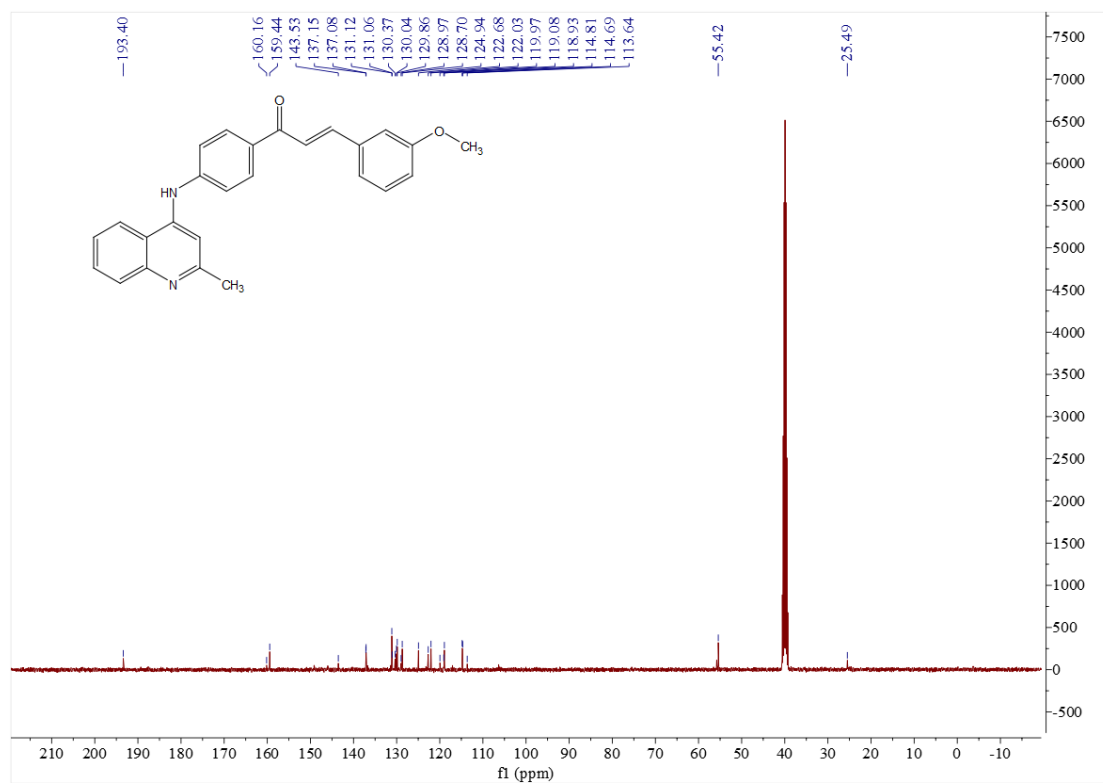


Figure S8 ^{13}C NMR spectrum of compound 12c

HRMS spectrum of compound 12c

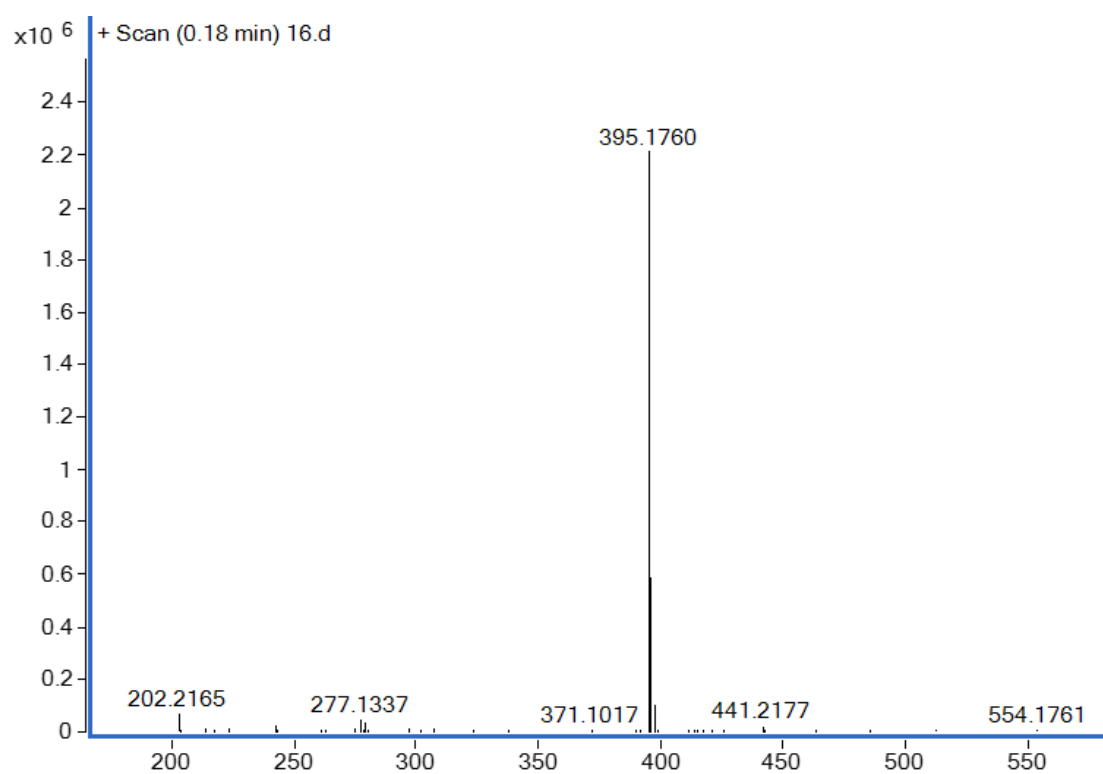


Figure S9 HRMS spectrum of compound **12c**

¹H NMR of compound 12d

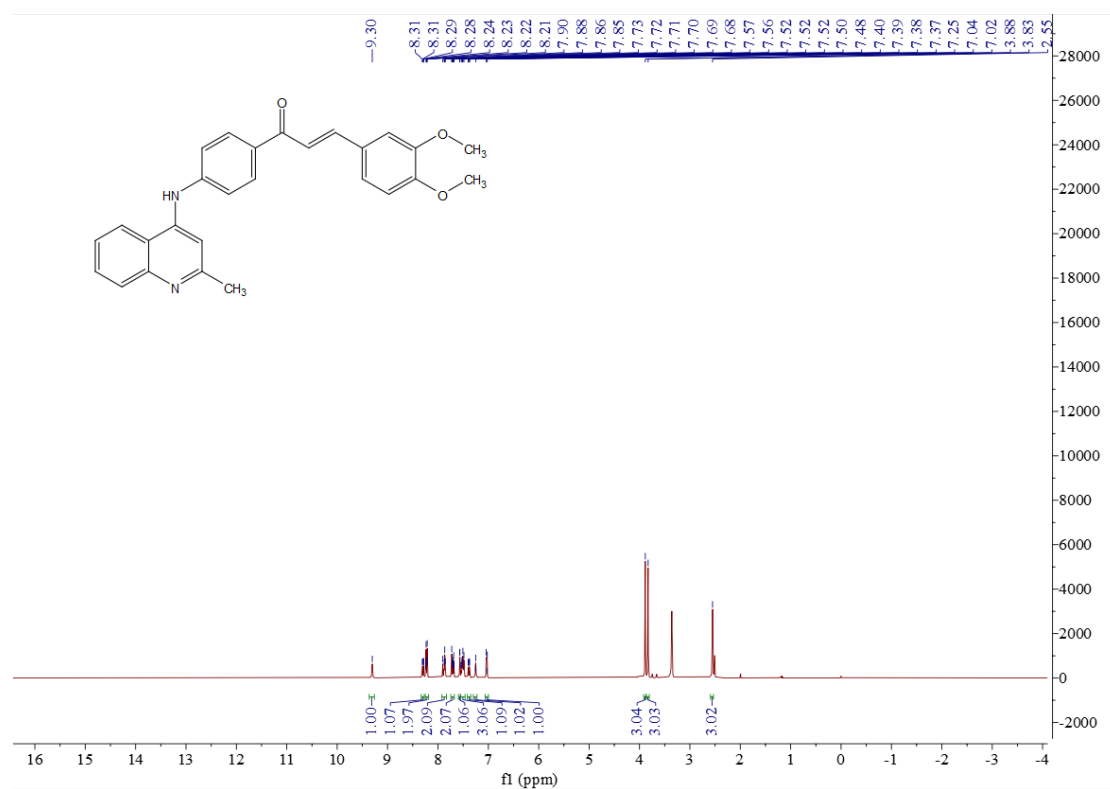


Figure S10 ¹H NMR spectrum of compound 12d

¹³C NMR of compound 12d

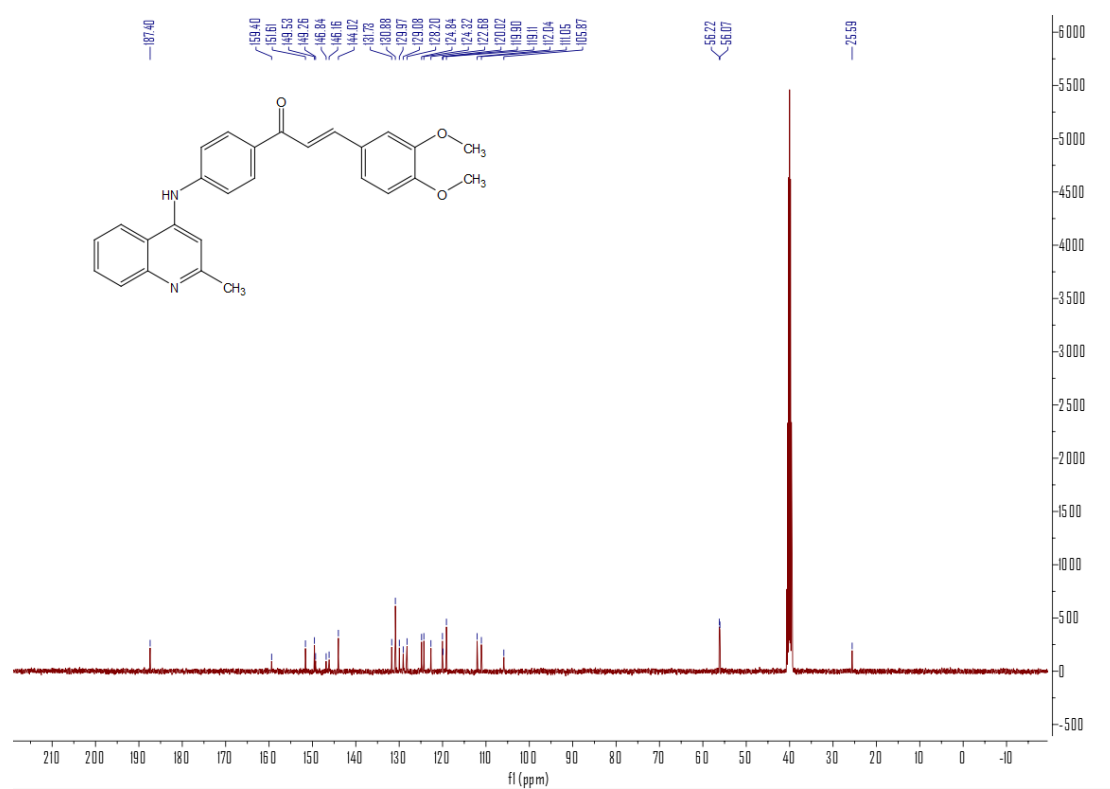


Figure S11 ¹³C NMR spectrum of compound 12d

HRMS spectrum of compound 12d

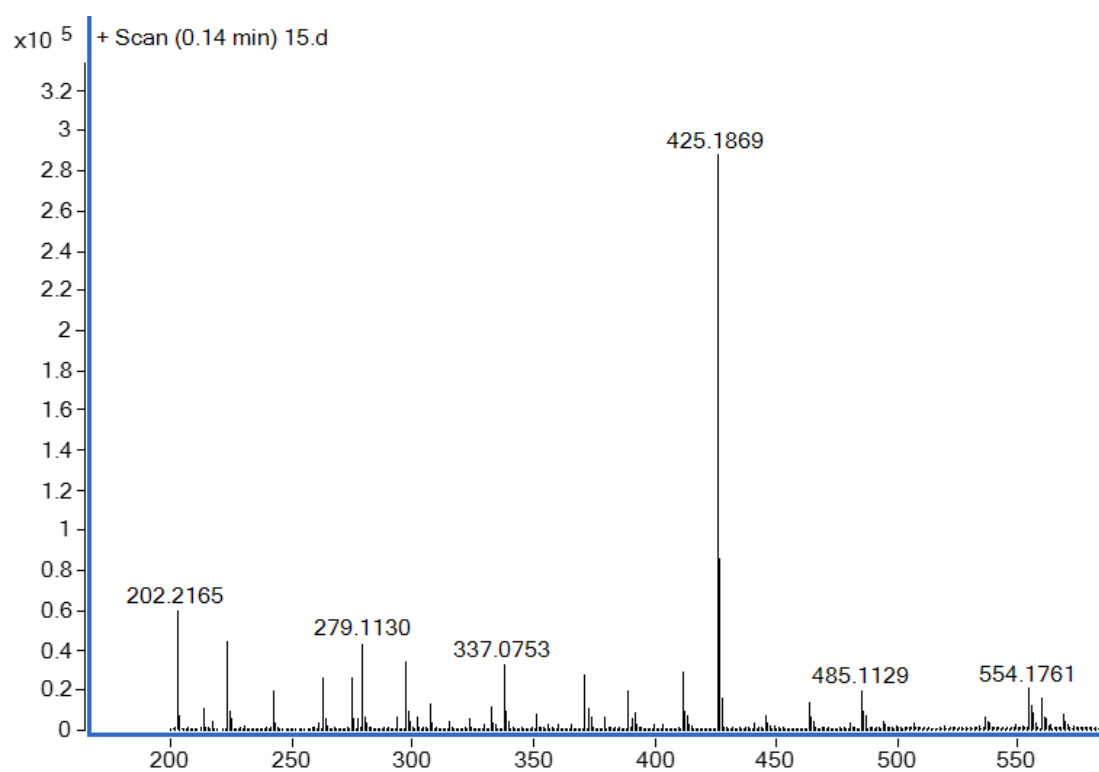


Figure S12 HRMS spectrum of compound 12d

¹H NMR of compound 12e

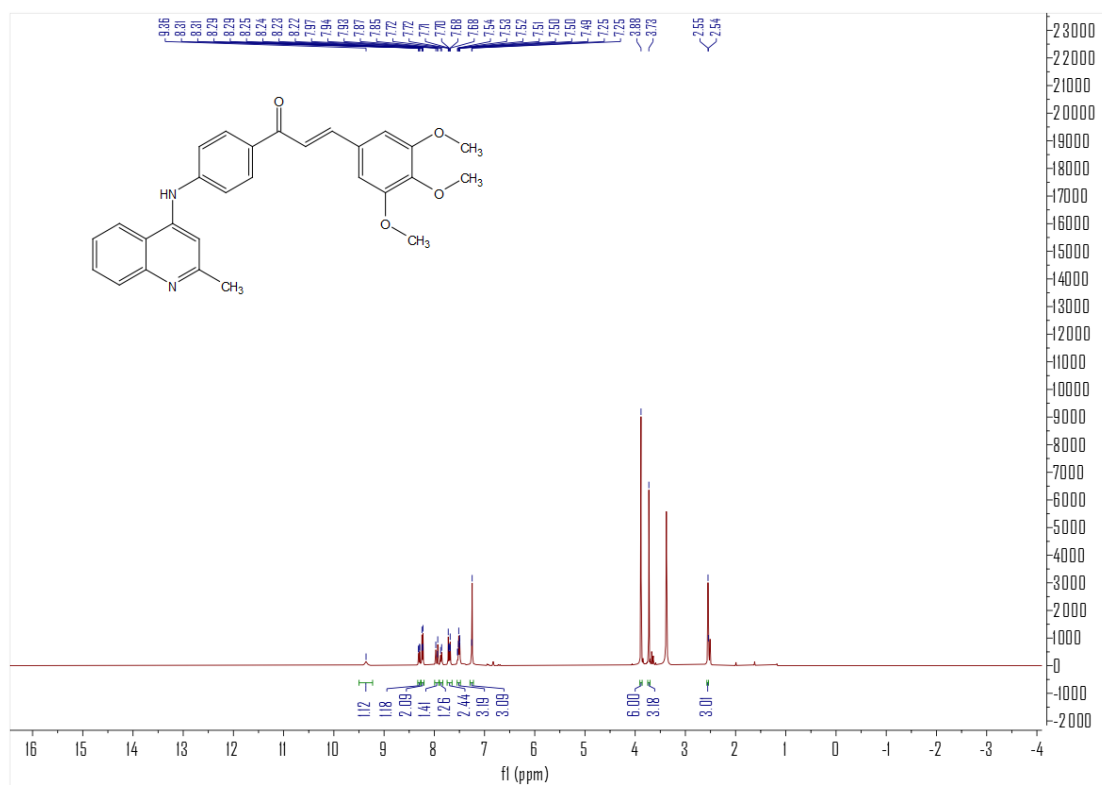


Figure S13 ¹H NMR spectrum of compound 12e

¹³C NMR of compound 12e

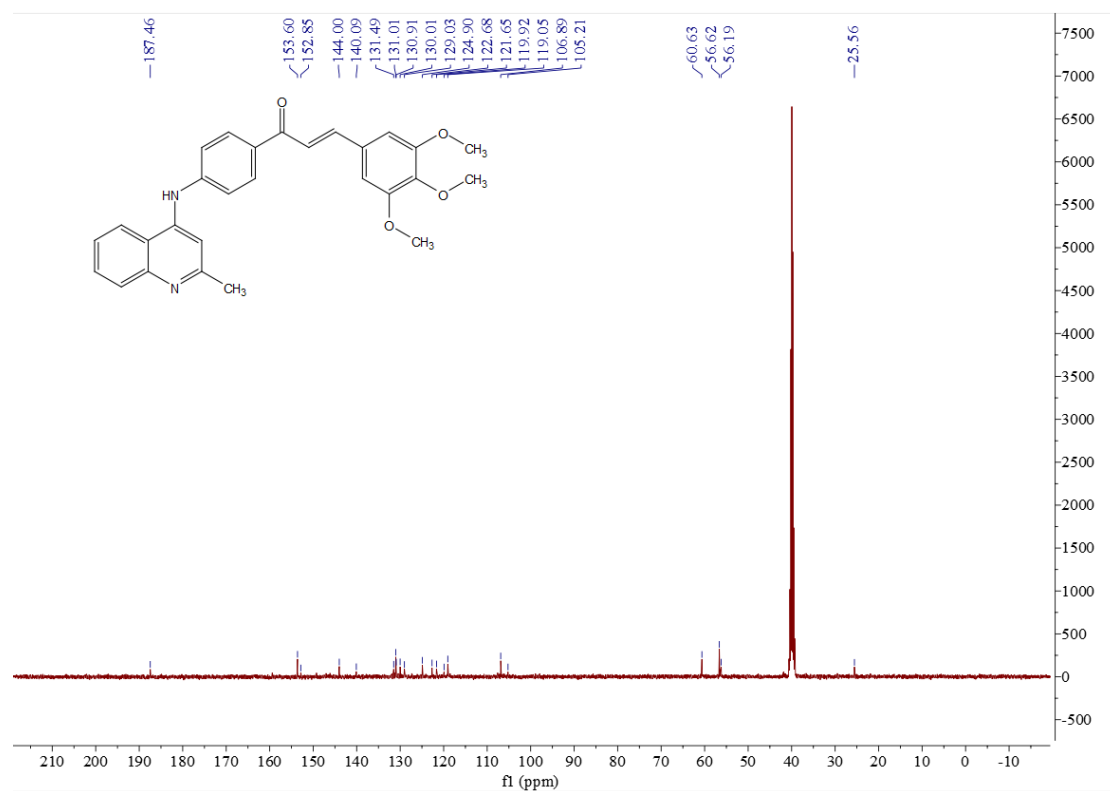


Figure S14 ¹³C NMR spectrum of compound 12e

HNMRS spectrum of compound 12e

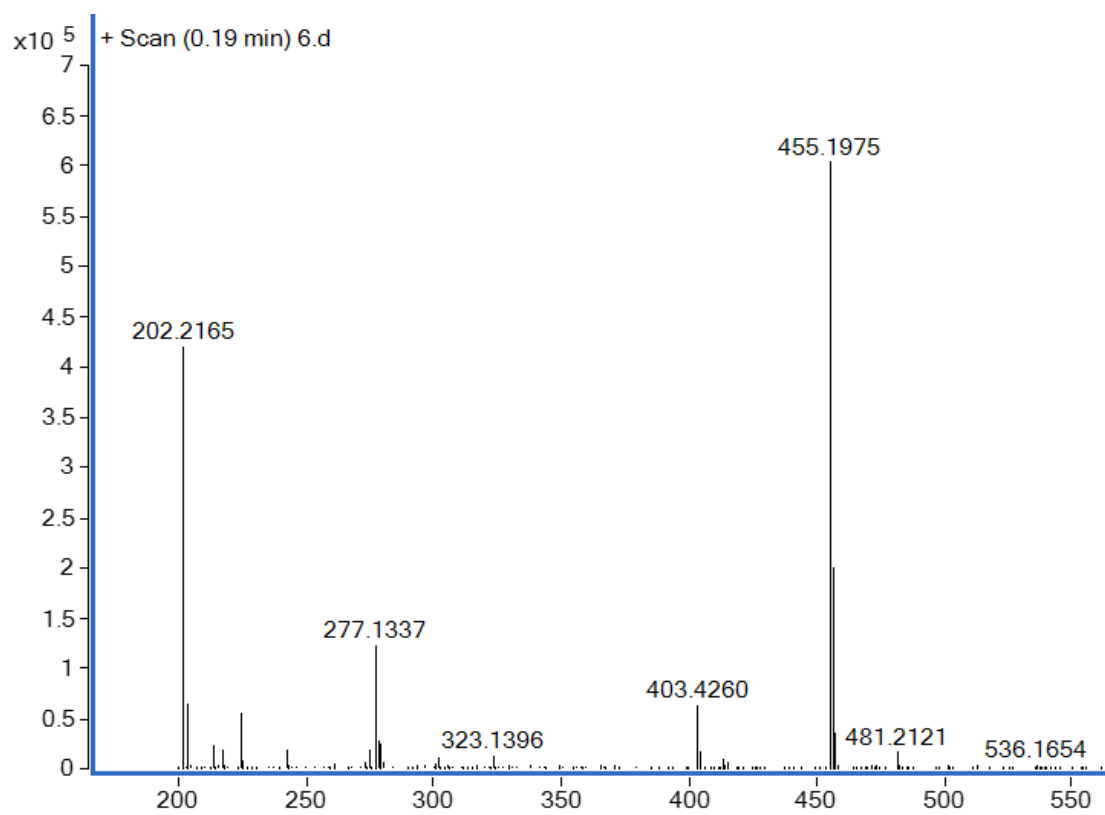


Figure S15 HRMS spectrum of compound 12e

¹H NMR of compound 12f

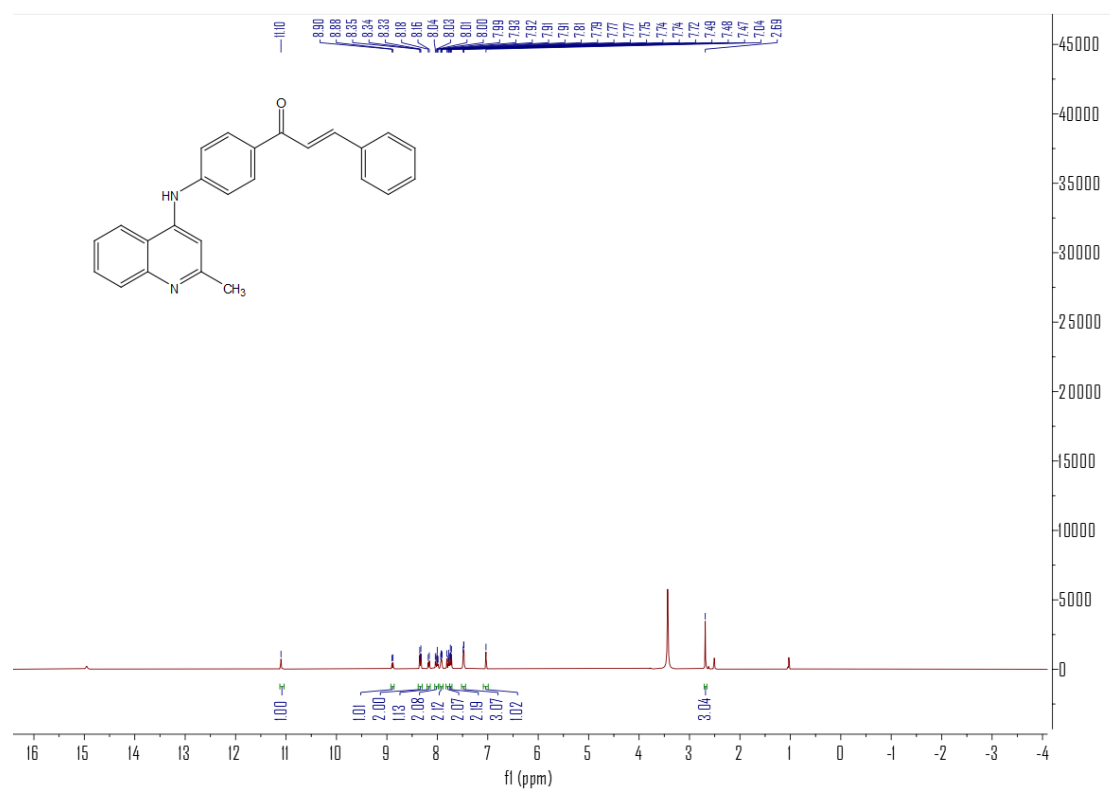


Figure S16 ¹H NMR spectrum of compound 12f

¹³CNMR of compound 12f

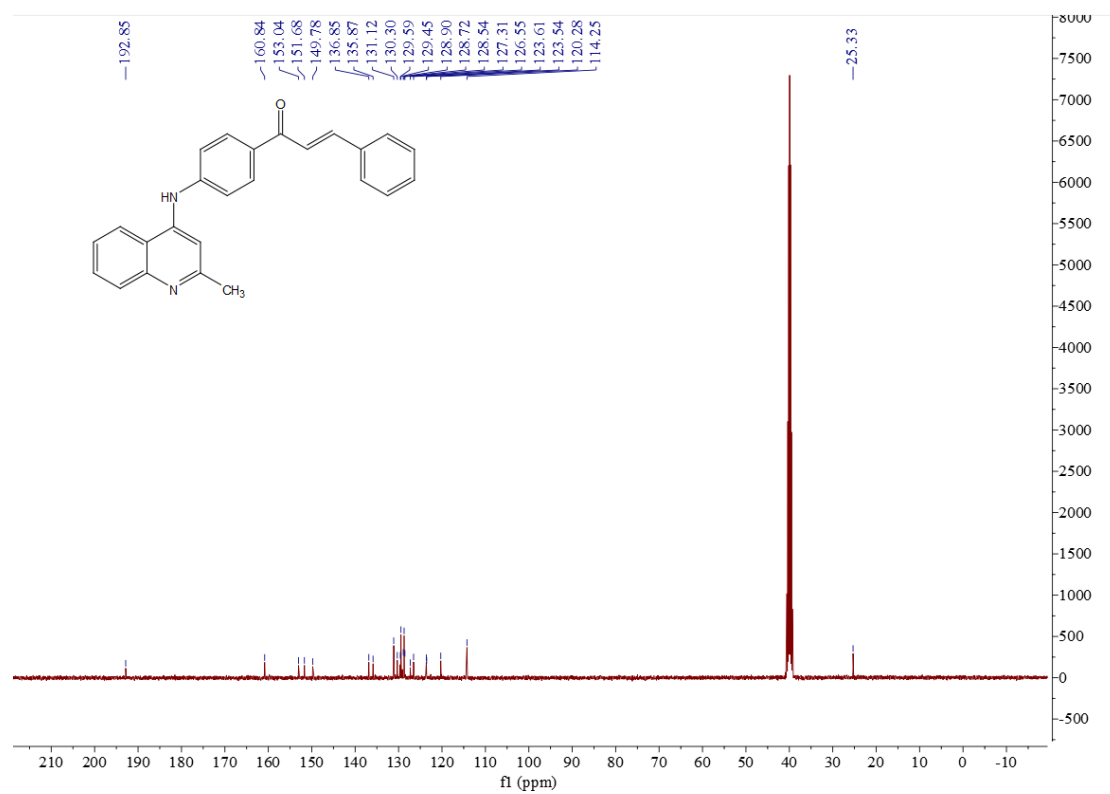


Figure S17 ¹³C NMR spectrum of compound 12f

HRMS spectrum of compound 12f

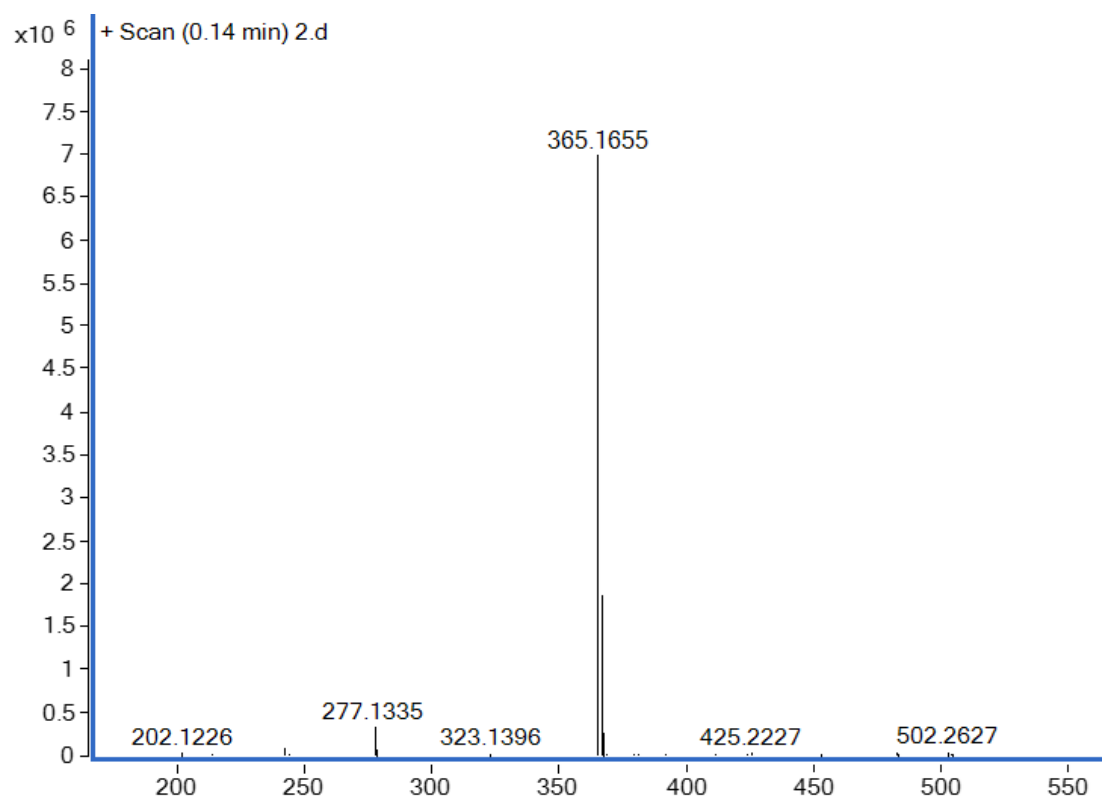


Figure S18 HRMS spectrum of compound 12f

¹H NMR of compound 12g

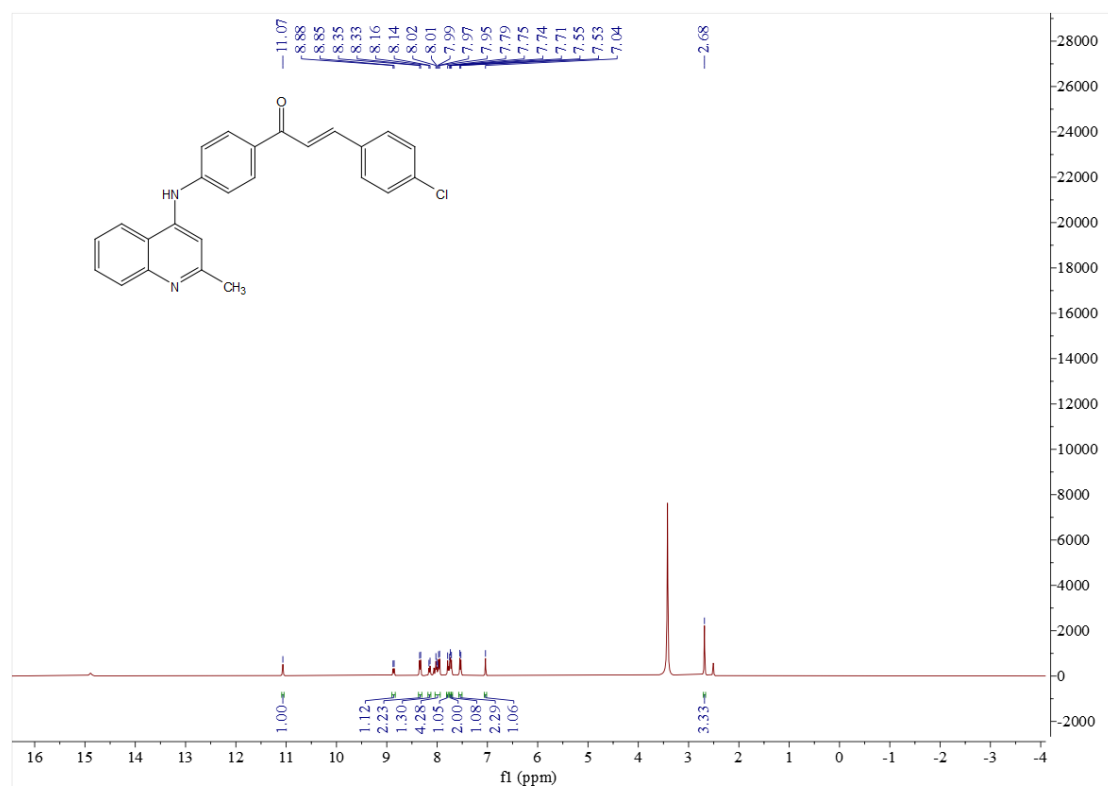


Figure S19 ¹H NMR spectrum of compound 12g

¹³C NMR of compound 12g

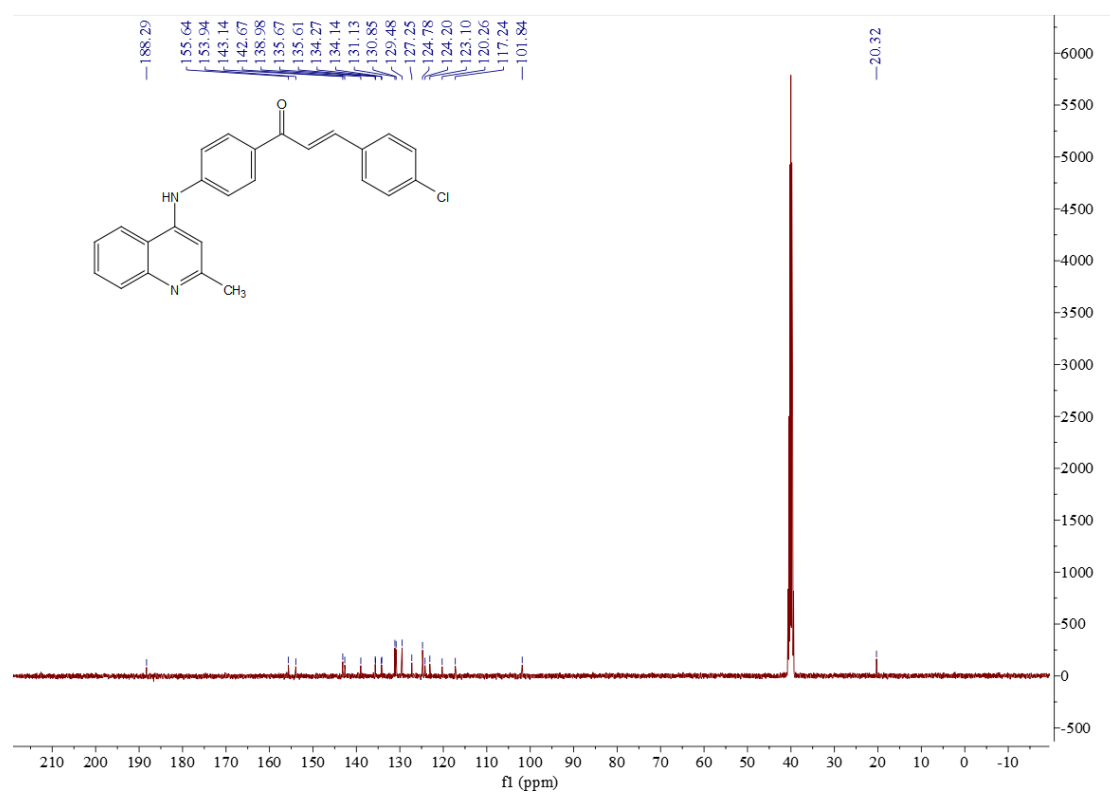


Figure S20 ¹³C NMR spectrum of compound 12g

HRMS spectrum of compound 12g

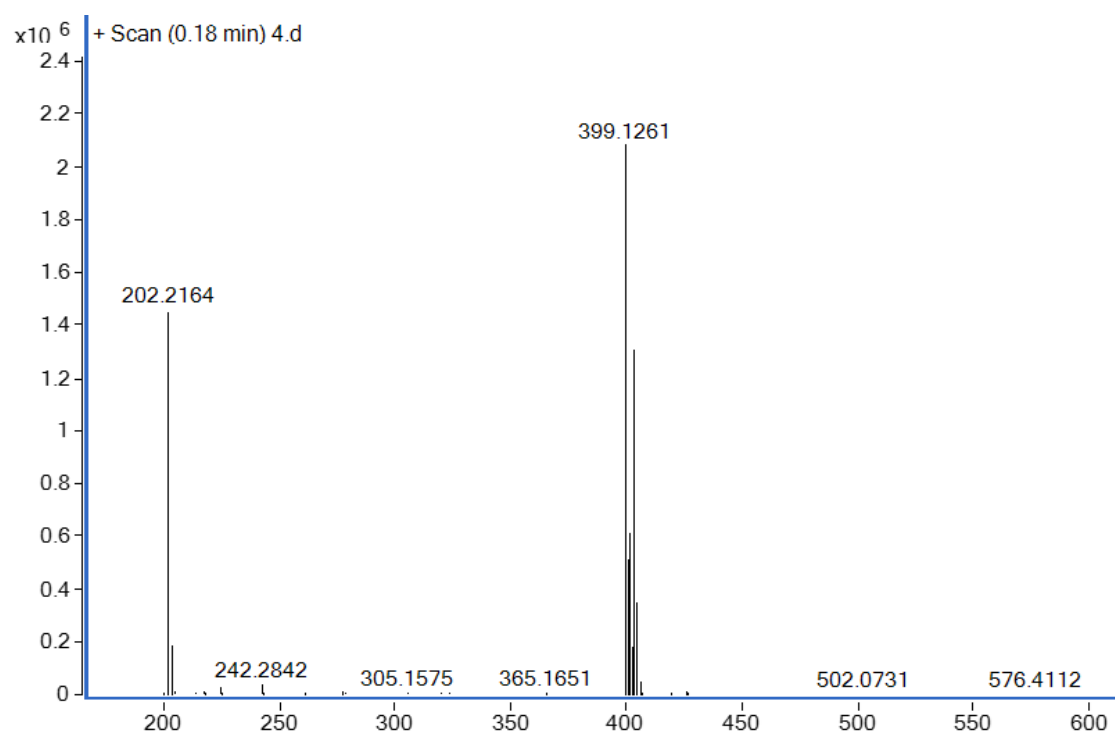


Figure S21 HRMS spectrum of compound **12g**

¹H NMR of compound 12h

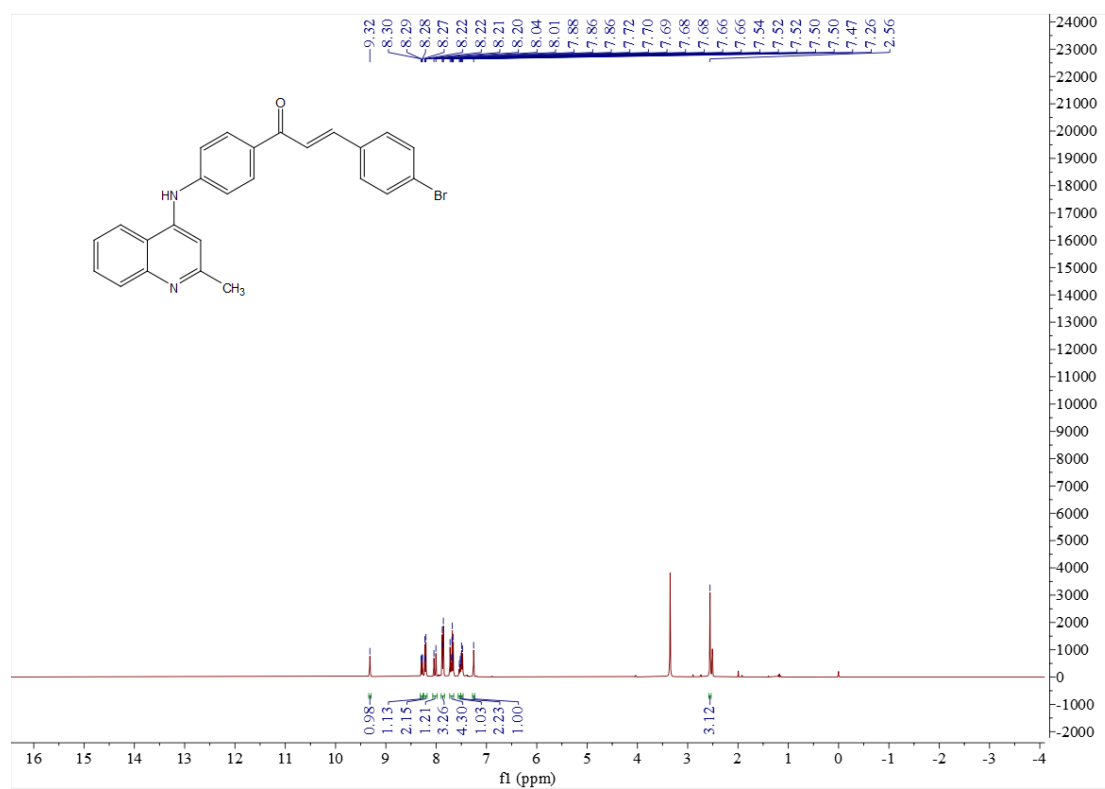


Figure S22 ¹H NMR spectrum of compound 12h

¹³C NMR of compound 12h

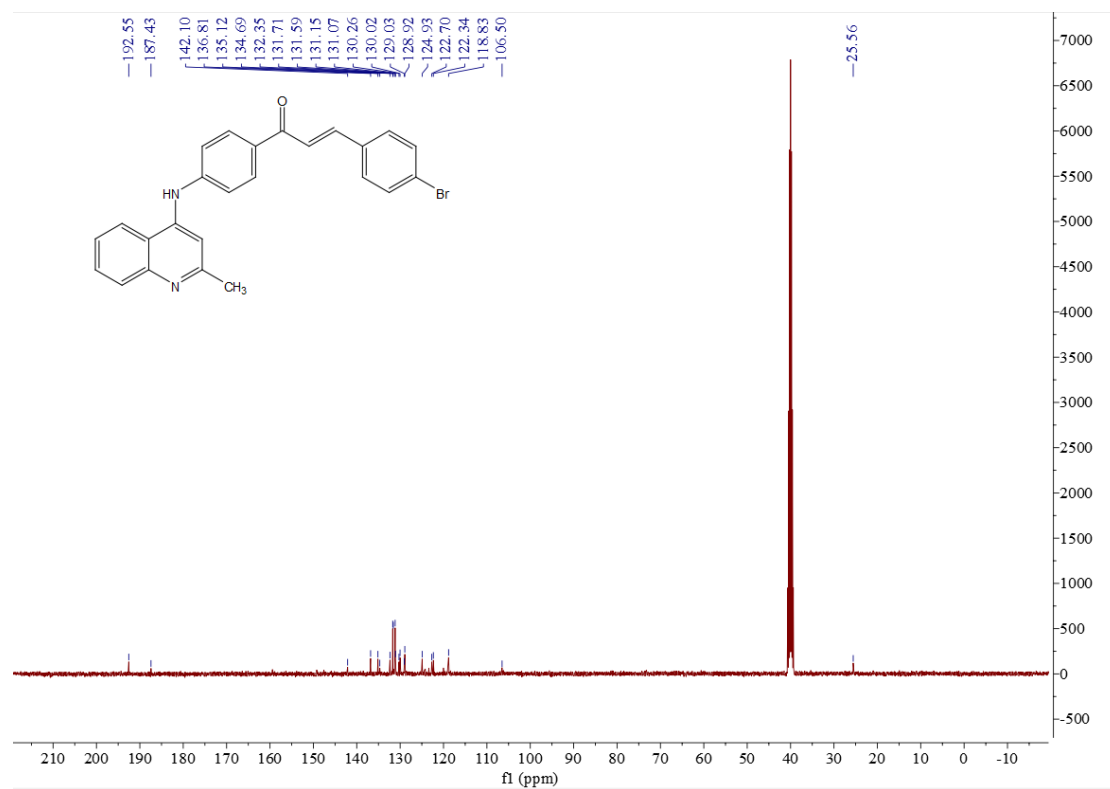


Figure S23 ¹³C NMR spectrum of compound 12h

HRMS spectrum of compound 12h

Scan (m/z) 1200.0

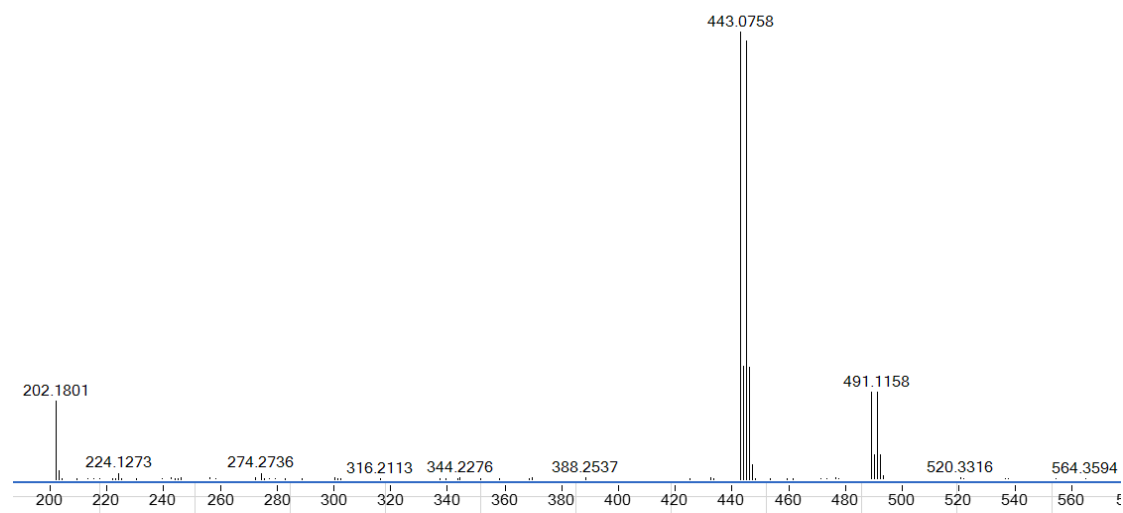


Figure S24 HRMS spectrum of compound **12h**

¹H NMR of compound 12i

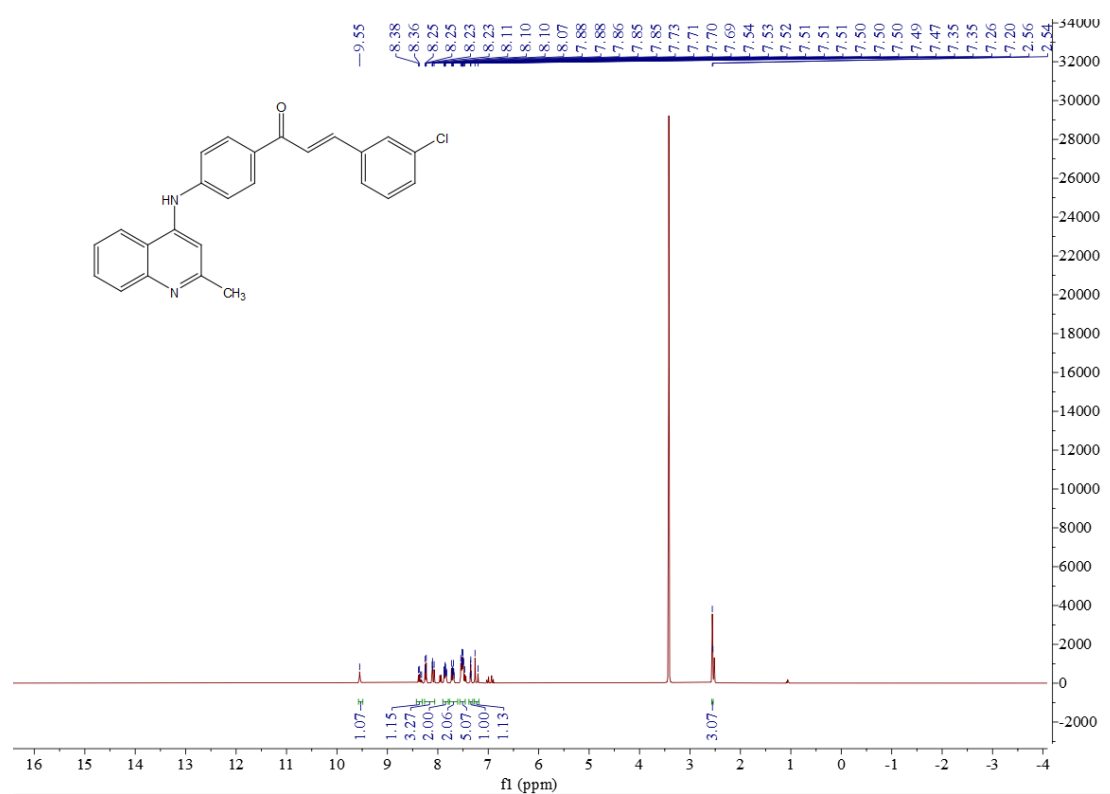


Figure S25 ¹H NMR spectrum of compound 12i

¹³C NMR of compound 12i

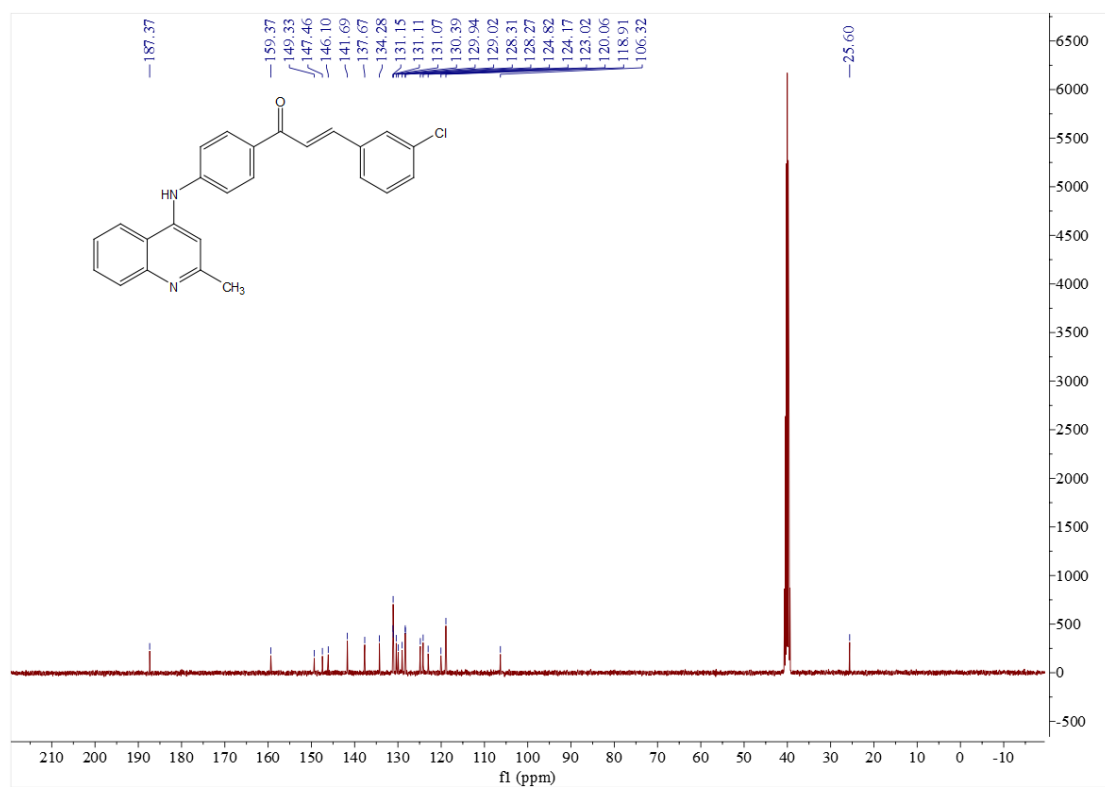


Figure S26 ¹³C NMR spectrum of compound 12i

HRMS spectrum of compound 12i

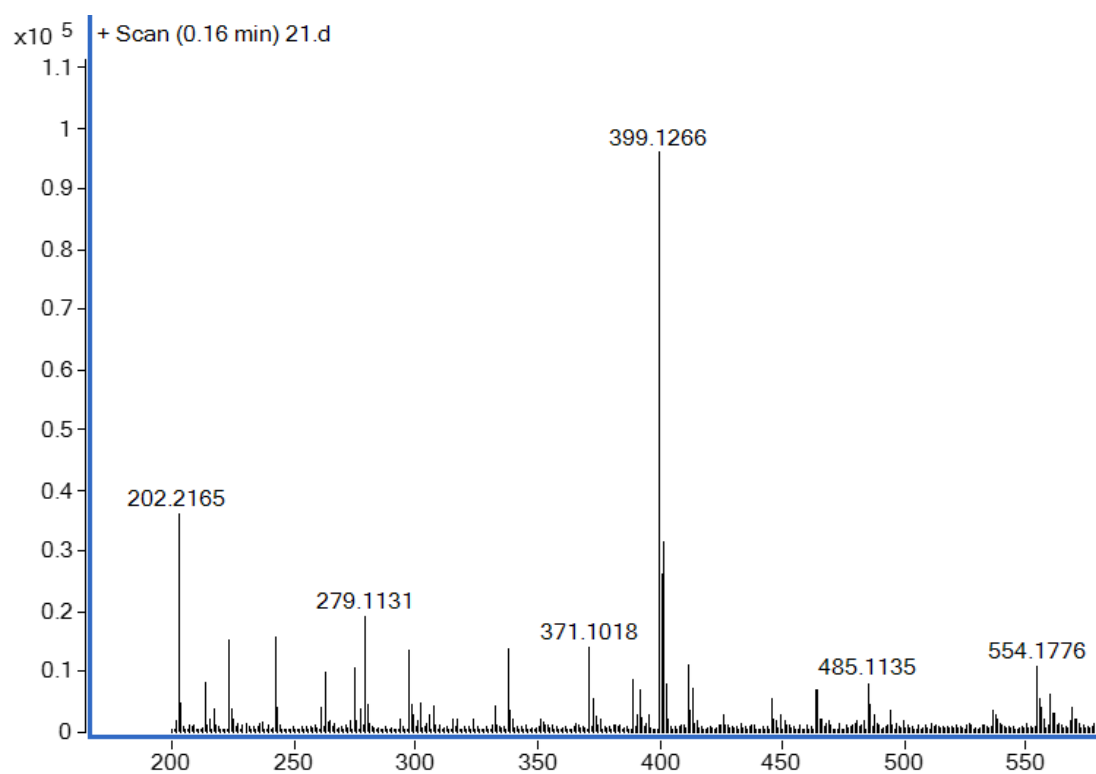


Figure S27 HRMS spectrum of compound 12i

¹H NMR of compound 12j

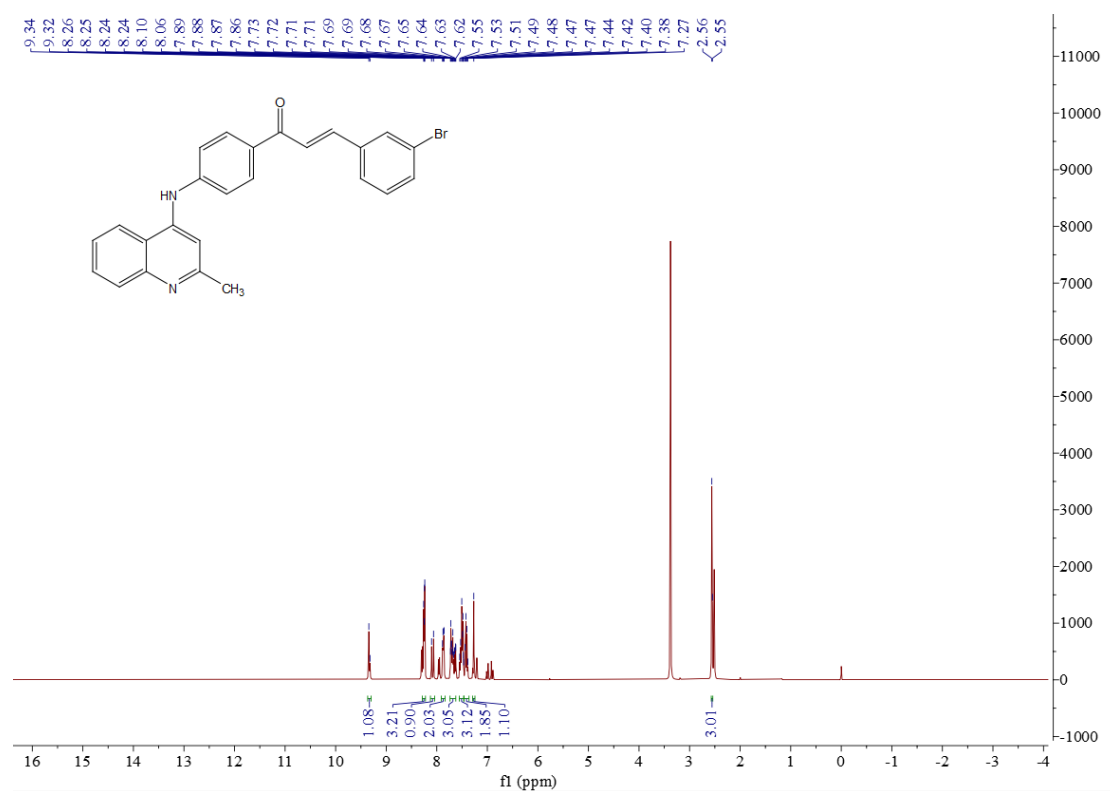


Figure S28 ¹H NMR spectrum of compound 12j

¹³C NMR of compound 12j

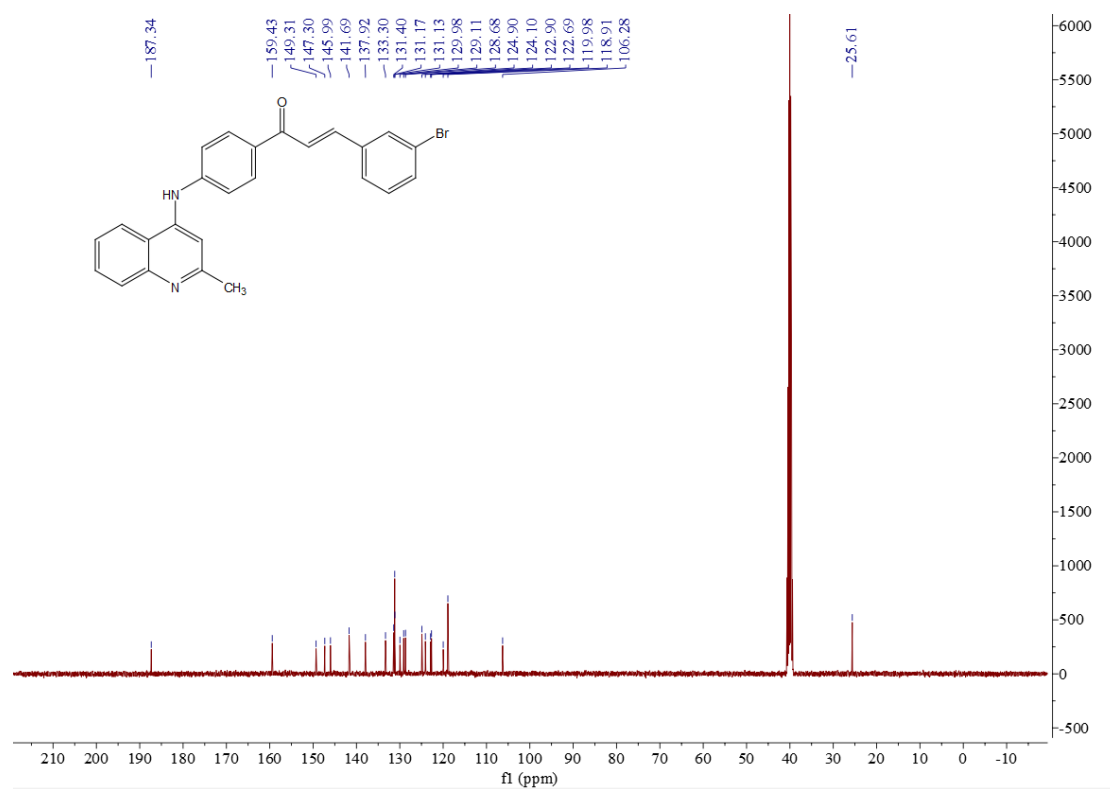


Figure S29 ¹³C NMR spectrum of compound 12j

HRMS spectrum of compound 12j

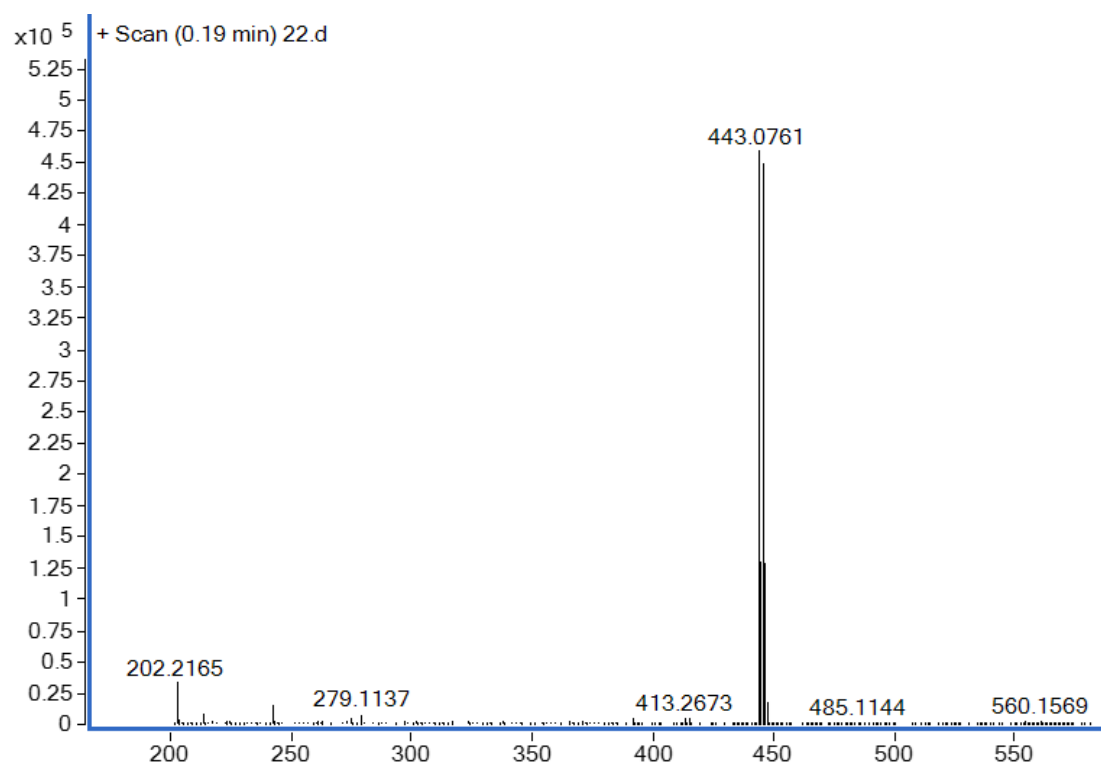


Figure S30 HRMS spectrum of compound 12j

¹H NMR of compound 13a

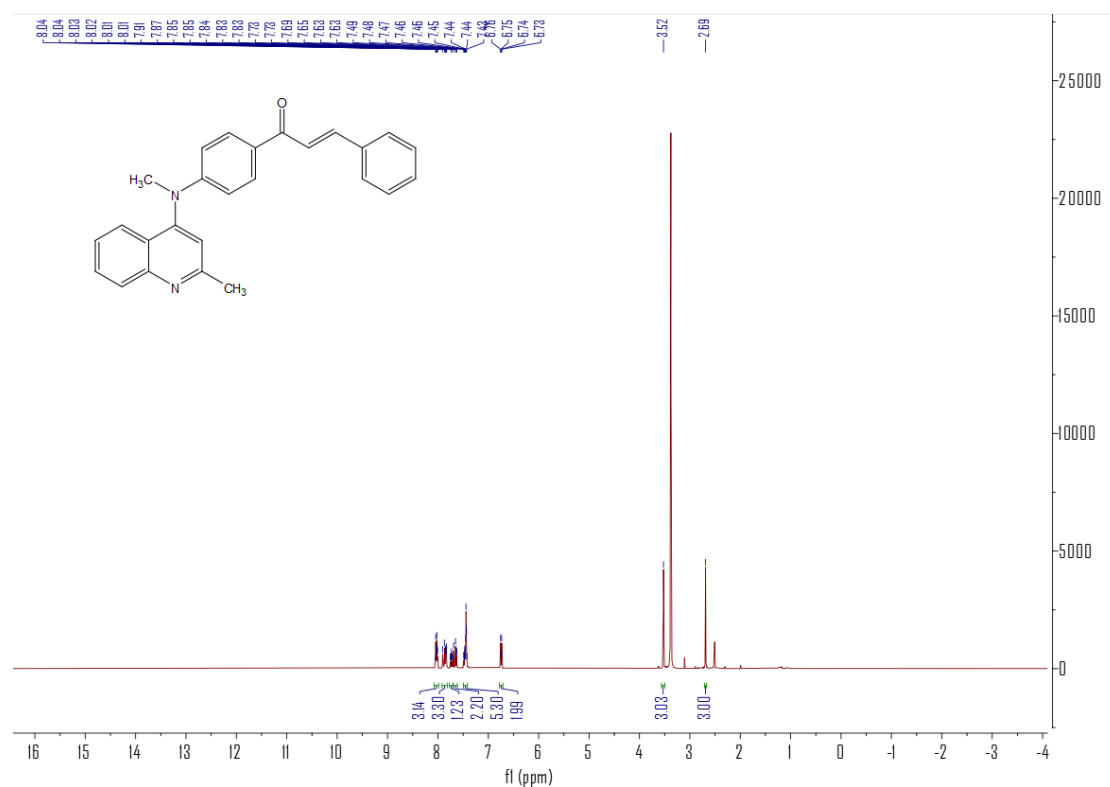


Figure S31 ¹H NMR spectrum of compound 13a

^{13}C NMR of compound 13a

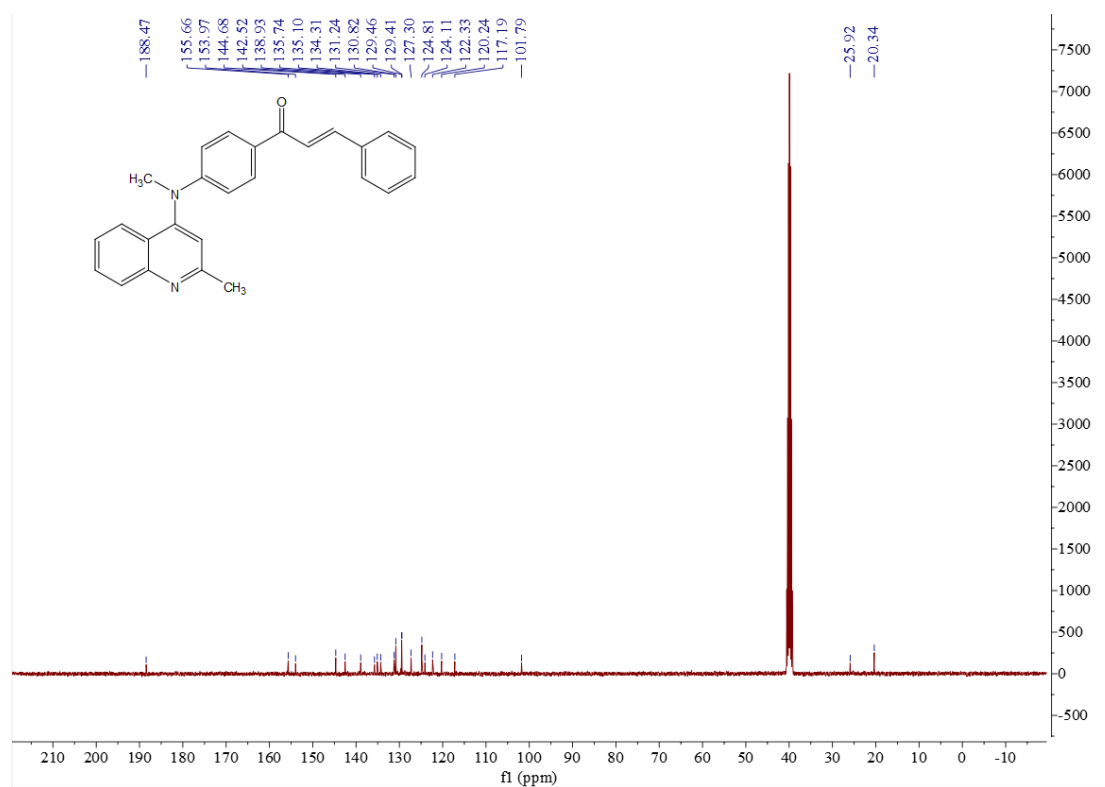


Figure S32 ^{13}C NMR spectrum of compound 13a

HRMS spectrum of compound 13a

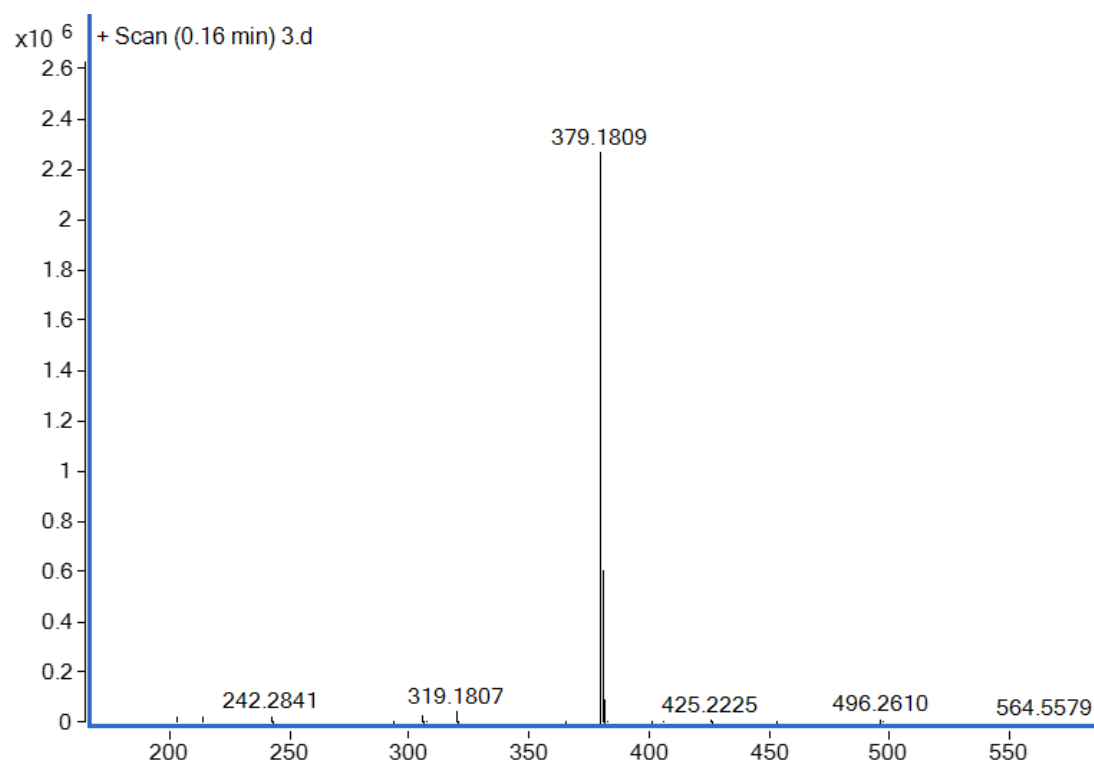


Figure S33 HRMS spectrum of compound 13a

¹H NMR of compound 13b

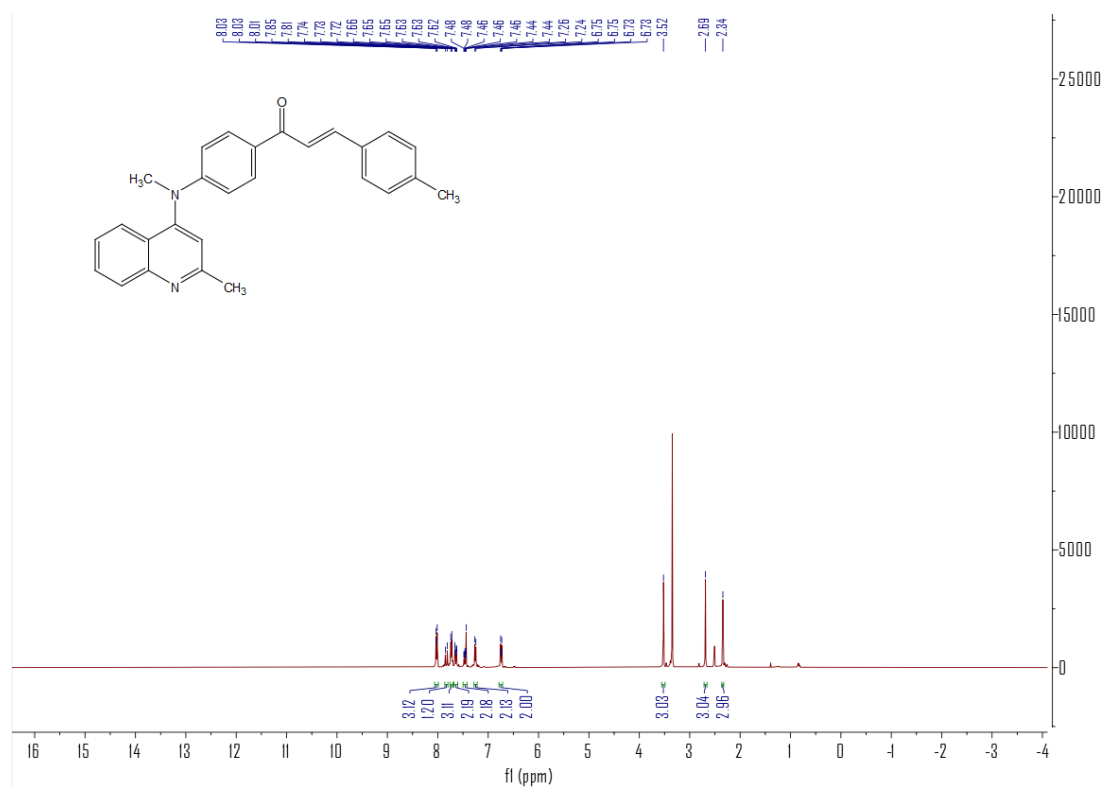


Figure S34 ¹H NMR spectrum of compound 13b

¹³C NMR of compound 13b

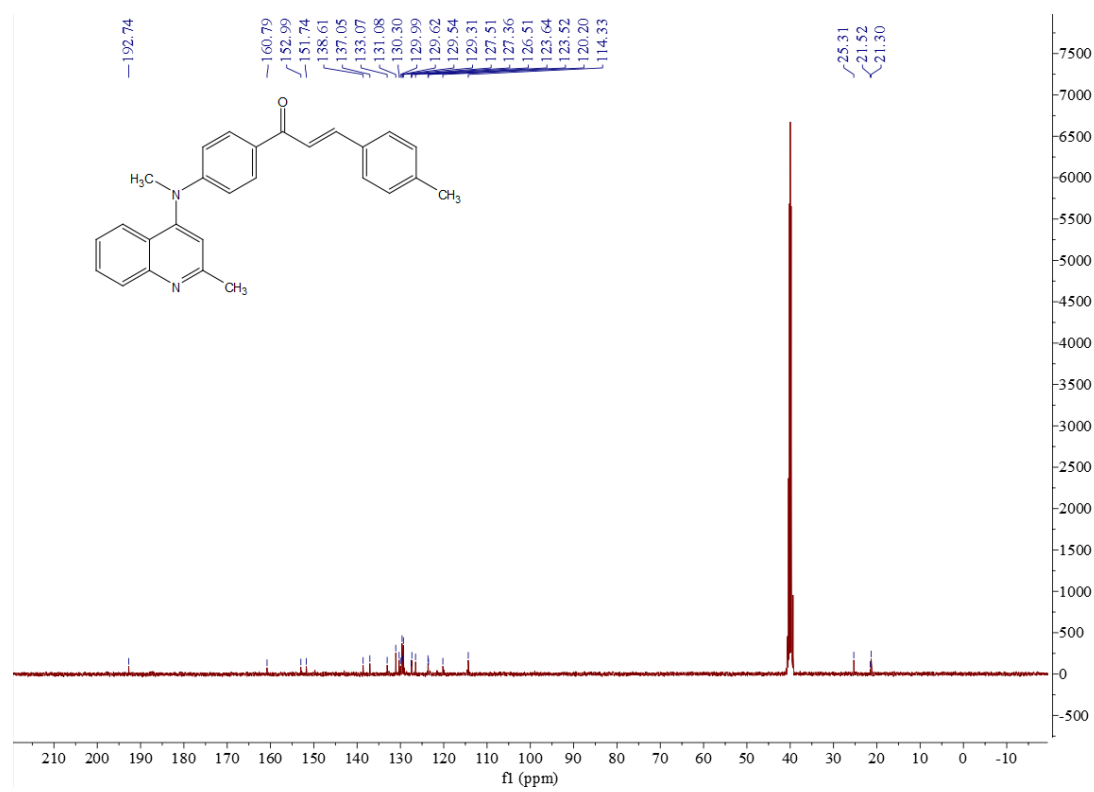


Figure S35 ¹³C NMR spectrum of compound 13b

HRMS spectrum of compound 13b

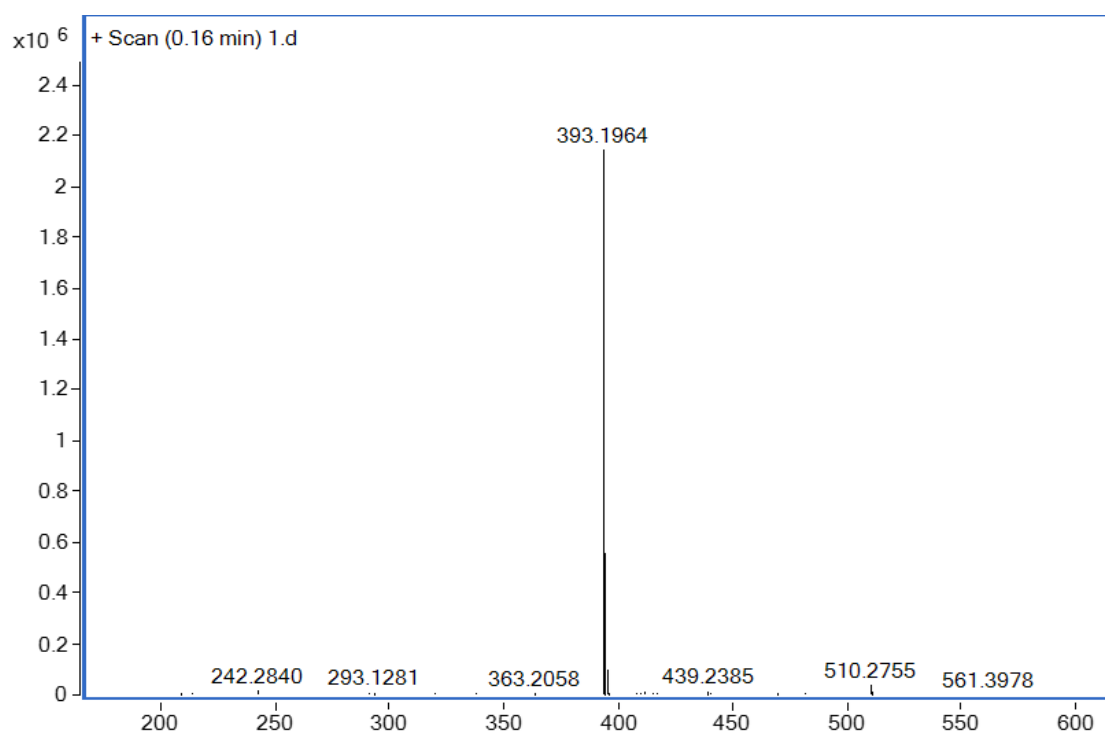


Figure S36 HRMS spectrum of compound 13b

¹H NMR of compound 13c

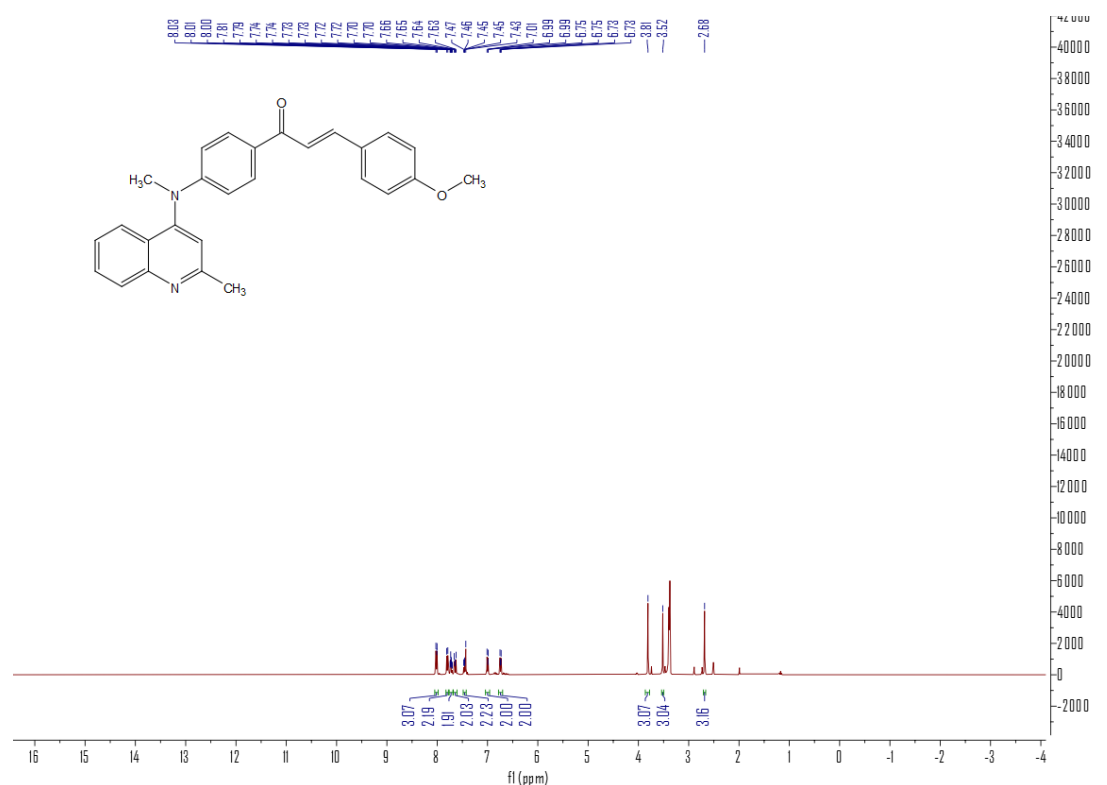


Figure S37 ¹H NMR spectrum of compound 13c

¹³C NMR of compound 13c

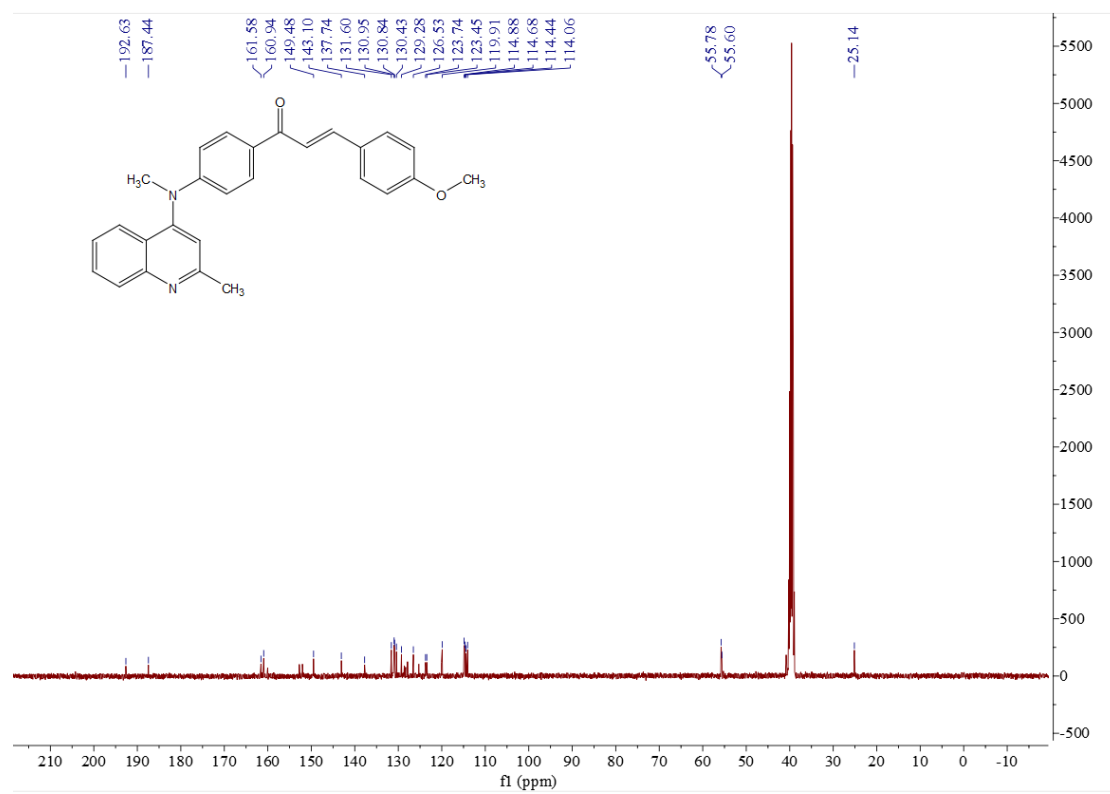


Figure S38 ¹³C NMR spectrum of compound 13c

HRMS spectrum of compound 13c

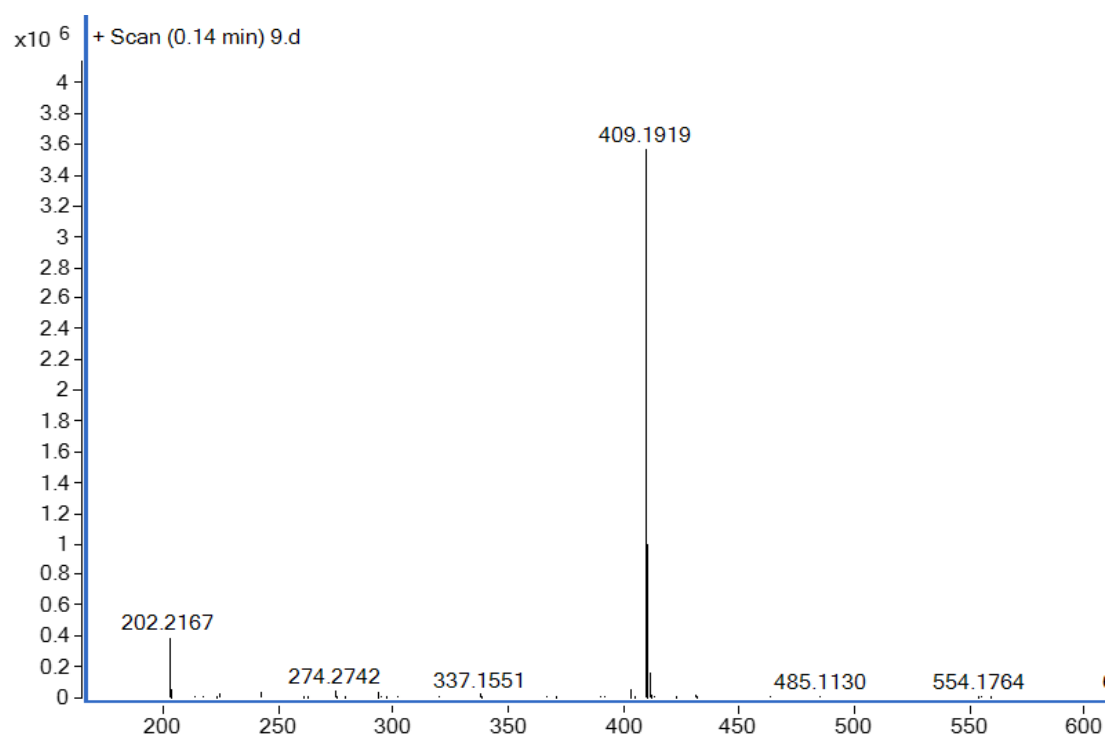


Figure S39 HRMS spectrum of compound 13c

¹H NMR of compound 13d

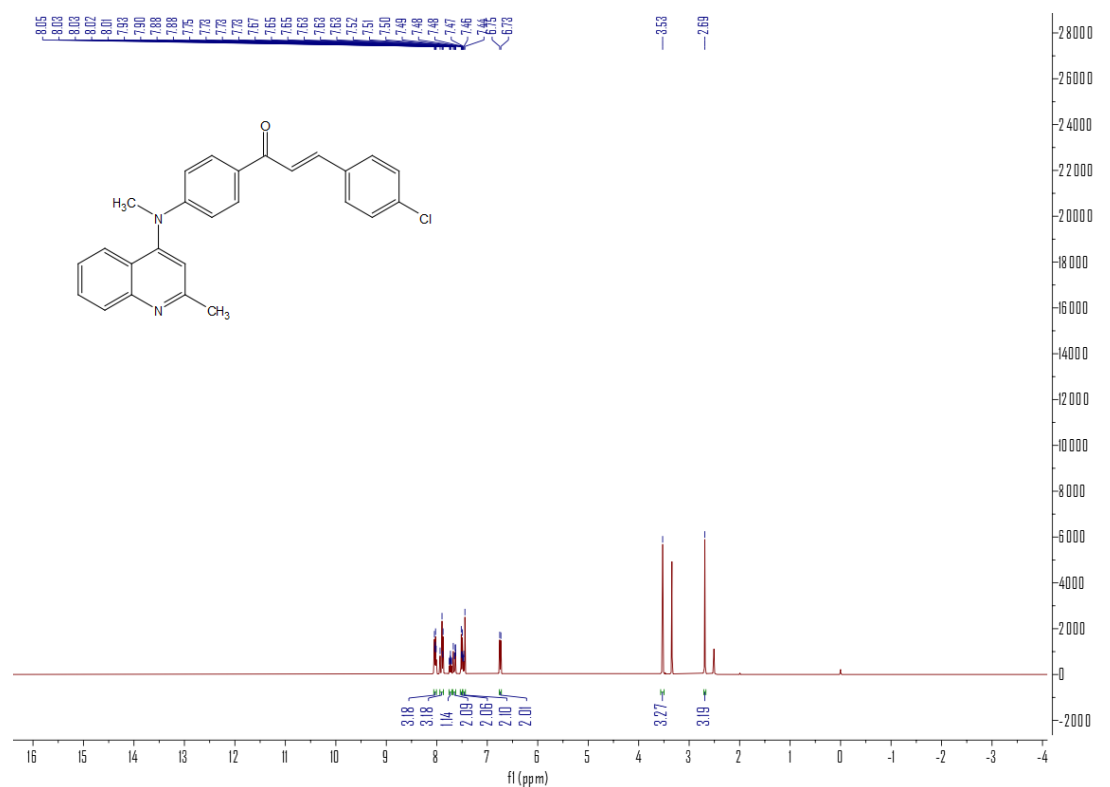


Figure S40 ¹H NMR spectrum of compound 13d

¹³C NMR of compound 13d

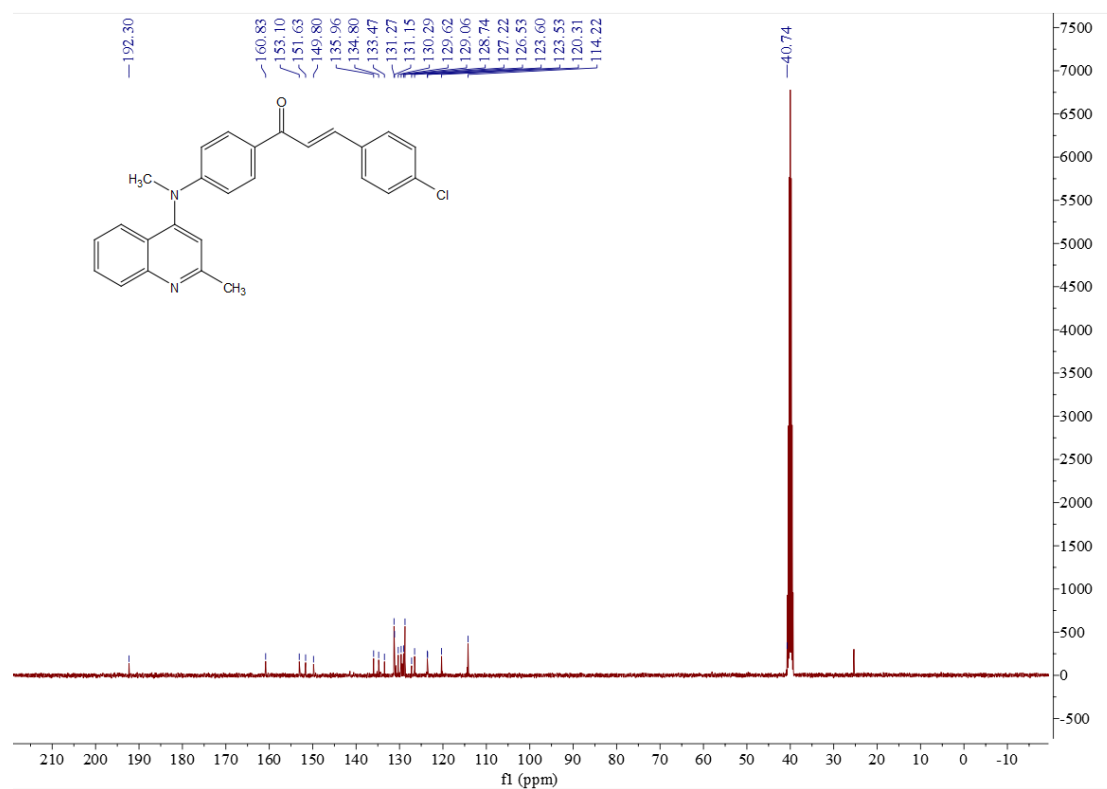


Figure S41 ¹³C NMR spectrum of compound 13d

HRMS spectrum of compound 13d

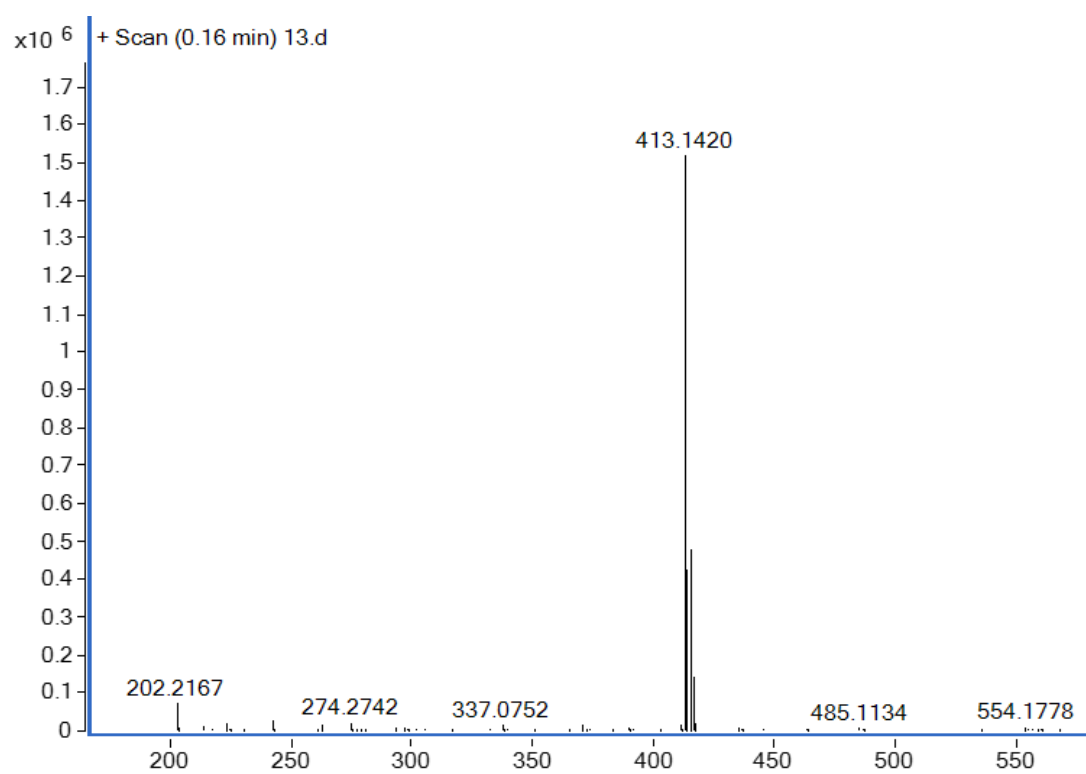


Figure S42 HRMS spectrum of compound 13d

¹H NMR of compound 13e

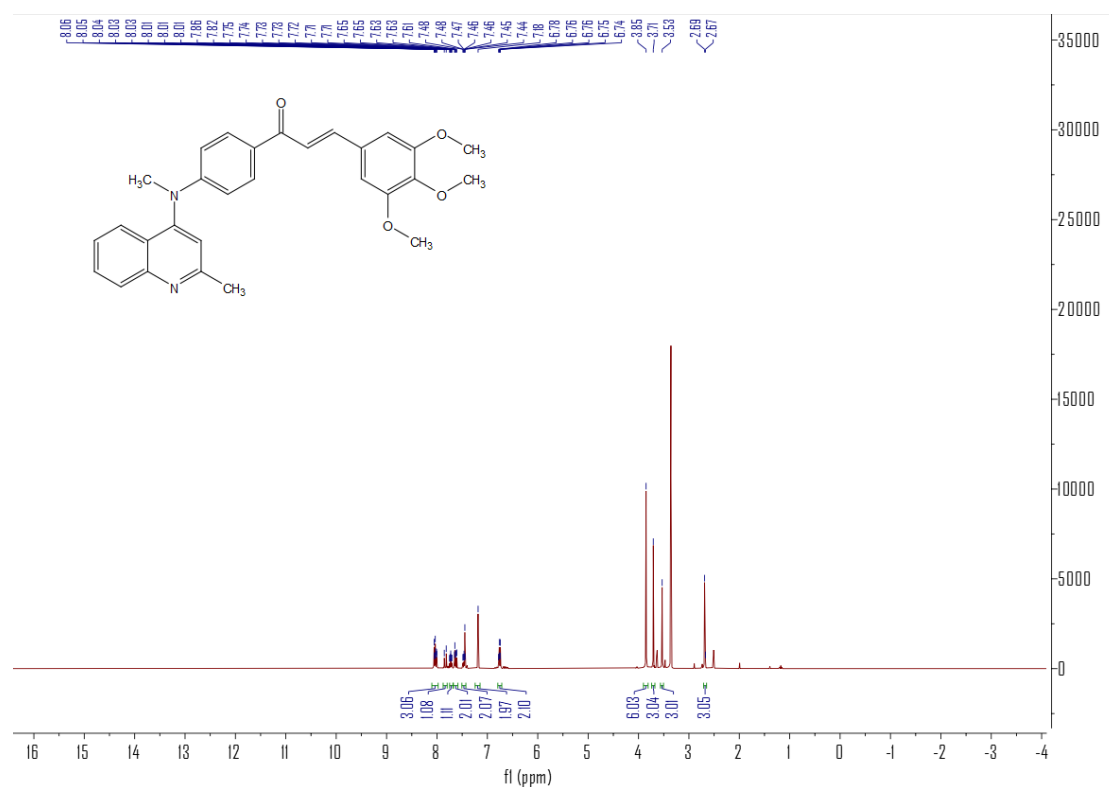


Figure S43 ¹H NMR spectrum of compound 13e

¹³C NMR of compound 13e

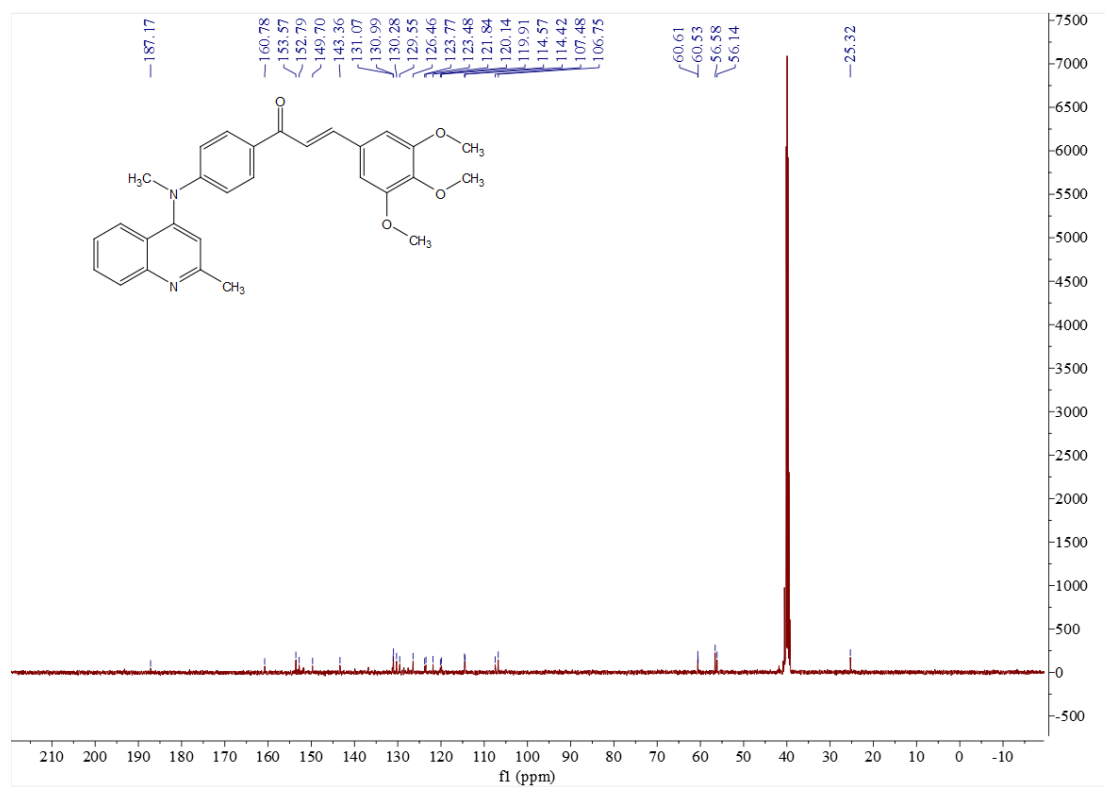


Figure S44 ¹³C NMR spectrum of compound 13e

HRMS spectrum of compound 13e

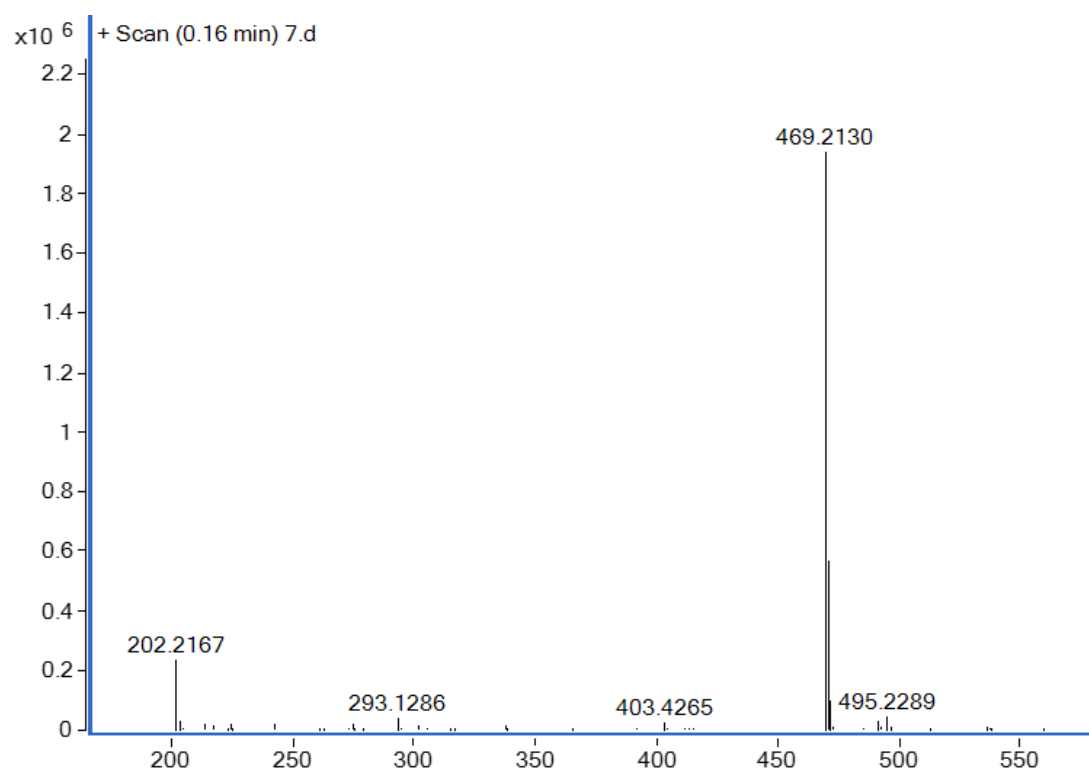


Figure S45 HRMS spectrum of compound 13e

¹H NMR of compound 13f

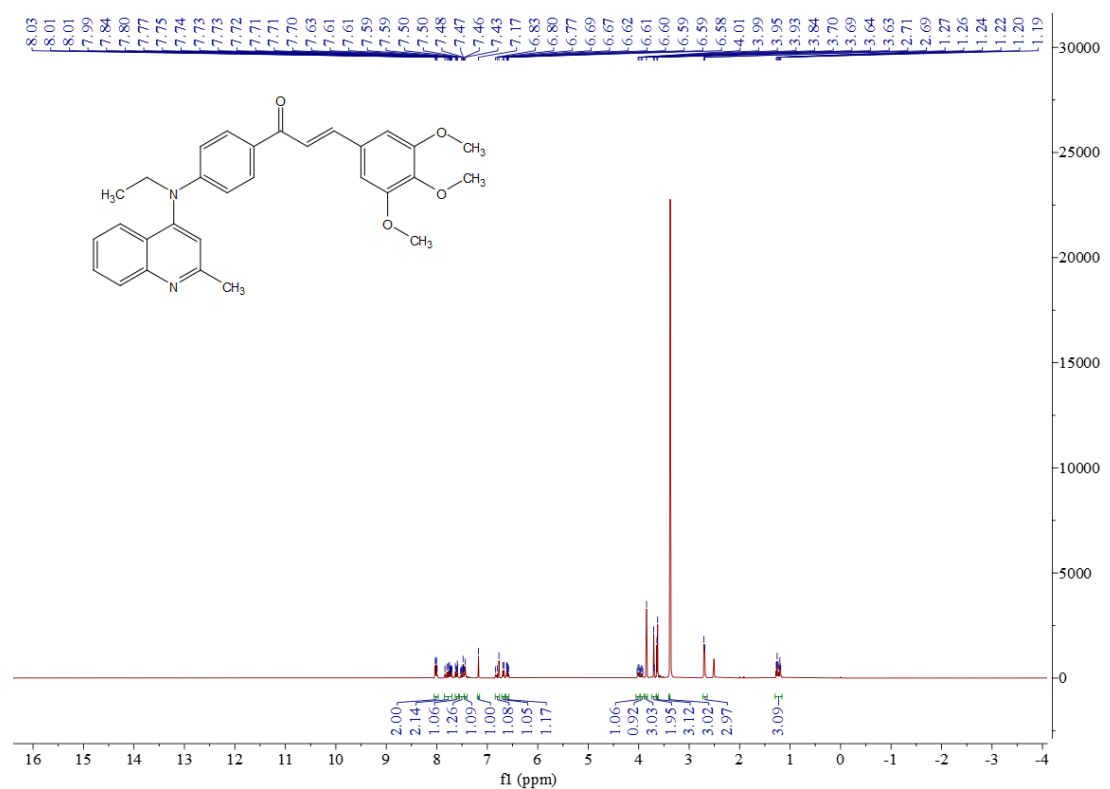


Figure S46 ¹H NMR spectrum of compound 13f

¹³C NMR of compound 13f

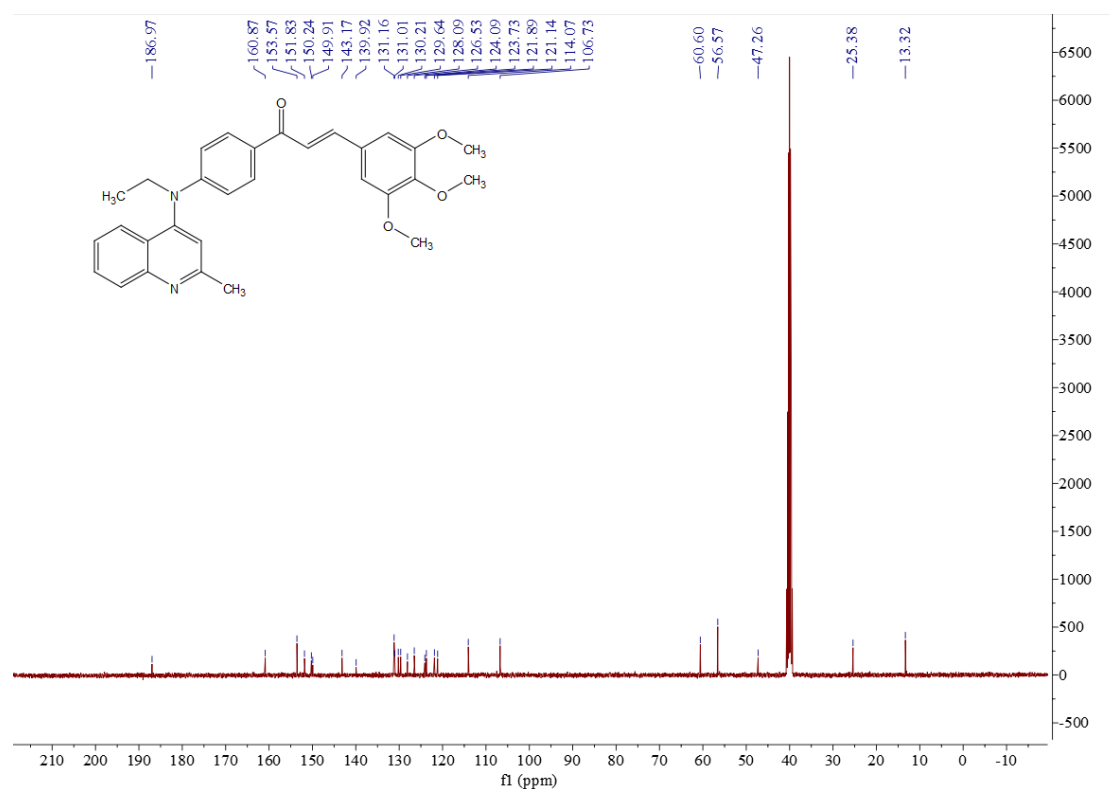


Figure S47 ¹³C NMR spectrum of compound 13f

HRMS spectrum of compound 13f

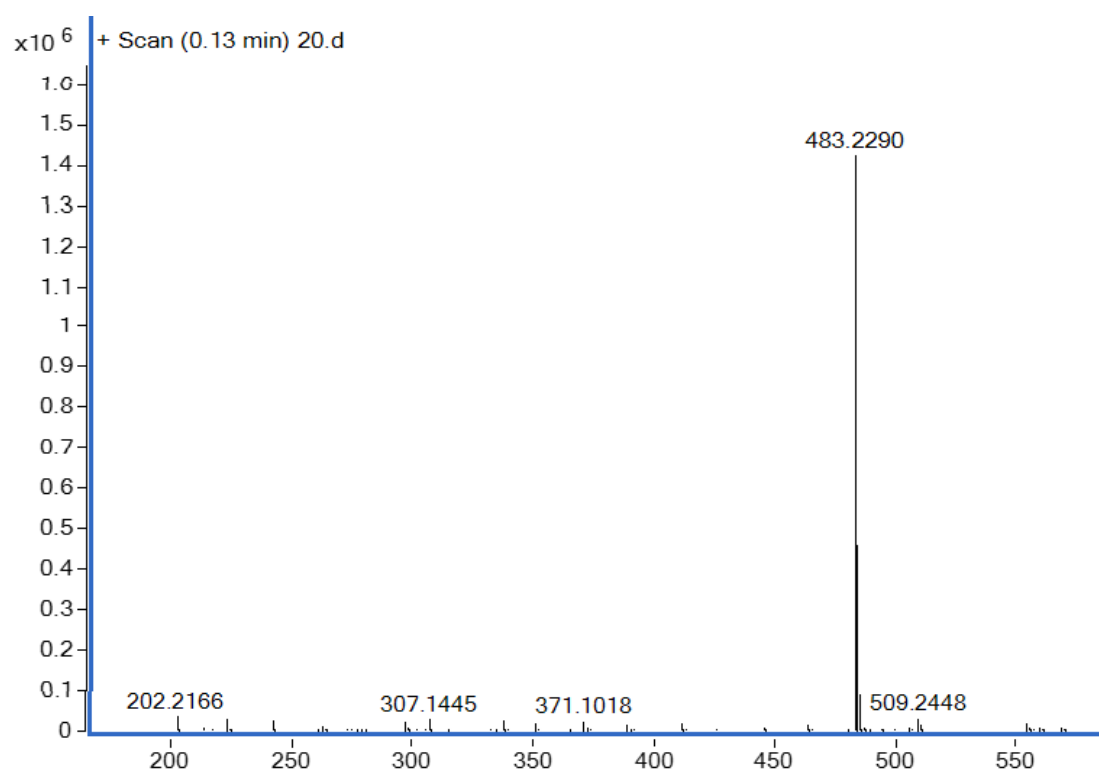


Figure S48 HRMS spectrum of compound 13f