

Naphthaleneoxypropargyl-Containing Piperazine as a Regulator of Effector Immune Cell Populations upon an Aseptic Inflammation

Valentina K. Yu ^{1,*}, Yelena S. Sycheva ¹, Gulgul K. Kairanbayeva ², Valery M. Dembitsky ^{3,*}, Marina K. Balabekova ², Aliya N. Tokusheva ², Tulegen M. Seilkhanov ⁴, Tolganay Y. Zharkynbek ¹, Anar Kh. Balapanova ² and Khaidar S. Tassibekov ¹

¹ A.B. Bekturov Institute of Chemical Sciences, 106 Sh. Ualikhanov St., Almaty 050010, Kazakhstan;

yelena-sycheva@yandex.kz (Y.S.S.); tolganay.zharkynbek@gmail.com (T.Y.Z.); kh.tassibekov@ihn.kz (K.S.T.)

² Pathological Physiology Department, Asfendiyarov Kazakh National Medical University, 94 Tole-bi St., Almaty 050000, Kazakhstan; kairanbayeva.g@kaznmu.kz (G.K.K.); balabekova.m@kaznmu.kz (M.K.B.);

aliyatokusheva88@gmail.com (A.N.T.); balapanova.an@kaznmu.kz (A.K.B.)

³ Centre for Applied Research, Innovation and Entrepreneurship, Lethbridge College, 3000 College Drive South, Lethbridge, AB T1K 1L6, Canada

⁴ Laboratory of Engineering Profile NMR Spectroscopy, Sh. Ualikhanov Kokshetau State University, 76 Abai St., Kokshetau 020000, Kazakhstan; tseilkhanov@mail.ru

* Correspondence: yuvkconst@gmail.com (V.K.Y.); valery.dembitsky@lethbridgecollege.ca or valery@dembitsky.com (V.M.D.)

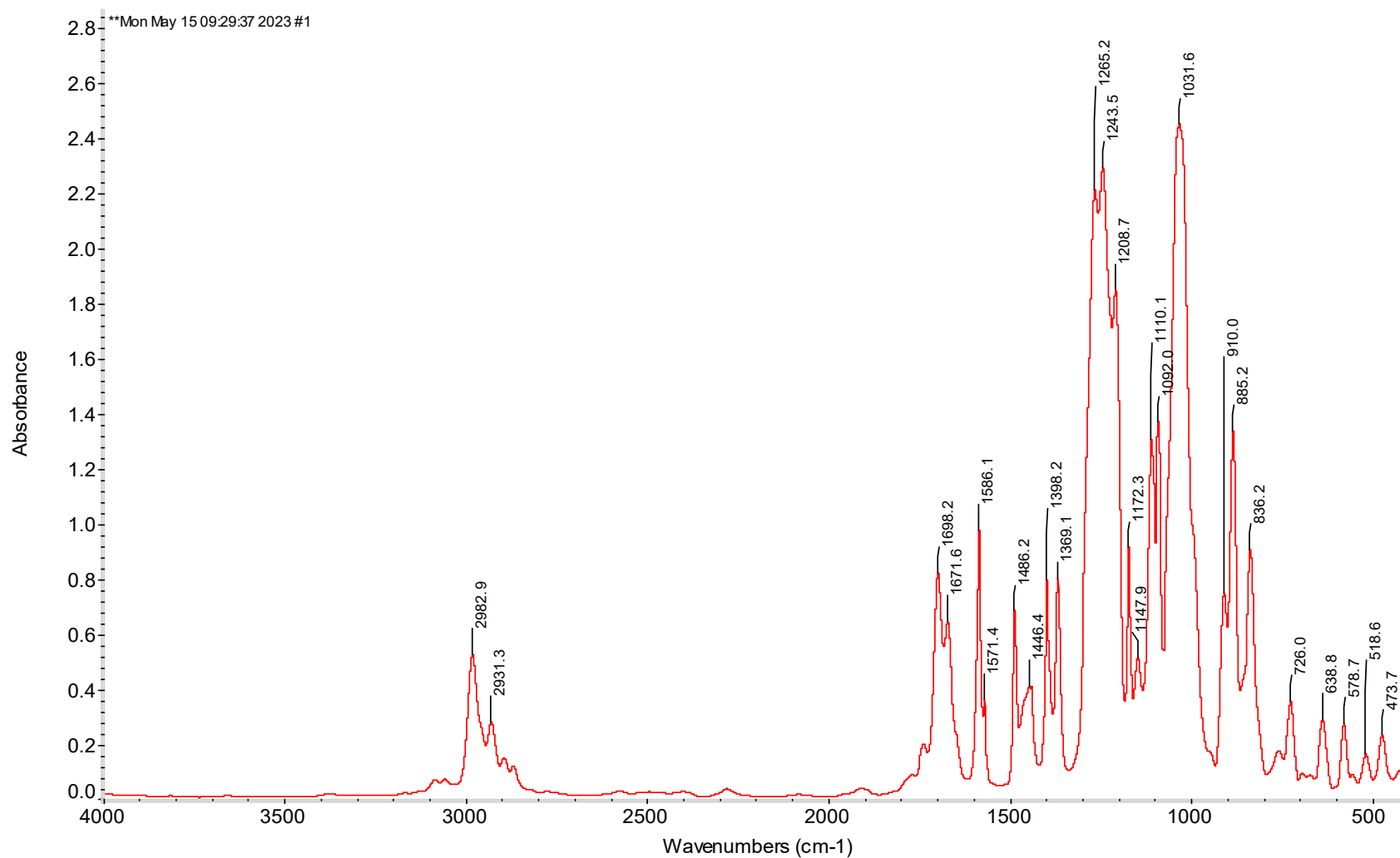


Figure S1. IR (KBr, ν , cm⁻¹) spectrum of 1-[1-(2,5-dimethoxyphenyl)-4-(naphthalene-1-yloxy)but-2-ynyl]-4-methylpiperazine.

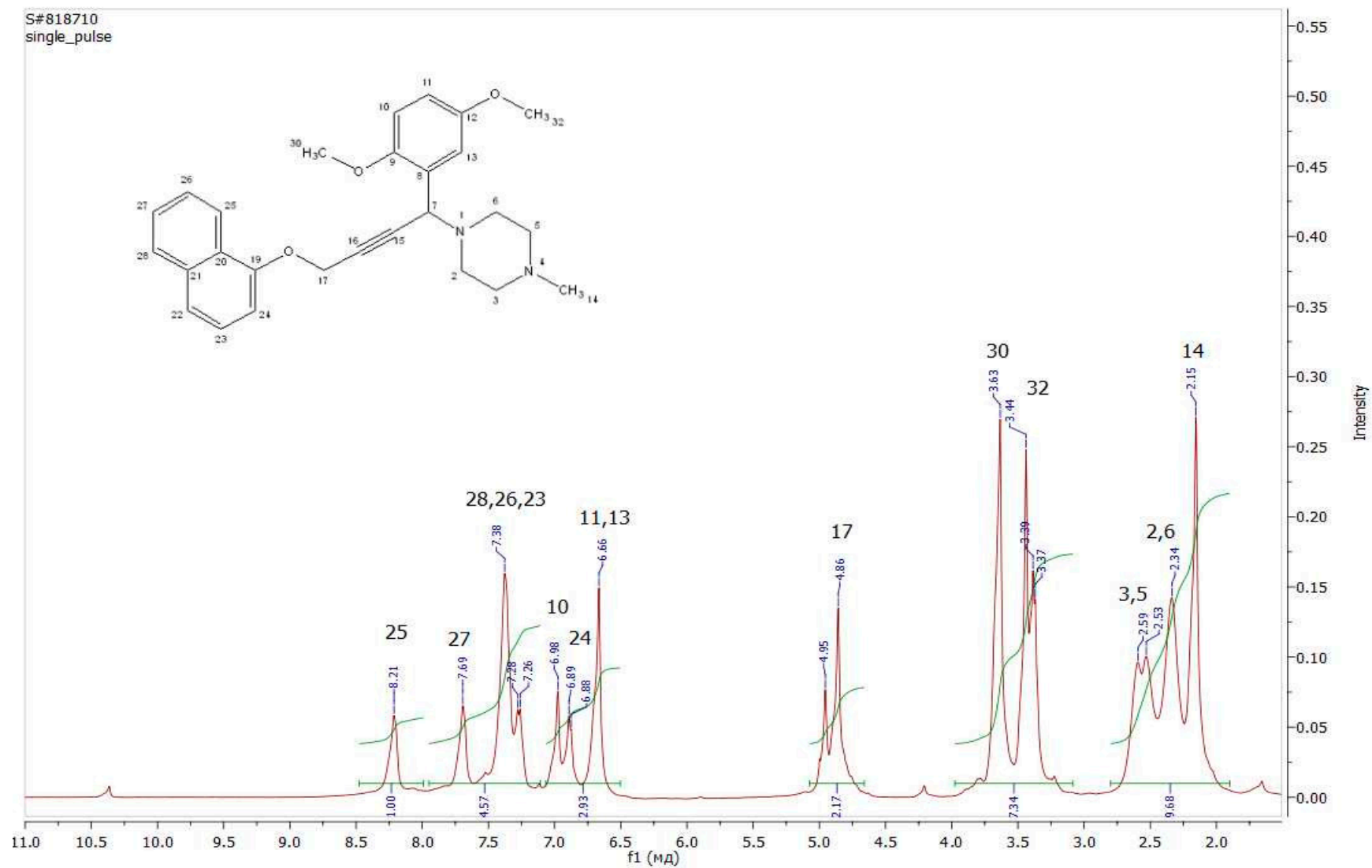


Figure S2. ¹H NMR (399.78 MHz, CDCl₃) spectrum of 1-[1-(2,5-dimethoxyphenyl)-4-(naphthalene-1-yloxy)but-2-ynyl]-4-methylpiperazine.

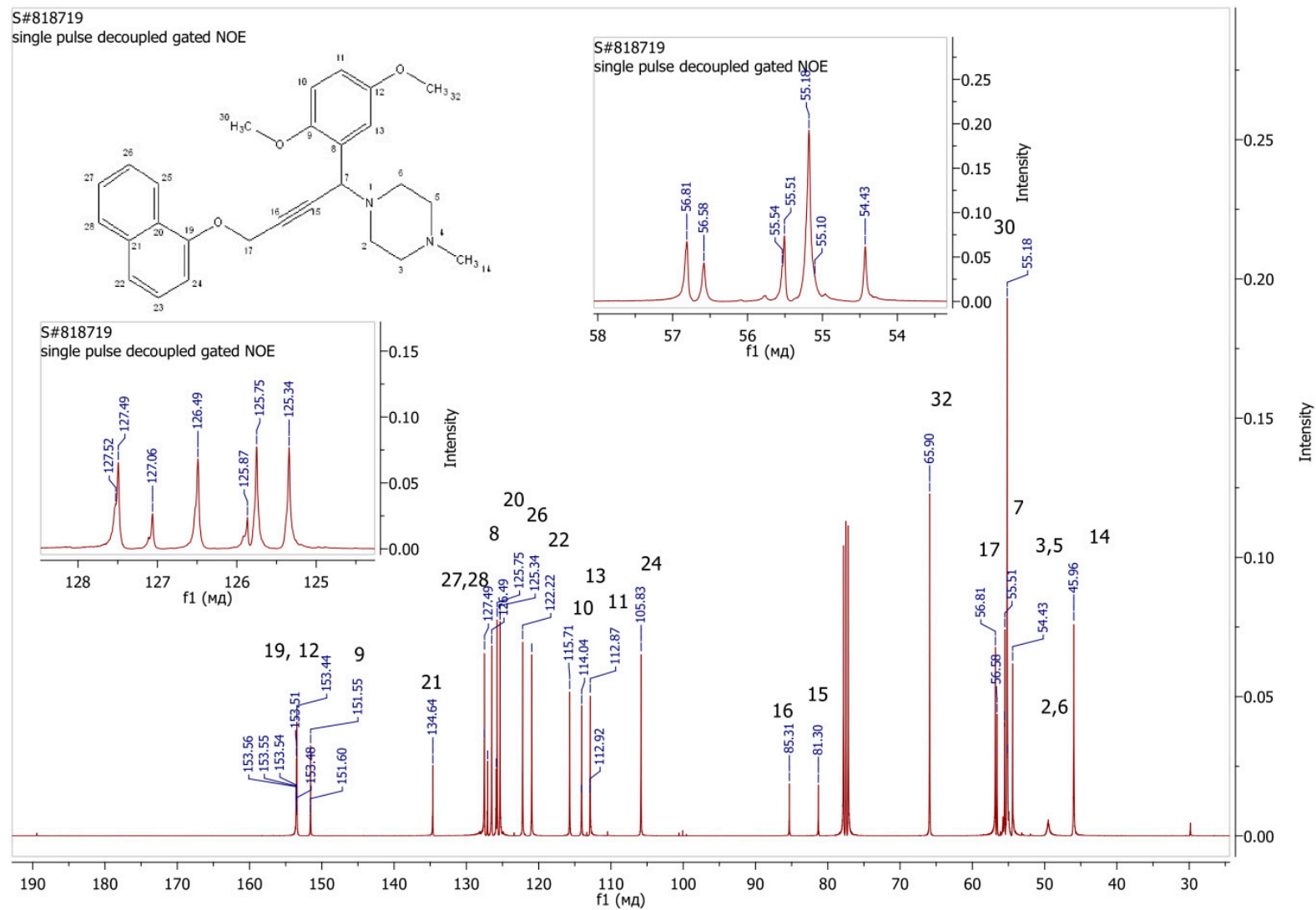


Figure S3. ¹³C NMR (100.53 MHz, CDCl₃) spectrum of 1-[1-(2,5-dimethoxyphenyl)-4-(naphthalene-1-yloxy)but-2-ynyl]-4-methylpiperazine.

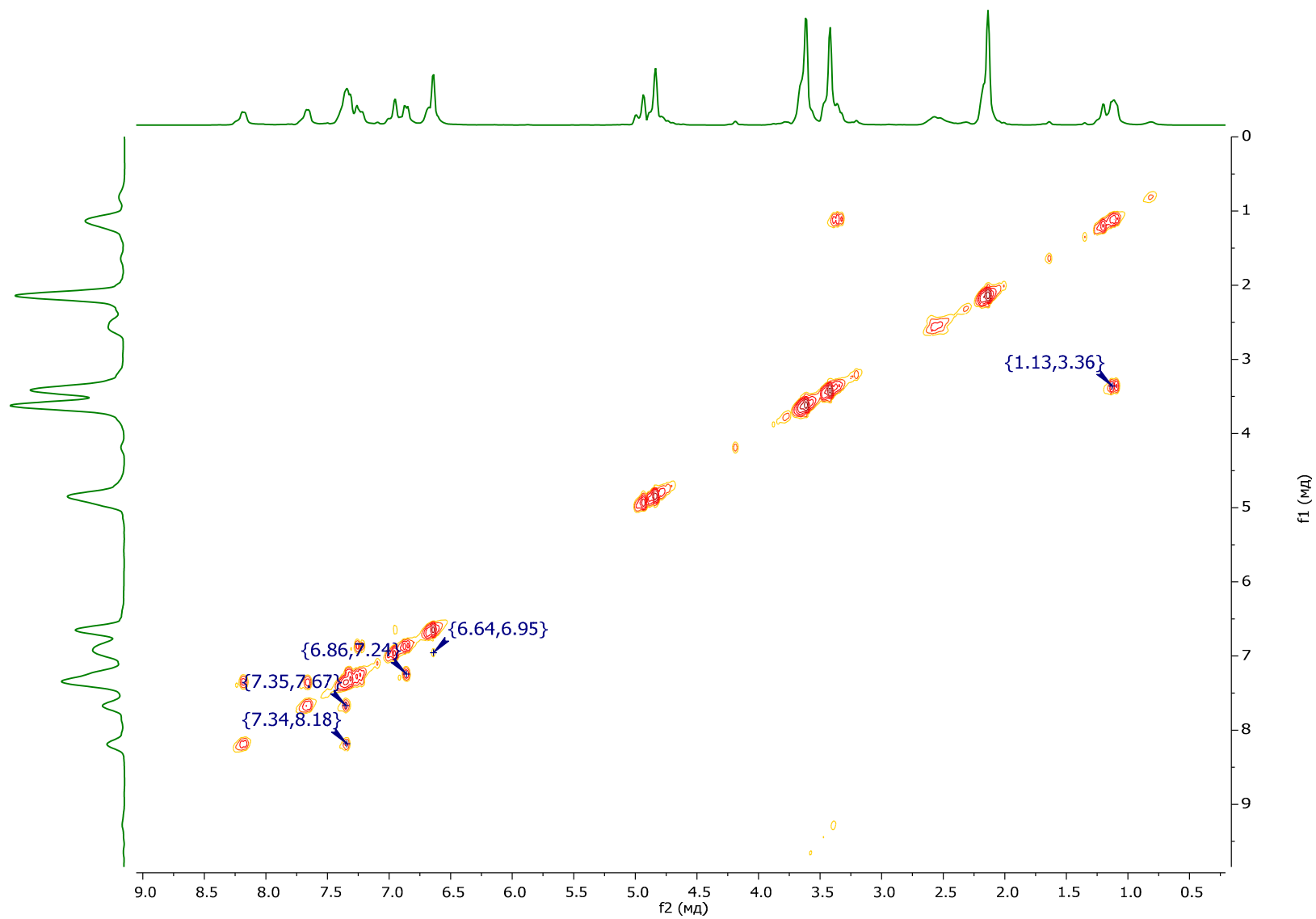


Figure S4. ^1H - ^1H COSY spectrum of 1-[1-(2,5-dimethoxyphenyl)-4-(naphthalene-1-yloxy)but-2-ynyl]-4-methylpiperazine.

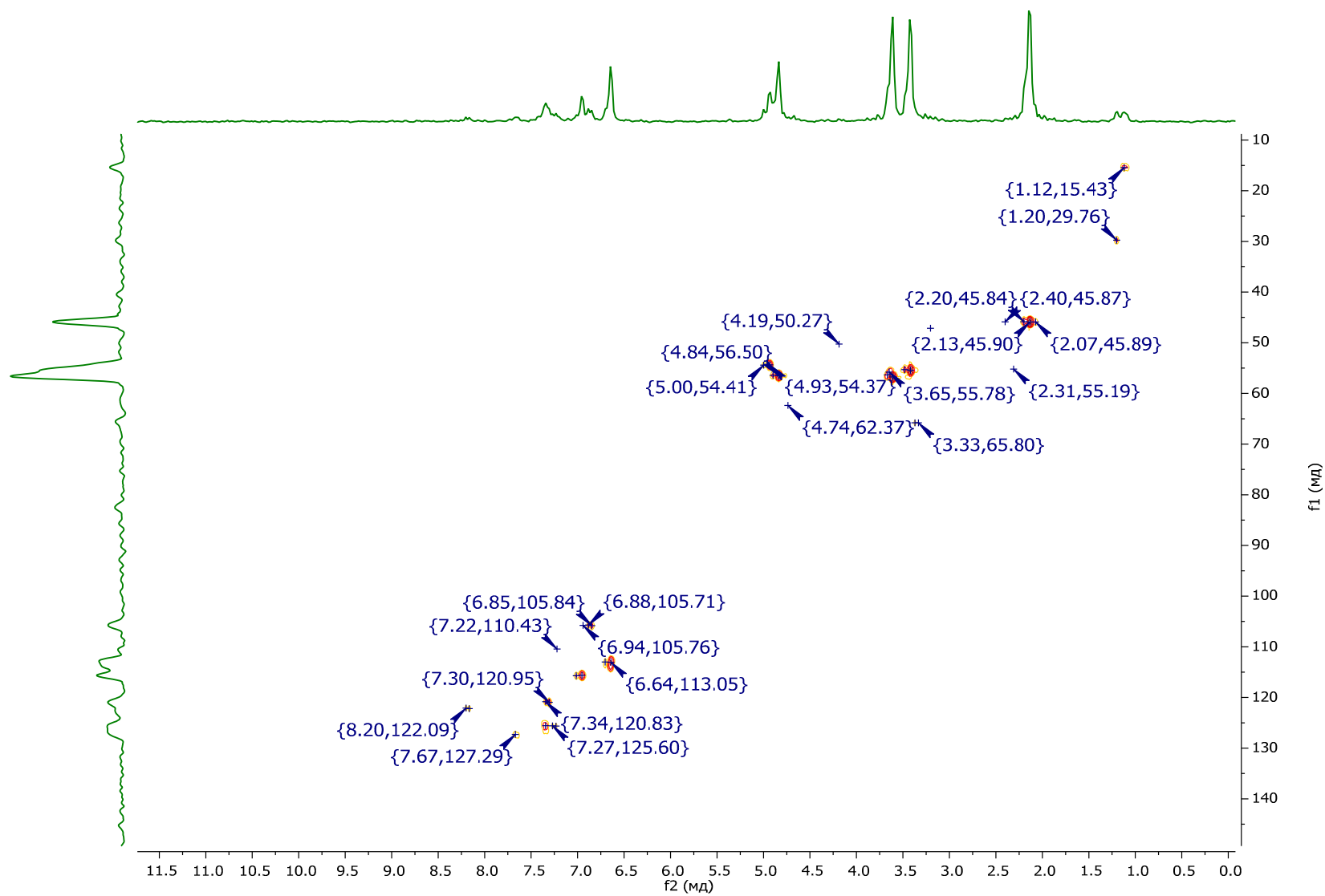


Figure S5. ^1H - ^{13}C HMQC spectrum of 1-[1-(2,5-dimethoxyphenyl)-4-(naphthalene-1-yloxy)but-2-ynyl]-4-methylpiperazine.

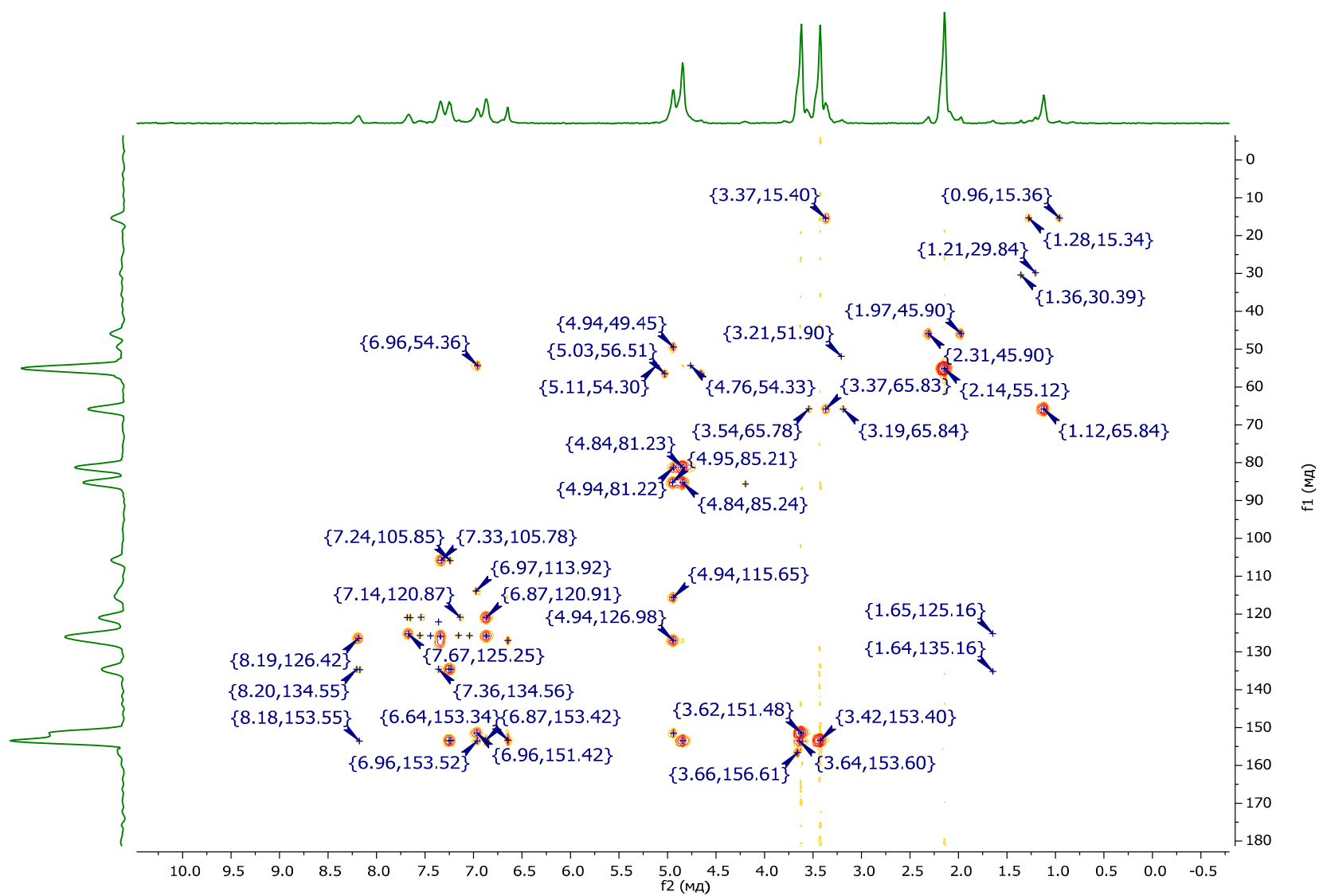


Figure S6. ^1H - ^{13}C HMBC spectrum of 1-[1-(2,5-dimethoxyphenyl)-4-(naphthalene-1-yloxy)but-2-ynyl]-4-methylpiperazine.

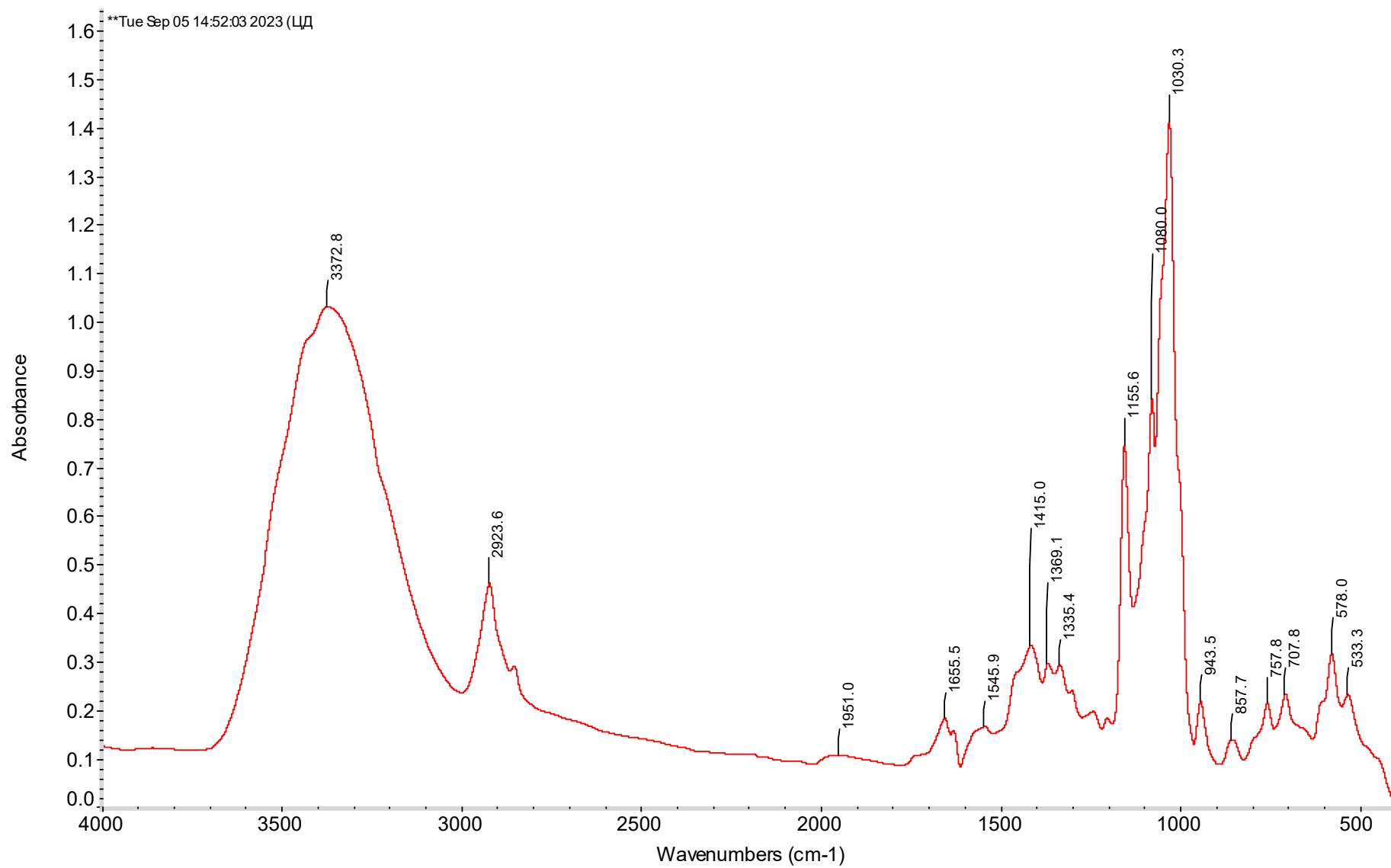


Figure S7. IR (KBr, ν , cm⁻¹) spectrum of β -cyclodextrin (β -CD).

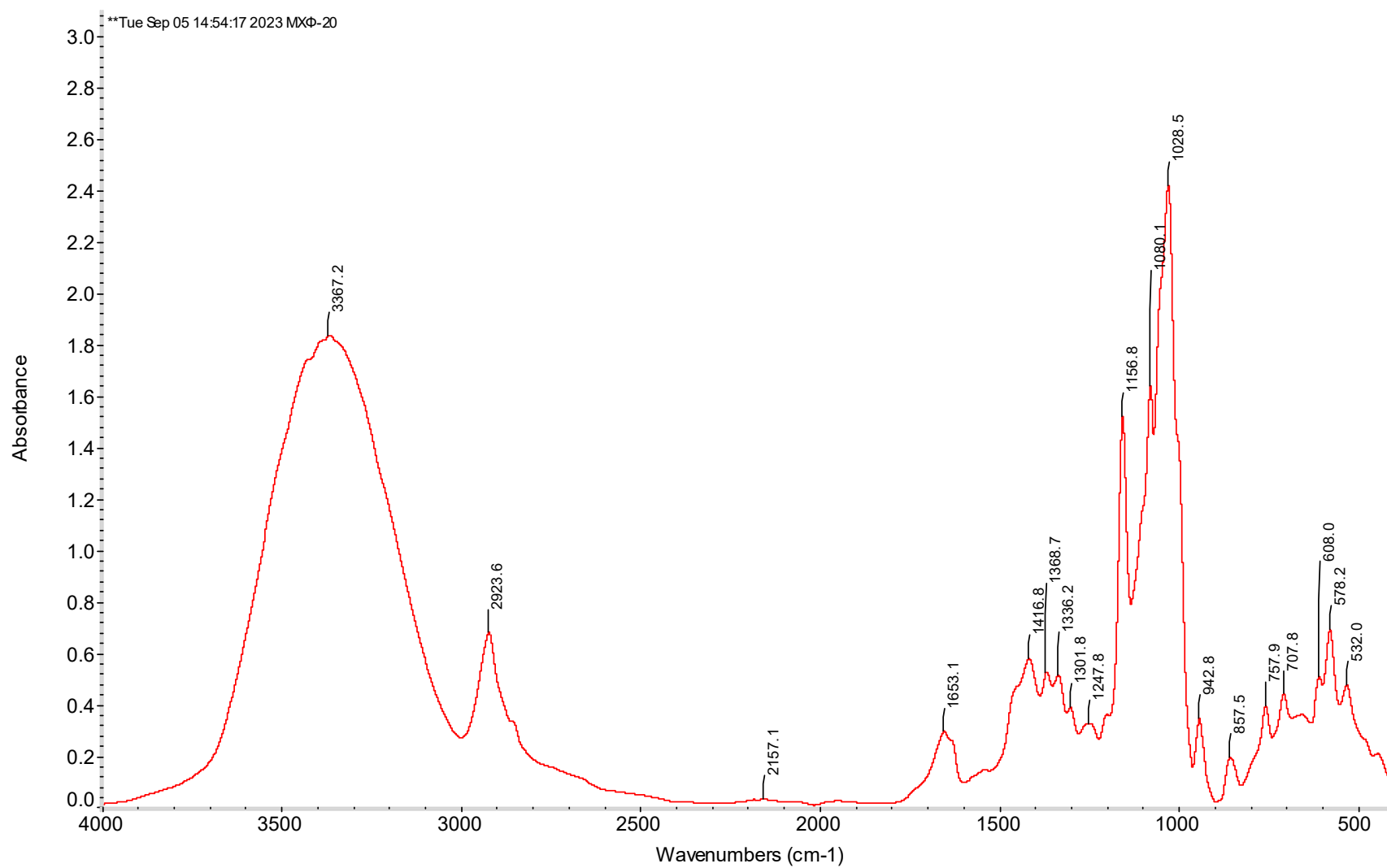


Figure S8. IR (KBr, ν , cm⁻¹) spectrum of 1-[1-(2,5-dimethoxyphenyl)-4-(naphthalene-1-yloxy)but-2-ynyl]-4-methylpiperazine with β -cyclodextrin (*complex*).

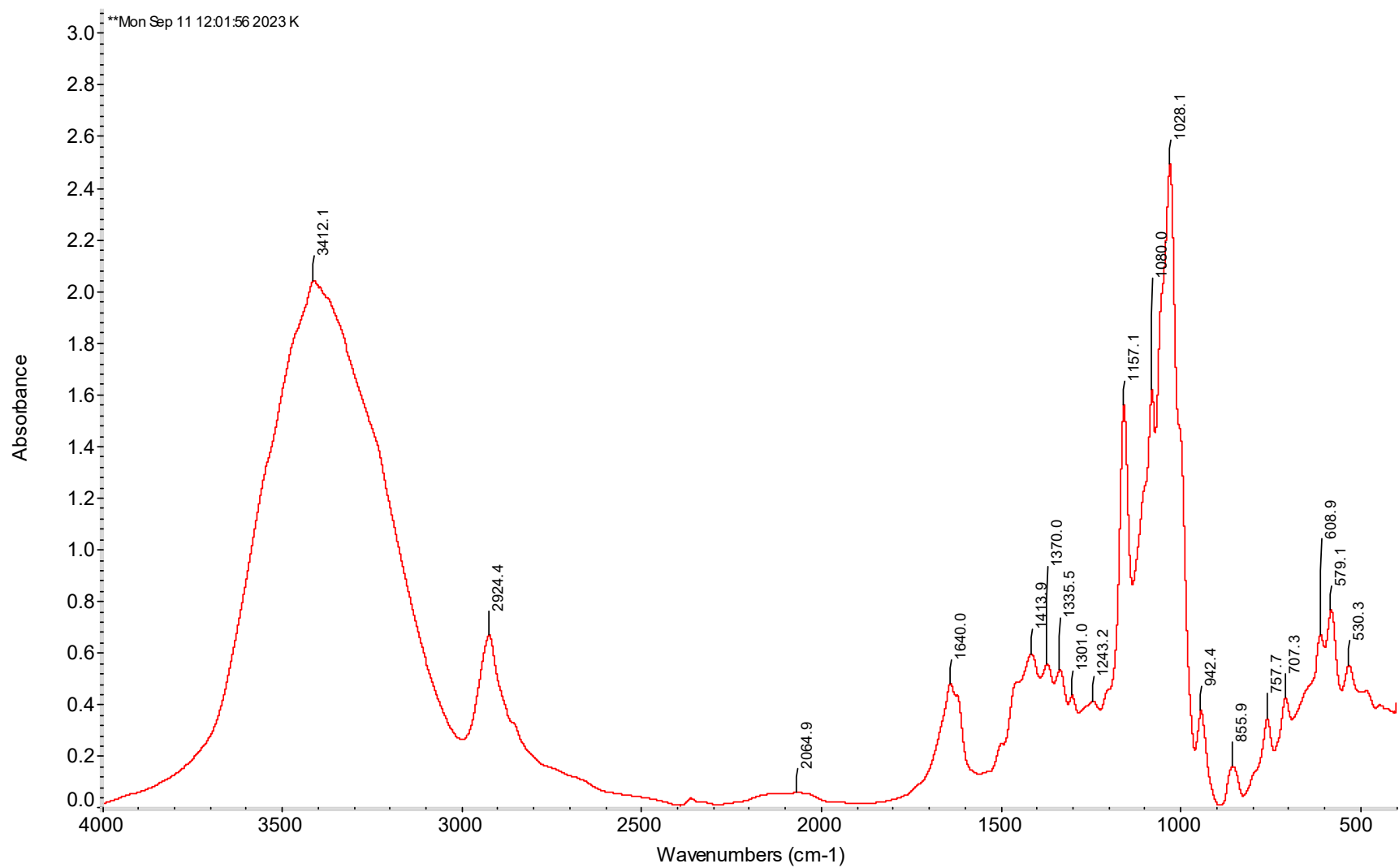


Figure S9. IR (KBr, ν , cm^{-1}) spectrum of 1-[1-(2,5-dimethoxyphenyl)-4-(naphthalene-1-yloxy)but-2-ynyl]-4-methylpiperazine with β -cyclodextrin (physical mixture)