Supplementary Material

Synthesis of optically active vicinal fluorocyclopentanols and fluorocyclopentanamines by enzymatic deracemization

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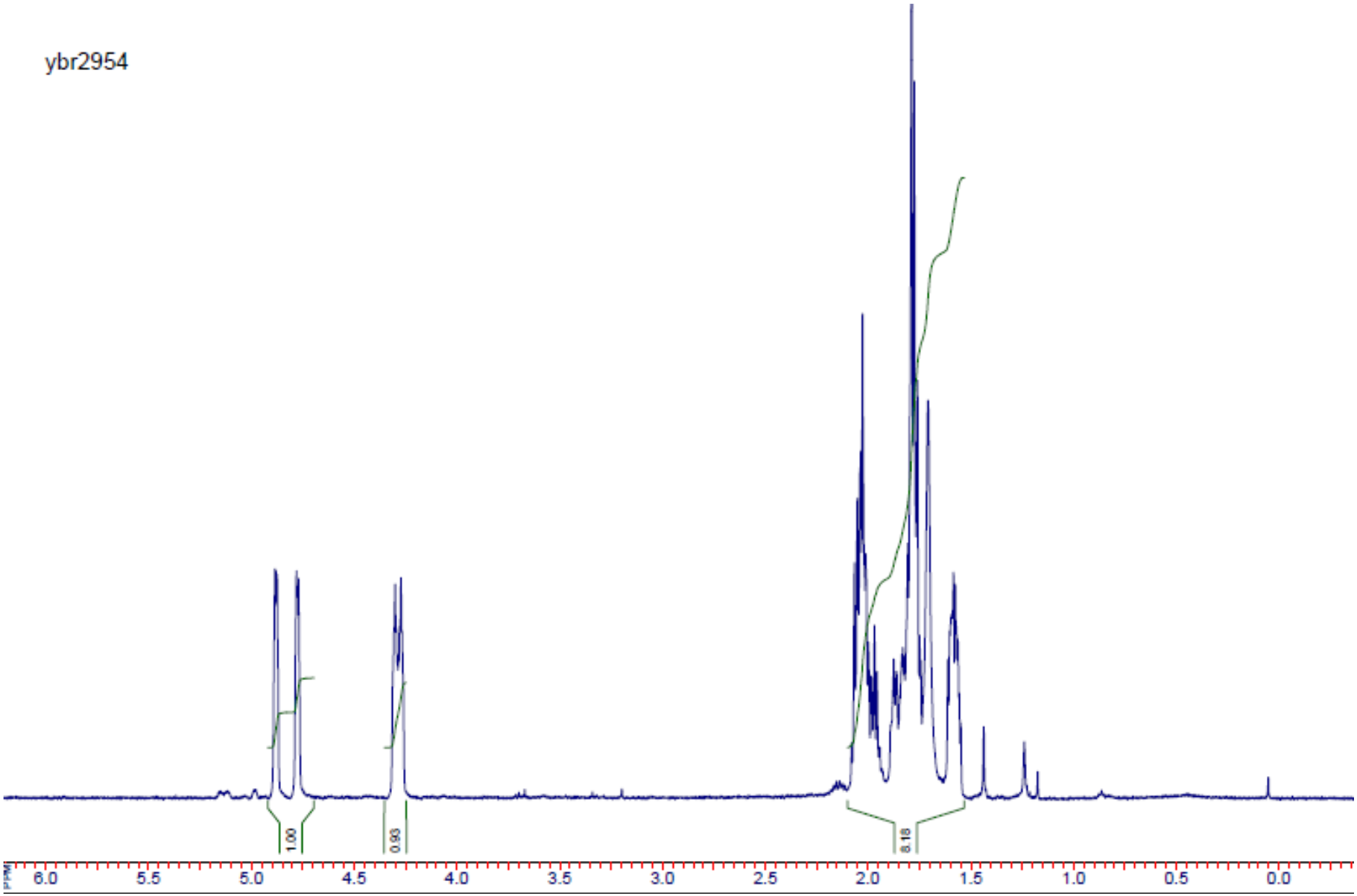
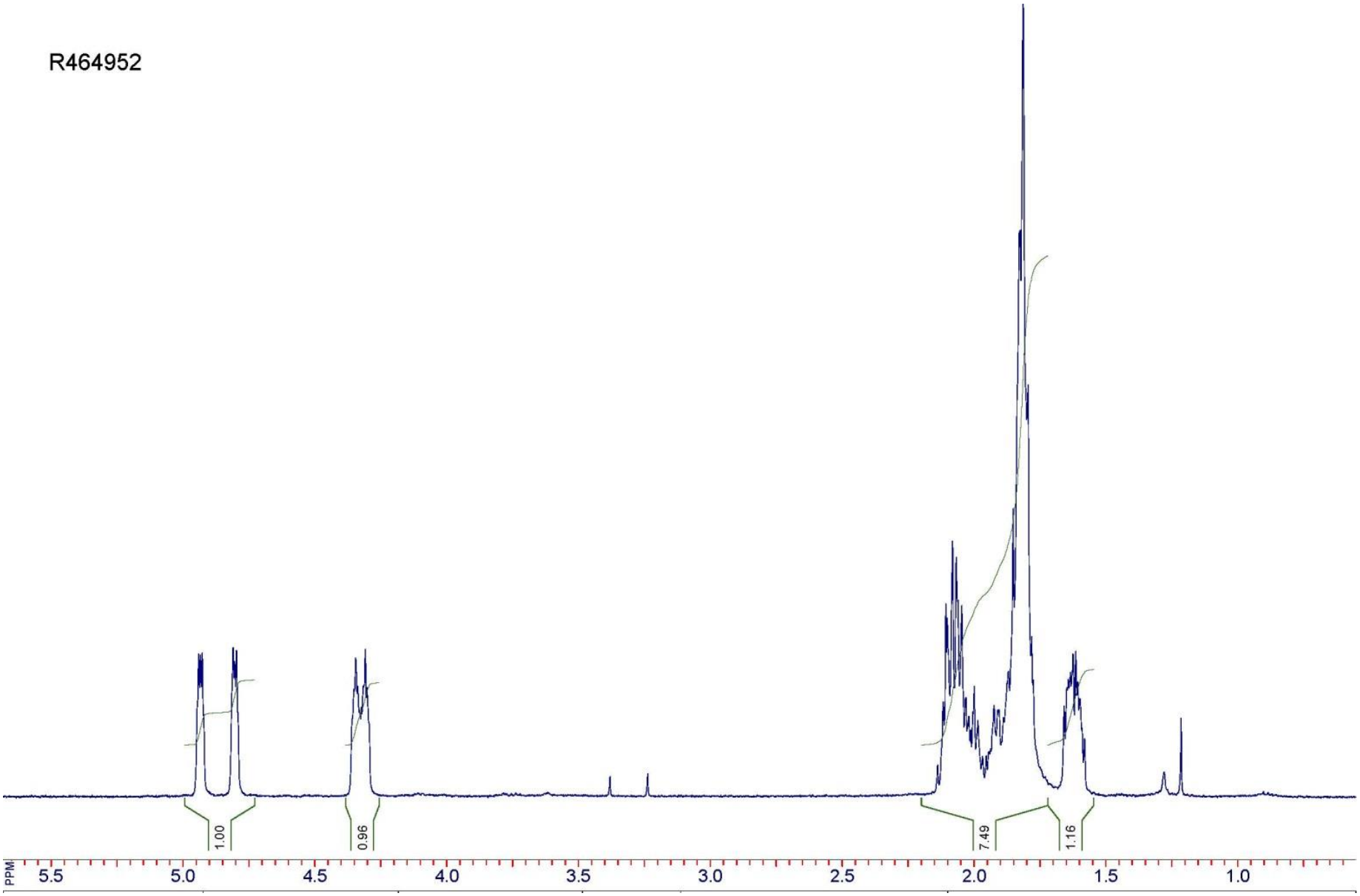
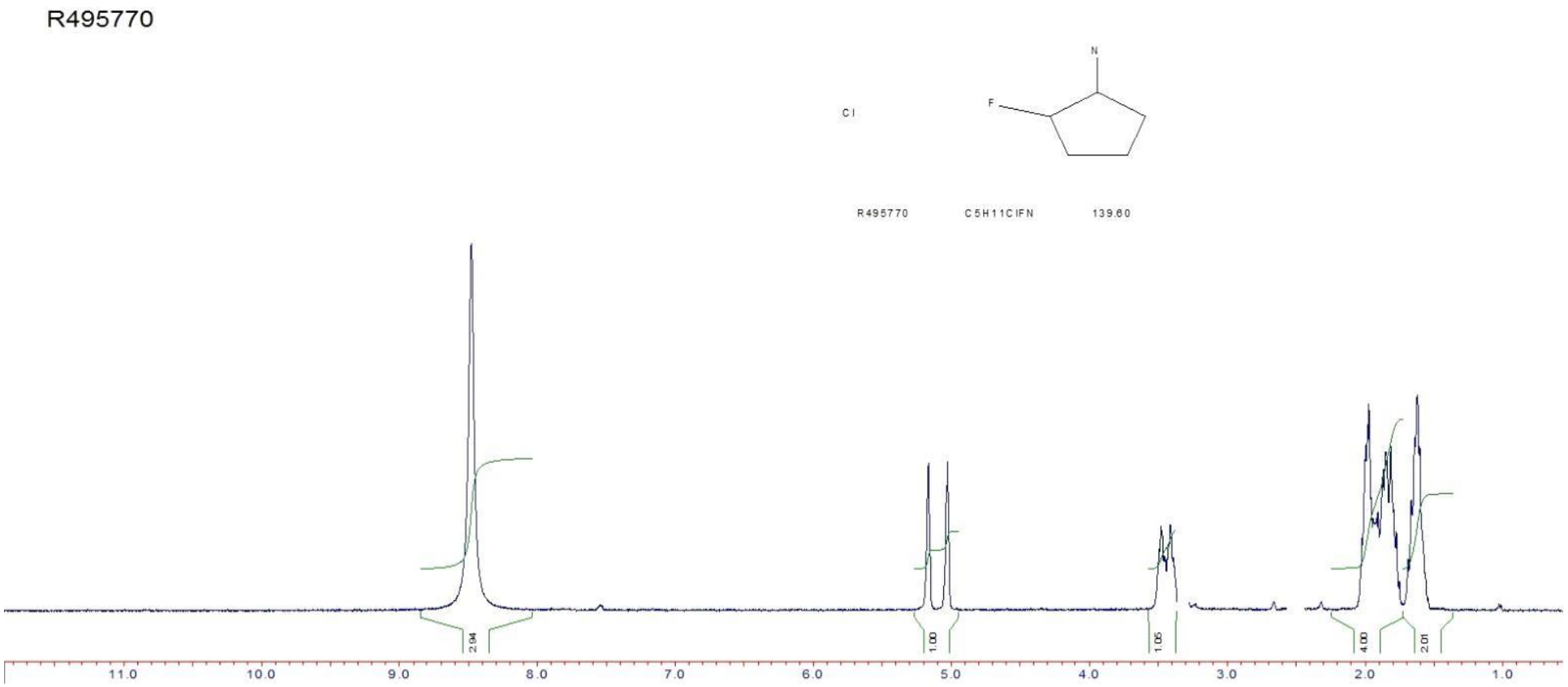


^{1}H NMR spectrum (500MHz, $CDCl_3$) of (*R,R*)-2-fluorocyclopentan-1-ol **4**

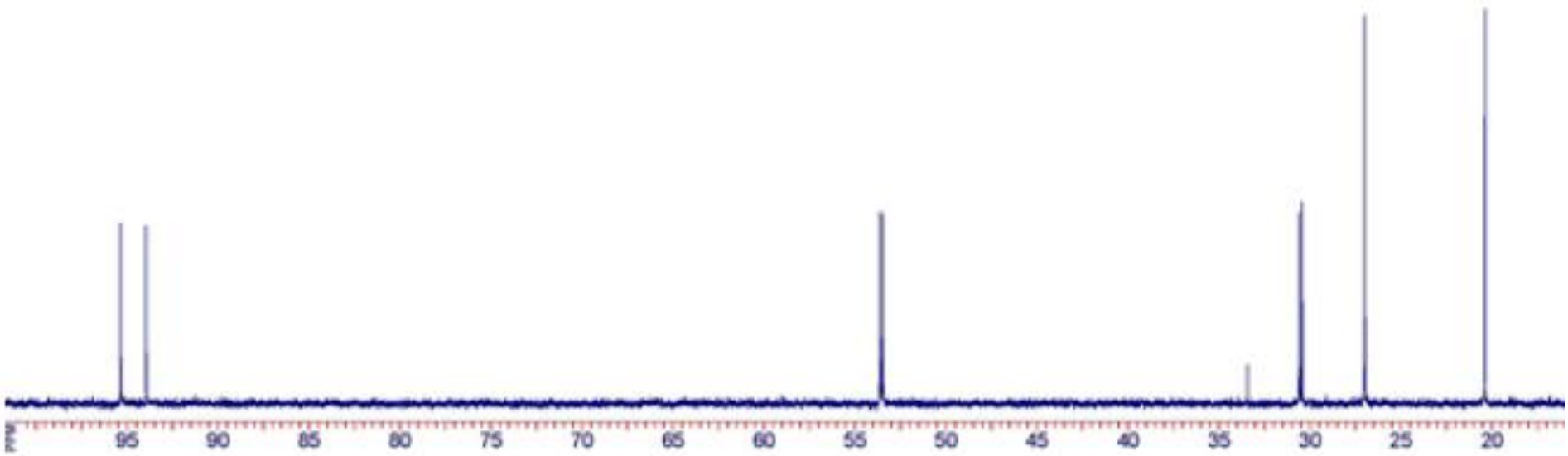


^{1}H NMR spectrum (500MHz, $CDCl_3$) of (*S,S*)-2-fluorocyclopentan-1-ol **3**

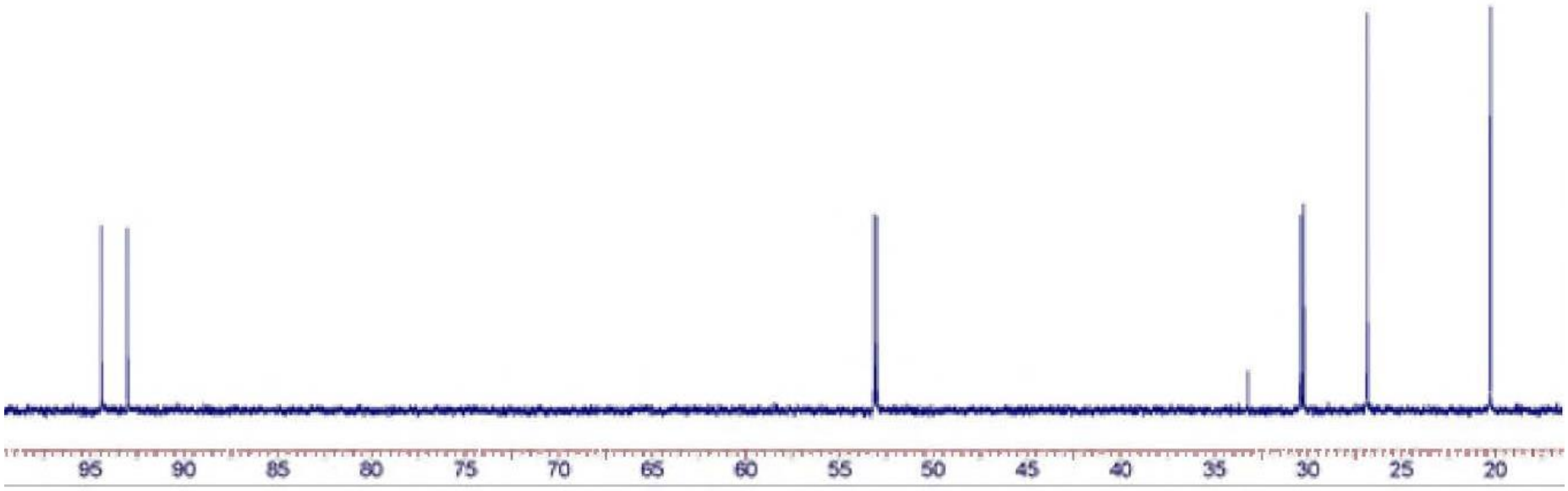
^{1}H NMR spectrum (500 MHz, DMSO-d6) of (1*S*,2R)-fluorocyclopentane-1-amine hydrochloride **14**



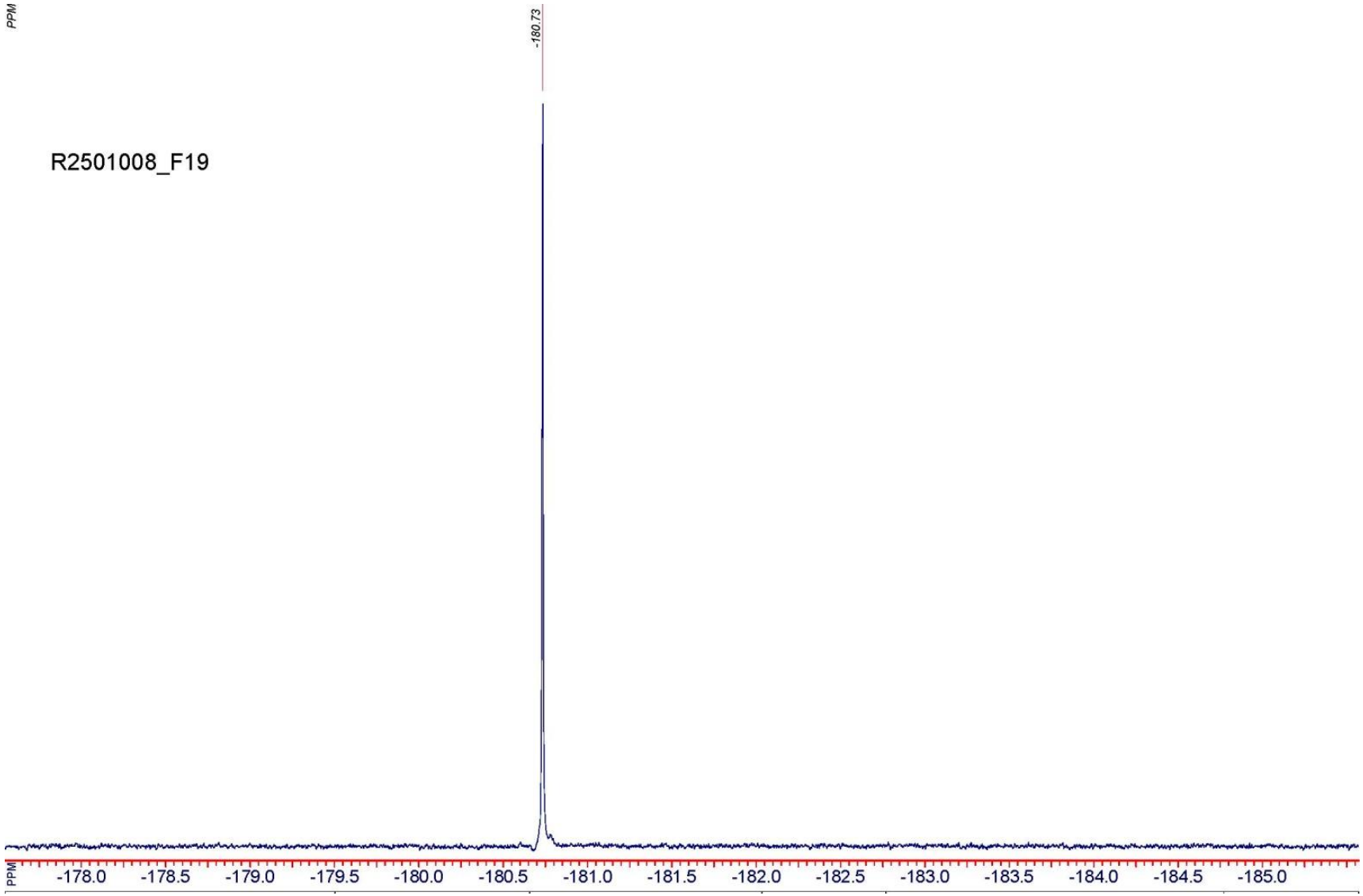
^{1}H NMR spectrum (500 MHz, DMSO-d6) of (1*R*,2*S*)-fluorocyclopentane-1-amine hydrochloride **12**



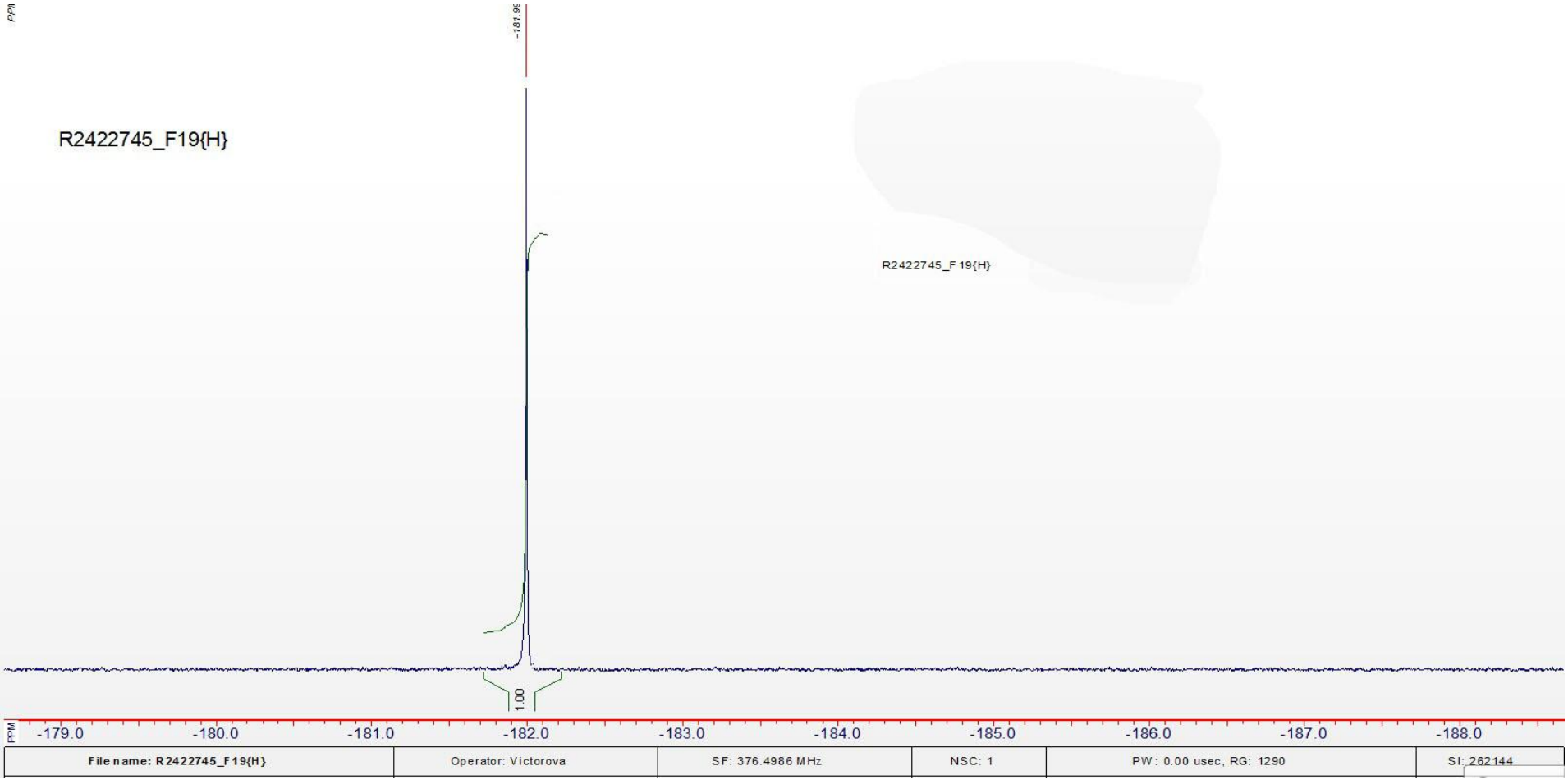
^{13}C NMR spectrum of (*R,S*)-2-fluorocyclopentan-1-ol **2**



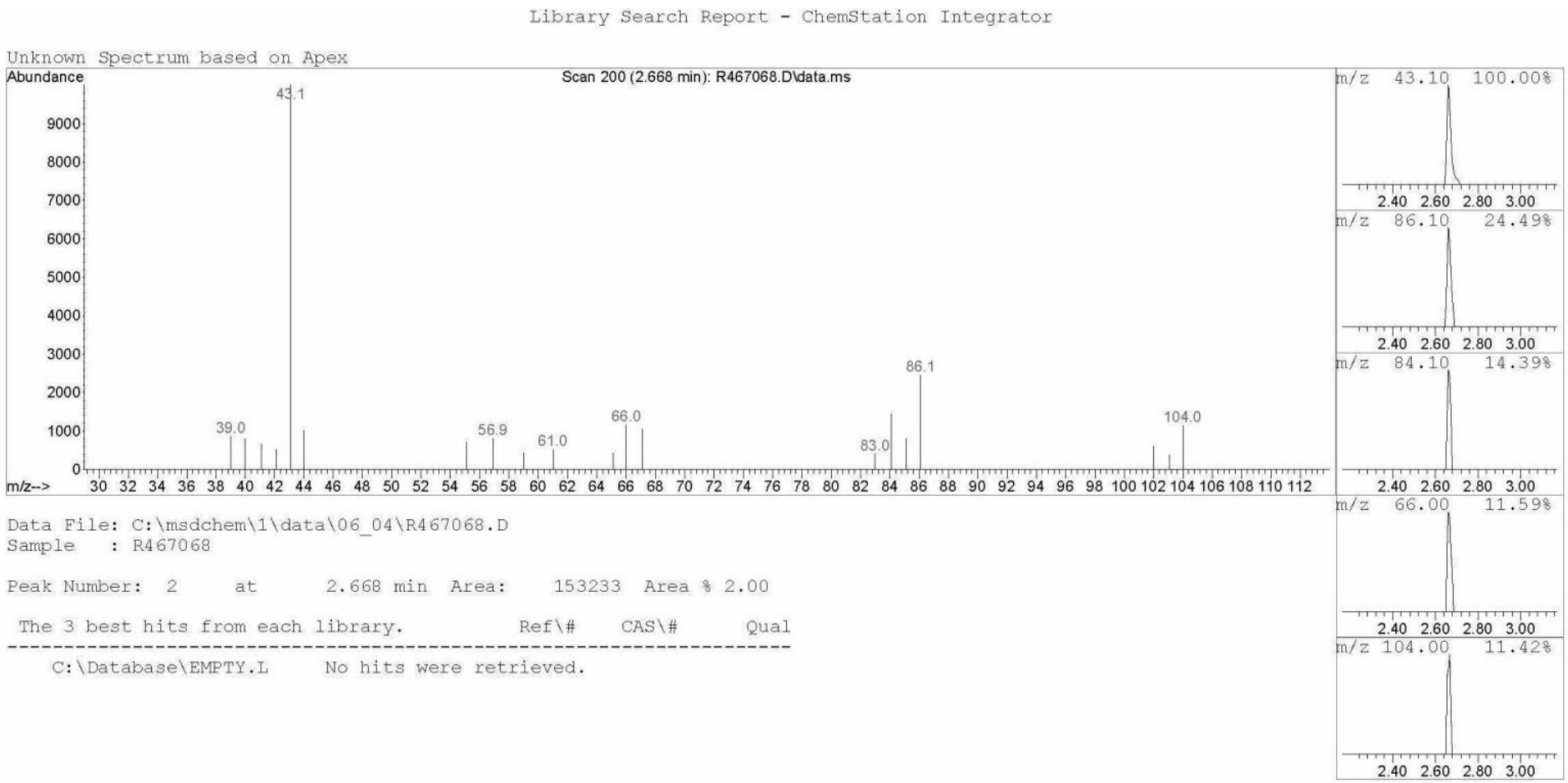
^{13}C NMR spectrum of (*S,R*)-2-fluorocyclopentan-1-ol **1**



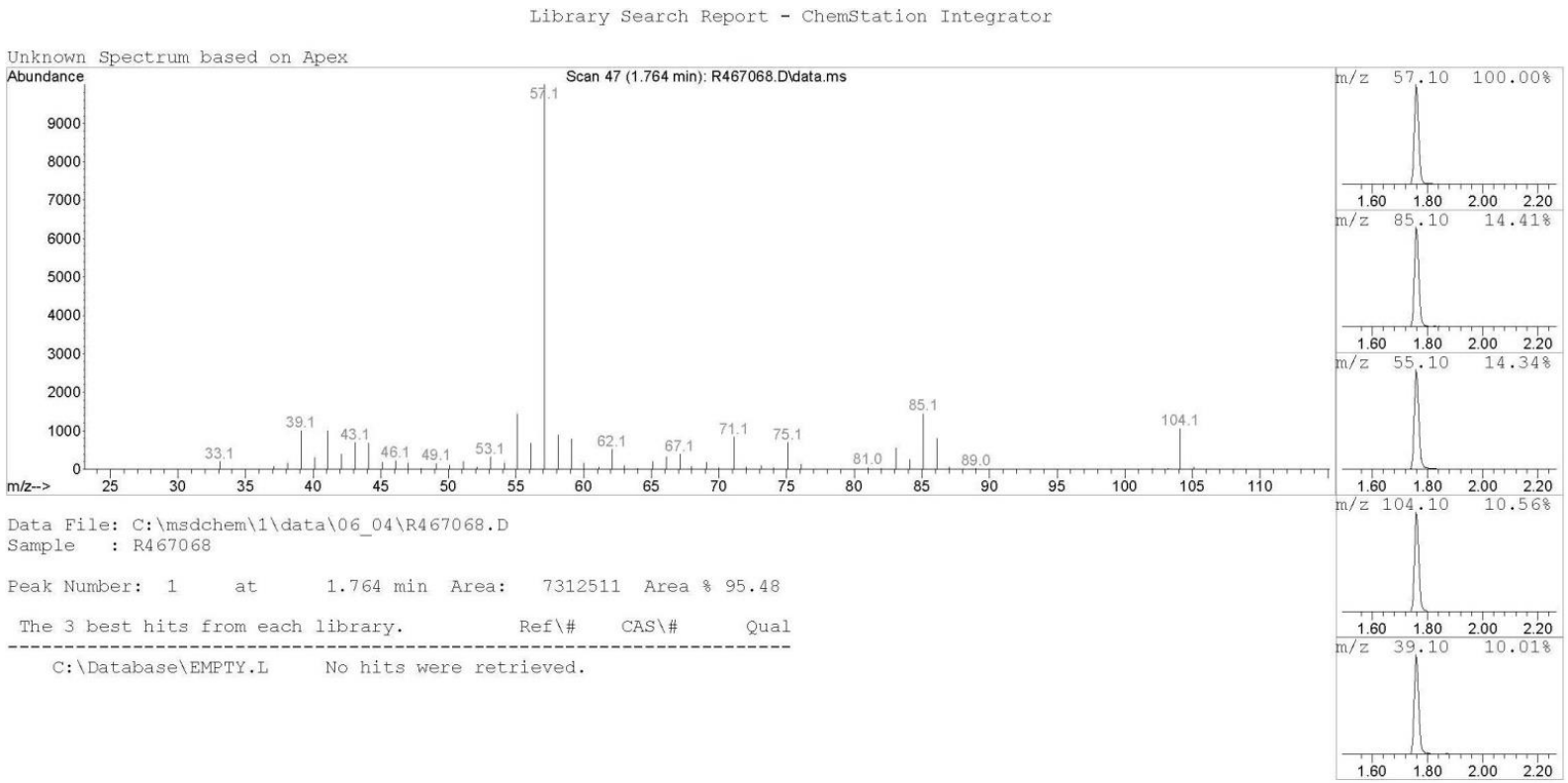
^{19}F NMR spectrum ($CDCl_3$) of (*S,S*)-2-fluorocyclopentan-1-ol **3**



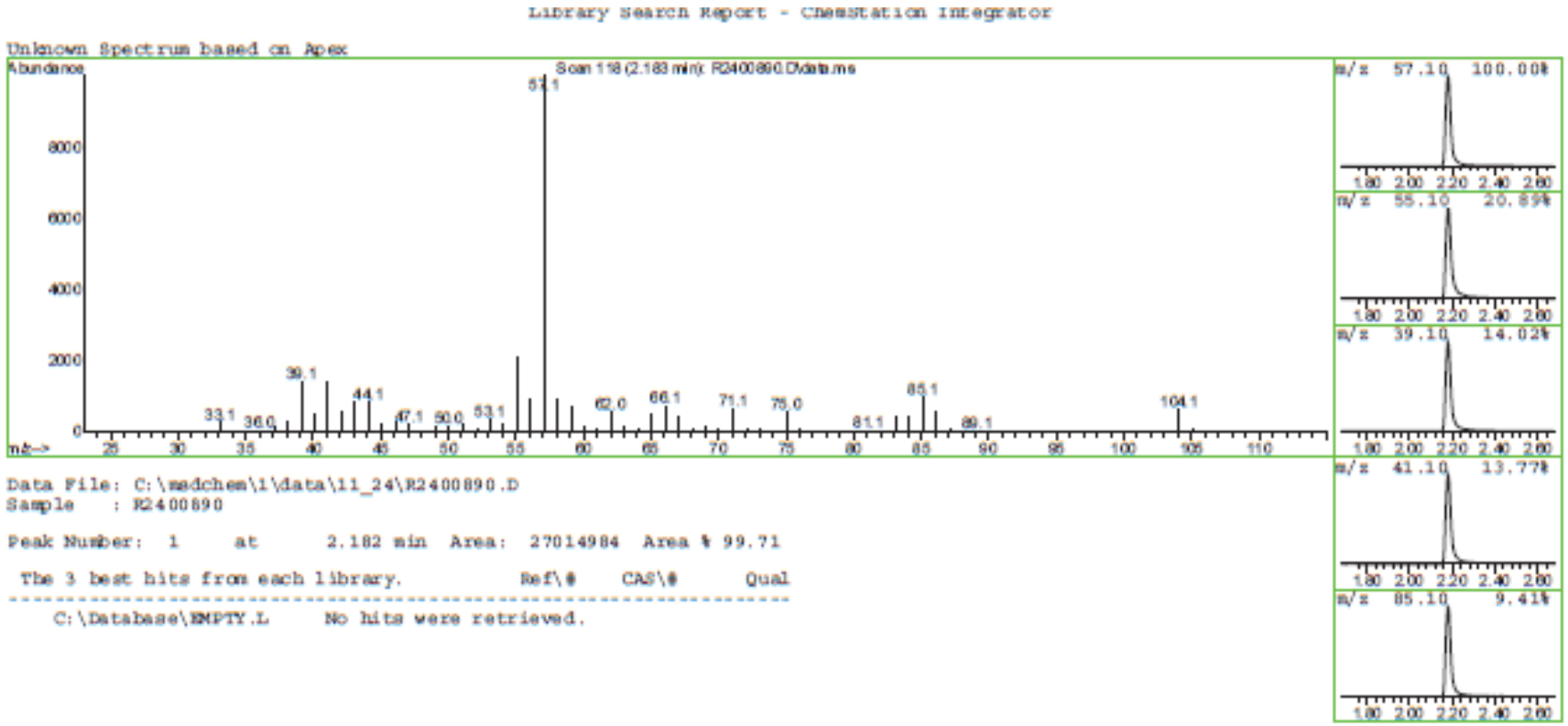
^{19}F NMR spectrum of (*R,S*)-2-fluorocyclopentan-1-ol **2**



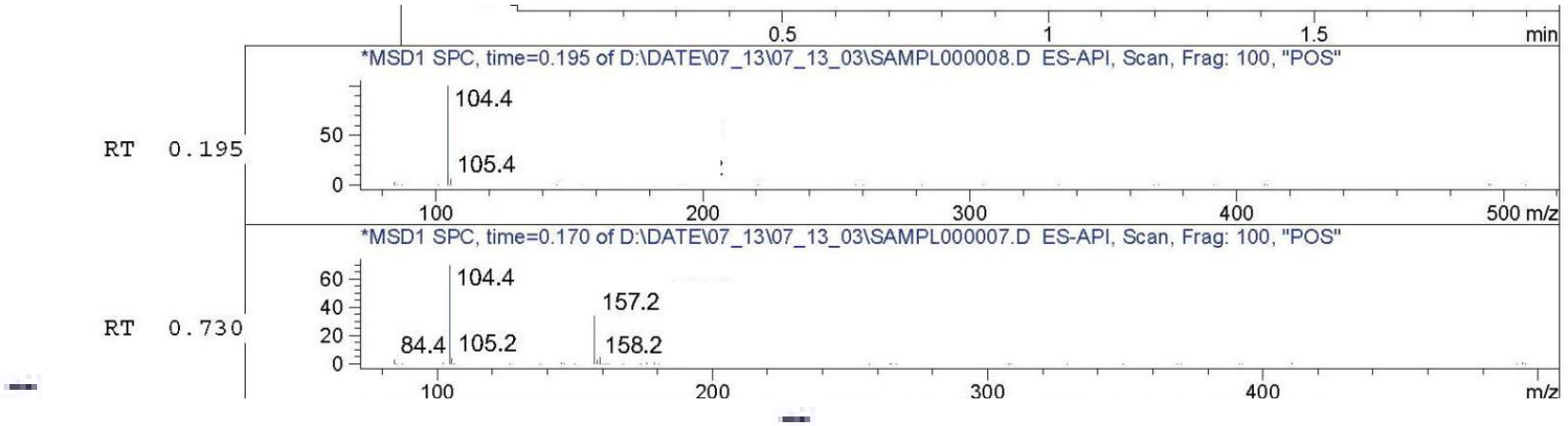
Mass spectrum of (1*R*,2*S*)-2-fluorocyclopentan-1-ol **3**



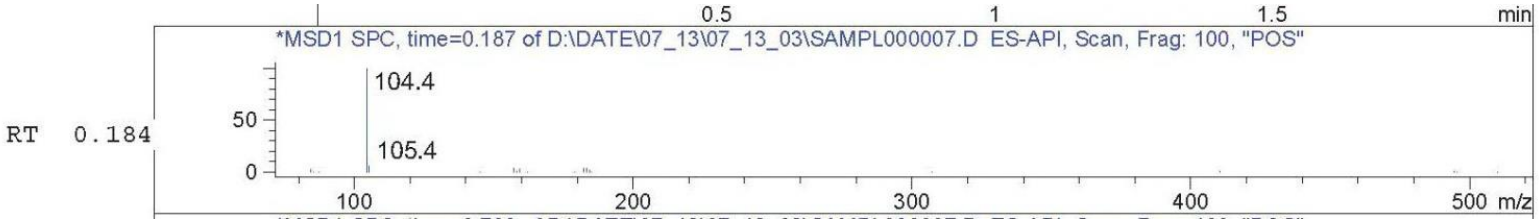
Mass-spectrum of (*R,R)*-2-Fluorocyclopentane-1-ol **4**



Mass –spectrum of (*S,S*)-2-fluorocyclopentan-1-ol **3**

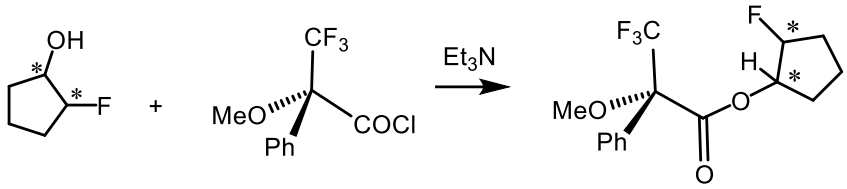


Mass-spectrum of (1*S*,2*R*)-2-fluorocyclopentane-1-amine hydrochloride



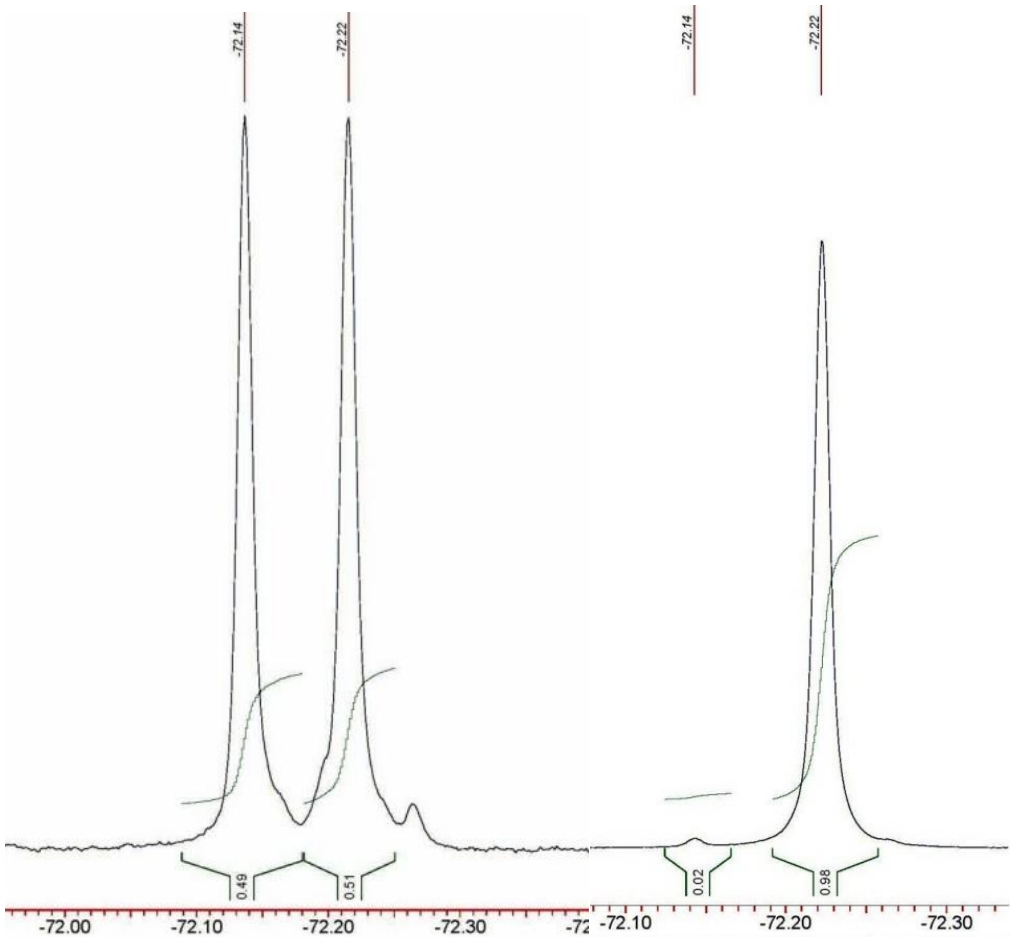
Mass-spectrum of (1*R*,2*S*)-2-fluorocyclopentane-1-amine hydrochloride **13**

Determination of optical purity of resolved stereoisomers

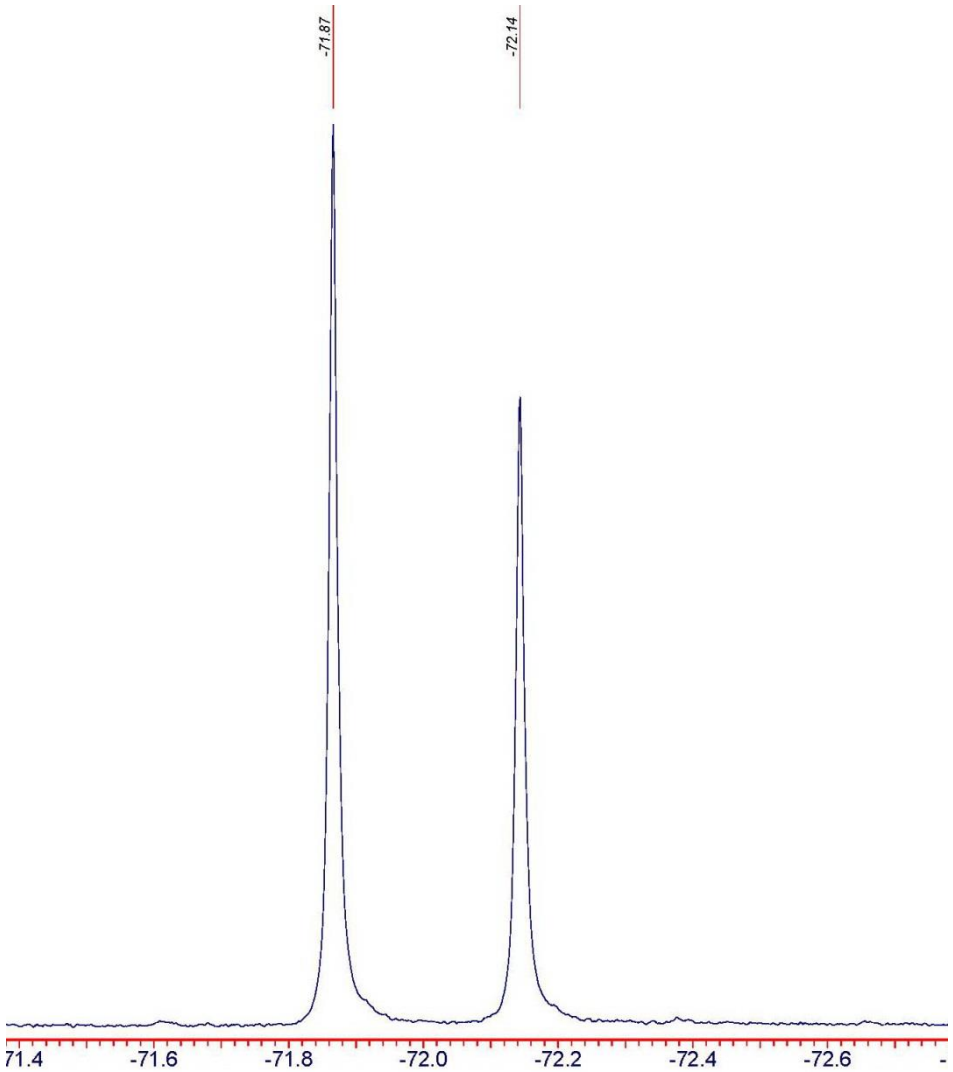


a) To 10 mg (4.7 mmol) of racemic 2,1-bromoindanol and 0.01 ml of triethylamine in 2 ml of diethyl ether was added 13 mg (5.17 mmol) of Mosher acid chloride in the solution of 1 ml of diethyl ether with stirring and cooling to −20 °C. After 10 min, the reaction mixture was centrifuged; the solvent was evaporated in vacuo, 1 ml of $CDCl_3$ was added to the residue, the solution was placed to NMR tube, ^{1}H and ^{19}F NMR spectroscopic analyses were performed (See NMR spectra below);

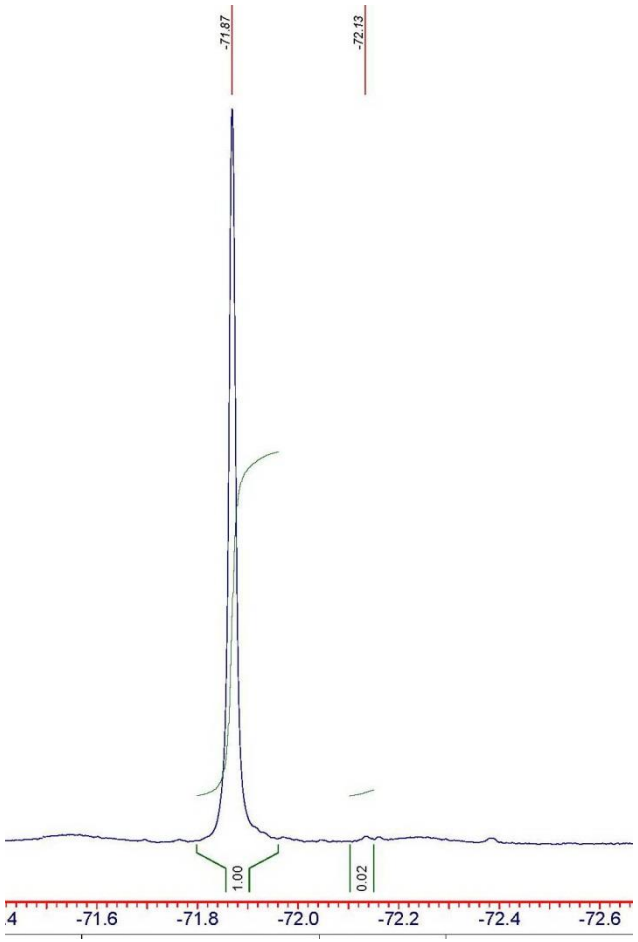
b) The resolved 2-bromo-2,3-dihydro-1H-inden-1-ol stereoisomers were analyzed analogously (See NMR spectra) below.



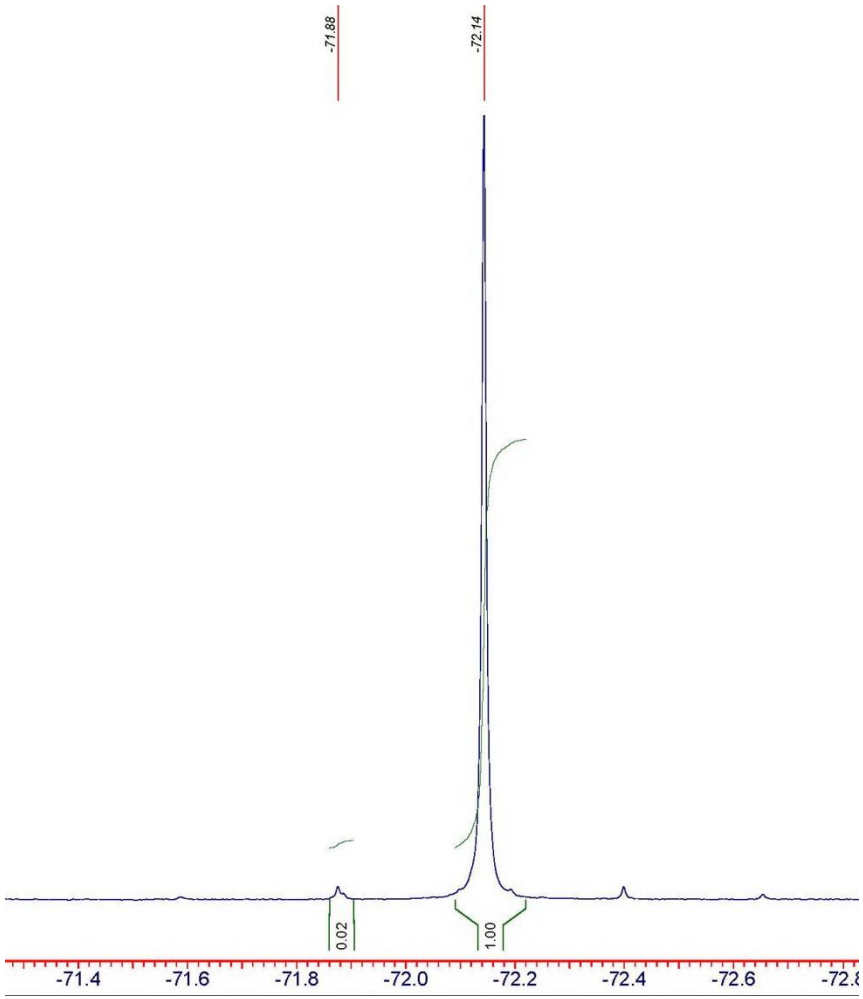
^{19}F Spectra of Mosher derivative of 2-fluorocyclopentan-1-ol: A) racemate; B) (1*S*,2*R*)-Stereoisomer **1**



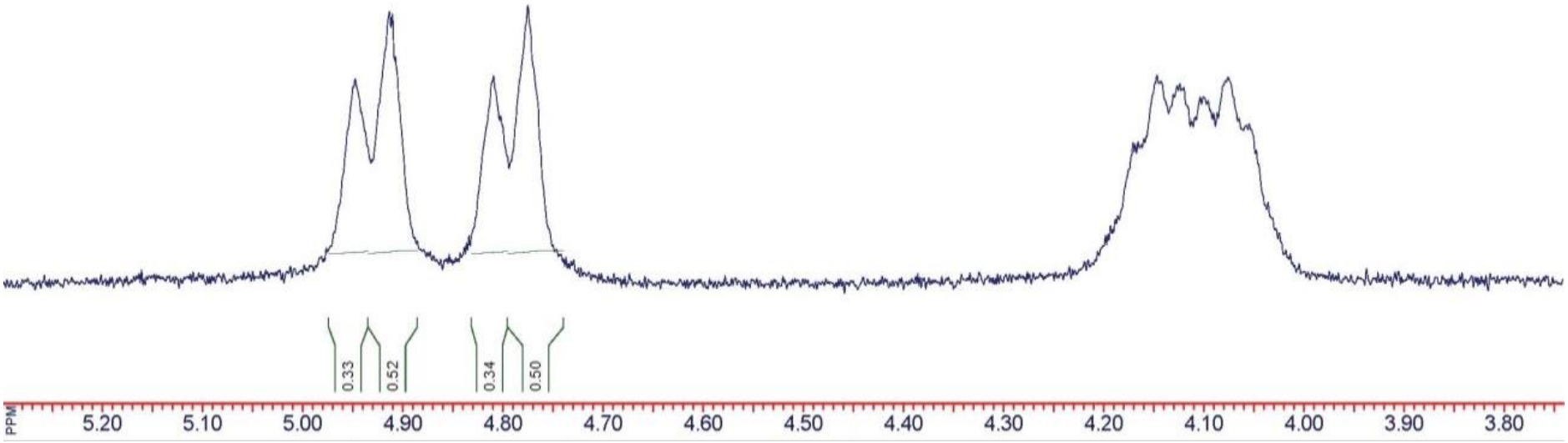
^{19}F Spectra of Mosher derivative of (*rac*)-2-fluorocyclopentan-1-ol



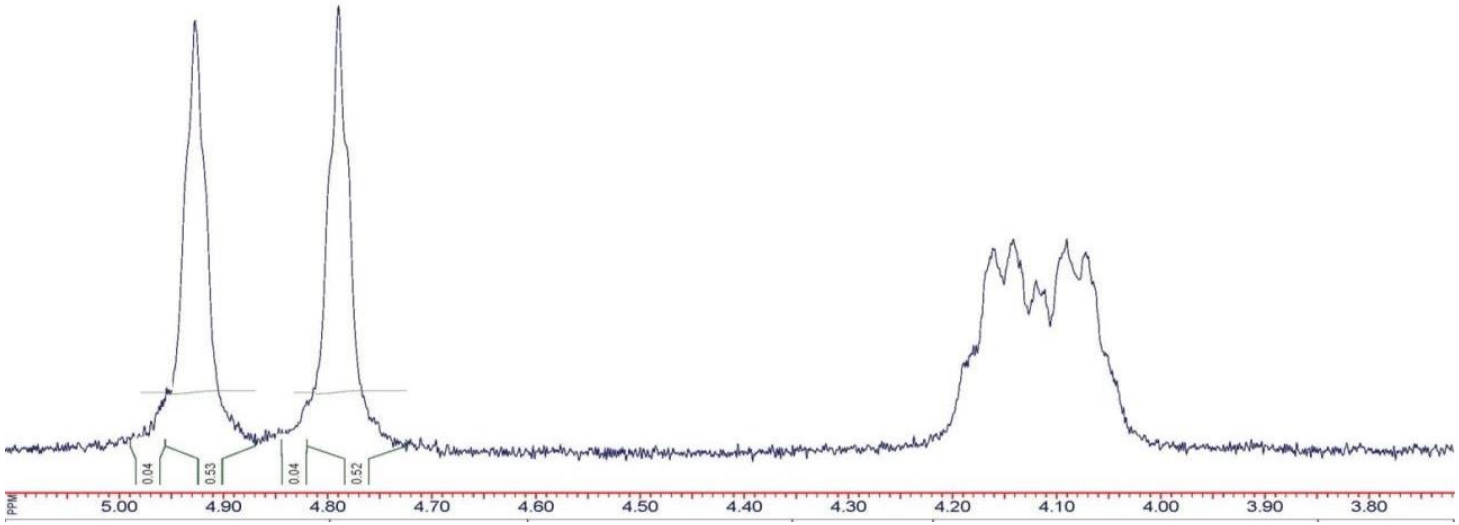
^{19}F Spectra of Mosher derivative of (*R,S*)-2-fluorocyclopentan-1-ol **2**



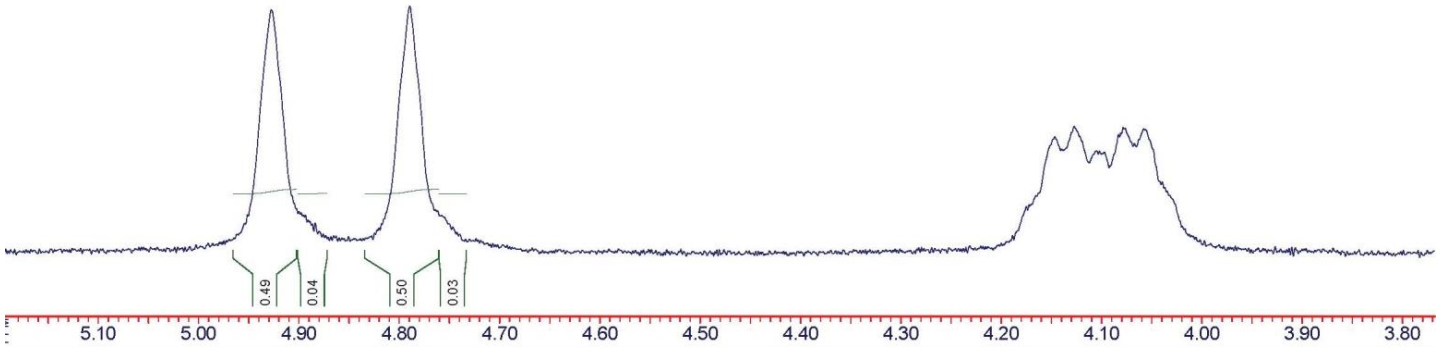
^{19}F Spectra of Mosher derivative of (*S,R*)-2-fluorocyclopentan-1-ol



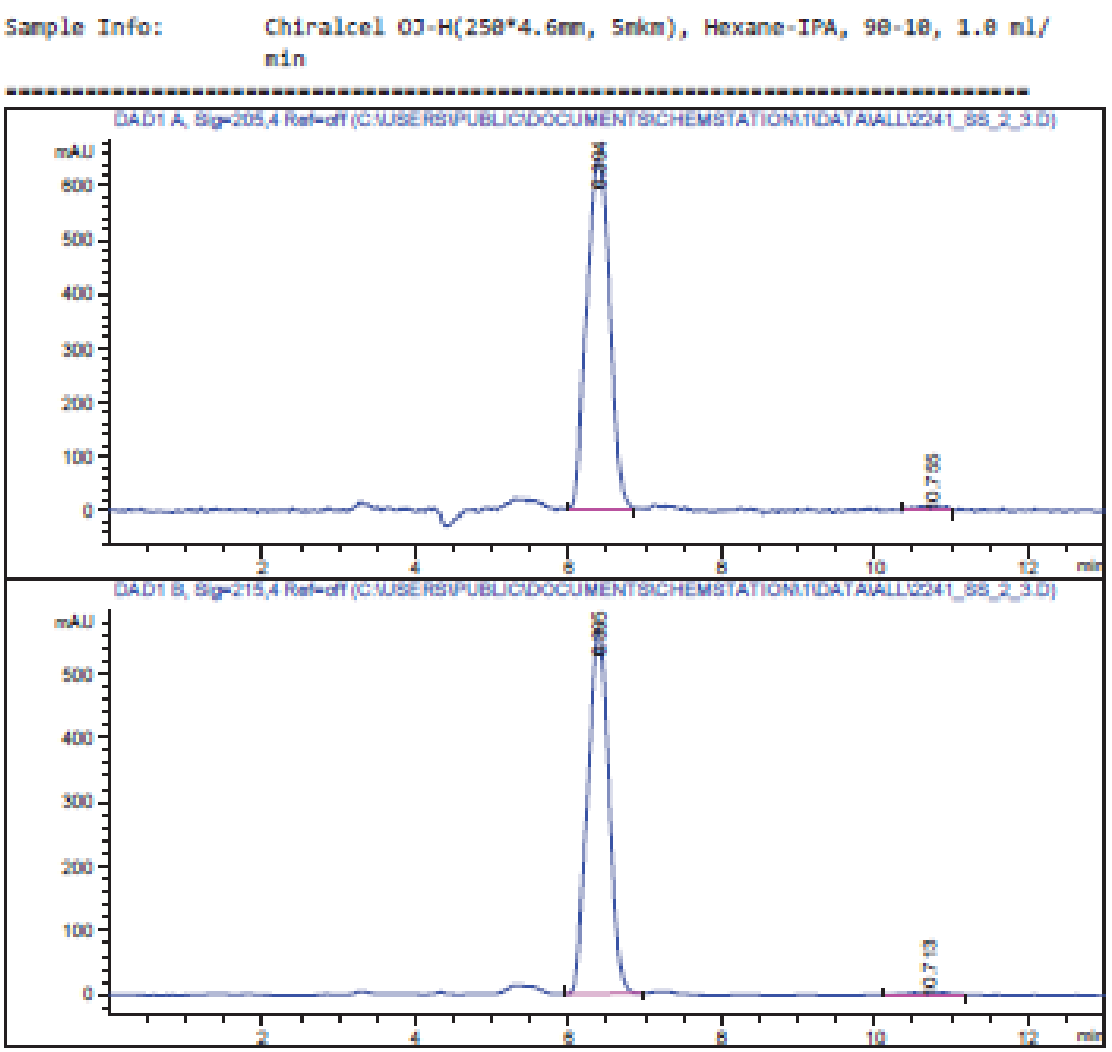
^{1}H NMR spectrum of Mosher derivative of racemic fluorocyclopentane-1-amine hydrochloride



1H NMR spectrum of Mosher derivative of (1*S,2R*)- fluorocyclopentane-1-amine hydrochloride **14**

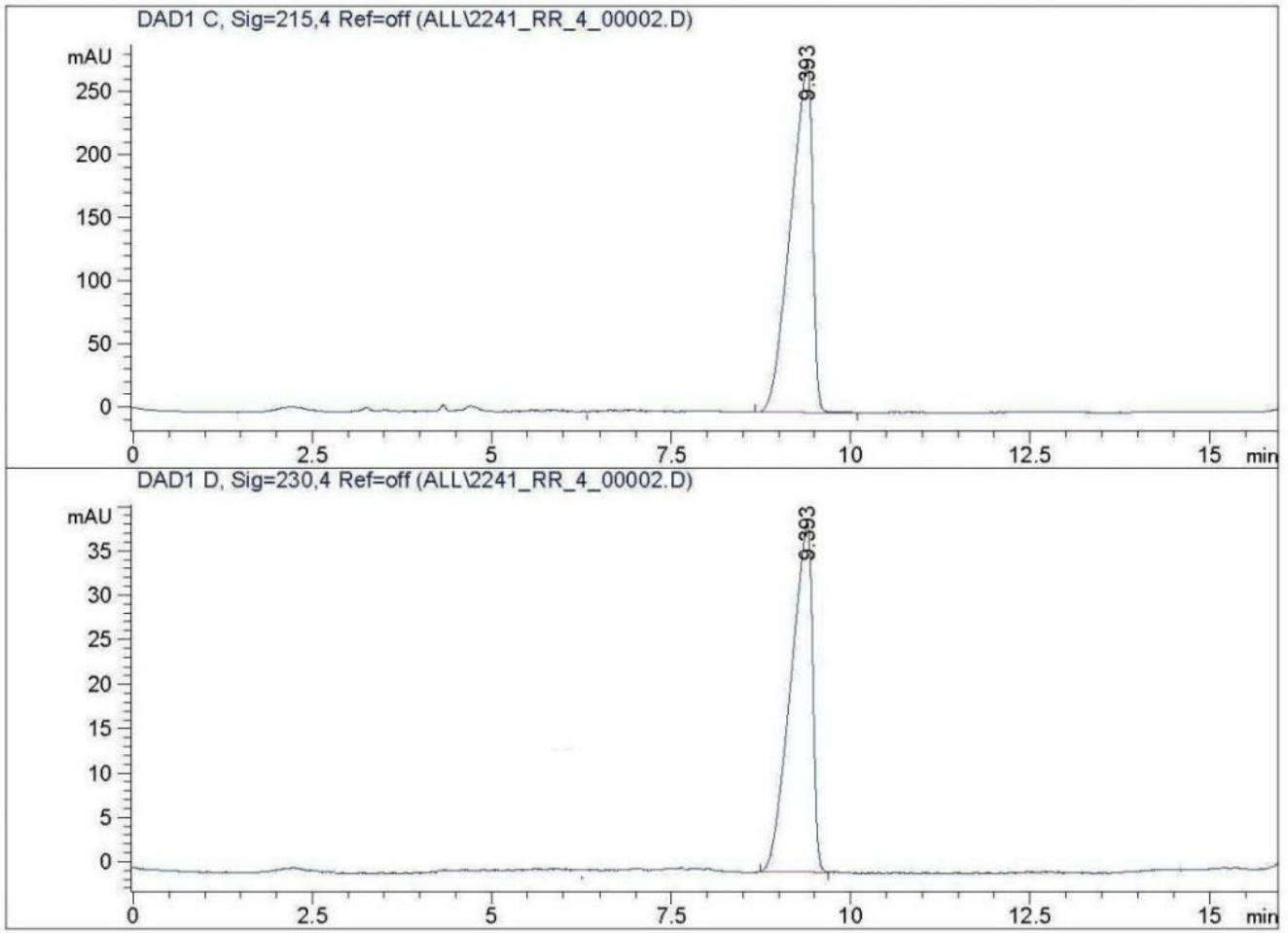


1H NMR spectrum of Mosher derivative of (1*R,*2*S*)- fluorocyclopentane-1-amine hydrochloride **12**



chiral HPLC analysis on Chiralcel AD–H column of (1*S,2R*) 2-fluorocyclopentan-1-ol 1

Injection Volume: 1 mkl
Sample Info: OJ-H, Hexane-IPA, 90-10, 1.0ml/min, with Mosher`s acid



chiral HPLC analysis on Chiralcel AD-H column of (1*R*,2*S*) 2-fluorocyclopentan-1-ol 2