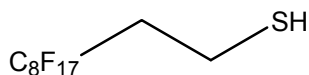


1H,1H,2H,2H-Perfluorodecane-1-thiol


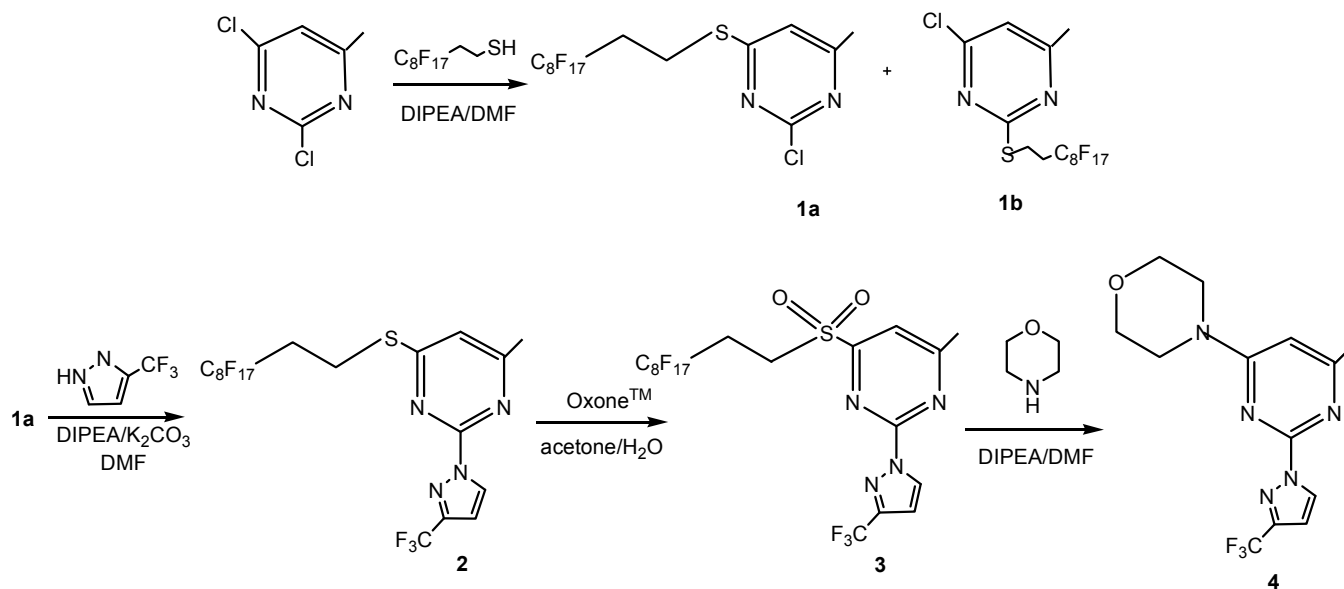
Chemical Formula:	C ₁₀ H ₅ F ₁₇ S
Formula Weight:	480.18
Description:	Protecting Group and Tag
CAS Number:	34143-74-3
Appearance:	Clear liquid
Properties:	Density: 1.64 Boiling Point: 82°C/12mm
Soluble in:	Dichloromethane, chloroform, THF, ether, toluene and most other typical organic solvents
Stability:	Solidifies near room temperature

DESCRIPTION AND USES:

- F-Thiols are the solution phase equivalents of polymer-bound thiols and have been used as fluoros tags in parallel synthesis.¹
- Tagging is achieved by nucleophilic substitution of a halide by the thiol.
- Detagging is achieved by oxidation of the sulfide to a sulfone followed by substitution by another nucleophile.
- The tagged molecules can be further manipulated, with intermediates containing tags easily separated from the non-fluorous components, by performing a quick fluoros SPE over FluoroFlash® silica gel.² The intermediates can also be purified by other methods, such as normal phase flash column chromatography.

TYPICAL TAGGING PROCEDURE:¹ To a solution of the halide (2.1 g, 12.9 mmol) and fluoros thiol (6.1 g, 12.9 mmol) in DMF (50 mL) was added DIPEA (4.5 mL, 25.8 mmol). The reaction mixture was stirred at room temperature for 1h followed by aqueous workup. The desired product **1a** (5.4 g, 69%) was isolated using flash column chromatography on silica gel with Hex:EtOAc (90:10).

TYPICAL DETAGGING PROCEDURE:¹ To a solution of **3** (15 mg, 0.02 mmol) in DMF (0.5 mL) was added morpholine (5 mg, 0.05 mmol) and DIPEA (3.5 mL, 0.02 mmol). After heating at 80 °C for 10 h, the reaction mixture was cooled and loaded onto a 2 g FluoroFlash SPE cartridge containing 100 mg of ion exchange resin (Amberlite™ CG-50) on top of the cartridge. The cartridge was washed with MeOH:H₂O (80:20, 10 mL) and MeOH (10 mL). The MeOH:H₂O extract was concentrated to give **4** (6 mg, 96%).



F017023, the C8F17 analog, has appropriate fluorine content to be retained on the FluoroFlash® SPE cartridge for easy separation. It can also be used as a fluorous scavenger.³

REFERENCES:

- 1) Zhang, W. *Org. Lett.*, **2003**, 5(7), 1011.
- 2) FTI Application Note "Fluorous Solid Phase Extraction".
- 3) FTI Application Note "Fluorous Thiols as Scavengers"
- 4) FTI Application Note "Fluorous Mixture Synthesis"

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