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R ≡ DS-CH₂-CO-ND-CH₂-CO-ND-CH₂-CO-ND
R' ≡ att-CH₂-ND-CH₂-Cl

impurity

sprshikleuglysh1h.fid
The question to be resolved is the stereochemistry following the thiol addition. This question primarily reduces to determining the axial or equatorial nature of $H_a$ and $H_b$ in the resulting cyclic structure.

TOCSY1D will provide definitive assignments of all the ring protons, even though some of these protons are severely overlapped by the substituent protons.
Assignments are tentative, due to lack of resolved multiplet information. Strategy is to use TOCSY1D to reobtain multiplet info for ring protons.
Some overlapping impurity peaks are easily assigned via TOCSY-1D.
The ring assignments, as well as their stereochemistry, are then fairly easily assigned using TOCSY1D. $H_f$ shows a quartet structure: the geminal coupling is similar in size, ~12Hz, to the two ($J_{fe}$, $J_{fa}$) axial-axial couplings.
Assignments here are based on multiplet structures, and chemical shift estimates.
H_a shows a d-t structure consistent with one axial-axial and two smaller axial-equitorial couplings. Note that the J_{ag} and J_{af} coupling come first, with J_{ab} coming in later in the TOCSY mix times.
He shows an apparent d-d structure at 15ms mix time, but resolves into the expected t-d multiplet with additional mix time. H_d grows more slowly, being further from H_g.
Finally, $H_b$ and $H_c$ are assigned based on chemical shift considerations, as well as their multiplet structures (no axial-axial coupling). The lateness of their appearance in the TOCSY1D (e.g., $H_c$ appearing last, being furthest away from $H_g$) confirms the assignments.