

Synthesis and stability studies of CF₂OMe-decorated aliphatic amines

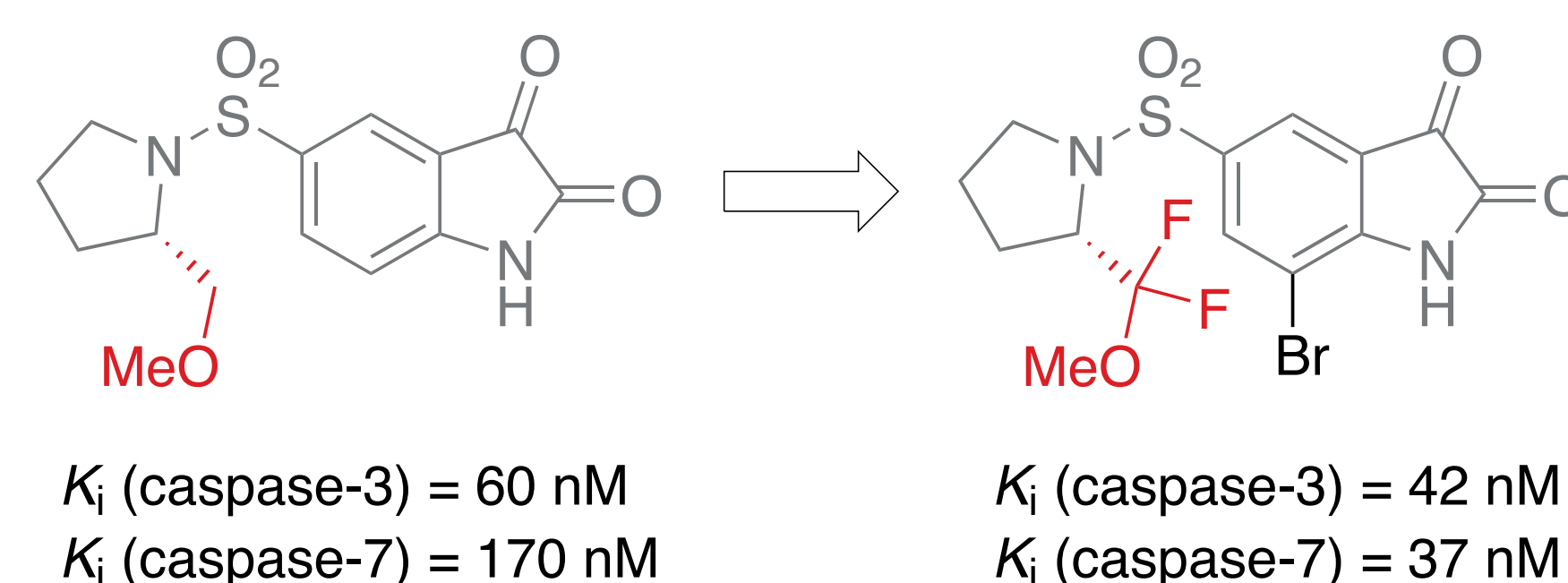


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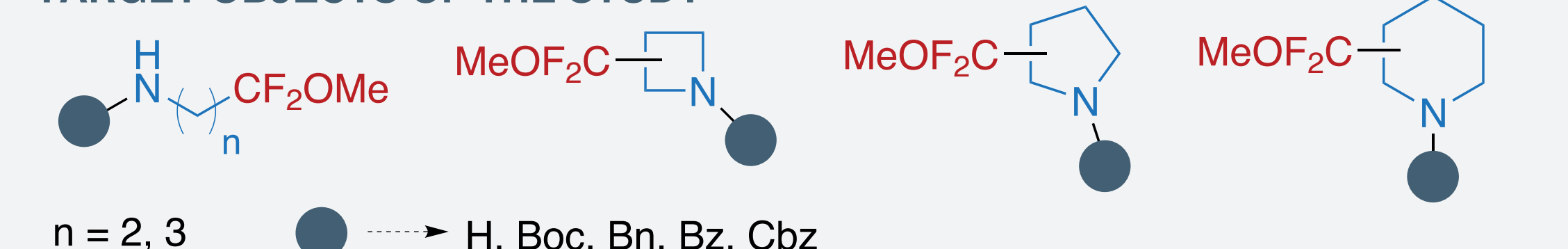
Background of the project

Among the numerous fluorine-containing functionalities, **CF₂OAlk is still an enigmatic fragment in terms of its construction and properties:**

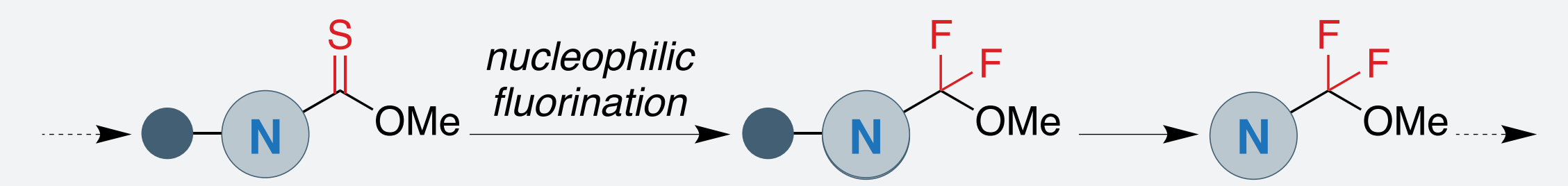
- highly polarized functional group
- increase dielectric anisotropy and stability while broadening the nematic phase range of LCs
- enhance metabolic stability and impart unique conformational properties to molecules
- CF₃ → CF₂OAlk shift decreases environmental stability



TARGET OBJECTS OF THE STUDY

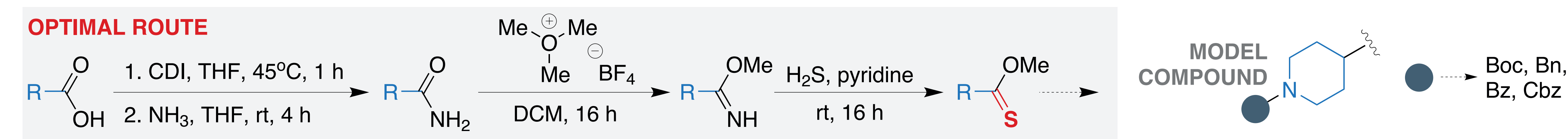


GENERAL APPROACH TO THE TARGETS

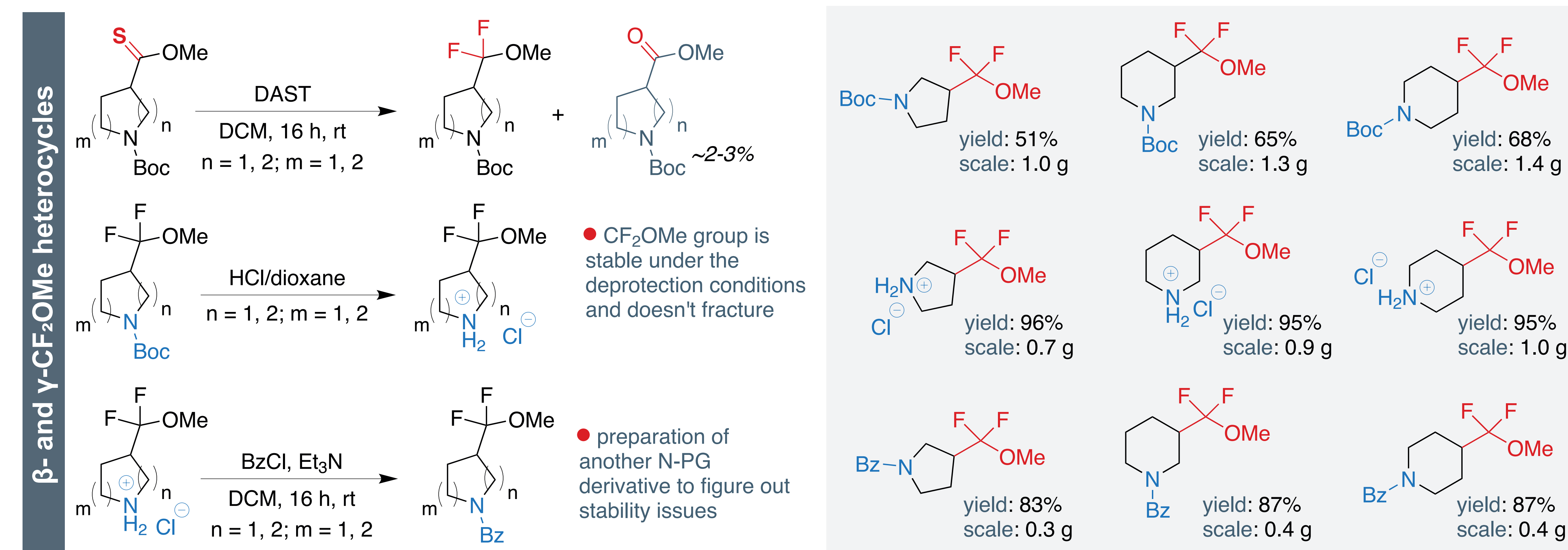


Selecting a strategy for amino-functionalized thioesters

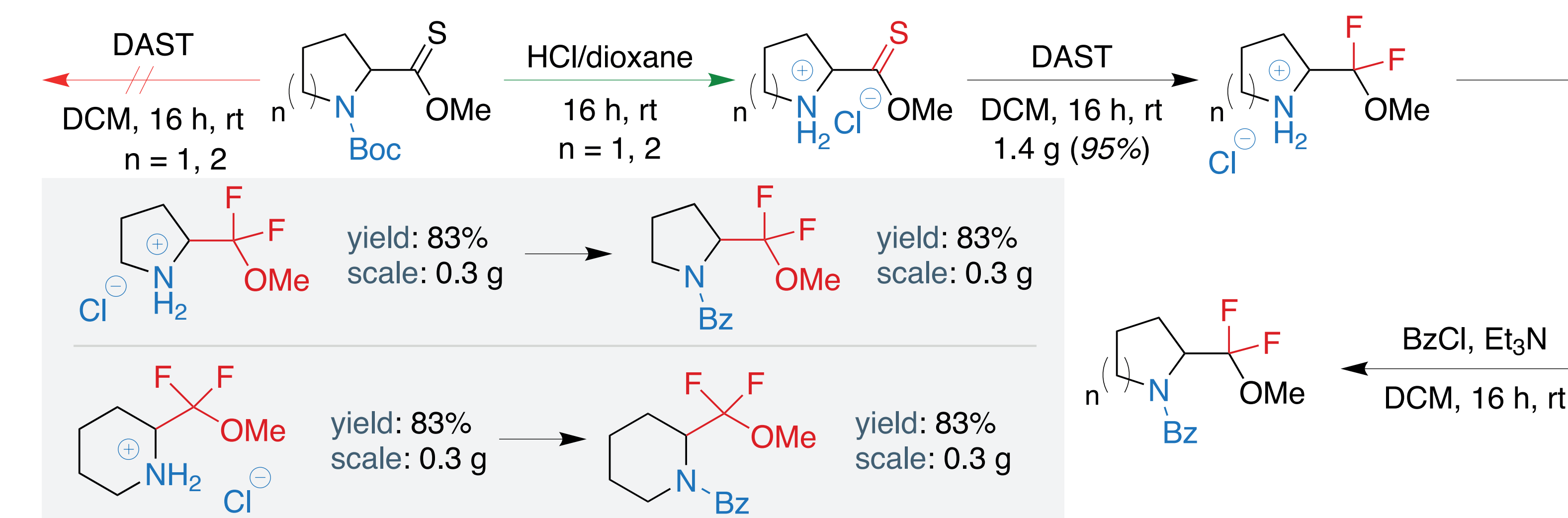
OPTIMAL ROUTE



Outline of the synthetic results



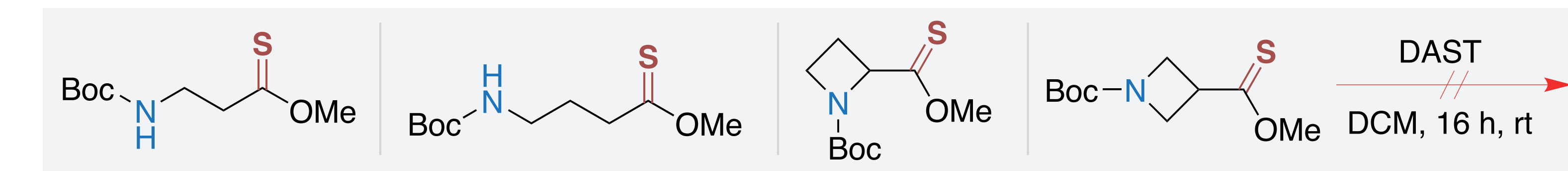
α-CF₂OMe heterocycles



CURRENT LIMITATIONS

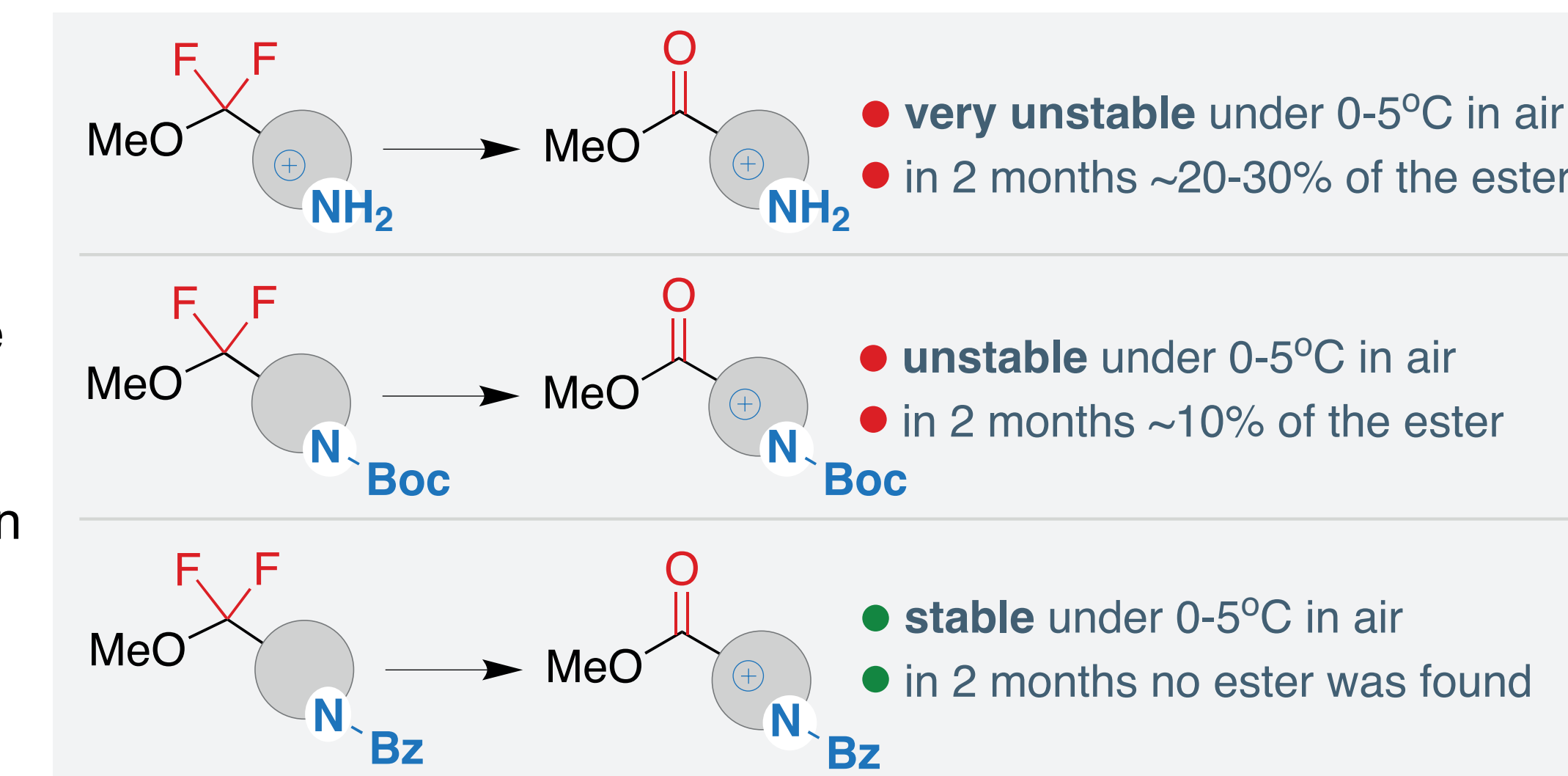
Analysis of the reaction mixture indicates that:

- the 4-membered ring gets destroyed with no target products found in the isolated substance
- acyclic N-Boc amines give complex mixtures with CF₂OMe derivatives content ~5%

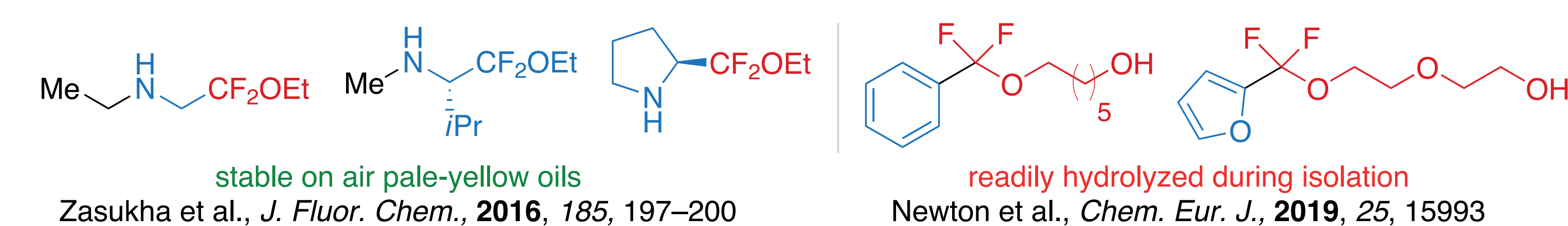


STABILITY OBSERVATIONS

- literature data are bitty
- N-Bz CF₂OMe amines were found to be the most hydrolytically stable
- salts don't survive storage in moisture air even at low temperature



LITERATURE DATA ON STABILITY



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