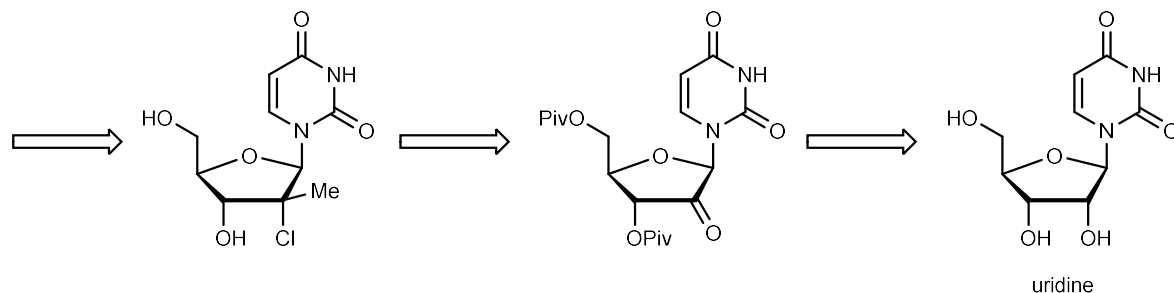
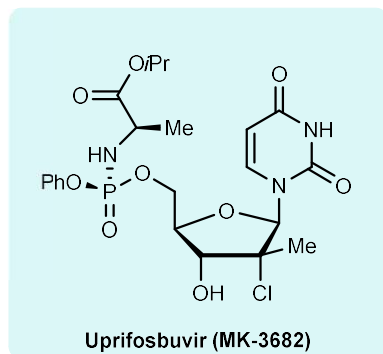


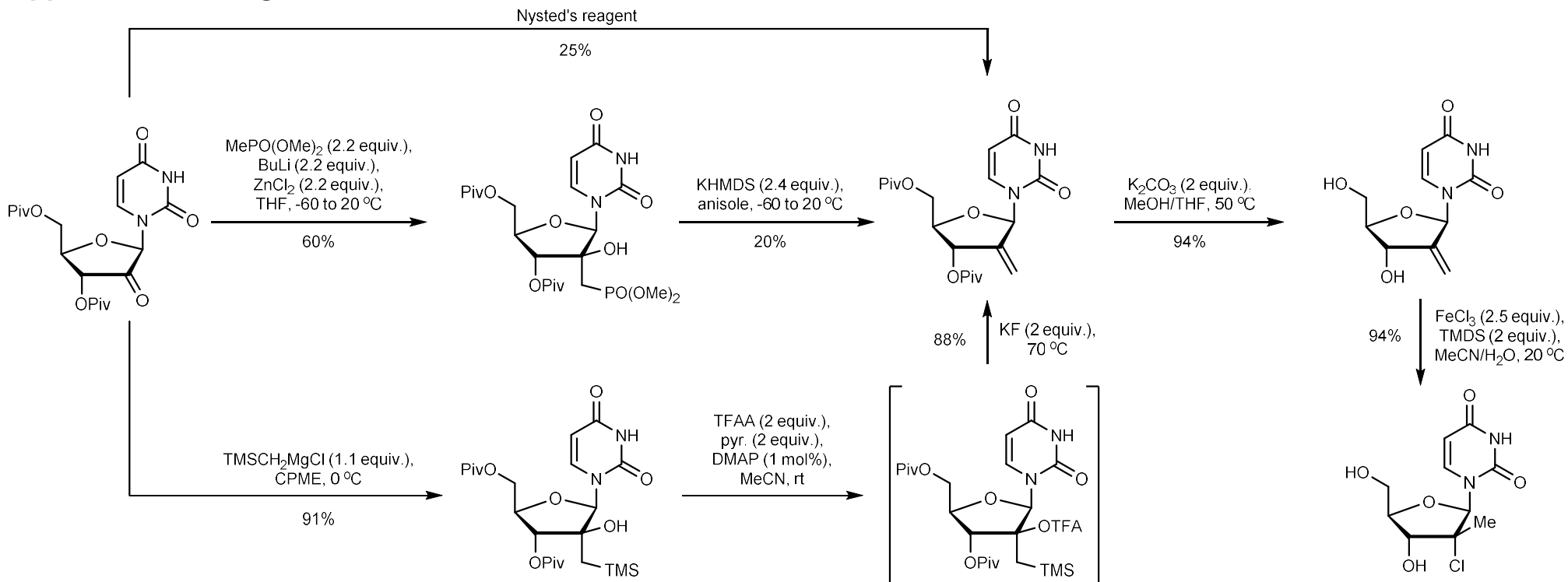
## Retrosynthesis for Process Route:



- ProTide (pronucleotide) for treatment of hepatitis C



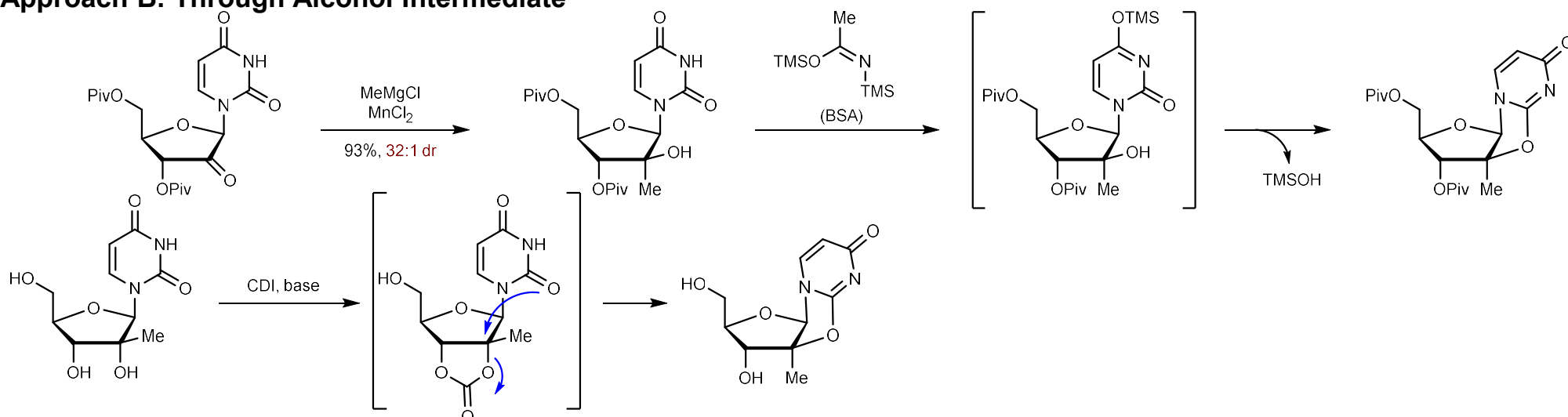
## Approach A: Through Olefin Intermediate



- Methyl and chloro substituents installed in three process steps
- Established proof of concept for an efficient route from uridine

- High cost and limited availability of  $\text{TMSCH}_2\text{MgCl}$
- Unfavorable atom economy in olefination step
- Handling fluoride waste

## Approach B: Through Alcohol Intermediate



## Commercial Route:

