Clinical targeting of HIV capsid protein with a long-acting small molecule
Link, J. O.; Rhee, M. S.; Tse, W. C. et al.

1. ZnEt₂, CH₂I₂
2. DMP
3. 1, LiHMDS
4. 2, HCl, EtOH
5. NaClO₂, NHPI
6. NaOH, MeTHF then HCl
7. Ethanedithiol, BF₃•2 AcOH
8. HF•pyridine, 3
9. Separation of enantiomers by chiral SFC

1) Please provide the name of this reaction.
    Simmons–Smith cyclopropanation

6) Despite its higher cost, MeTHF is normally preferred in process chemistry over THF. Can you state why?
   MeTHF is not miscible with water; avoids formation of emulsions during workup; still retains properties of THF
10) hydrazine hydrate, Δ
11) 4, Cs₂CO₃
12) B₂pin₂, Pd(PPh₃)₂Cl₂, K(n-PrO), Δ

12) Please provide the name of this reaction. 
Miyaura borylation

13) Hint: The reaction occurs twice in the same position.
15) Who introduced compound 5?
Jonathan Ellman

13) NBS, AIBN, Δ
14) AgNO₃, H₂O, Δ
15) 5, Cs₂CO₃
16) 6
17) HCl
18) Boc₂O, NaHCO₃, MeTHF, H₂O

GS-6207
GS-6207 (also known as lenacapavir) is a HIV capsid inhibitor and is currently in phase 2/3 clinical trials. It inhibits replication of HIV in cells at 105 pM and significantly reduces the viral load in patients with multi-drug resistant HIV, while staying at antiviral levels in the plasma over 6 months. In contrast to previous agents that target enzymes in the HIV life cycle (do you know which ones?) GS-6207 actually accelerates capsid assembly, leading to malformed capsids, that can not replicate anymore.

19) 7, Cul, Pd(PPh₃)₂Cl₂, Et₃N
20) B, Pd(dppf)Cl₂, Cs₂CO₃, Δ
21) MsCl, Et₃N
22) TFA
23) A, HATU then LiOH