Synthesis of ent-Nanolobatolide

1) DIPA, MeMgBr (1:1), 25 °C, 12 h then 1, TMSCl, Et₃N, 8 h, 25 °C
2) CH₂I₂, Et₂Zn
3) FeCl₃, DMF
4) NaOAc

presumably via:
see: Org. Syn. 1979, 59, 113 and refs therein
conceptually similar with CAN/NaI: Org. Lett. 2007, 9, 1323

(-)-menthone, the most common naturally occurring stereoisomer

DIPEA/MeMgBr is used for clean preparation of thermodynamic enolates, see: Tetrahedron Lett., 1983, 24, 1345

TS for (2):

isolated after step 3:

DIPA =

Name of 1?

[Diagram showing the synthesis process and structures]
5) LHMDS, PhNTf$_2$
6) Pd(PPh$_3$)$_4$, LiCl, CO
7) Sc(OTf)$_3$

Reaction name?
Nazarov cyclization

Carbonylative Stille coupling
Name of this oxidation?

Pinnick oxidation (aldehyde to carboxylic acid)

Direct saponification of E was unsuccessful

The ability of NaClO$_2$ to effect the final oxidation was discovered serendipitously.