Bent π-Conjugation within a Macrocycle: Asymmetric Total Syntheses of Spirohexenolides A and B

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1) Name of the reaction? Horner–Wadsworth–Emmons

2) Name of the reaction? Horner–Wadsworth–Emmons

1) NaH, Ando-type reagent (1)
2) DIBAL-H (3.0 eq.)
3) DMP
4) NaH, 2
5) PTSA · H₂O
6) DIBAL-H (4.0 eq.)
7) TBDPSCI (1.05 equiv.), imidazole

8) 3, CuBr · Me₂S
9) AlMe₃, MeNH(OMe) · HCl
10) 4, n-BuLi
11) NaBH₄
12) NaH, PMBCl
13) Mel, NaHCO₃, CH₃CN/H₂O
14) Pinnick

8) correct chiral center corresponding to C17 in the product is installed

13) new ¹H signal between 9-10 ppm
A + B

15) Name of the reaction?
   Steglich Esterification

16) Name of the reaction?
   Ireland–Claisen rearrangement

17) Type of reaction?
   Ring-closing metathesis

20) selective reduction

22) Name of reaction?
   Wittig olefination

23) Name of reaction?
   Dieckmann cyclization

27) three transformations occur; suggest a mechanism