Exercise Session

Problem:

Questions:

- What is the compound 14?
- Write the mechanism for the step c.
- What is the missing reagent, which will provide the formation of 1,3-diketone 16? Use retrosynthetic analysis to predict this reagent. How can you synthesize it?
- Give the mechanisms for both steps (f and g) in transformation 16 to 27.
- Suggest 5 steps for transformation 27 to 29.
- What is the final product 2? What is the name of first reaction?
Annulative Methods Enable a Total Synthesis of the Complex Meroterpene Berkeleyone A

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![14](image)


\[
2 \text{Cp}_2\text{TiCl}_2 + \text{Zn} = 2 \text{Cp}_2\text{TiCl} + \text{ZnCl}_2
\]

![Mechanism of step c](image)

Scheme 2 Reaction mechanism of Cp₂TiCl with epoxynitriles

3. Missing reagent and ways of synthesis of diketene and ketene.

![Chemical reaction image]

2. H₂C=CH₂ → H₂C=O

Wolff Rearrangement

Dehydrohalogenation of acyl chlorides or pyrolysis of acetone

4. Mechanisms for both steps (f and g) in transformation 16 to 27.
5. 5 steps for transformation 27 to 29. Final product 2. Krapcho-type demethylation.