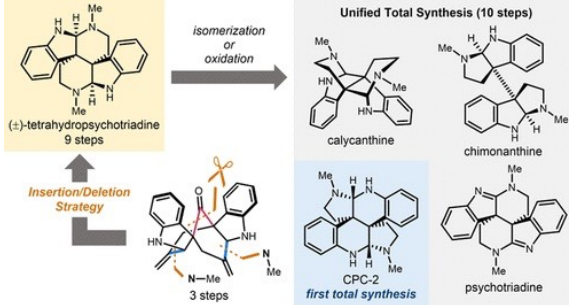


Unified Total Synthesis of C₂-Symmetric Bis(cyclotryptamine) Alkaloids Utilizing a Single-Atom Insertion/Deletion Strategy

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C₂-symmetrical



The *cis/trans* ratio in the crude mixture is shown in the parenthesis.

Results of solution-state photodecarbonylation

R	yield (cis/trans)
trans-16a	H 73% (1:11.7)
16b	OMe 80% (1:11.1)
16c	Me 77% (1:10.8)
16d	F 68% (1:9.1)
16e	Cl 61% (1:6.1)
16f	CF ₃ 48% (1:6.5)
16g	CO ₂ Me 85% (1:15.4)
16h	Br 30% (1:1.4)
16i	1,4-dioxane 83% (1:20)

trans-16j R = F, 69% (1:6.4)
trans-16k R = OMe, 68% (1:12.3)

trans-16l 64% (1:9.9) trans-16m 65% (1:6.6)

trans-16n 22% (1:3.1) rsm: 35%

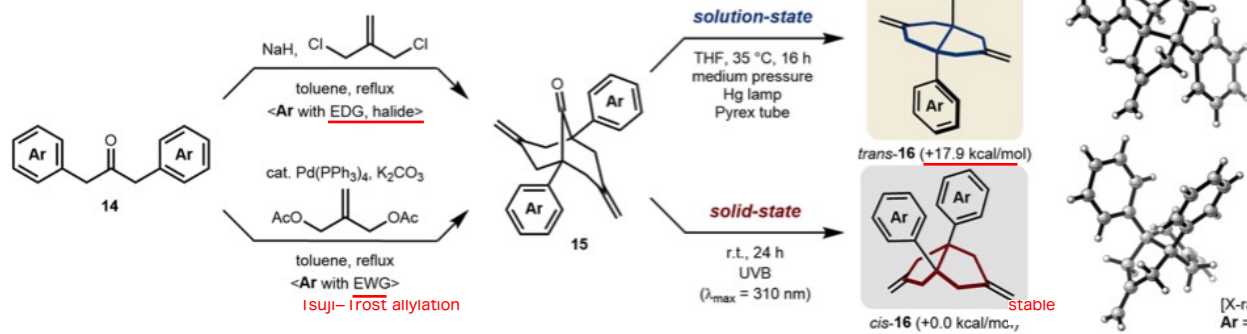
Results of solid-state photodecarbonylation

R	yield (cis/trans)
cis-16a	H 50% (>20:1) rsm: 23%
16b	OMe 22% (13:1:1)
16d	F 44% (>20:1)
16i	1,4-dioxane 19% (>20:1) rsm: 32%
cis-16j	34% (>20:1)

the other substrate

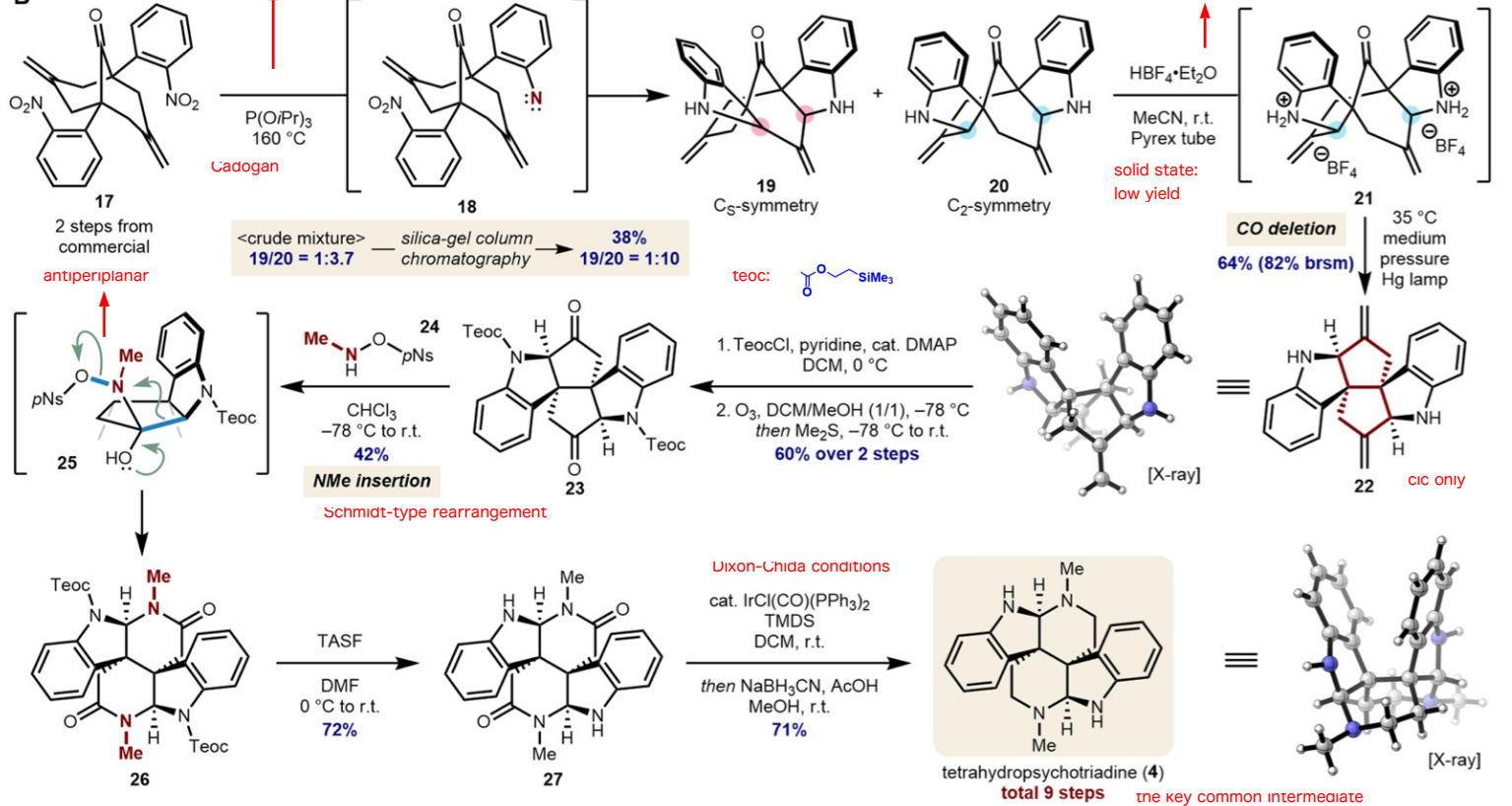
the differences in degrees of freedom of the diradical intermediates are the

A



Photodecarbonylative ring contraction of 1 / tailed

B



reported acidic condition unsuccess

Scheme 2. Unified Total Synthesis of C₂-Symmetric Bis(cyclotryptamine) Alkaloids Utilizing Tetrahydropsychothiadine (4)

