Acid-catalyzed Transannular Cyclization of 3a*H*-Cyclopentene[8]annulene-1,4-(5*H*, 9a*H*)-diones and Some Proposed Mechanism

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Table S1. Time Course of the Product Distributions in Acid-catalyzed Rearrangement of 7bα, β in the Presence of CF_3SO_3H (90 mM) in $CDCl_3$ at 25 °C

	Yield / %[a]				
Time / min	**7b**α	**7b**β	**4b**α	**4b**β	**6b**
0	77	23	-	-	-
5	-	-	73	20	7
10	-	-	69	15	16
20	-	-	65	13	22
30	-	-	61	9	30
60	-	-	46	5	49
120	-	-	28	3	66

[a] Determined by ^{1}H NMR.

Table S2. Time Course of the Product Distributions in Acid-catalyzed Rearrangement of 9d in the Presence of CF_3SO_3H (90 mM) in $CDCl_3$ at 25 °C

	Yieled / %[a]		
Time / min	**9d**	**4d**	**8d**
0	100	-	-
5	-	99	1
20	-	87	13
30	-	85	15
40	-	79	21
50	-	75	25
60	-	72	28
80	-	67	33
100	-	64	36
120	-	58	42
150	-	52	48

[a] Determined by ^{1}H NMR.

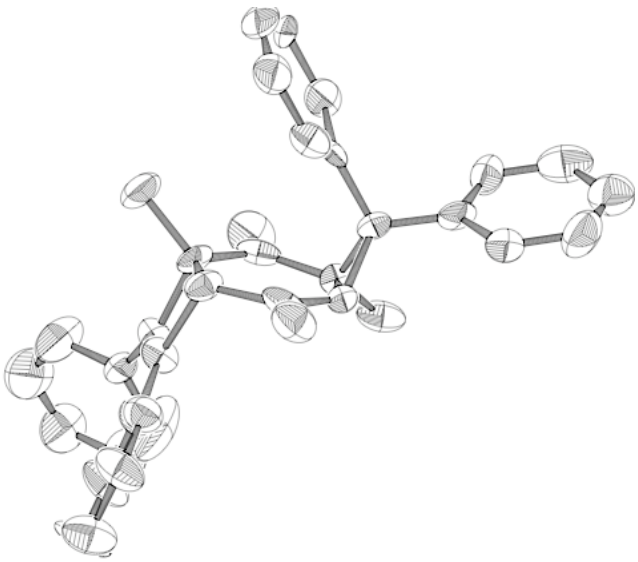

Figure S1. ORTEP drawing of **1d**

X-ray crystal structural determination of 1d: $C_{35}H_{28}O_2$, M = 480.61, monoclinic, space group $C2/_c$ with a = 27.38(5), b = 8.847(12), c = 22.82(4) Å, β = 102.98(3)°, V = 5386.9(13) Å^3, Z = 8, D_c = 1.185 g/cm^3, R = 0.095 and R_W = 0.104 for 4649 reflections with I> 0.50σ(I).

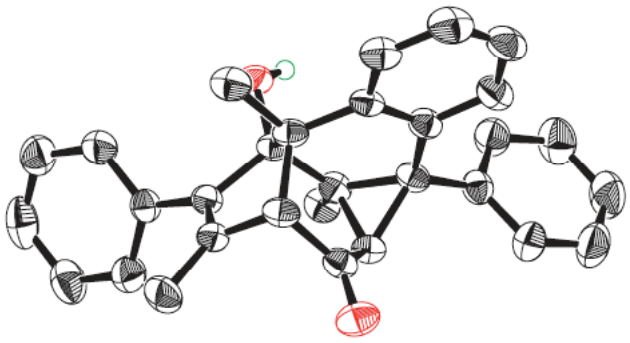

Figure S2. ORTEP drawing of **3c**

X-ray crystal structural determination of 3c: $C_{30}H_{26}O_2$, M = 418.53, monoclinic, space group $P2_{1/c}$ with a = 12.752(7), b = 13.44(1), c = 14.274(4) Å, β= 115.22(3)°, V = 2213.46(13) Å ^{3}, Z = 4, D_c = 1.256 g/cm^3, R = 0.079 and R_W = 0.079 for 3380 reflections with I> 3.00σ(I).

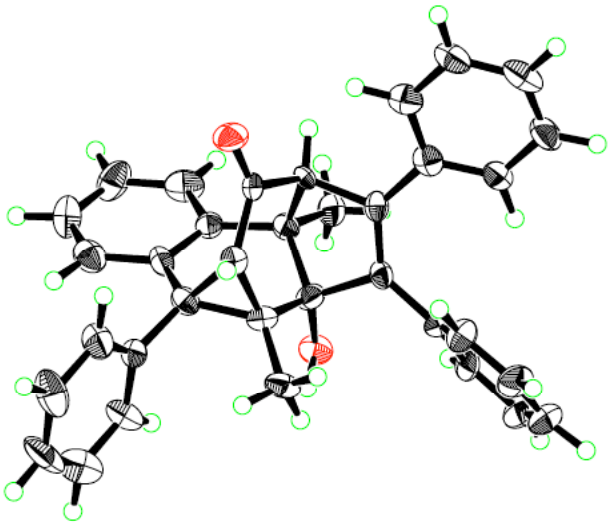

Figure S3. ORTEP drawing of **3d**

X-ray crystal structural determination of 3d: $C_{35}H_{28}O_2$, M = 480.61, monoclinic, space group $P2_{1/n}$ with a = 11.850(1), b = 17.988(2), c = 12.921(2) Å, β = 113.523(3)°, V = 2525.3(5) Å ^{3}, Z = 4, D_c = 1.26 g/cm^3, R = 0.192 and R_W = 0.187 for 4400 reflections with I> 0.00σ(I).

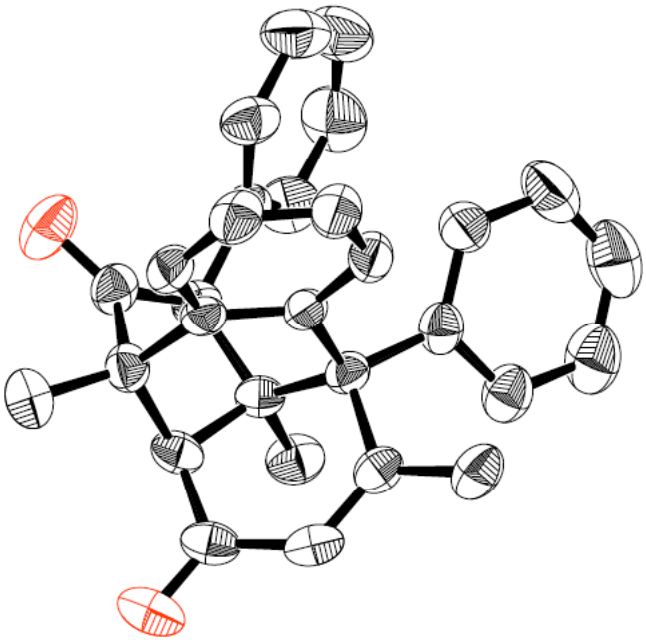

Figure S4. ORTEP drawing of **5c**α

X-ray crystal structural determination of 5cα**:** $C_{30}H_{26}O_2$, M = 418.53, monoclinic, space group $P2_{1/c}$ with a = 15.503(5), b = 8.505(2), c = 16.954(3) Å, β = 100.37(2)°, V = 2199.0(9) Å ^{3}, Z = 4, D_c = 1.264 g/cm^3, R = 0.070 and R_W = 0.054 for 2657 reflections with I> 0.3.00σ(I).

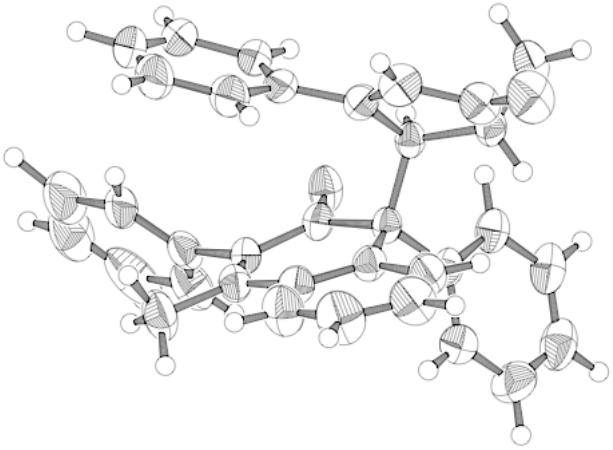

Figure S5. ORTEP drawing of **6b**.

X-ray Crystal structure Determination of 6b: $C_{35}H_{28}O_2$, M = 480.61, monoclinic, space group $P2_1/c$ with a = 11.4670(5), b = 14.7091(7), c = 15.4076(7) Å, β = 91.6973(8)°, V = 2597.7.(2) Å^3, Z = 4, Dc = 1.229 g/cm^3, R = 0.094 and Rw = 0.131 for 5920 reflections with I > 2.0σ(I).

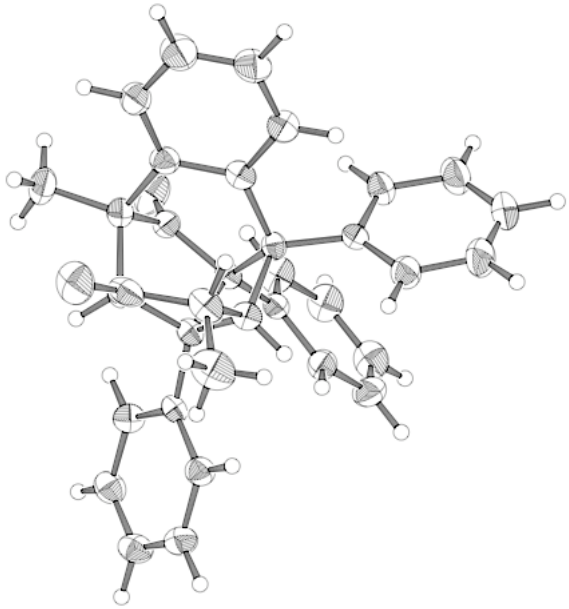

Figure S6. ORTEP drawing of **7b**β.

X-ray Crystal structure Determination of 7bβ: $C_{35}H_{28}O_2$, M = 480.61, monoclinic, space group $P2_1/c$ with a = 9.0873(3), b = 35.735(1), c = 9.6538(3) Å, β = 105.671(1)˚, V = 3018.4.(2) Å^3, Z = 4, Dc = 1.229 g/cm^3, R = 0.141 and Rw = 0.234 for 6260 reflectionns with $I > 2.0\sigma(I)$.

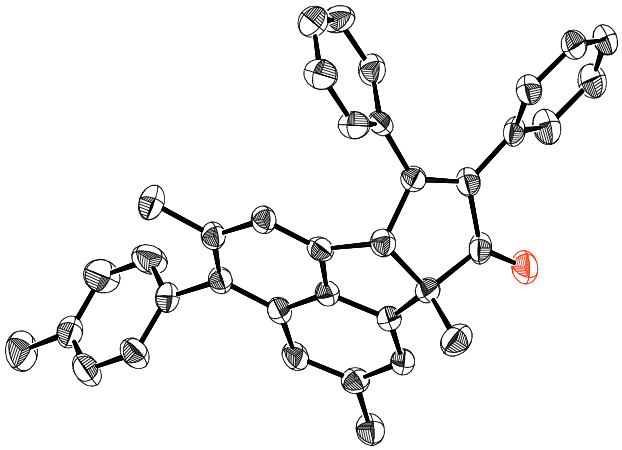

Figure S7. ORTEP drawing of **8e**.

X-ray crystal structural determination of 8e: $C_{37}H_{30}O_2$, M = 490.64, triclinic, space group P-1 with a = 9.7136(7), b = 12.0508(2), c = 12.8856(2) Å, α = 107.365(2)°, β = 104.062(2)°, γ = 97.428(2)°, V = 1362.9(1) Å^3, Z = 2, D_c = 1.196 g/cm^3, R = 0.131 and R_W = 0.234 for 5377 reflections with $I > 0.00\sigma(I)$.