**Supporting Information** 

## Noncovalent secondary interactions in Co(II)Salen complexes: O<sub>2</sub> binding and catalytic activity in cyclohexene oxygenation

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GC analysis of the catalytic oxidation of cyclohexene S2-S3

## GC analysis of the catalytic oxidation of cyclohexene

GC method: injector 200°C; detector 280°C; column: 50°C (hold 0.5 min), ramp 7°C/min to 75°C (hold 0.1 min), ramp 25°C/min to 120°C.

The retention times observed for compounds possibly present in the reaction mixture are summarized in Table S1 (determined using commercially available samples).

 Table S1. Retention Times (t) for Analytical Samples of Compounds Present in the Cyclohexene Oxidation

 Reaction Mixture

		t (min)
$\bigcirc$	20	1.80
OH		1.9-2.4
$\bigvee_{0}$	18	3.48
		4.32
<b></b> 0	19	4.58
CI	21	5.96

Response factors were determined for products **18**, **19** and for cyclohexene **20** using 1,2dichlorobenzene as internal standard (Figure 1S).



Figure S1. Response factors for 18-20



**Figure S2.** Concentration vs time profile for cyclohexene (0.18 M in CH<sub>3</sub>CN) oxidation catalyzed by Co(II)Salen **4** (0.005 equiv). Conditions: 20°C, O<sub>2</sub> 1 atm, propanal (4 equiv). Note especially the slightly sigmoidal shape for the cyclohexene curve.<sup>33</sup>