A Novel and Highly Regioselective Approach to 5-Methoxy-6-substituted-3-sulfonyl- δ -enelactams from 5-Methoxy-3-sulfonyl glutarimide. Synthesis of *cis*-2-Substitued-3-piperidinols

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(Supporting Information)

X-Ray crystal structure of 16d, 18

Compound number	Page number
16d	S2
18	S2

¹H NMR spectra of 11, 16~25

Compound number	Compound name	Page number
11	4-Methoxy-5-oxo-2-(toluene-4-sulfonyl)-hexanoic acid benzylamide	S3
16a	1-Benzyl-5-methoxy-6-methylene-3-(toluene-4-sulfonyl)piperidin-2-one	S4
16b	1-Benzyl-5-methoxy-6-propylidene-3-(toluene-4-sulfonyl)piperidin-2-one	S5
16c	6-Allylidene-1-benzyl-5-methoxy-3-(toluene-4-sulfonyl)piperidin-2-one	S6
16d	1-Benzyl-6-benzylidene-5-methoxy-3-(toluene-4-sulfonyl)piperidin-2-one	S7
16e	1-Benzyl-6-(2-[1,3]dioxolan-2-yl-ethylidene)-5-methoxy-3-(toluene-4-sulfonyl)piperidin-2-one	S8
17a	1-Benzyl-5-methoxy-6-phenyl-3-(toluene-4-sulfonyl)-3,4-dihydro-1H-pyridin-2-one	S9
17b	1-Benzyl-5-methoxy-6-(4-methoxy-phenyl)-3-(toluene-4-sulfonyl)-3,4-dihydro-1H-pyridin-2-one	S10
18	3-Acetyl-1-benzyl-5-methoxy-6-methylene-3-(toluene-4-sulfonyl)piperidin-2-one	S11
20	1-Benzyl-5-methoxy-6-phenyl-3,4-dihydro-1H-pyridin-2-one	S12
21	1-Benzyl-6-phenylpiperidine-2,5-dione	S13
22	1-Benzyl-2-phenylpiperidin-3-ol	S14
23	2-Phenylpiperidin-3-ol	S15
24	1-Benzyl-6-methylpiperidine-2,5-dione	S16
25	1-Benzyl-5-hydroxy-6-methylpiperidin-2-one	S17

Figure 2. X-Ray crystal structure of **16d**

Figure 3. X-Ray crystal structure of **18**

General. Melting points were determined with micro melting point apparatus and are uncorrected. NMR spectra were recorded in CDCl_3 (^1H at 500 MHz and ^{13}C at 125 MHz), and chemical shifts are expressed in parts per million (δ) relative to internal TMS.

Tetrahydrofuran was distilled prior to use. All other reagents and solvents were obtained from commercial sources and were used without any further purification. Reactions were routinely carried out under an atmosphere of dry nitrogen with magnetic stirring. Solutions of products in organic solvents were dried with anhydrous magnesium sulfate before concentration under vacuum.

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