

Supplementary Material

Chiral pyrrolidine thioethers and 2-azanobornane derivatives bearing additional nitrogen functions. Enantiopure ligands for palladium-catalyzed Tsuji-Trost reaction

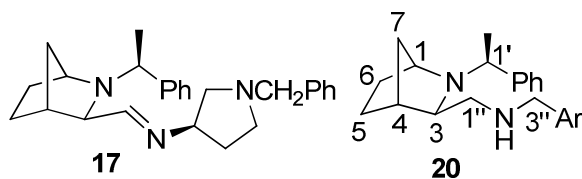
Elżbieta Wojaczyńska,^{a*} Karolina Kamińska,^a Jacek Wojaczyński,^b Jacek Skarżewski

^a*Department of Organic Chemistry, Faculty of Chemistry, Wrocław University of Science and Technology, Wybrzeże Wyspiańskiego 27, 50-370 Wrocław, Poland*

^b*Faculty of Chemistry, University of Wrocław, 14 F. Joliot-Curie St., 50-383 Wrocław, Poland*
E-mail: elzbieta.wojaczynska@pwr.edu.pl

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Table S1. Chemical shifts for 2-azanobornyl derivatives (aliphatic part, CDCl₃, 298K)

Position	17^a		20a Ar = C ₆ H ₅		20b Ar = 4-Cl-C ₆ H ₄		20c Ar = 4-F-C ₆ H ₄		20d Ar = 1-naphthyl		20e Ar = 2-pyridyl	
	¹ H	¹³ C	¹ H	¹³ C	¹ H	¹³ C	¹ H	¹³ C	¹ H	¹³ C	¹ H	¹³ C
1	¹ H	¹³ C	3.65	58.8	3.60	58.7	3.62	58.8	3.62	58.6	3.72	59.4
3	3.68	58.5	2.12	69.2	2.03	69.2	2.08	69.1	2.13	69.2	2.21	69.1
4	2.58	71.6	2.22	41.2	2.16	41.2	2.19	41.2	2.21	41.2	2.31	40.7
5	2.15	43.8	1.26	29.3	1.27	29.3	1.28	29.2	1.30	29.2	1.30	29.1
			1.64		1.58		1.62		1.64		1.66	
6	1.42	29.5	1.37	22.3	1.35	22.3	1.37	22.3	1.37	22.3	1.42	22.2
			1.60		1.96		1.96		1.96		2.06	
7	1.40	22.5	1.24	35.6	1.23	35.6	1.24	35.6	1.28	35.6	1.30	35.5
			1.96		1.81		1.76		1.77		1.80	
1'-CH	1.28	36.0	3.48	61.3	3.44	61.2	3.46	61.3	3.48	61.2	3.52	61.5
	1.73											
1'-CH ₃	3.51	60.8	1.36	22.4	1.30	22.4	1.33	22.3	1.35	22.4	1.39	22.0
1''	1.32	22.8	1.74	54.6	1.64	54.4	1.68	53.1	1.77	55.1	1.75	53.4
			1.89		1.81		1.86		2.03		1.99	
3''	6.93	167.4	3.25	54.1	3.24	53.2	3.23	54.2	3.67	51.6	3.36	54.7
			3.30		3.26		3.26		3.76		3.49	

^aRemaining pyrrolidine resonances at 1.06, 1.65, 2.14, 2.40, 2.64 and 2.73 ppm (¹H); 32.5, 53.4 and 60.5 ppm (¹³C).