Asymmetric Rh-catalyzed hydrogenation using a furanoside phosphite-phosphoroamidite and diphosphoroamidite ligand library

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Table SI.1. Selected results for the asymmetric Rh-catalyzed hydrogenation of α-dehydroamino-acid esters using phosphite-phosphoroamidite and diphosphoroamidite ligands **L1-L5a-f**[a]

		S2		**S3**	
Entry	Ligand	% Conv (h)[b]	%ee[c]	% Conv (h)[b]	%ee[c]
1	**L1a**	100 (6)	92 (*S*)	100 (6)	94 (*S*)
2	**L1b**	100 (6)	82 (*S*)	100 (6)	85 (*S*)
3	**L1c**	100 (6)	12 (*R*)	100 (6)	18 (*R*)
4	**L1d**	100 (6)	15 (*S*)	100 (6)	13 (*S*)
5	**L1e**	100 (6)	86 (*R*)	100 (6)	83 (*R*)
6	**L1f**	100 (6)	92 (*S*)	100 (6)	93 (*S*)
7	**L2a**	100 (6)	15 (*S*)	100 (6)	18 (*S*)
8	**L2b**	93 (6)	12 (*S*)	95 (6)	17 (*S*)
9	**L2c**	100 (6)	4 (*S*)	100 (6)	8 (*S*)
10	**L2e**	84 (6)	14 (*R*)	89 (6)	17 (*R*)
11	**L2f**	99 (6)	21 (*S*)	99 (6)	22 (*S*)
12	**L3a**	30 (6)	4 (*R*)	48 (6)	6 (*R*)
13	**L3b**	24 (6)	10 (*R*)	36 (6)	11 (*R*)
14	**L3c**	100 (6)	85 (*S*)	100 (6)	78 (*S*)
15	**L4a**	78 (6)	14 (*S*)	69 (6)	13 (*S*)
16	**L4b**	100 (6)	13 (*S*)	100 (6)	16 (*S*)
17	**L4c**	100 (6)	78 (*S*)	100 (6)	71 (*S*)
18	**L5a**	100 (6)	43 (*S*)	100 (6)	44 (*S*)
19[d]	**L1a**	100 (12)	98 (*S*)	100 (20)	98 (*S*)
20[d,e]	**L1a**	96 (20)	98 (*S*)	65 (20)	98 (*S*)

[a] $[Rh(cod)_2]BF_4$ (1 mol%), ligand (1.1 mol%), substrate (1 mmol), CH_2Cl_2 (6 mL), 5 bar of H_2, room temperature. [b] % Conversion measured by GC. [c] Enantiomeric excess measured by GC. [d] Reaction carried out at 5 °C. [e] Reaction carried out using 0.1 mol% catalyst.

Table SI.2. Asymmetric Rh-catalyzed hydrogenation of *N*-(1-(4-methoxyphenyl)vinyl)-acetamide **S4** using phosphite-phosphoroamidite and diphosphoroamidite ligands **L1-L5a-f**[a]

Entry	Ligand	% Conv (h)[b]	%ee[c]	Entry	Ligand	% Conv (h)[b]	%ee[c]
1	**L1a**	100 (12)	73 (*S*)	16	**L3d**	100 (12)	12 (*R*)
2	**L1b**	100 (12)	65 (*S*)	17	**L4a**	100 (12)	52 (*S*)
3	**L1c**	99 (12)	14 (*R*)	18	**L4b**	100 (12)	50 (*S*)
4	**L1d**	100 (12)	16 (*S*)	19	**L4c**	98 (12)	19 (*S*)
5	**L1e**	100 (12)	46 (*R*)	20	**L4d**	100 (12)	7 (*R*)
6	**L1f**	100 (12)	70 (*S*)	21	**L5a**	100 (12)	60 (*S*)
7	**L2a**	100 (12)	18 (*R*)	22	**L5b**	100 (12)	47 (*S*)
8	**L2b**	100 (12)	13 (*R*)	23	**L5c**	100 (12)	31 (*S*)
9	**L2c**	97 (12)	14 (*S*)	24	**L5e**	100 (12)	36 (*S*)
10	**L2d**	100 (12)	7 (*R*)	25	**L5f**	100 (12)	66 (*S*)
11	**L2e**	94 (12)	17 (*R*)	26[d]	**L1a**	100 (12)	72 (*S*)
12	**L2f**	99 (12)	33 (*S*)	27[e]	**L1a**	42 (24)	76 (*S*)
13	**L3a**	100 (12)	54 (*S*)	28[f]	**L1a**	95 (18)	76 (*S*)
14	**L3b**	100 (12)	49 (*S*)	29[g]	**L1a**	100 (24)	86 (*S*)
15	**L3c**	98 (12)	6 (*S*)	30[f,g]	**L1a**	71 (36)	88 (*S*)

[a] $[Rh(cod)_2]BF_4$ (1 mol%), ligand (1.1 mol%), substrate (0.25 mmol), CH_2Cl_2 (2 mL), room temperature, 30 bar of H_2. [b] % Conversion measured by GC. [c] Enantiomeric excess measured by GC. [d] Reaction carried out at a ligand/Rh ratio of 2. [e] Reaction carried out using 2.5 bar of H_2. [f] Reaction carried out using 5 bar of H_2. [g] Reaction carried out at 5 °C.