VIII. Anhang

1. Daten zur Kristallstrukturanalyse

(1*R*)-*N*-{1-(*N*-*tert*-Butylcarbamoyl)-[(*o*-diphenylphosphinoyl)-benzyl]}-L-valinmethylester (*R,S*-61g)

Summenformel	$C_{30}H_{37}N_2O_4P$
Molmasse [g·mol^{-1}]	520.59
Meßtemperatur [K]	150
λ [Å]	0.71073 (MoK_α)
Kristallsystem	orthorombisch
Raumgruppe	$P2_12_12_1$
a [Å]	11.014(7)
b [Å]	16.172(11)
c [Å]	16.840(10)
V [Å^3]	3000(3)
Formeleinheiten pro Zelle Z	4
D_x [g·cm^3]	1.153
Meßmethode	ω-scan
Absorptionskorrektur	ψ-scan
μ [mm^{-1}]	0.126
F(000)	1112
Kristallfarbe	farblos
Meßbereich [°]	$2.21 < 2\theta < 27.07$
Indexbereich	h: 0 → 14; k: 0 → 20; l: 0 → 31
Zahl der gemessenen Reflexe	3685
Zahl der symmetrie-unabhängigen Reflexe	3685
Meßgerät	Siemens P4-RA Diffraktometer
Strukturlösung	SHELXS 97
Verfeinerungsmethode	ShelxL 97: Kleinste-Quadrate-Anpassung (volle Matrix) an F^2.
Zahl der Parameter	335
Goodness-of-fit an F^2 (GOF)	1.039
R-Werte [$I>2\sigma$ (I)]	R1 = 0.0619. wR2 = 0.1507
R-Werte (sämtliche Daten)	R1 = 0.0810. wR2 = 0.1643
Restelektronendichte (Max. und Min.) [e·Å^{-3}]	0.670 und –0.395
Flack-Parameter	-0.65(19)

Atomkoordinaten und Koeffizienten der equivalenten isotropen Temperaturfaktoren (ohne H-Atome)

Atom	x	y	z	U_{eq}
P	0.81898(8)	0.60300(6)	0.36421(6)	0.0228(2)
C(1)	0.6824(3)	0.6649(2)	0.3744(2)	0.0234(7)
C(2)	0.6436(4)	0.6847(3)	0.4498(3)	0.0328(10)
C(3)	0.5414(4)	0.7339(3)	0.4606(3)	0.0416(11)
C(4)	0.4775(4)	0.7620(3)	0.3954(3)	0.0400(11)
C(5)	0.5134(4)	0.7421(3)	0.3195(3)	0.0357(10)
C(6)	0.6170(4)	0.6932(3)	0.3086(3)	0.0302(9)
C(7)	0.9419(4)	0.6739(2)	0.3464(2)	0.0265(9)
C(8)	0.9258(4)	0.7571(3)	0.3251(2)	0.0323(9)
C(9)	1.0259(4)	0.8074(3)	0.3130(3)	0.0409(11)
C(10)	1.1419(4)	0.7757(3)	0.3203(3)	0.0451(12)
C(11)	1.1596(4)	0.6944(3)	0.3421(3)	0.0451(12)
C(12)	1.0604(4)	0.6440(3)	0.3560(3)	0.0377(10)
C(13)	0.7975(4)	0.5462(2)	0.2723(2)	0.0254(8)
C(14)	0.8599(4)	0.5708(3)	0.2038(3)	0.0346(10)
C(15)	0.8335(5)	0.5368(3)	0.1310(3)	0.0432(11)
C(16)	0.7380(5)	0.4797(3)	0.1244(3)	0.0456(13)
C(17)	0.6783(5)	0.4539(3)	0.1920(3)	0.0364(10)
C(18)	0.7066(4)	0.4842(2)	0.2666(3)	0.0291(9)
C(19)	0.6411(4)	0.4486(3)	0.3389(3)	0.0297(9)
C(20)	0.7020(4)	0.3669(2)	0.3674(3)	0.0326(9)
C(21)	0.8675(4)	0.3121(3)	0.4556(3)	0.0397(11)
C(22)	0.9633(5)	0.3571(4)	0.5068(4)	0.0552(14)
C(23)	0.7846(5)	0.2623(4)	0.5093(4)	0.0620(17)
C(24)	0.9311(5)	0.2557(4)	0.3953(4)	0.0578(15)
C(25)	0.4277(4)	0.4941(3)	0.3375(3)	0.0318(9)
C(26)	0.3057(4)	0.4812(4)	0.2943(3)	0.0565(16)
C(27)	0.2430(5)	0.4006(4)	0.3211(5)	0.091(3)
C(28)	0.3218(7)	0.4848(8)	0.2069(4)	0.138(5)
C(29)	0.4064(4)	0.5015(3)	0.4260(3)	0.0337(10)
C(30)	0.3074(8)	0.5796(6)	0.5240(3)	0.086(2)
N(1)	0.5135(3)	0.4286(2)	0.3195(2)	0.0365(9)
N(2)	0.7982(3)	0.3786(2)	0.4154(2)	0.0336(8)
O(1)	0.8431(3)	0.55173(17)	0.43615(16)	0.0276(6)
O(2)	0.6610(3)	0.29964(19)	0.3466(2)	0.0479(9)
O(3)	0.4439(3)	0.4545(2)	0.4761(2)	0.0528(10)
O(4)	0.3365(4)	0.5673(2)	0.4421(2)	0.0524(10)

Abstände [Å]

P	O(1)	1.492(3)
P	C(7)	1.800(4)
P	C(1)	1.815(4)
P	C(13)	1.816(4)
C(1)	C(2)	1.378(6)
C(1)	C(6)	1.398(6)
C(2)	C(3)	1.390(6)
C(3)	C(4)	1.381(7)
C(4)	C(5)	1.376(7)
C(5)	C(6)	1.401(6)
C(7)	C(12)	1.400(6)
C(7)	C(8)	1.404(6)
C(8)	C(9)	1.385(6)
C(9)	C(10)	1.382(7)
C(10)	C(11)	1.379(7)
C(11)	C(12)	1.383(6)
C(13)	C(14)	1.401(6)
C(13)	C(18)	1.420(6)
C(14)	C(15)	1.375(6)
C(15)	C(16)	1.404(7)

Abstände [Å]

C(16)	C(17)	1.379(7)
C(17)	C(18)	1.383(6)
C(18)	C(19)	1.527(6)
C(19)	N(1)	1.479(5)
C(19)	C(20)	1.558(6)
C(20)	O(2)	1.229(5)
C(20)	N(2)	1.346(6)
C(21)	N(2)	1.481(6)
C(21)	C(23)	1.517(7)
C(21)	C(24)	1.534(7)
C(21)	C(22)	1.545(8)
C(25)	N(1)	1.451(5)
C(25)	C(29)	1.514(6)
C(25)	C(26)	1.543(6)
C(26)	C(28)	1.484(10)
C(26)	C(27)	1.542(10)
C(29)	O(3)	1.208(5)
C(29)	O(4)	1.340(6)
C(30)	O(4)	1.431(7)

Winkel [°]

O(1)	P	C(7)	110.82(18)
O(1)	P	C(1)	112.17(17)
C(7)	P	C(1)	106.74(19)
O(1)	P	C(13)	115.73(17)
C(7)	P	C(13)	106.19(19)
C(1)	P	C(13)	104.57(18)
C(2)	C(1)	C(6)	119.7(4)
C(2)	C(1)	P	118.2(3)
C(6)	C(1)	P	122.2(3)
C(1)	C(2)	C(3)	120.3(4)
C(4)	C(3)	C(2)	119.8(4)
C(5)	C(4)	C(3)	121.0(4)
C(4)	C(5)	C(6)	119.2(4)
C(1)	C(6)	C(5)	120.0(4)
C(12)	C(7)	C(8)	118.6(4)
C(12)	C(7)	P	117.5(3)
C(8)	C(7)	P	123.9(3)
C(9)	C(8)	C(7)	120.0(4)
C(10)	C(9)	C(8)	120.3(4)
C(11)	C(10)	C(9)	120.6(4)

Winkel [°]

C(16)	C(17)	C(18)	122.4(4)
C(17)	C(18)	C(13)	118.0(4)
C(17)	C(18)	C(19)	119.0(4)
C(13)	C(18)	C(19)	123.0(4)
N(1)	C(19)	C(18)	110.8(4)
N(1)	C(19)	C(20)	107.0(3)
C(18)	C(19)	C(20)	111.2(3)
O(2)	C(20)	N(2)	125.8(4)
O(2)	C(20)	C(19)	120.3(4)
N(2)	C(20)	C(19)	113.9(3)
N(2)	C(21)	C(23)	110.3(4)
N(2)	C(21)	C(24)	111.4(4)
C(23)	C(21)	C(24)	110.7(5)
N(2)	C(21)	C(22)	105.4(4)
C(23)	C(21)	C(22)	109.1(5)
C(24)	C(21)	C(22)	109.7(4)
N(1)	C(25)	C(29)	111.3(4)
N(1)	C(25)	C(26)	111.7(4)
C(29)	C(25)	C(26)	109.8(4)
C(28)	C(26)	C(27)	112.1(7)

Winkel [°]				Winkel [°]			
C(10)	C(11)	C(12)	119.6(4)	C(28)	C(26)	C(25)	111.0(5)
C(11)	C(12)	C(7)	120.9(4)	C(27)	C(26)	C(25)	111.5(5)
C(14)	C(13)	C(18)	119.4(4)	O(3)	C(29)	O(4)	123.8(4)
C(14)	C(13)	P	119.6(3)	O(3)	C(29)	C(25)	125.7(4)
C(18)	C(13)	P	120.4(3)	O(4)	C(29)	C(25)	110.5(4)
C(15)	C(14)	C(13)	121.1(4)	C(25)	N(1)	C(19)	114.4(3)
C(14)	C(15)	C(16)	119.5(4)	C(20)	N(2)	C(21)	125.3(4)
C(17)	C(16)	C(15)	119.4(4)	C(29)	O(4)	C(30)	115.7(5)

Koeffizienten der anisotropen Temperaturfaktoren

Atom	U_{11}	U_{22}	U_{33}	U_{23}	U_{13}	U_{12}
P	0.0198(4)	0.0226(4)	0.0259(4)	-0.0009(4)	-0.0013(4)	0.0002(4)
C(1)	0.0190(16)	0.0210(17)	0.0301(19)	0.0002(15)	-0.0004(17)	-0.0010(16)
C(2)	0.029(2)	0.035(2)	0.034(2)	-0.0014(18)	0.0009(17)	0.0045(19)
C(3)	0.036(2)	0.047(3)	0.042(2)	-0.003(2)	0.012(2)	0.008(2)
C(4)	0.028(2)	0.032(2)	0.059(3)	0.002(2)	0.004(2)	0.006(2)
C(5)	0.030(2)	0.030(2)	0.046(3)	0.011(2)	-0.004(2)	0.0026(19)
C(6)	0.028(2)	0.026(2)	0.036(2)	-0.0005(18)	-0.0025(18)	0.0007(18)
C(7)	0.0253(19)	0.0250(19)	0.029(2)	-0.0022(16)	-0.0025(16)	-0.0040(16)
C(8)	0.031(2)	0.028(2)	0.038(2)	0.0056(18)	-0.0053(18)	-0.0034(18)
C(9)	0.039(2)	0.031(2)	0.052(3)	0.011(2)	-0.007(2)	-0.007(2)
C(10)	0.030(2)	0.042(3)	0.064(3)	0.006(3)	-0.002(2)	-0.012(2)
C(11)	0.023(2)	0.040(2)	0.072(3)	0.003(2)	0.000(2)	-0.003(2)
C(12)	0.025(2)	0.029(2)	0.059(3)	0.003(2)	0.001(2)	0.0000(17)
C(13)	0.031(2)	0.0201(18)	0.0257(18)	-0.0016(15)	-0.0024(16)	0.0068(17)
C(14)	0.040(2)	0.032(2)	0.032(2)	0.0007(18)	0.0040(18)	0.003(2)
C(15)	0.063(3)	0.034(2)	0.032(2)	0.0017(19)	0.010(2)	0.009(2)
C(16)	0.065(3)	0.038(2)	0.034(2)	-0.010(2)	-0.009(2)	0.015(3)
C(17)	0.041(2)	0.0249(19)	0.044(2)	-0.0087(18)	-0.010(2)	0.012(2)
C(18)	0.026(2)	0.0223(19)	0.039(2)	-0.0023(17)	-0.0040(17)	0.0088(17)
C(19)	0.024(2)	0.0215(19)	0.043(2)	-0.0053(17)	-0.0040(17)	0.0040(17)
C(20)	0.0221(19)	0.0241(18)	0.051(2)	0.001(2)	0.0009(19)	-0.0038(15)
C(21)	0.033(2)	0.033(2)	0.053(3)	0.009(2)	0.006(2)	0.009(2)
C(22)	0.034(3)	0.057(3)	0.074(4)	0.010(3)	-0.014(3)	0.013(3)
C(23)	0.052(3)	0.056(3)	0.078(4)	0.034(3)	0.010(3)	0.007(3)
C(24)	0.053(3)	0.051(3)	0.069(3)	0.003(3)	0.004(3)	0.023(3)
C(25)	0.0199(19)	0.032(2)	0.043(2)	-0.0036(19)	-0.0044(17)	0.0002(17)
C(26)	0.024(2)	0.080(4)	0.066(3)	-0.032(3)	-0.015(2)	0.017(3)
C(27)	0.033(3)	0.080(5)	0.161(8)	-0.055(5)	-0.024(4)	-0.012(3)
C(28)	0.078(5)	0.263(14)	0.074(5)	-0.054(7)	-0.045(5)	0.087(8)
C(29)	0.0218(19)	0.036(2)	0.043(2)	0.002(2)	-0.0042(19)	-0.0052(18)
C(30)	0.096(6)	0.113(6)	0.049(3)	-0.002(4)	0.017(4)	0.031(5)

Atom	U_{11}	U_{22}	U_{33}	U_{23}	U_{13}	U_{12}
N(1)	0.0221(17)	0.0312(18)	0.056(2)	-0.0192(18)	-0.0088(17)	0.0018(15)
N(2)	0.0270(18)	0.0241(17)	0.050(2)	0.0043(16)	-0.0047(16)	0.0015(14)
O(1)	0.0271(14)	0.0264(14)	0.0292(14)	-0.0002(11)	-0.0048(12)	-0.0041(12)
O(2)	0.0396(18)	0.0252(15)	0.079(2)	-0.0031(16)	-0.0088(18)	-0.0015(14)
O(3)	0.048(2)	0.055(2)	0.055(2)	0.0156(18)	-0.0034(18)	0.0023(19)
O(4)	0.060(2)	0.050(2)	0.0473(19)	-0.0027(16)	0.0096(18)	0.0198(19)

Parameter der H-Atome

Atom	x	y	z	U_{eq}
H(1A)	0.4910	0.3799	0.2983	0.067(3)
H(2A)	0.6878	0.6646	0.4950	0.067(3)
H(2B)	0.8227	0.4310	0.4237	0.067(3)
H(3A)	0.5149	0.7480	0.5132	0.067(3)
H(4A)	0.4073	0.7963	0.4031	0.067(3)
H(5A)	0.4676	0.7614	0.2747	0.067(3)
H(6A)	0.6429	0.6788	0.2559	0.067(3)
H(8A)	0.8452	0.7788	0.3188	0.067(3)
H(9A)	10.140	0.8645	0.2996	0.067(3)
H(10A)	12.106	0.8104	0.3095	0.067(3)
H(11A)	12.404	0.6729	0.3479	0.067(3)
H(12A)	10.724	0.5879	0.3728	0.067(3)
H(14A)	0.9223	0.6121	0.2076	0.067(3)
H(15A)	0.8801	0.5518	0.0850	0.067(3)
H(16A)	0.7145	0.4588	0.0733	0.067(3)
H(17A)	0.6149	0.4135	0.1872	0.067(3)
H(19A)	0.6424	0.4884	0.3811	0.067(3)
H(22A)	0.9238	0.3926	0.5445	0.067(3)
H(22B)	10.151	0.3895	0.4732	0.067(3)
H(22C)	10.111	0.3167	0.5346	0.067(3)
H(23A)	0.7244	0.2347	0.4777	0.067(3)
H(23B)	0.7453	0.2988	0.5462	0.067(3)
H(23C)	0.8314	0.2221	0.5379	0.067(3)
H(24A)	0.8719	0.2279	0.3632	0.067(3)
H(24B)	0.9790	0.2156	0.4234	0.067(3)
H(24C)	0.9830	0.2885	0.3620	0.067(3)
H(25A)	0.4616	0.5454	0.3191	0.067(3)
H(26A)	0.2535	0.5266	0.3079	0.067(3)
H(27A)	0.1669	0.3939	0.2941	0.067(3)
H(27B)	0.2292	0.4034	0.3773	0.067(3)
H(27C)	0.2947	0.3544	0.3094	0.067(3)
H(28A)	0.3602	0.5355	0.1913	0.067(3)
H(28B)	0.2443	0.4802	0.1812	0.067(3)
H(28C)	0.3720	0.4389	0.1918	0.067(3)

Atom	x	y	z	U_{eq}
H(30A)	0.2581	0.6282	0.5293	0.067(3)
H(30B)	0.3799	0.5858	0.5551	0.067(3)
H(30C)	0.2628	0.5323	0.5424	0.067(3)

2. Kreuzpeakprotokolle

Bei ^{1}H-^{1}H-COSY-Messungen sind Kreuzpeaks zwischen Signalen, deren Verschiebung sich um weniger als $\Delta\delta$ = 0.10 ppm unterscheiden, nicht eindeutig bestimmbar. Deshalb wird in den Kreuzpeakprotokollen im allgemeinen auf entsprechende Zuordnungen verzichtet.

2.1. *N*-[*o*-(Diphenylphosphino)-benzoyl]-*N*,*N*'-dicyclohexylharnstoff (43) (in $CDCl_3$)

^{13}C-Atom	^{13}C-NMR δ	DEPT	^{13}C-^{1}H-COSY δ
A	171.57	s	-
B	153.80	s	-
C	143.89	s	-
D	136.51	s	-
E	134.76	d	7.16 (c)
F	134.30	s	-
G	133.00	d	7.25-7.40 (a, b)
H	129.52	d	7.25-7.40 (a, b)
I	129.32	d	7.25-7.40 (a, b)
J	128.86	d	7.25-7.40 (a, b)
K	128.58	d	7.25-7.40 (a, b)
L	125.46	d	7.25-7.40 (a, b)
M	58.31	d	3.80 (e)
N	49.61	d	3.53 (f)
O	32.50	t	1.69 (j); 1.05 (o)
P	30.60	t	1.78 (i); 2.05-2.15 (g, h)
Q	26.24	t	1.69 (j); 1.05 (o)
R	25.54	t	1.53 (l); 1.10 (n)
S	25.21	t	1.53 (l)
T	24.75	t	1.62 (k); 1.28 (m)

^{1}H-Atom	^{1}H-NMR δ	^{1}H-^{1}H-COSY
a, b	7.25-7.40	
c	7.16	a, b
d	7.09	-
e	3.80	g, h, i
f	3.53	j, o
g, h	2.05-2.15	i, j, o
i	1.78	g, h, o
j	1.69	g, h, o
k	1.62	m
l	1.53	n
m	1.28	k, n, o
n	1.10	l
o	1.05	g, h, j

2.2. *N*-[*o*-(Diphenylphosphino)-benzoyl]-L-valinmethylester (25a) (in $CDCl_3$)

^{13}C-Atom	^{13}C-NMR δ	DEPT	^{13}C-^{1}H-COSY δ
A	172.29	s	-
B	168.72	s	-
C	141.04	s	-
D	137.19	s	-
E	137.15	s	-
F	136.28	s	-
G	134.40	d	6.97 (d)
H	133.88	d	7.23-7.34 (c)
I	130.40	d	7.23-7.34 (c)
J	128.80	d	7.39 (b); 7.23-7.34 (c)
K	128.70	d	7.39 (b); 7.23-7.34 (c)
L	128.64	d	7.23-7.34 (c)
M	128.59	d	7.23-7.34 (c)
N	128.54	d	7.23-7.34 (c)
O	128.48	d	7.23-7.34 (c)
P	127.88	d	7.65 (a)
Q	57.58	d	nicht untersucht
R	52.12	q	

^{13}C-Atom	^{13}C-NMR δ	DEPT	^{13}C-^{1}H-COSY δ
S	31.48	d	
T	18.08	q	nicht untersucht
U	18.01	q	

^{1}H-Atom	^{1}H-NMR δ	^{1}H-^{1}H-COSY
a	7.65	b
b	7.39	a, c
c	7.23-7.34	b, d
d	6.97	c
e	6.53	f
f	4.64	e, h
g	3.71	-
h	2.10	f, i, j
i	0.87	h, j
j	0.84	h, i

2.3. *N*-[*o*-(Diphenylphosphino)-benzoyl]-L-alaninmethylester (25b) (in $CDCl_3$)

^{13}C-Atom	^{13}C-NMR δ	DEPT	^{13}C-^{1}H-COSY δ
A	173.33	s	-
B	168.21	s	-
C	140.54	s	-
D	137.10	s	-
E	136.96	s	-
F	136.40	s	-
G	134.13	d	6.93-6.96
H	133.97	d	7.25-7.35
I	133.88	d	7.25-7.35
J	130.38	d	7.25-7.35
K	128.87	d	7.25-7.35
L	128.72	d	7.25-7.35
M	128.63	d	7.36-7.39
N	128.53	d	7.25-7.35
O	127.84	d	7.61-7.64
P	52.44	q	nicht untersucht

^{13}C-Atom	^{13}C-NMR δ	DEPT	^{13}C-^{1}H-COSY δ
Q	48.41	d	nicht untersucht
R	18.29	q	

2.4. *N*-[*o*-(Diphenylphosphino)-benzoyl]-L-glycinmethylester (25c) (in $CDCl_3$)

^{13}C-Atom	^{13}C-NMR δ	DEPT	^{13}C-^{1}H-COSY δ
A	170.22	s	-
B	168.75	s	-
C	140.20	s	-
D	137.09	s	-
E	136.95	s	-
F	134.30	d	7.00
G	133.89	d	7.28-7.35
H	130.53	d	7.28-7.35
I	128.80	d	7.28-7.35
J	128.73	d	7.37-7.40
K	128.56	d	7.28-7.35
L	127.76	d	7.65
M	52.41	q	nicht untersucht
N	41.66	q	

2.5. *N*-{1-(*N*-*tert*-Butylcarbamoyl)-[(*o*-methoxy)-benzyl]}-L-valinmethylester (61a) (in $CDCl_3$)

^{13}C-Atom	^{13}C-NMR δ	DEPT	^{13}C-^{1}H-COSY δ
A	174.74	s	-
B	171.33	s	-
C	157.00	s	-
D	129.26	d	7.33
E	128.81	d	7.25
F	127.84	s	-
G	120.98	d	6.94
H	110.83	d	6.88
I	65.39	d	2.95

^{13}C-Atom	^{13}C-NMR δ	DEPT	^{13}C-^{1}H-COSY δ
J	60.34	d	4.36
K	55.34	q	3.83
L	51.46	q	3.69
M	50.59	s	-
N	31.28	d	1.96
O	28.67	q	1.32
P	19.16	q	0.87
Q	18.45	q	0.91

2.6. *N*-{1-(*N*-*tert*-Butylcarbamoyl)-[(*o*-diphenylphosphino)-benzyl]}-L-valinmethylester (61c) (in $CDCl_3$)

^{13}C-Atom	^{13}C-NMR δ	DEPT	^{13}C-^{1}H-COSY δ
A	175.09	s	-
B	170.66	s	-
C	144.80	s	-
D	136.87	s	-
E	136.31	s	-
F	135.85	s	-
G	134.37	d	7.00
H	133.97	d	7.27-7.39
I	133.13	d	7.17-7.21
J	129.84	d	7.27-7.39
K	129.08	d	7.27-7.39
L	128.82	d	7.27-7.39
M	128.50	d	7.27-7.39
N	128.50	d	7.27-7.39
O	128.16	d	7.66
P	127.95	d	7.17-7.21
Q	64.10	d	2.78
R	61.73	d	5.22
S	51.47	d	3.62
T	50.88	s	-
U	31.47	d	1.83
V	28.34	q	1.08
W	19.18	q	0.82
X	18.33	q	0.87

2.7. *N*-{1-(*N*-Methylcarbamoyl)-[(*o*-diphenylphosphino)-benzyl]}-L-valinmethylester (61d) (in $CDCl_3$)

^{13}C-Atom	^{13}C-NMR δ	DEPT	^{13}C-^{1}H-COSY δ
A	175.19	s	-
B	171.93	s	-
C	144.07	s	-
D	136.79	s	-
E	136.49	s	-
F	135.89	s	-
G	134.37	d	7.30-7.39
H	134.15	d	6.99
I	133.36	d	7.19-7.24
J	129.86	d	7.30-7.39
K	129.25	d	7.30-7.39
L	128.84	d	7.30-7.39
M	128.65	d	7.30-7.39
N	128.63	d	7.30-7.39
O	128.46	d	7.66
P	128.17	d	7.19-7.24
Q	64.17	d	2.80
R	61.41	d	5.22
S	51.65	d	3.64
T	31.51	d	1.86
U	26.14	q	2.45
V	19.31	q	0.83
W	13.43	q	0.88

2.8. *N*-{1-(*N*-(2,4,6-Trimethylphenylcarbamoyl)-[(*o*-diphenylphosphino)-benzyl]}-L-valinmethylester (61f) (in DMSO-D_6 und $CDCl_3$)

		in DMSO-D_6		in $CDCl_3$	
^{13}C-Atom	**DEPT**	**^{13}C-NMR** δ	**^{13}C-^{1}H-COSY** δ	**^{13}C-NMR** δ	**^{13}C-^{1}H-COSY** δ
A	s	174.31	-	174.99	-
B	s	169.92	-	169.95	-
C	s	145.00	-	144.46	-
D	s	137.15	-	136.52	-
E	s	136.92	-	136.39	-
F	s	136.39	-	136.30	-
G	s	135.67	-	135.65	-
H	s	135.17	-	135.03	-
I	d	134.70	6.99	134.21	6.99
J	d	133.40	7.15-7.48	134.17	7.19-7.38
K	d	133.12	7.15-7.48	133.48	7.19-7.38
L	s	132.23	-	130.87	-
M	d	129.78	7.15-7.48	129.85	7.41
N	d	128.84	7.15-7.48	129.27	7.19-7.38
O	d	128.82	7.15-7.48	128.89	7.19-7.38
P	d	128.75	7.15-7.48	128.84	7.19-7.38
Q	d	128.70	7.15-7.48	128.70	7.78
R	d	128.35	6.82	128.64	6.77
S	d	128.22	7.15-7.48	128.32	7.19-7.38
T	d	128.10	7.72		
U	d	64.07	2.79	64.09	2.82
V	d	62.04	5.44	61.43	5.44
W	q	51.56	3.51	51.61	3.61
X	d	31.16	1.76	31.50	1.88
Y	q	20.64	2.19	20.88	2.21
Z1	q	19.03	0.70	19.30	0.83
Z2	q	18.35	0.76	18.30	0.87
Z3	q	18.00	1.94	18.07	1.88

(in $CDCl_3$)

^{13}C-Atom	^{13}C-NMR δ	DEPT	^{13}C-^{1}H-COSY δ
A	174.99	s	-
B	169.95	s	-
C	144.46	s	-
D	136.52	s	-
E	136.39	s	-
F	136.30	s	-
G	135.65	s	-
H	135.03	s	-
I	134.21	d	6.99
J	134.16	d	7.19-7.38
K	133.48	d	7.19-7.38
L	130.87	s	-
M	129.85	d	7.41
N	129.27	d	7.19-7.38
O	128.89	d	7.19-7.38
P	128.84	d	7.19-7.38
Q	128.70	d	7.78
R	128.64	d	6.77
S	128.32	d	7.19-7.38
T	64.09	d	2.82
U	61.43	d	5.44
V	51.61	q	3.61
W	31.50	d	1.88
X	20.88	q	2.21
Y	19.30	q	0.83
Z1	18.30	q	0.87
Z2	18.07	q	1.88

2.9. *N*-{1-(*N*-Methylcarbamoyl)-[(*o*-diphenylphosphinoyl)-benzyl]}-L-valinmethylester (61h) (in $CDCl_3$)

^{13}C-Atom	^{13}C-NMR δ	DEPT	^{13}C-^{1}H-COSY δ
A	174.57	s	-
B	172.03	s	-
C	147.46	s	-

^{13}C-Atom	^{13}C-NMR δ	DEPT	^{13}C-^{1}H-COSY δ
D	132.80	d	7.45-7.65
E	132.86	d	6.91
F	132.49	d	7.45-7.65
G	132.31	d	7.45-7.65
H	132.28	d	7.45-7.65
I	132.19	s	-
J	131.64	d	7.45-7.65
K	131.53	s	-
L	130.24	d	7.96
M	128.90	d	7.45-7.65
N	129.19	s	-
O	128.70	d	7.45-7.65
P	126.66	d	7.19
Q	65.08	d	2.07
R	60.95	d	4.87
S	51.32	q	3.49
T	31.21	d	1.60
U	26.32	q	2.74
V	19.77	q	0.64
W	18.03	q	0.70

2.10. 1-Hydroxy-1-(o-hydroxyphenyl)-2-[o-(imino-methyl)-phenol)-ethan (S6)
(in DMSO-D_6)

^{13}C-Atom	^{13}C-NMR δ	DEPT	^{13}C-^{1}H-COSY δ
A	166.81	d	8.46 (c)
B	161.36	s	-
C	153.82	s	-
D	132.37	d	7.30 (f)
E	131.81	d	7.40 (d)
F	129.77	s	-
G	127.84	d	7.05 (g)
H	126.96	d	7.36 (e)
I	118.96	d	6.77-6.81 (j, k)
J	118.85	s	-
K	118.37	d	6.84-6.87 (h, i)

^{13}C-Atom	^{13}C-NMR δ	DEPT	^{13}C-^{1}H-COSY δ
L	116.78	d	6.84-6.87 (h, i)
M	114.96	d	6.77-6.81 (j, k)
N	66.89	d	5.12 (m)
O	64.79	t	3.88 (n); 3.54 (o)

^{1}H-Atom	^{1}H-NMR δ	^{1}H-^{1}H-COSY
a	13.63	-
b	9.49	-
c	8.46	-
d	7.40	h, i, j, k
e	7.36	j, k
f	7.30	h, i
g	7.05	j, k
h, i	6.84-6.87	d, g
j, k	6.77-6.81	e, g
l	5.36	m
m	5.12	l, n, o
n	3.88	m, o
o	3.54	m, n

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