Supporting Information

$^1$H-, $^{13}$C- and $^{31}$P-NMR spectra

$^1$H-NMR (600 MHz, D$_2$O) of Compound 4

DQF-COSY-NMR (600 MHz, D$_2$O) of Compound 4
HSQC-NMR (600 MHz, D$_2$O) of Compound 4

$^{31}$P-NMR (242.9 MHz, D$_2$O) of Compound 4
SED-NMR (600 MHz, D$_2$O) of Compound 4

$^1$H-NMR (500 MHz, CDCl$_3$) of Compound 8
$^{13}$C-NMR (125.8 MHz, CDCl$_3$) of Compound 8

HSQC-NMR (500 MHz, D$_2$O) of Compound 8
$^1$H-NMR (500 MHz, CDCl$_3$) of Compound 9

HSQC-NMR (500 MHz, CDCl$_3$) of Compound 9
$^1$H-NMR (500 MHz, CDCl$_3$) of Compound 10

HSQC-NMR (500 MHz, CDCl$_3$) of Compound 10
$^{31}$P-NMR (161.9 MHz, CDCl$_3$) of Compound 10

$^1$H-NMR (500 MHz, CDCl$_3$) of Compound 11
(mixture of diastereoisomers, containing an inseparable cyclohexenyl diphenylphosphine oxide impurity)
$^1$H-NMR (600 MHz, CD$_3$OD) of Compound 12

HSQC-NMR (600 MHz, CD$_3$OD) of Compound 12
$^{31}$P-NMR (161.9 MHz, CD$_3$OD) of Compound 12