Supporting Information

S-[3-Cyano-2-oxo-3-(triphenyl-λ^5-phosphanylidene)propyl] *O*-ethyl Carbonodithioate: A Novel Xanthate Reagent for the Synthesis of α-keto (cyanomethylene)triphenylphosphorane Ylides from Olefins

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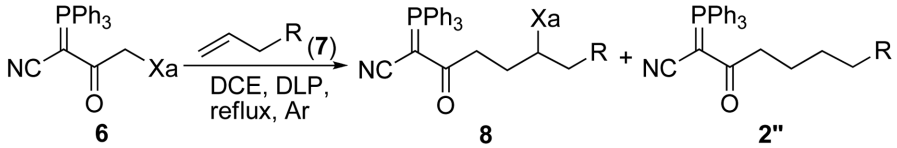
Table 1. Concomitant radical addition/partial reduction of xanthate **6** to olefins **7** to provide xanthate adducts **8** & reduced adducts **2"** (where Xa = -S(C=S)OEt).[a]



6 **8** **2"**

Run	**7**	R =	DLP (eq)[b]	time (h)	**8**/**2"** (Yield)[c,d]
1	**7a**	-$(CH_2)_4$Me[e]	0.3	3	**8a**/**2"a** (72/4)
2	**7a**	-$(CH_2)_4$Me[f]	0.3	3	**8a**/**2"a** (75/7)
3	**7a**	-$(CH_2)_4$Me	0.3	3	**8a**/**2"a** (77/7)
4	**7b**	-Ph	0.3	3	**8b**/**2"b** (69/7)
5	**7c**	2-Cyclohexanoyl-	0.3	3	**8c**/**2"c** (78/5)
6	**7d**	-OAc	0.3	3	**8d**/**2"d** (62/9)
7	**7e**	-CN	0.6[g]	4.5	**8e**/**2"e** (60/9)
8	**7f**	-$OCOCH_2CN$	0.3	3	**8f**/**2"f** (60/7)
9	**7g**	-OCO_2Ph	0.3	3	**8g**/**2"g** (76/5)
10	**7h**	-OCH_2Ph	0.6[g]	4.5	**8h**/**2"h** (52/6)

a: Xanthate **6** (0.4 mmol), DCE (2.0 mL), olefin (3.0 eq), reflux, 15 min, cooled to rt, DLP, reflux for designated time, Ar; b: DLP (0.1 eq) was added every hour for designated time; c: Isolated yield by flash column chromatography on SiO_2; d: Isolated yield was calculated based on the amounts of xanthate **6** used; e:1-Octene (2.0 eq) was used; f:1-Octene (2.5 eq) was used; g: DLP (0.2 eq) was added every 1.5 hour for designated time.