

Bi- and Tri-nuclear Complexes of Group 4 Metal and Pd Bridged by OPPh₂ Groups: Synthesis and High Catalytic Activities in Double Hydrophosphinylation of 1-Octyne

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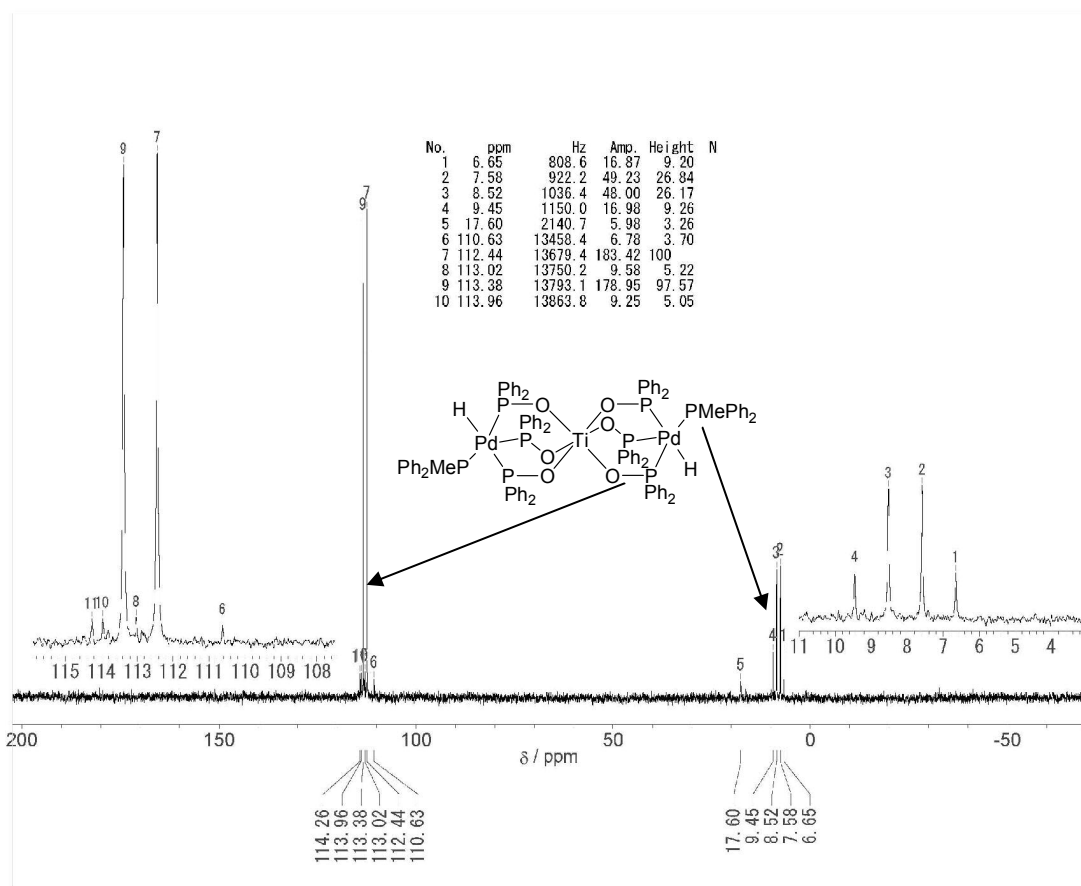


Figure S1. $^{31}\text{P}\{^1\text{H}\}$ NMR spectrum of the Pd-Ti-Pd complex **6**.

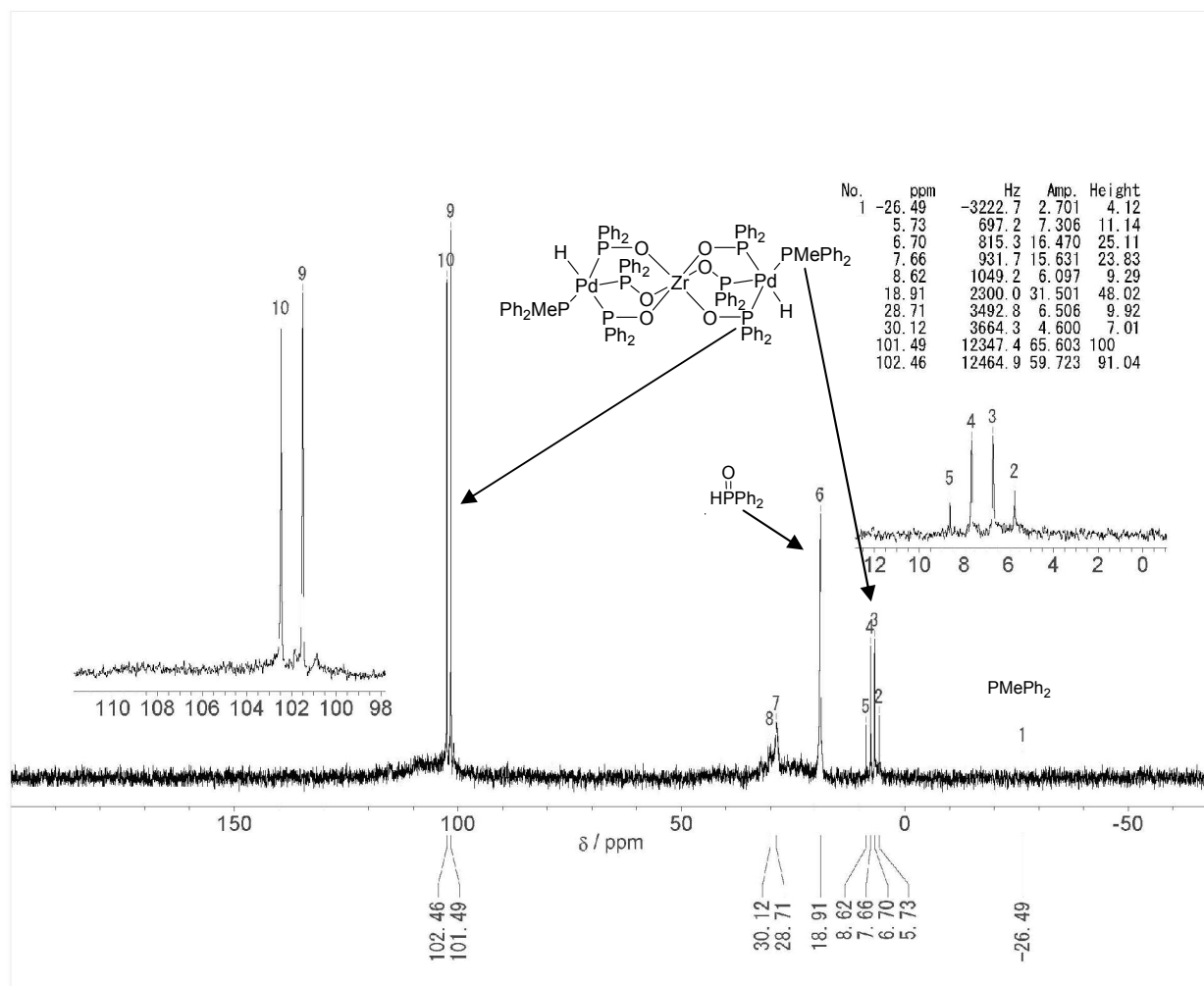


Figure S2. $^{31}\text{P}\{^1\text{H}\}$ NMR spectrum of the reaction mixture obtained by the treatment of the Zr-Pd complex **2** with $\text{HP}(\text{O})\text{Ph}_2$ and PMePh_2 .

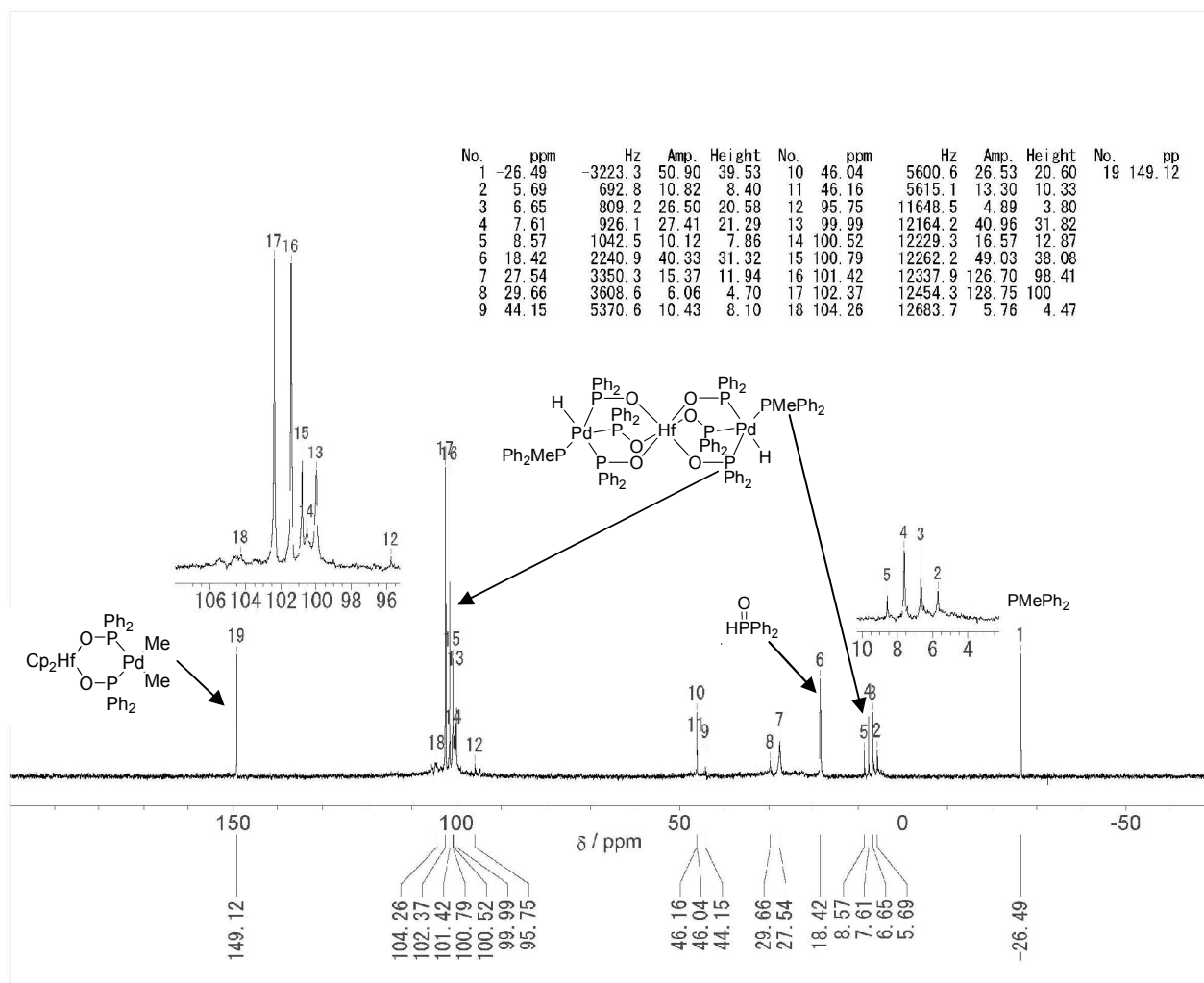


Figure S3. $^{31}\text{P}\{^1\text{H}\}$ NMR spectrum of the reaction mixture obtained by the treatment of the Hf-Pd complex **3** with $\text{HP}(\text{O})\text{Ph}_2$ and PMePh_2 .

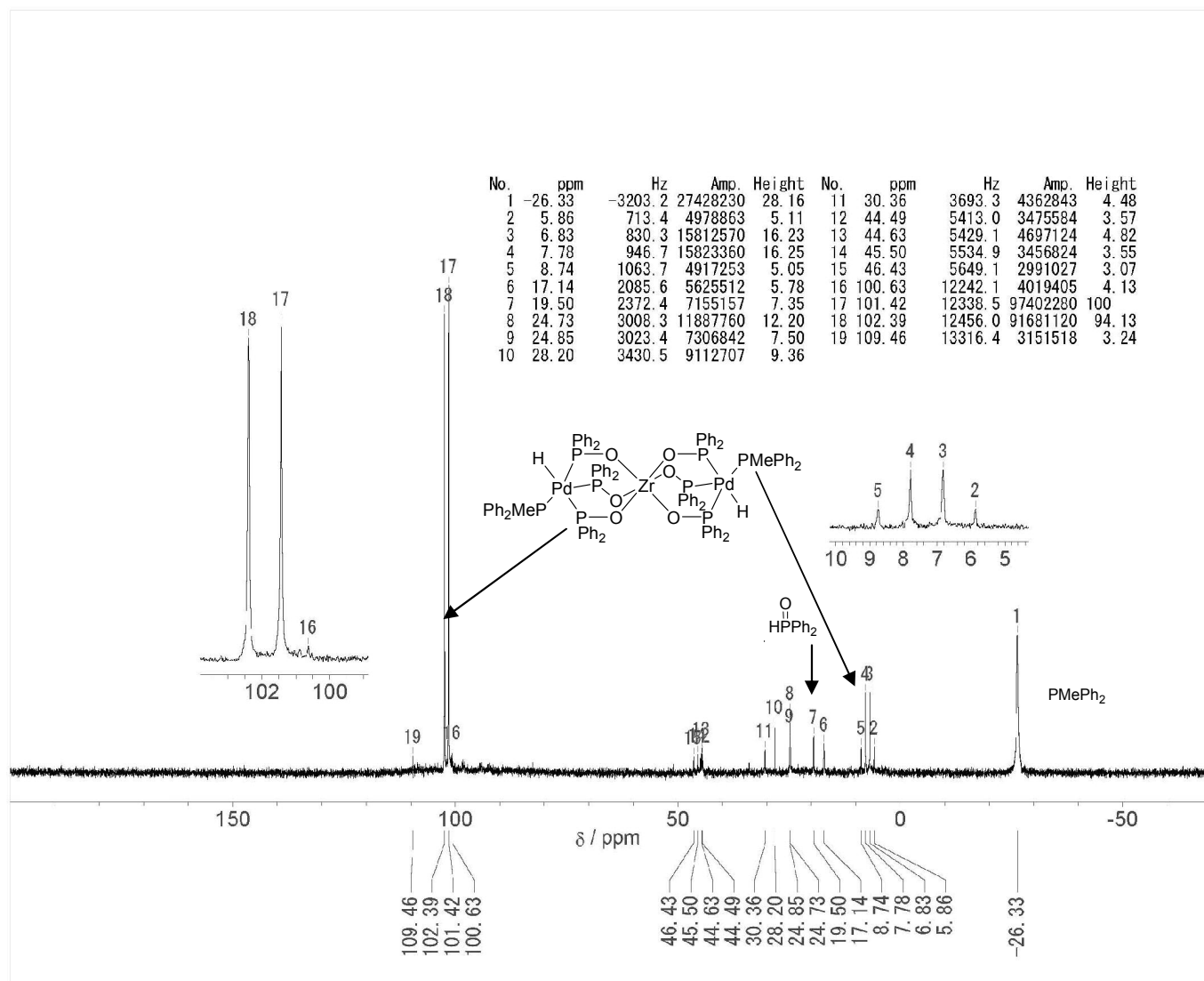


Figure S4. $^{31}\text{P}\{^1\text{H}\}$ NMR spectrum of the reaction mixture obtained by the treatment of the Cp_2ZrCl_2 and $\text{PdMe}_2(\text{tmeda})$ with $\text{HP}(\text{O})\text{Ph}_2$ and PMePh_2 .

