Electronic Supplementary Information for:

Palladium Metal Nanoparticles Stabilized by Ionophilic Ligands in Ionic Liquids: Synthesis and Application in Hydrogenation Reactions

Bárbara C. Leal, Crestina S. Consorti, Giovanna Machado, and Jairton Dupont* Laboratory of Molecular Catalysis, Instituto de Química – UFRGS. Av. Bento Gonçalves 9500, 91501-970, CP 15003, Porto Alegre, RS, Brazil.

Fax +55(51)33086321. E-mail: jairton.dupont@ufrgs.br

General Procedures

NMR spectra were recorded on a Varian XL300 spectrometer. Gas chromatography analyses were performed on a Shimadzu column DB-17 GC with a FID and 30 meter capillary column with a dimethylsiloxane stationary phase. ESI-MS(+) experiment were performed on a Q-Tof (Micromass) mass spectrometer. The ESI-MS mass spectra were acquired using an ESI capillary voltage of 3 kV and a cone voltage of 10 V. Samples for analysis of transmission electron microscopy were dispersed in acetone and deposited on a copper grid (300 mesh) coated with a carbon film. These samples were analyzed using the apparatus JEOL JEM-1200ExII 120 kV microscope operating at 80 kV (*UFRGS-CME*, Brazil). The HRTEM was performed at the "*Centro de Tecnologias Estratégicas do Nordeste*" (*CETENE*), Recife/Brazil, using the microscopy TECNAI20 200 kV. NPs size distribution charts were constructed for measurements of a population of at least 200 different NPs assuming a near spherical shape and random orientation.



Figure S1. (a) TEM image showing $[Pd(0)]_n$ nanoparticles in BMI·BF₄; (b) Histogram illustrating the size distribution of $[Pd(0)]_n$ nanoparticles.



Figure S2. (a) TEM image showing $[Pd(0)]_n$ *nanoparticles stabilized by* **L1** *in BMI*·*BF*₄; *(b) Histogram ilustrating the size distribution of* $[Pd(0)]_n$ *nanoparticles.*



Figure S3. (a) *TEM image showing* $[Pd(0)]_n$ *nanoparticles stabilized by* **L2** *in BMI*·*BF*₄; (b) *Histogram ilustrating the size distribution of* $[Pd(0)]_n$ *nanoparticles.*



Figure S4. (a) TEM image showing $[Pd(0)]_n$ *nanoparticles stabilized by* **L4** *in BMI*·*BF*₄; *(b) Histogram ilustrating the size distribution of* $[Pd(0)]_n$ *nanoparticles.*



Figure S5. (a) TEM image showing $[Pd(0)]_n$ *nanoparticles stabilized by* **L5** *in BMI*·*BF*₄*; (b) Histogram ilustrating the size distribution of* $[Pd(0)]_n$ *nanoparticles.*



Figure S6. ¹H (top) and ¹³C NMR of (2-(4-methylpyridin-2-yl)pyridin-4-yl)methanol in DMSO-*d*₆ (RT).



Figure S7. ¹H (top) and ¹³C (APT) NMR of L1 in DMSO- d_6 (RT).



Figure S8. ¹H (top) and ¹³C NMR of L5 in DMSO- d_6 (RT).



Figure S9. ³¹P NMR of [Pd(acac)(COD)]BF₄ + L3 (top) and $[Pd(0)]_n$ -NPs + L3.