Supporting Information
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Electronic Supplementary Information for

Heterogeneous transition metal-free alcohol oxidation by graphene oxide supported 2-iodobenzoic acid in water

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General and procedure

1. General
Graphite flakes (SP-1, Alfa Aesar [99%; 325 mesh]), H₂O₂, sulfuric acid (H₂SO₄), potassium permanganate (KMnO₄), phosphoric acid (H₃PO₄), ethylene diamine, N-(3-dimethylaminopropyl)-N’-ethylcarbodiimide hydrochloride (EDC), N,N’-diisopropylcarbodiimide (DIC) 2-iodobenzoic acid (IBA), 1-hydroxybenzotriazole hydrate (HOBt, >97%), Oxone®, methane sulfonic acid and N,N-diisopropylethylamine (DIPEA) were purchased from Sigma-Aldrich. N,N-dimethylformamide (DMF, HPLC grade) was purchased from Baker Chemical Industry. Primary and secondary alcohol substrates were prepared from Sigma-Aldrich and Tokyo Chemical Industry. All reagents were used without any further purification.

2. Characterization
A gas chromatography instrument (Younlin GC-6500 series) was equipped with a flame ionization detector (FID) and a HP-INNOWAX capillary column (30m × 0.25mm, 0.25μm). The mass spectra were recorded on Hewlett Packered 6890 series GC system (Hewlett Packered) with 5973 mass selective detector at an ionization voltage of 70 eV equipped with a DB-5 capillary column (30m × 0.25mm, 0.25μm). The X-ray photoelectron spectra (XPS) was obtained on a SIGMA PROBE (ThermoVG, U.K) equipped with a full 180 degree spherical sector analyzer to examine the chemical composition of the elements. The photon source was from an Al anode at 15 kV. Field-emission scanning electron microscope (FE-SEM) images were obtained on a SUPRA 55VP (Carl Zeiss, Germany), which was operated at 15kV and equipped with an energy dispersive spectrometer (EDS). Elemental analysis for transition metals was conducted using an inductively coupled plasma emission spectrometer (ICP, Shimadzu ICPS-7510). The high resolution transmission electron microscope (HR-TEM) analysis was performed on a JEOL JEM-3010 operating at 300 kV, for which samples were deposited on a 300 mesh holey carbon grid.
Figure S1. FT-IR spectra of (a) GO, (b) amino functionalized GO (GO-NH$_2$), (c) GO-IBA and (d) GO-IBX (continued)
Figure S1. FT-IR spectra of (a) GO, (b) amino functionalized GO (GO-NH$_2$), (c) GO-IBA and (d) GO-IBX amide
Figure S2. XRD patterns of natural graphite (black), GO (red), GO-NH$_2$ (blue), GO-IBA (green), and GO-IBX (purple).