Supporting Information

Determination of the isotopic composition of osmium using MC-ICPMS

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Table S1. MC-ICP-MS operating conditions

Instrument settings	
Reflected forward power, *P*	1245 to 1350 W
Argon plasma gas flow rate	16.0 L min^{-1}
Argon auxiliary gas flow rate	1.00 L min^{-1}
Argon carrier gas flow rate	1.010 - 1.035 L min^{-1}
Sampler cone depth (Ni)	1.1 mm
Skimmer cone depth (H, Ni)	0.8 mm
Lens settings	Optimized for maximum and stable analyte signal intensity while maintain flat top peak
Data acquisition parameters	
Faraday cup configuration	Main: L4 (^{184}Os), L3 (^{186}Os), L2 (^{187}Os), L1 (^{188}Os), C (^{189}Os), H1 (^{190}Os), H2 (^{191}Ir) and H3 (^{193}Ir) Sub: L3 (^{187}Os), L2 (^{188}Os), L1 (^{189}Os), C (^{190}Os), H1 (^{191}Os), H2 (^{192}Os) and H3 (^{193}Ir)
Mass resolution, $m/\Delta m$ (at 5 % and 95 % peak height)	300
Signal integration time	4.192 s
Number of integrations, cycles, and blocks	1, 8, 5
Sensitivity	28.7 V/ppm for $^{192}Os^+$
Blank intensity in 1 % HCl	0.0004, 0.11, 0.17, 0.12, 1.0, 1.2, 0.12, 3.2 and 0.29 mV for $^{184}Os^+$, $^{186}Os^+$, $^{187}Os^+$, $^{188}Os^+$, $^{189}Os^+$, $^{190}Os^+$, $^{191}Ir^+$, $^{192}Os^+$ and $^{193}Ir^+$, respectively.

Table S2. Possible interferences on measured isotopes

Isotopes	Possible Interferences
$^{184}Os^{+}$	$^{168}Er^{16}O^{+}$, $^{168}Yb^{16}O^{+}$, $^{184}W^{+}$
$^{186}Os^{+}$	$^{170}Er^{16}O^{+}$, $^{170}Yb^{16}O^{+}$, $^{169}Tm^{16}O^{1}H^{+}$, $^{186}W^{+}$
$^{187}Os^{+}$	$^{171}Yb^{16}O^{+}$, $^{170}Er^{16}O^{1}H^{+}$, $^{170}Yb^{16}O^{1}H^{+}$, $^{187}Re^{+}$
$^{188}Os^{+}$	$^{172}Yb^{16}O^{+}$ or $^{171}Yb^{16}O^{1}H^{+}$
$^{189}Os^{+}$	$^{173}Yb^{16}O^{+}$, $^{172}Yb^{16}O^{1}H^{+}$
$^{190}Os^{+}$	$^{174}Yb^{16}O^{+}$, $^{174}Hf^{16}O^{+}$, $^{173}Yb^{16}O^{1}H^{+}$, $^{190}Pt^{+}$
$^{192}Os^{+}$	$^{176}Yb^{16}O^{+}$, $^{176}Hf^{16}O^{+}$, $^{175}Lu^{16}O^{1}H^{+}$, ^{192}Pt
$^{191}Ir^{+}$	$^{175}Lu^{16}O^{+}$, $^{174}Yb^{16}O^{1}H^{+}$
$^{193}Ir^{+}$	$^{177}Hf^{16}O^{+}$ or $^{176}Yb^{16}O^{1}H^{+}$