

Dose Uptake of Platinum- and Ruthenium-based Compound Exposure in Zebrafish by Inductively Coupled Plasma Mass Spectrometry with Broader Applications

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Materials

Name	Company	Catalog Number	Comments
AB Strain Zebrafish (<i>Danio rerio</i>)	Zebrafish International Resource Center	Wild-Type AB	Wild-Type AB Zebrafish
ACS Grade Nitric Acid	VWR BDH Chemicals	BDH3130-2.5LP	Nitric Acid (68-70%); used to make 10% HNO ₃ acid-bath solution for soaking/pre-cleaning centrifuge tubes
Aquatox Fish Diet (Flake)	Zeigler Bros, Inc.		Flake food to be mixed in a 1:4 ratio of Aquatox Fish Diet to TetraMin Tropical Flakes and used as feed
Artemia cysts, brine shrimp	PentairAES	BS90	Brine shrimp eggs sold in 15-ozz, vacuum-packed cans to be hatched and used as feed
ASX-510 Autosampler for ICPMS	Teledyne CETAC		Automatic sampler with configurable XYZ movement, flowing rinse station, and 0.3 mm inner dimension probe. Compatible with Nu AttoLab software for programmable batch analyses.
Centrifuge	Thermo Scientific	CL 2	Thermo Scientific CL 2 compact benchtop centrifuge with variable speed range up to 5200 rpm; used to bring sample and acid condensate to the bottom of the centrifuge tube between microwave digestion intervals; aids in sample retention
Centrifuge tubes	VWR	21008-105	Ultra high performance polypropylene centrifuge tubes with flat cap; 15 mL volume; leak-proof with conical bottom
Class A Clear Glass Threaded Vials	Fisherbrand	03-339-25B	Individual glass vials for exposure containment
Dimethyl Sulfoxide	Millipore Sigma	D8418	Solvent or vehicle for hydrophobic compounds

Fixed Speed Vortex Mixer	VWR	10153-834	Vortex mixer; used to homogenize sample after acid digestion and dilution
High Purity Hydrogen Peroxide	Merk KGaA, EDM Millipore	1.07298.0250	Suprapur Hydrogen peroxide (30%); used for sample digestion
High Purity Nitric Acid	EDM Millipore	NX0408-2	Omni Trace Ultra Nitric Acid (69%); used for sample digestion
Instant Ocean Sea Salt	Spectrum Brands, Inc.	Instant Ocean® Sea Salt	Egg water solution contains instant ocean sea salt with a final concentration of 60 µg/ml
Mars X Microwave Digestion System	CEM, Matthews, NC		Microwave acid digestion system used to digest and homogenize samples under uniform conditions. For this methodology the open vessel digestion method was completed using single-use polypropylene centrifuge tubes at low power (300 W).
Multi-element Solution 3	SPEX CertiPREP	CLMS-3	Contains 10 mg/L Au, Hf, Ir, Pd, Pt, Fe, Sb, Sr, Te, Sn in 10% HCl/1% HNO ₃ ; used as a quality control standard for Pt and Ru analyses
Nu Instruments AttoM High Resolution Inductively Coupled Plasma Mass Spectrometer (HR-ICP-MS)	Nu Instruments/Amatek		Double focussing magnetic sector inductively coupled plasma mass spectrometer with flexible low to high resolution slit system, and dynamic range detector system. Data processing and quantification is done using NuQuant companion software.
Platinum (Pt) standard solution, NIST 3140	National Institute of Standards and Technology	3140	Prepared from ampoule containing 9.996 mg/g Pt in 10% HCl; ; used as a quality control standard for Pt analyses
Platinum (Pt) standard solution, single-element	High Purity Standards	100040-2	Contains 1000 mg/L Pt in 5% HCl
Ruthenium (Ru) standard solution, single-element	High Purity Standards	100046-2	Contains 1000 mg/L Ru in 2% HCl
TetraMin Tropical Flakes	Tetra	77101	Flake food to be mixed in a 1:4 ratio of Aquatox Fish Diet to TetraMin Tropical Flakes and used as feed
Trace Metal Grade Nitric Acid	VWR BDH Chemicals	87003-261	Aristar Plus Nitric Acid (67-70%); used for rinse solution in ASX-510 Autosampler
Ultrasonic water bath	VWR	B2500A-DTH	Ultrasonic water bath used to aid in acid digestion prior to microwave digestion